The Baltinglass Landscape and the Hillforts of Bronze Age Ireland

Volume 1 of 2

Main Text

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ABSTRACT

Around 1400 BC, Bronze Age communities in many parts Ireland began to construct large enclosures, known as hillforts, on strategically positioned hilltops overlooking broad expanses of lowland. The enclosing elements acted as the visible manifestation of elite authority and power, and the perceived ownership of the land, people and resources within a particular territory. As a central place in the local landscape, the hillfort performed multiple functions for a disparate community, and became a symbol of communal identity. Evidence for the comprehensive destruction of some hillforts suggests they were targeted by rival groups who may have sought to seize control of a local routeway, resource or people. Hillforts are often considered indicative of Late Bronze Age warfaring practices. In Ireland, the emergence of this monument type coincided with the first appearance of the sword and shield, and can be linked with a European-wide warrior tradition. This coincided with a sudden and severe intensification of hillfort construction on the Continent, many of which, upon excavation, have shown evidence of destruction and violence.

The Late Bronze Age in Ireland and Europe is generally regarded as an important period of social, economic and political re-organisation, with the construction of hillforts at the centre of these changes in society. They can provide information about the socio-political and economic climate of the period, as well as the nature and scale of conflict, inter-personal violence and power. Despite this, research of Irish hillforts is a neglected field that has not kept pace with hillfort studies in Britain or the Continent.

The project will focus on a group of monuments near Baltinglass, Co. Wicklow, described by Condit as 'Ireland's hillfort capital'. This will be the first comprehensive interdisciplinary study of that landscape and the first detailed study of any hillfort cluster in prehistoric Ireland. The Wicklow cluster comprises nine of the largest hillforts in Ireland. The project provides an opportunity to expand our knowledge of this unique grouping, as well as the entire corpus of Irish hillforts. The results help contextualize the significance of this area on a national level, assessing its socio-political, economic and ideological importance in contemporary society. More specifically, it assesses the form, functions, economy and strategic positioning of these monuments, using a combination of desk-top research, GIS (Geographic Information Systems), LiDAR (Light Detecting and Ranging), geophysical surveying techniques and conventional fieldwork.

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CHAPTER 1

INTRODUCTION

This thesis represents a detailed study of a group of nine large hilltop enclosures, known as hillforts, in the Baltinglass area of Co. Wicklow, described by one researcher as Ireland's hillfort capital' (Condit 1992). Although there are approximately 108 recorded examples of this site type in Ireland, they generally occur in isolation, making this cluster unique and highly significant in an Irish context. The individual hillforts are some of the largest and most elaborate monuments in Ireland, and include the 131ha enclosure of Spinans Hill 2, arguably the largest archaeological monument on the island.

The Baltinglass group is located on the highest point of a series of prominent hills at the southwestern edge of the Wicklow Mountains, at the border of counties Wicklow and Kildare (Fig. 1.1). The sites are strategically positioned at the interface of a number of different ecosystems (upland; lowland; river plain), allowing access to a variety of natural resources. They are also located close to the Slaney River, a river system that extends west and then south from the Wicklow Mountains, through Wicklow, Carlow and Wexford.

The importance of the Baltinglass group has been noted by a number of researchers. Early scholars such as Thomas Westropp and Liam Price identified the significance of these monuments in the early part of the 20th Century. Condit (1992; 1998) brought these sites to attention in the modern era. He was the first to identify Spinans Hill 2, a massive hillfort some 131ha in extent, as the largest hillfort in Ireland (Condit 1992). A subsequent paper examined the significance of the Baltinglass group, highlighting the unique size and complexity of the individual hillforts (Condit 1998). Raftery (1994, 63), Waddell (1998, 356), Condit (1992; 1998) and Grogan (2005b, 124) briefly discuss this 'remarkable concentration of hillforts', but do not critically examine the sites or produce new data.

This thesis is the first study to apply modern survey techniques and GIS analysis, in an attempt to understand the significance of this hillfort landscape. The work specifically addresses the socio-political, economic and ideological importance of these sites in Bronze Age society. While this study of the Baltinglass forts attempts to broaden our knowledge of this significant

prehistoric landscape, the project also offered an opportunity to review the entire corpus of Irish hillforts.

Irish hillfort studies have not kept pace with British or Continental research. In the past this resulted in a lack of understanding of this important monument type, as well as a reliance on external interpretations. This was the situation up until the 1970's when hillforts in Ireland were regarded as Iron Age mainly because most British examples are dated to that period. Excavations in recent decades have confirmed that many Irish sites are Bronze Age in date. This in turn has implications on interpreting the function of these monuments, as there are significant cultural and economic differences between these periods.

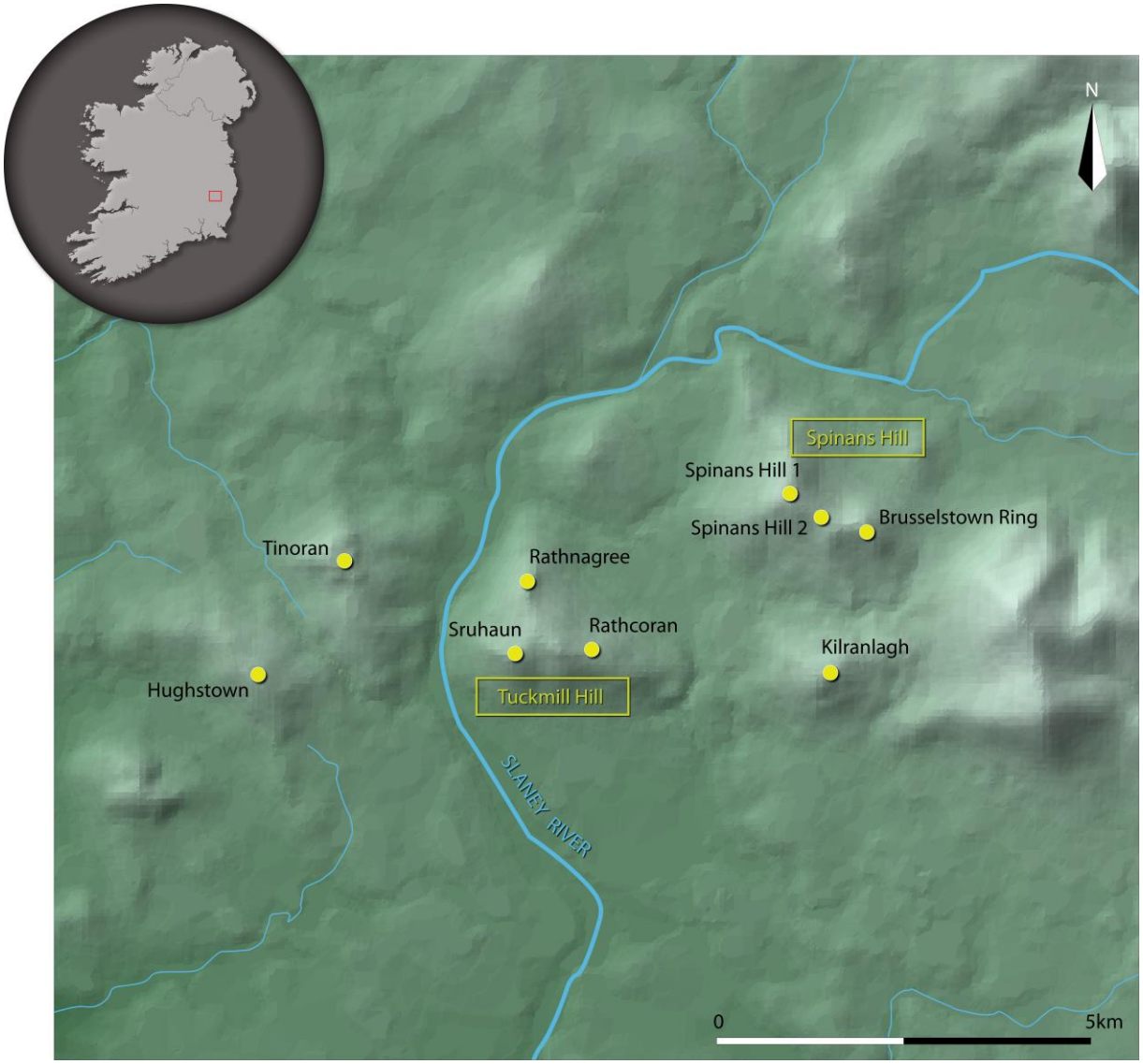

Fig. 1.1: The Baltinglass hillfort group.

1.1 RESEARCH AIMS

In addition to creating a comprehensive database of Irish hillforts, the study aims to assess the form, functions, economy and strategic positioning of these monuments using a combination of desk-top research, GIS (Geographic Information Systems), LiDAR (Light Detecting and Ranging), GPS (Global Positioning System), geophysical surveying techniques and conventional fieldwork. As such, this is the first comprehensive interdisciplinary study of the Baltinglass landscape and the first detailed study of any hillfort cluster in prehistoric Ireland. Specialised reports are included in this work as appendices. The project has a number of specific aims:

- To record in detail the archaeology of this hillfort landscape in south-west Wicklow. The survey programme has led to the discovery of two new hillforts in the complex.

- To assess the topographical setting of these hillforts using LiDAR and GPS surveys in combination with GIS analysis and visualisation of this landscape. The study will identify topographical trends associated with the positioning of these hillforts, and contextualize these in relation to other examples in Ireland.

- To examine and record the design and form of the different types of hillforts in the Wicklow cluster. Studying these differences may help to understand the significance of multivallation, enclosure shape, iconography and defensibility of hillforts in Ireland. The results will help to improve Raftery's (1972) original classification of these monuments. Particular emphasis will be given to defensive features to better understand the perceived threat and type of warfare practiced during this period of prehistory.

- To understand hillfort construction techniques. This may be assessed through analysis of Rathcoran hillfort, interpreted by some as an unfinished hillfort (the only known example in Ireland). This may increase knowledge of how hillforts were constructed and help to address theories relating to the social importance of 'community building' through hillfort construction (Sharples 2007; 2010).

- To assess the function(s) of hillforts in the Wicklow cluster, with reference to similar sites elsewhere in Ireland. Mitchell and Ryan (1997) proposed two interesting scenarios for explaining the function of this particular hillfort complex. The first views the hillforts as tribal centres that moved from hilltop to hilltop within the Baltinglass landscape over a period of time. The second suggests the hillforts were defensive structures of opposing polities, being 'rival works inspired by competitive emulation'. While this may not apply to examples in very close proximity, such as those in the Tuckmill Hill or Spinans Hill clusters, the idea of competition offers an insight into warfare and social interaction between different political groupings.

- To address the significance of these hillforts in contemporary society in respect of settlement organization and economy, ceremony and ritual. Surface evidence of occupation is not common at Irish hillforts; however, the discovery of hut sites at Rathcoran (No: 92) and Brusselstown Ring (No: 15) point to a considerable population and contrasts with the limited evidence for settlement activity at Rathnagree (No: 94) for example. This phenomenon of the 'empty hillfort' requires explanation as it has been noted in other sites in Ireland; for example, O'Brien's recent excavation of Clashanimud (Catalogue Number: 26) hillfort in Co. Cork.

- To examine hillfort clusters as a wider phenomenon in Ireland. While the Wicklow cluster of hillforts is unique and possibly significant at a national level, smaller groups of hillforts exist. A number of hillforts occur in pairs, including the well-known site of Rathgall (No: 90) hillfort in Wicklow, which has a large multivallate hillfort 230m to its north. This and other examples such as Friarstown (No: 46 and 47), Co. Limerick, will be assessed using the same methodology as the Baltinglass study, in an effort to contextualize the significance of other hillfort clusters in Ireland.

The results of this study should help to contextualise the significance of the Baltinglass area on a national level, assessing the socio-political, economic and ideological importance of these hillforts in Bronze Age and later societies. The critical questions of function, economy, strategic positioning and dating will be addressed, and the results considered in the context of the entire corpus of Irish hillforts and similar monuments in Britain and the Continent. Analysis of other

hillfort groups throughout Ireland will support this research and help to compare or differentiate the Baltinglass cluster with other hillforts.

This thesis developed out of a larger project (*Hillforts, Warfare and Society in Bronze Age Ireland*), which was established in 2011 by the supervisor, Professor William O'Brien, with funding from the Irish Research Council. That project examined archaeological evidence for inter-regional conflicts during the Bronze Age, with reference to the special position of hillforts (O'Brien and O'Driscoll forthcoming). This is the first study undertaken on the subject of warfare in late prehistoric Ireland. It examined the archaeological evidence for inter-regional conflicts in the Bronze Age, with a particular focus on the significance of hillforts. This involved an investigation of Class 2 hillforts at Clashanimud (No: 26), Co. Cork; Glanbane (No: 49), Co. Kerry; Ballylin (No: 9), Co. Limerick; Formoyle Beg (No: 44), Co. Clare; Toor More (No: 36), Co. Kilkenny, and four sites in the Baltinglass complex in Co. Wicklow, namely Hughstown (No: 55), Rathnagree (No: 94), Sruhaun (No: 101) and Tinoran (No: 103). These hillforts were mapped in detail using GPS and LiDAR survey, with geophysical survey of the interiors and defensive elements, the latter carried out by the author. Excavation was directed by Professor O'Brien, beginning with a large-scale investigation of Clashanimud, Co. Cork in 2004–6, and followed in recent years by trench sampling of the defences of the aforementioned hillforts. Excavation reports for the Baltinglass hillforts, written by Professor William O'Brien, as well as geophysical reports undertaken by the author, have been included in this thesis as appendices.

Arising from this IRC research, it was decided to develop a PhD project to focus on the unique cluster of large hillforts in the Baltinglass area of south-west Wicklow. The results presented in this thesis represent the first detailed application of combined remote sensing and GIS analysis to a hillfort landscape in Ireland. The IRC project also updated the catalogue of hillforts in Ireland, work undertaken by the author as part of the Irish contribution to the ongoing *Atlas of Hillforts of Britain and Ireland* project, directed by Professor Gary Lock (University of Oxford) and Professor Ian Ralston (University of Edinburgh). This updated catalogue of Irish hillforts is presented at the end of the thesis.

1.2 Theoretical Approach

To understand the broader significance of the Baltinglass hillforts, several theoretical approaches will be considered. Archaeological theory in the modern era is often broadly grouped into two categories; processual and post-processual interpretation. Processual archaeologists believe that

cultural change occurs in a predictable manner and can be understood by scientifically studying available evidence (Trigger 2006). In contrast, post-processual theory emphasises subjectivity and symbolic meaning, stressing the unpredictability of human action (Hodder 2001).

Early processual approaches stressed the impact of invasion or diffusion theories on the development of hillfort societies (Clark 1966), and later, the socio-economic explanations for cultural change (Hawkes 1931; 1959; Barrett 2012, 9). The latter linked people, settlements, and ecologies together with the movement of material goods, placing the hillfort at the centre of this society as redistribution centres (Bradley and Ellison 1975; Service 1971; Renfrew 1972; 1973). Earle (1977) connected these political economies with the institutionalisation of resident elites or chiefs. Both Earle (1977; 2002, 42) and Kristiansen (1993; 1998) adopted this functional-processual Marxist approach, arguing that hillfort societies were centralized and stratified, and this has become the enduring image of hillfort societies. Chiefs or kings are set apart from the agrarian substrate and rule through a retinue of warriors, exploiting the farming communities through tribute and taxation (Kristiansen 1993, 19–20). The hillfort is thus seen as a manifestation of status and separateness (Mytum 2013, 8). These 'archaic states' developed in regions where surplus could be generated and controlled, and then, through a formalized system of tribute, converted into large-scale ritual activities such as the building of ceremonial centres, organization of craft production, or centralized trade (Kristiansen 1993). Gilman (1981) took a similar approach when discussing the development of social stratification in Bronze Age Europe and questioned whether the institution of chieftainship was beneficial to the community. He argues that the chieftain attained and maintained power through conflict and exploitation of the lower levels of society, disregarding the interests of the community as a whole. Renfrew and Bahn (2006, 479) regard this clash of interests and exploitation as 'a typically Marxist one'. Similar to functional-processual theory, Marxism incorporates a willingness to consider long-term change in societies in terms of social (class) relations, and it is therefore difficult to separate these approaches (Renfrew and Bahn 2006, 479).

The prestige goods economy model corresponds with this Marxist approach. Prestige goods systems are essentially active growth-driven economies that depend on continued economic success to produce wealth. The political power of the economic leaders derived from their ability to accumulate, display and distribute this wealth. Ultimately, wealth resulted from the successful management of available resources of which agricultural produce was critical (Yates 2007, 2–3; 107). In Ireland, the intensive use of the land immediately surrounding hillforts supports this theory (see Chapter 2.2.5). Yates suggests that intensive farming may have been

the basis of rapid economic growth (*ibid*., 4). Linear boundaries, therefore, may be seen to represent a physical attempt to define, enhance, own and protect an increasingly important commodity. To attribute a more meaningful function in terms of stock or crop management is difficult. Cunliffe (2007, 333) suggests the very existence or boundaries represents a new concept of land management partition involving the coercive power of central authority.

Barrett (2012) has rejected the idea that exchange networks were essential in structuring political economy. He questions the operation of a prestige goods economy arguing that 'things' lack an inherent value and are therefore only endowed with value through exchange. This supports the apparent increase in agricultural production in Britain during the Early Iron Age (Barrett 2012, 12; Hodson 1964). Barrett suggests that the breakdown of long-distance trading networks dependant on bronze production due to locally available iron ores would have led to the collapse of that society, and a corresponding collapse in agricultural output. Although there is evidence for such a reduction in the availability of bronze from around 800–600 BC (Roberts *et al*. 2015), both Barrett (2012) and Rowlands (1980) reason that the availability (or lack) of bronze was not central to the society itself. Conversely, a retraction in agricultural practices, woodland regeneration and the collapse of hillfort societies during the Early Iron Age in Ireland may hint that long-distance exchange of metal supplies necessary for bronze production was indeed the driving mechanism for growth in agricultural production, in Ireland at least. It is unlikely that there would have been a general pan-European social form at this time (Rowlands 1980, 15). Bradley (1980, 69) notes that, by the end of the Late Bronze Age, two very different social systems had developed in southern England, each with their own areas of control. Different social structures were visibly in place in Ireland and Britain during the Early Iron Age, as the increased construction of elaborate hillforts in the latter attest, in contrast to the abandonment of these monuments in Ireland.

In contrast with Barrett's (2012) interpretation, the Irish evidence seems to support the idea that a prestige goods economy developed through the spread of hierarchical societies. The use of material culture, in particular rare metal objects, to express identity, heavily influenced creativity, cosmology and social relations (Armit and McKenzie 2013, 234). Kristiansen and Larsson (2005, 37) consider the production and exchange of prestige goods as a primary goal for elites, as they represented the materialisation of social and political power. Materiality is therefore an important concept in relation to the present work. Materiality can be considered as the way in which people appropriated, used and valued materials (Armit and McKenzie 2013, 234).

During the Late Bronze Age, leaders throughout Europe subscribed to a warrior culture, universally accepting the social values and material culture that supported it (Cunliffe 2008, 232). It was this material culture that defined the elites and the need to sustain their power through display of these items was paramount. This is attested by the huge numbers of bronze weapons in circulation throughout Europe at this time. Particularly high concentrations of swords, spearheads and axeheads, indicates Irish communities were deeply integrated into this culture. Structured deposition of these artefacts in wetland contexts illustrates the important role of materials in creating and maintaining social relations (Armit and McKenzie 2013, 233).

Relations between elites were probably articulated by competitive gift exchange on an increasingly elaborate scale, while at the same time bulk trade in lesser goods flourished (Cunliffe 2008, 229). Cunliffe believes an ability to control the movement of rare raw materials was an important factor in elites maintaining their power. However, the careful manipulation of exchange relations between elites and the common populous was also necessary, to accumulate sufficient surplus to build and maintain a hillfort (Sharples 2007, 123). Sharples believes that this process of manipulation may result in the dominance of one hillfort over another, where certain advantageous locations would allow for the creation of more surplus. Thus, the economic aspect of landscape is important in a context where the success of a hillfort construction event depends on not only the available labour and resources but also the ability to supply the workforce with food. Grogan (2014, 65) has recently suggested that the shared obligation to generate surplus could be linked to greater cross-community bonding and the maintenance of community identity.

Cunliffe combines many of the above theoretical approaches together in a comprehensive model explaining how hillfort communities and elites functioned together. He states that:

> There is no conflict between the vision of communities rooted in their ancestral territories maximising the productivity of the land and the existence of footloose warrior lords; they could have functioned well together, the home base providing the stability and resources for the elite who, in turn, by virtue of their prowess attracted other resources through gifts and the spoils of successful raids. There was a tightness of interdependence that gave a degree of stability to the system. With raid an ever-present threat, defence became a preoccupation and from about 1300 BC fortified settlements begin to appear in most regions – stone-built towers (nuraghi) in Sardinia, defended ridge-end settlements in the Alpine Forelore, lake settlements surrounded

> by log-built ramparts in Poland and hillforts throughout Britain. These constructions show great variety but the aim was always the same: to defend the community while at the same time proclaiming in architecture the physical might of the residents (Cunliffe 2008, 234).

1.2.1 Landscape Context

Landscape archaeology as a theoretical approach for understanding the past has become a popular method of site analysis in recent decades , providing a framework for investigating the long-term social life of an area. There are two different understandings of the term 'landscape': a territory that can be apprehended visually, or a set of relationships between people and places that provide the context for everyday conduct (Thomas 2001, 181). The latter has become a principle concern for archaeologists (Knapp and Ashmore 1999, 1). Early approaches to landscape viewed it as a physical object of human construction and focused their study on how people used the land and how it aided or constrained them, rather than what they thought or felt about it (Bender *et al*. 1997, 148; Darvill 1999, 105; Knapp and Ashmore 1999, 7). Landscape archaeology can be broadly defined as the study of the dynamic relationships between individuals, communities and the places they inhabited, and can reveal the complex ways that people in the past shaped their physical environment over time (O'Brien 2009, 323). In terms of its physical evolution, landscape can also be seen as a continuous record of human behaviour.

Landscape is a complex, difficult and fluid concept that can have multiple meanings often with underlying commonalities (Knapp and Ashmore 1999, 4). Landscape can be an object, the physical environment where people lived, an experience, or a representation (Thomas 2001, 166). O'Brien (2009, 323) suggests that the notion of landscape allows us to combine different material expressions of past human action to provide a behavioural context for understanding these expressions. Barrett (1987) has cautioned that the experience or understanding of the landscape by past peoples is likely to be multiple and mutable. This means that it is impossible to come to a definitive reading of the thought processes and understandings of people in the past. Individuals, communities and social groups may have perceived and experienced the same landscape differently, making their perception of the world specific and unique. Thus, the same landscape might be a different place for two individuals or groups (Thomas 2001, 176). For example, a hillfort is a physical monument that can be experienced and perceived by people or groups in different ways, such as by those living inside versus those outside.

Thomas describes landscape as 'a network of related places, which have gradually been revealed through people's habitual activities and interactions, through closeness and affinity that they have developed for some locations, and through the important events, festivals, calamities, and surprises which have drawn other spots to their attention, causing them to be remembered or incorporated into stories' (Thomas 2001, 173). Hillforts are excellent examples of such places: landscapes that have been transformed physically by human interaction that contributed to a strong sense place and identity, and the size and prominent setting of the monument, as well as the destruction of some of these monuments by fire, would have caused them to live long in individual and group memory. Lock (2011, 359) and Sharples (1991, 83) suggest that the communal construction and maintenance of hillforts was important for creating social situations and thus a more 'harmonious existence', bringing together disparate groups and solidifying social ties through marriage arrangements etc. Lock *et al. (*2005, 134) proposed that communal forms of labour can enrol individuals into a shared identity which, in turn, reaffirmed individual and group identities, with the community being reaffirmed as a collective body. Identity is primarily shaped by an individual's sense of place, kinship and status (Grogan 2014, 60). Lock (2011) states that the social identity and sense of place created by the building of such large works was one of the most important outcomes of hillfort construction. The monument itself, therefore, could be regarded as defending the community from internal and external threats. These building projects would have allowed communities to develop a shared social memory (Jones 2013, 55), and can be viewed as important social mechanisms in the context of expanding populations and enlarging social territories (Grogan 2014, 67). The widespread adoption of the hillfort throughout Europe demonstrates a remarkable adherence to a social template; a shared manifestation of social relationships and mutual understanding of the meaning of the enclosing elements (Lock *et al.* 2005, 142).

There are also economic and political aspects that have to be considered. Landscapes contain natural resources that can sustain and enhance human life, and areas that are abundant in desired supplies can become contested spaces. This is a particularly important concept, as both Condit (1992; 1998) and Mitchell and Ryan (1997) interpreted the Baltinglass hillfort cluster as a contested space where several polities could have bordered one another. Brown (2009) has aptly described hillforts as 'beacons in the landscape', part of a tradition that has viewed their prominent siting as laying claim to surrounding territory and resources. By investing substantial time, resources and labour into the building of a hillfort, a community would have gained a strong sense of identity, place and ownership. In a highly contested territory, where other hillfort communities may also claim land through the construction of a hillfort, the contestation

of place and ownership may have developed into competition and violence. Renfrew and Bahn (2006, 220) note that conflict and competition are common between societies, with emulation (of artefacts, monuments, customs etc.) being one of the most common elements of competition. The concept of place and ownership would have affected the way these communities experienced, perceived and imagined hillforts and the landscape. Neustupný (2006) posits that the main social function of a hillfort might be to 'articulate the identity of the community that it represents, whether resident or dispersed, and to provide that community with a permanent sense of place with which to identify'. However, he stresses that the symbolic significance of a hillfort could be quite different from its obvious, practical function.

The concept of monumentality has recently become popular in hillfort studies (see Driver 2013; Sharples 2010). Mytum (2013, 9) describes monumentality as an investment in the material form of structures that creates a visual impact that is both deliberate and substantial, well above the norm in that cultural context. Often monumentality includes the conspicuous consumption of resources when creating the structure, and therefore corresponds well with the prestige goods and elite warrior culture models previously discussed. Monumentality can be viewed as another facet of identity and status projection, with elites displaying their ability to summon human and material resources and displaying these in an extremely public way (*ibid.*, 9). Monumentality can also be considered as a feature of community building, where an egalitarian community repeatedly enhanced the defences for the purpose of social cohesion. As such, this concept corresponds with many contrasting processual and post-processual theories.

Agency refers to the acknowledgment that people purposefully act and alter the external world through those actions (Dornan 2002, 304). People are not uniform and do not merely react to changes in the external world, rather, they play an active role in the formation of the social realities in which they participate (Barfield 1997, 4). In essence, agency stresses the ability of a person to act independently out of inclination or self-interest (Giddens 1984). A central concept of agency is *habitus*, which refers to an individual's internalized perception of the world which determine how the individual acts (Bourdieu 1977, 72). Bourdieu (1990, 60) suggests that *habitus* is determined by experiences of the external world. Considering every individual experiences differing social conditions based on their class, every person will have a different *habitus* and will perceive the world and act uniquely. Bourdieu considers these acts as subconscious and unintentional. Giddens (1979, 24) has rejected this view of agency and instead considers that every individual knows how to act based on a 'practical consciousness'. Essentially, the repeated practice of an individual seems natural and permanent, and seemingly

structures the outcome of that process, with this behaviour being passed on to other generations. An excellent example is the construction and maintenance of a hillfort. By building these monuments, an individual or group may engender sociality, knitting a community together through intentional and meaningful human agency. The use and maintenance of the hillfort in the longer term may relate to social obligations or perceived and habituated ways of acting (*ibid.*, 124). At the same time, the community is drawing on the past through tradition and expectation, while re-assembling that past within new relationships of the present (Lock *et al*. 2005, 134). Many of these issues will be considered in the current study of the Baltinglass hillfort cluster.

With regard to hillforts, there is an obvious physical dimension to the landscape in the sense of the natural environment where these people lived. There is an economic reality in respect of the resources these environments contained and the potential for sustaining human life. The dense settlement of this landscape implies that Baltinglass was an important area in prehistory and studying its landscape may help to identify what made this place significant. The concept of 'landscape' is also symbolic in the way that hillforts were experienced, perceived and imagined by prehistoric people. Such places were imbued with symbolic meaning, where human groups created their present by cognitive reference to a remembered past. Landscape is a politically charged concept, with many examples of so-called 'contested' space. This is particularly relevant to power centres such as hillforts, connected as they may have been with warfare and social hierarchy. Hillforts were probably centres of ritual and ceremony, where in some instances the past was appropriated to serve contemporary ends. This will be considered in the present study by examining the significance of the Neolithic passage tomb within Rathcoran hillfort (No: 92), and the possible passage tomb cemetery on Spinans Hill 1 (No: 98). The study will also embrace other perspectives regarding the building and significance of hillforts; for example, by looking at the labour mobilized in their construction and what this says about power and control in prehistoric society.

1.3 METHODOLOGY

To address the research questions posed in section 1.1, a multi-methodological survey programme was designed, incorporating geophysical and topographical surveying, as well as desk-based research of LiDAR, aerial and satellite imagery. These methods were chosen as the main method of site detection and analysis, with the objective of identifying unrecorded archaeological features at these hillforts, and to interpret this new evidence within a broader

landscape setting. The use of analytical GIS techniques such as viewshed or Least-Cost-Path (LCP) is an important aspect of the study, and provides quantifiable and visual data from information that is often viewed as subjective (i.e. visibility).

1.3.1 Geophysical Survey

The term 'archaeological geophysics' is best defined as the investigation and interpretation of shallow subsurface remains by use of non-invasive survey methods, which both measure and record localized physical discontinuities that contrast with the natural medium in which they are contained (Gaffney and Gater 2003, 25; Waddell *et al.* 2009, 18). These 'localized physical discontinuities' are termed 'anomalies'. The detection of these anomalies is dependent upon three variables: the type of physical discontinuity that the anomaly creates; the strength of these discontinuities; and the resolution at which measurements are taken.

Gradiometry survey was used as the primary means of detecting sub-surface archaeological features for this study. Surveys were undertaken at a number of sites, which were chose due to the applicability of the technique with respect to local ground conditions, vegetation growth and geology. Data was collected using a 20m² grid system that was later tied into Irish Grid using GPS, at 0.5m traverse and 0.125m sample intervals. Data was processed using Geoplot 3.0.

A brief history of research

The application of geophysics in archaeology has stemmed from its use in the geological and engineering sectors. General Pitt Rivers was the first recorded user of a primitive geophysical technique (within an archaeological context), known as 'dowsing', during excavations at Handley Down in 1893-1895 (Clark 1990, 1; Gaffney and Gater 2003, 13). However, it was not until 1946, that scientific instruments were used. The first systematic survey was undertaken in 1938 by Malamphy at Williamsberg, USA, where he undertook an 'equipotential' survey, a technique similar to earth resistance, to investigate a possible buried stone vault (Gaffney and Gater 2003, 14; Bevan 2000, 53–54). In Britain, Atkinson was the first to use the resistance method at Dorchester in the early 1950's (Gaffney and Gater 2003, 16–17; Clark 1990, 11–14).

With the successful application of earth resistance, other geophysical instruments began to be developed. In the late sixties, Webster used a proton magnetometer when searching for *in-situ* kilns and, in collaboration with Aitken, built a magnetometer for archaeological purposes

(Clark 1990, 17–18). Magnetic surveying has since become the most commonly used technique in archaeo-geophysics, due to its speed of use and accuracy of retrievable data.

The use of archaeo-geophysics has become popular in both a research and commercial capacity, due to a need for a rapid, cost effective method of non-destructive investigation. In the United Kingdom, geophysical surveys were a component of at least 23.4% of all evaluations arising from planning applications in 2006 (Linford 2006, 2208). Recent geophysical survey undertaken on road schemes in Ireland has also shown positive results. Magnetic gradiometry surveying of the N6 Galway to Ballinasloe road scheme identified 21% of all significant unrecorded archaeological sites within the road take (O'Sullivan 2009, 33).

Clark (1990, 87) was one of the first to undertake a geophysical survey on a hillfort in Britain, targeting three sites in Surrey, identifiing possible hearths and pit features. An important publication on the applications of geophysical survey in archaeology in 1990, he points out that there had been few surveys undertaken on British hillforts up to that point, but acknowledged the benefit of such work in the future. More recently, the application of such techniques at hillforts in Britain has become common place. The 'Wessex Hillfort Project' is an excellent example of the information that can be gained from these non-invasive surveys, identifying, in many cases for the first time, occupation activity, as well as other significant features not visible on the surface.

In contrast, there have been few geophysical surveys undertaken on Irish hillforts. Targeted electrical resistance survey at Mooghaun (No: 85) did not produce any informative results (Grogan 2005a) and the few instances where more extensive survey have been undertaken, such as at Freestone Hill (No: 45) hillfort in Co. Kilkenny, have not been published. Extensive surveys of the large, internally ditched royal sites have, on the other hand, have produced spectacular results. Waddell *et al*. (2009) surveyed the Rathcroghan landscape, Co. Roscommon, identifying a number of large sub-surface sites, including a 360m enclosure surrounding Rathcroghan mound, the focal point of the ritual complex. At Tara in Co. Meath, the continuing exploration of the landscape using geophysical survey is revealing numerous unrecorded monuments, such as the large post-ditch enclosure surrounding the Rath of the Synods (Corns *et al*. 2008). Survey at the royal site of Dún Ailinne in Co. Kildare has identified complex ritual structures within the interior (Johnston *et al*. 2009). More recently, as part of an IRC funded study of Irish hillforts by Professor William O'Brien, the author has undertaken extensive geophysical surveys at a number of Irish hillforts, including some of the Baltinglass sites, the results of which are presented in this thesis and are available as additional appendices.

Principles of Gradiometry

Iron constitutes 6% of the Earth's crust, dispersed throughout soils, clays, rocks and chemical compounds, all of which are partially magnetic (Clark 1990, 64). Human activity in the past has redistributed and changed this iron, creating predictable discontinuities that are detectable using geophysical instruments (*ibid.*, 64). Such features are detected using the phenomenon known as magnetic susceptibility. This can be recorded using a magnetometer, which measures minute variations within the Earth's naturally occurring magnetic field.

Assuming a non-igneous parent, it can be assumed that topsoil's have a higher magnetic susceptibility than sub-soils. This is based on a number of processes, the most important of which is the Le Borgne effect (Gaffney and Gater 2003, 38; Aspinall *et al.* 2009, 24–25). One of the most common iron oxides contained within the soil is a weakly magnetic material known as hematite. This can become magnetically enhanced through a process of heating/burning and subsequent re-cooling. Upon heating/burning, an atmosphere of reduction is created in which oxygen is excluded, creating a new, more magnetically enhanced material, known as magnetite. Once the heating/burning process has been completed, oxygen again becomes available, allowing magnetite to re-oxidize as maghemite, a material of far greater magnetic susceptibility (Aspinall *et al.* 2009, 24). This results in what is termed 'thermo-remanent magnetism', which makes it possible to detect kilns, hearths and anything burnt to a sufficient degree.

Areas where organic waste material is allowed to decay can also lead to magnetic enhancement, through a process known as fermentation. Bacteria that propagate the breakdown and decay of this waste, do so by creating an atmosphere of reduction in which magnetic minerals present may be magnetically enhanced (*ibid.,* 24–25). Certain bacteria are also able to create micron-sized magnetite crystals within their bodies by use of iron oxides distributed within the soil (Fassbinder *et al.* 1990, 163; Aspinall *et al.* 2009, 25). All of these processes rely on the presence of organic matter, which is more frequently available in the top-soil (*ibid.*, 25). Hence, for example, once a ditch has become in-filled with topsoil, a magnetic contrast is created, with the surrounding soil having a lower magnetic response in contrast to the greater magnetic signal given off by the topsoil within the in-filled ditch.

A magnetic gradiometer is an instrument that records minuate variations in the earths magnetic field. The most frequently employed type of gradiometer is the fluxgate gradiometer, which has a sensitivity of 0.01nT. A Bartington 601 and Geo-Scan FM256 fluxgate gradiometer were used for this project. These consist of a highly susceptible core, usually made of mu-metal.

Two coils are wound around the core, the primary and secondary, with an alternating current being passed through the primary. The core is then driven in and out of 'saturation', due to the changing current. The moving core induces a current in the secondary coil. When the earth's magnetic field is applied to a sensor, magnetism will occur unevenly, keeping the core saturated for longer at one side. As the core moves, the external field can induce an electrical pulse in the secondary coil. This pulse is directly related to the strength of the external field allowing magnetic features to be detected and measured (Gaffney and Gater 2003, 40).

The fluxgate gradiometer employs two magnetometers, separated 0.5m or 1m vertically apart. The top sensor measures the Earth's magnetic field, which is measured in nanoTesla (nT), while the bottom measures the same field, but is affected by any buried feature closer to it (*ibid.*, 40–41). The Earth's magnetic field never stabilises at a fixed reading due to diurnal variations caused by solar winds and this can cause dramatic variations in the measurements (Aspinall *et al.* 2009, 33). This is largely overcome by gradiometers, where the two magnetometers form an inherent spatial high-pass filter, largely cancelling out diurnal variations (*ibid.*, 33).

The fluxgate gradiometer can be configured to take readings automatically, meaning the surveyor merely has to walk at a constant pace in time with the instrument. Current instruments are capable of recording 8–16 readings per second (*ibid.*, 40-41; David *et al.* 2004). Due to the ever-changing variations in the earth's magnetic field, gradiometers have to compensate for instrument drift (Waddell *et al.* 2009, 21–22). Drift is defined by Waddell *et al.* as 'a spurious shift in the instrument readings due, in part, to the heating or cooling of the instrument and/or the effects of diurnal variations in the earth's magnetic field during the course of the survey' (*ibid.*, 22). The removal of this 'drift' involves zeroing the instrument, usually after a set number of grids are completed, at a fixed position, or over an area of uniform local magnetic strength.

Principles of Topographical survey, GPS and LiDAR

Topographical surveys can contribute greatly to the identification of previously unseen surface features, and can be used to produce three dimensional computer models of the surveyed area, which can be manipulated in a number of ways. The digital environment can be viewed from any perspective, free of vegetation or features that may obscure view. The height and direction of the sun can be manipulated to create shading and shadow effects at any angle, making interpretation easier. Micro-topographic surface features of buried or destroyed archaeological

deposits occasionally exist, and can be identified with the exaggeration of the vertical axis by a set multiple (Newman 1997, 11).

The acquisition of topographical data is often undertaken with a total station or D-GPS (Differential-Global Positioning Systems). Barratt *et al.* (2000, 141) have speculated that a single total station team would capture about 1000 points in a day, whereas one person using a D-GPS systems can record up to 2000 points every hour. For this thesis, GPS survey was primarily used to map unrecorded archaeological features on the ground, rather than creating three dimensional surface models. LiDAR (Light Detection and Ranging) survey was commissioned or purchased when available for the Baltinglass hillforts (Fig. 1.2). This technology was conceived in the 1960's for submarine detection from aircraft and over the past ten years the technology has become the most popular way of collecting large amounts of elevation data. Most airborne

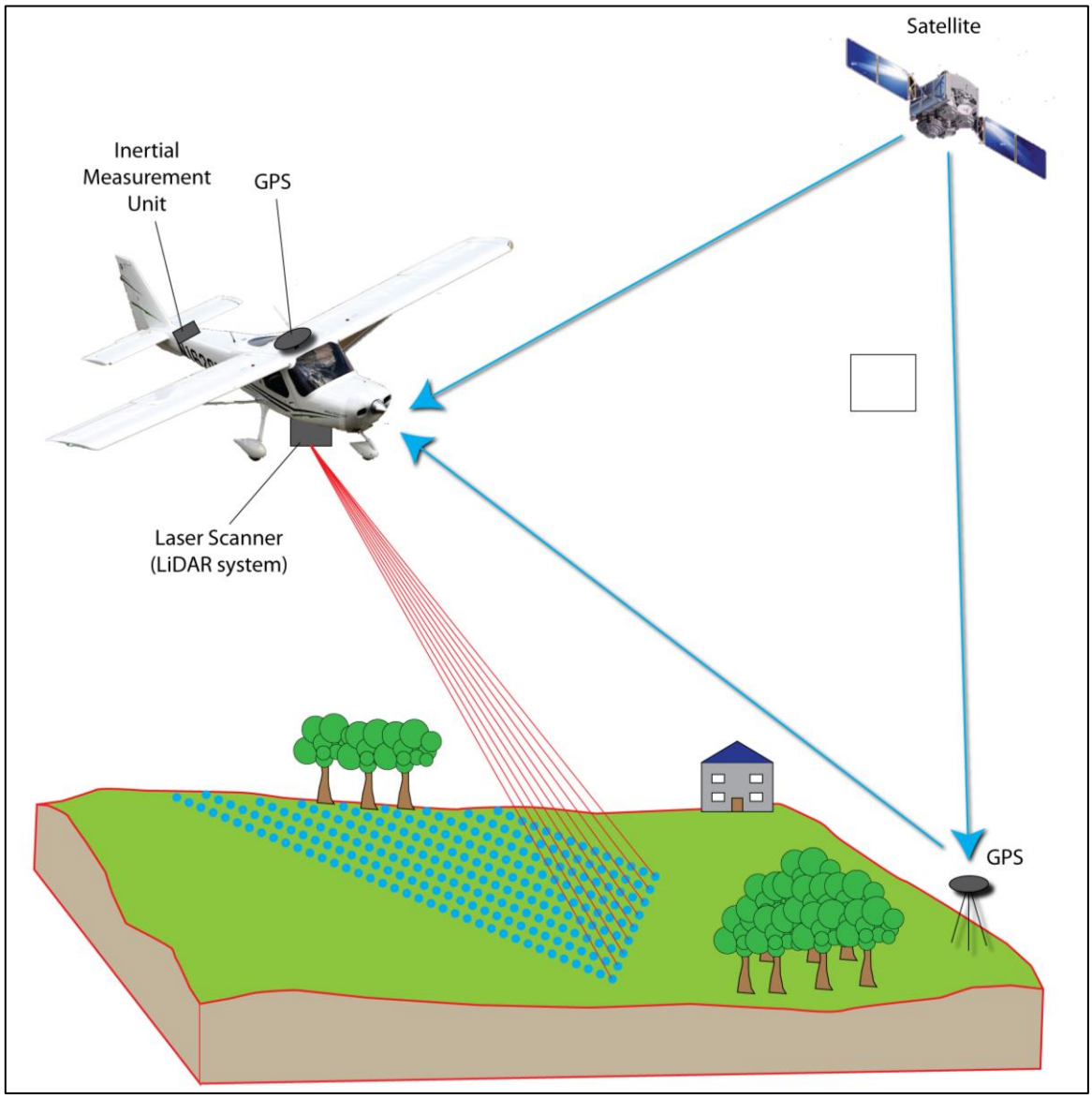

Fig. 1.2: The application of an airborne LiDAR system.

LiDAR systems comprise a LiDAR sensor, a GPS receiver with ground based GPS station, an inertial measurement unit, an onboard computer and data storage devices. The LiDAR sensor emits a laser beam that scans the terrain. When the beam hits an object, it is reflected back to the sensor and the time it takes for the beam to be reflected is measured. The GPS station and receiver accurately determine the position of the aircraft at any given time. The inertial measurement unit accurately measures the height, roll, pitch and yaw of the aircraft. When these datasets are correlated, the exit geometry of the laser beam can be calculated and the position of the individual laser reflections relative to the earth's surface can be extracted. Further processing of multiple return signals can be used to remove surface vegetation or buildings to produce a bare earth model. Millions of points can be acquired a day at an accuracy of + or – 7cm vertically, and + or – 15cm horizontally. A further advance in this technology, utilizing three LiDAR scanners within its system (FLY-MAP 400), increases this accuracy to + or – 3cm vertically, and + or – 5cm horizontally. Current tests with this technology on the Hill of Tara, Co Meath, over an area 2.38km² collected data at a resolution of 0.1m, collecting over 150 million data points (Corns *et al*. 2008).

LiDAR data was available for a number of the Baltinglass hillforts at varying resolution. Data obtained from the OSI was collected at a resolution of 2m and interpolated to 0.5m. This data was available for Hughstown and Tinoran. A LiDAR survey of Tuckmill Hill was specifically commissioned for this project and collected data at 16 points per m². This is 64 times the resolution of the OSI data. While the latter data is more applicable for analysis, the more coarse data was also useful.

1.3.2 Geographic Information Systems (GIS)

GIS (Geographical Information Systems) is a computer software system that is designed to capture, store, manipulate, analyse, manage and present data that has a spatial or geographical component. The software is used by a wide range of industries and is being increasingly adopted for archaeological projects. GIS has largely been used in a data management capacity and for the creation of cartographic maps such as monument distribution plots. Recently, spatial analytical techniques have been gaining popularity among archaeologists with particular interest in viewshed, cumulative viewshed, Least-Cost-Path (LCP), aspect and slope analysis. These types of analysis can produce new quantifiable information based on different environmental variables. Their application is particularly useful for hillfort studies, a monument that is often interpreted as being a visible symbol of status and power positioned on or near natural routeways. Before

the advent of GIS, it would have been difficult to support such interpretations with quantifiable evidence. As such, these GIS techniques help to quantify what were previously subjective areas of research.

A brief history of research

Intellectual and conceptual lineages of modern GIS can be traced back to innovations emerging from universities and government bodies in the 1960s (Mark *et al.*). Possibly the first true GIS (Tomlinson 1988) was the CanadianGIS developed by Tomlinson for the Canadian government. This was used to analyse large amounts of mapping data to manage natural resources in a cost effective manner. During the same period in Britain, Bickmore began to create the 'Oxford System of Automated Cartography' GIS system, although this was never completed (Coppock and Rhind 1991, 33). Bickmore subsequently set up the Experimental Cartography Unit (ECU) which pioneered high quality computer mapping and published the world's first computer-made map (Longley *et al.* 2011, 17). The involvement of government institutions continued in the 1970's with the creation of the 'Dual Independent Map Encoding' (DIME) scheme by the Bureau of the Census in America and the Harvard Lab for Computer Graphics and Spatial Analysis. In 1966, the latter created the world's first automated mapping application, SYMAP.

Data resources increasingly became integral to GIS projects, with the application of remote sensing in the early 1970's proving to be of particular importance (Longley *et al.* 2011, 17). This provided 'vast' amounts of new data that greatly exceeded the capacity of the data analysis technology of the time (Goodchild 1992, 47) and GIS software was developed to exploit this new resource (Longley *et al.* 2011, 17). These developments culminated in the creation of commercial GIS companies in the 1970's; however, it was not until the 1980's that the widespread adoption of commercial systems took place (Goodchild 1999, 7). The Environmental Systems Research Institute (ESRI), founded in 1969, developed a software package called ARC/INFO in 1982. The proliferation of IBM personal computers prompted ESRI to release PC ARC/INFO in 1986, and further advancement in computing saw the development of ESRI's ArcView in 1991. By the late 1980's ESRI were selling approximately 2000 GIS systems per annum. The widespread adoption of the digital computer and the internet in the late 1980's became fundamental to the development of GIS. The introduction of the internet saw GIS evolve into a 'medium' which Goodchild (2006, 201) describes as 'a means of communicating one's personal knowledge of the planet's surface and near-surface to others'. This, in turn, led to an unprecedented increase in the availability of spatial data. The development of other analogue

technologies such as GPS by the US military in 1993, or LiDAR in the early 2000's, for example, has revolutionised archaeological survey, allowing for the collection of enormous amounts of spatial data which are stored, manipulated and analysed in GIS software.

GIS was used in an archaeological context as early as the 1970's, when researchers such as Cunliffe (1971), Hogg (1971), Clarke (1972) and Collis (1977) attempted to use Thiessen Polygons to statistically define the territories of hillforts. In the early 1990's, visibility analysis was being used for landscape studies and has since become the most popular GIS analytical technique employed by the archaeologist. Early uses in hillfort studies include Madry and Crumley's (1990) attempt to establish the visibility of Iron Age roads from hillforts in the Arroux River valley in Burgundy, France, or Ozawa *et al*.'s 1995 use to viewsheds to reveal that many 'hillforts' of the Late Yayoi period (*c.* 100–300 AD) in Japan were integrated into an ancient 'beacon system' through line-of-sight visibility. More nuanced studies have been undertaken by Lock and Harris (1996, 232) for example, where visibility analysis was used to show that Iron Age hillforts in the Danebury area were positioned to maximise visual dominance over adjacent valleys and agricultural lands at the cost of all-round defensive visibility. This analysis has subsequently developed a series of closely associated techniques such as cumulative visibility and fuzzy viewsheds (Wheatley 1995).

Other recent developments include cost surface analysis which includes the Least-Cost-Path technique. Again, there are a number of examples of this technique being used on hillforts, such as Gaffney and Stancic's (1991) early study on catchment zones of the hillforts on Hvar Island, Croatia, Madry and Rakos' (1996) examination of Roman roads in Burgundy, as well as Gaffney *et al*.'s (1996) use of cost surfaces to create catchment areas for hillforts on the Dalmatian Islands in Croatia. Bell and Lock's (2000) work on the Ridgeway hillforts is an excellent example of the possibilities that combining a number of GIS approaches can have. GIS analysis was used in order to understand the linear setting of the hillforts. It established that these hillforts seem to have been located on a pre-existing prehistoric pathway and were not sited to be intervisible.

In Ireland, there have been few examples where GIS has been used in hillfort studies, with Grogan's (2005a) study a notable exception. This thesis will be the first to apply may of the more recent GIS analytical techniques on Irish hillforts. Most so-called GIS applications in Ireland, including Grogan's (2005a) mapping of landscapes approach, have been largely for illustrative purposes. This study is an attempt to move to a more analytical level of GIS use. The following are the main GIS approaches in this study.

Spatial Analytical Techniques: Viewshed Analysis

Viewshed analysis is a technique that aims to 'identify those areas that can or cannot be seen from a single (or a set of) viewpoint(s) within a digital model of a terrain, either by calculating line-of-sights between pairs of point locations or via viewshed generation' (Paliou 2013, 2). Wheatley and Gillings (2001, 1) suggest that viewshed analysis is the most unique and valuable GIS application for archaeologists. It is argued that this type of analysis, being at its core 'a model of the field of vision of human actors', can help build and expand quantified generalizations and methodologies for archaeological research (Wheatley 2004, 11). Tschan *et al.* (2000, 33) describe viewshed analysis as a tool closely associated with the human capacity of sight as it attempts to explore past cognitive acts such as the movement of people and their perception of the contemporary landscape. While having obvious functionalist advantages, viewshed analysis has the potential to contribute to wider theoretical approaches, such as cognitive perception, culture/nature dichotomy, visualism and sensory primacy, temporality and directionality (Wheatley 2004, 11).

Others, such as Thomas (1993, 23), reject the 'functionalist' approach which GIS has often been associated with, primarily due to the seeming inability of such systems to accurately model past landscapes, or correctly incorporate human agency. The effect of vegetation in the past is a particular problem, as the height of tree canopies and the extent of forestry cannot be modelled with certainty. Ogburn (2006) discusses other problematic factors that influence visibility, such as the limits of human visual acuity, past environmental effects and the physical properties of objects and their surroundings, all important factors which are often not considered. In many cases, these problems can be compensated for. For example, he suggests that the limits of human recognition acuity for a 1m wide object is 6880m. Significant methodological issues such as visual reciprocity (Loots 1997), the quality of data (particularly the digital elevation model), and the modelling of 'fuzzy viewsheds' (Fisher 1996), need to be considered in order to create more robust visibility models, even if this is not always possible.

An excellent description of the methodological approach has been outlined by Wheatley (1995, 5). Two data-sets are needed to create a viewshed map, namely, point data and a raster terrain model. In each cell in the raster, a straight line is generated between the point data and every individual cell within the raster terrain model. The height of all the cells that occur on the straight line between the point data and largest cells is then obtained in order to ascertain whether or not the cell exceeds the height of the three dimensional line at that point. The result of each of these calculations is then transformed into either a positive (1: representing visible

areas) or negative (0: representing not visible areas) cell, creating a binary image of visibility (Fig. 1.3). A cumulative viewshed is the repetitive process of applying the former technique on the same raster terrain multiple times with different point data (i.e. different positions on the terrain). The multiple binary maps are then overlaid with cells visible from two different points combining and having a value of two, cells visible from three different points having a value of three and so forth. The resultant image is the sum of all the viewsheds, with the value of each cell corresponding with the number of points that can be seen from the cell. Wheatley (1995, 171) suggests that cumulative visibility can be used to make inferences about the relationships of intervisibility between related sites within a landscape.

Spatial Analytical Techniques: Least-Cost Path (LCP)

LCP analysis can be described as the generation of the optimum path of travel between two chosen points. To pass between these points involves traversing terrain as well as natural and cultural features that impede movement (Howey 2007, 3–4). These impediments are classified and given a cost in the model (these are called 'cost surfaces'), which then choses the path that accumulates the least 'cost' connecting each point (Fig. 1.4). Terrain is probably the most commonly used variable in LCP models because of the energy expenditure to traverse irregular terrain can be easily modelled (Bell and Lock 2000; Surface-Evans 2012, 137; Murrieta- Flores 2010, 254). Bell and Lock (2000) have contributed to the classification of elevation data by

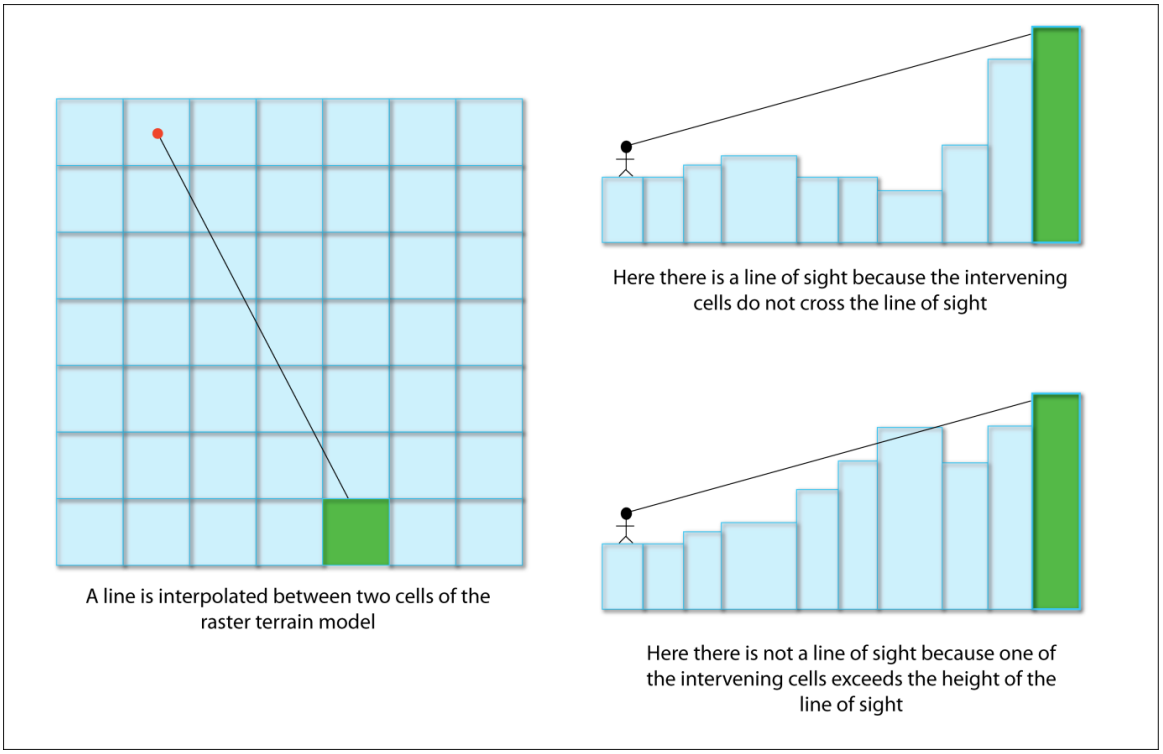

Fig. 1.3: The application of viewshed analysis in GIS systems.

recognising that the cost of climbing a slope may not be directly proportional to the degree of slope, i.e. a 45 degree slope is not 45 times more difficult than moving through level terrain. The relationship between slope and effort is therefore not linear (Bell and Lock 2000, 88) and neither is it uniform in direction. Slope is anisotropic, meaning the cost of traversing a downhill slope is not equivalent to travelling uphill. Furthermore, travelling downhill is not necessarily an easier task due to the effects of gravity (Llobera 2000; Murrieta-Flores 2010). When interpreting routes through a landscape with an element of directionality, further calibration is required. In these cases an anisotropic cost algorithm may be used (see Bell and Lock 2000, De Silva and Pizziolo 2001). This algorithm incorporates the direction of force (i.e. downslope) in conjunction with its magnitude (slope). Effectively, an anisotropic algorithm will imply force against someone moving

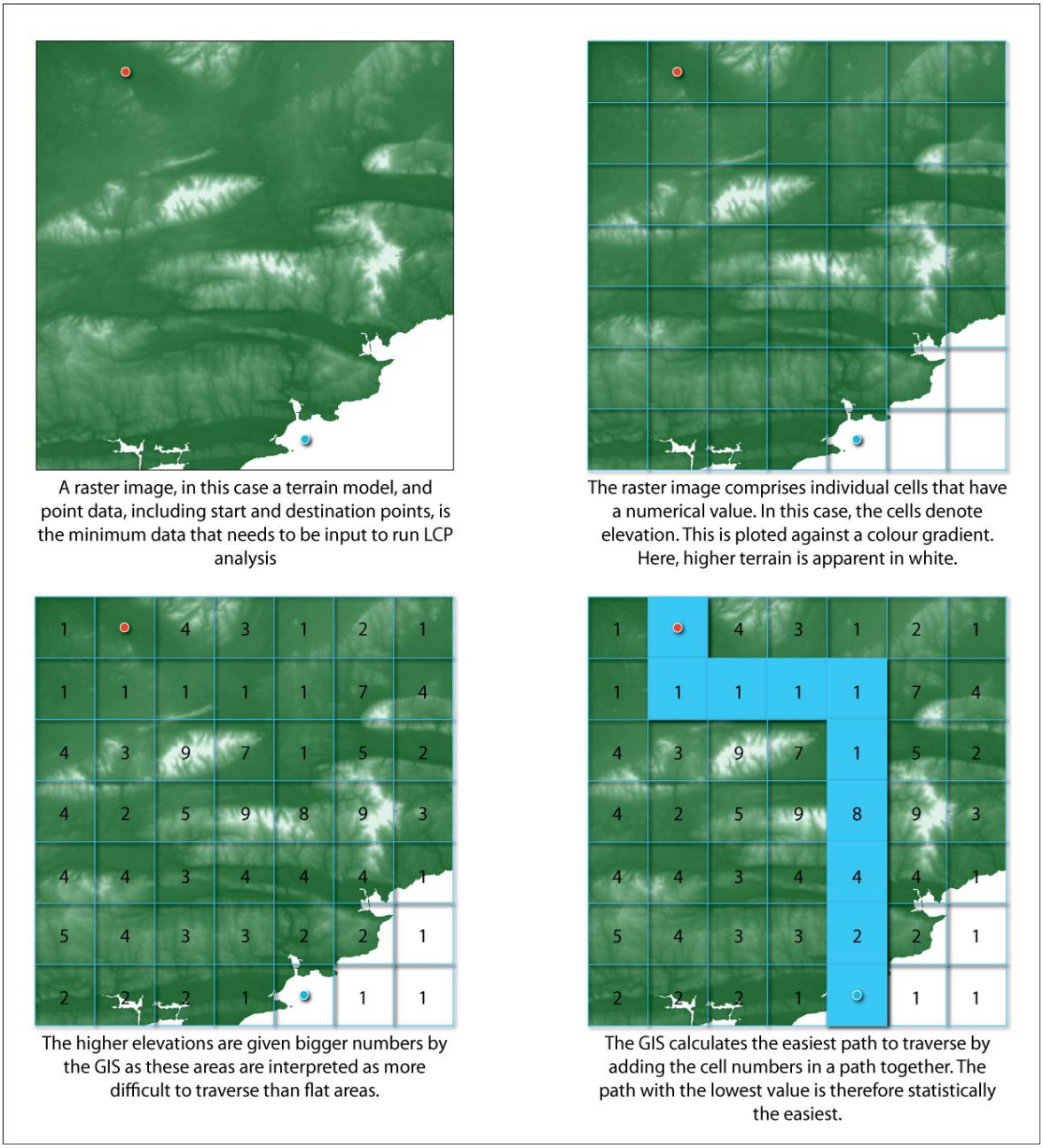

Fig. 1.4: The application of Least Cost Path (LCP) analysis in GIS systems.

uphill and force with someone moving downhill. Whilst this is appropriate for most applications, there is no consideration of the implications of this over very rough terrain. Beyond certain thresholds in slope, effort moving downhill will ultimately become increased as the slope no longer assists movement. This type of cost analysis is also closely linked with catchment models, where the same 'cost surfaces' can be used to create catchment zones and model travel time.

Despite the advances in understanding slope, Llobera (2000) has emphasised the importance of additional 'cost' factors, suggesting a methodology based entirely on slope-dependant costs negates the importance of cultural factors that might strongly influence movement. Movement can be influenced by social, political or cultural factors, and also by religious beliefs and territoriality in the prehistoric period (Murrieta-Flores 2010, 258). These influences are often difficult to model, hence a reliance on physical factors such as slope. Modelling the physical environment, however, is also problematic. Palaeo-environmental information is often unavailable or too coarse to be able to effectively model woodland, wetland, vegetation cover, etc. Although it is best practice to include multi-criteria surface analysis for large spatial scales (Howey 2007, 1831), this is not always practical, particularly at a micro-landscape level.

Spatial Analytical Techniques: Aspect and Slope

Aspect analysis is used to assess the direction in a raster image, usually a terrain model. The technique identifies the downslope direction of the maximum rate of change in value from each cell to its neighbour. It essentially creates a pseudo TIN (Triangular Irregular Network) surface by connecting the edges of individual cells in a raster image to create a sloped surface. The angle of slope can then be measured and plotted against a colour gradient (Fig. 1.5). Aspect is essentially the direction of slope and the values of the resultant analysis will be the compass direction of aspect. It is expressed in positive degrees from zero to 359.9 and flat areas are assigned a value of -1. As such, slope analysis works in a similar way. Slope information is extracted from an input TIN or raster terrain model. The resultant analysis produces a vector image of the severity of slope plotted against a colour gradient. For example, a minor slope of 4 degrees will have a lesser value than a slope of 25 degrees (Fig. 1.6). For both analytical techniques, the quality and resolution of the original raster image or TIN is important.

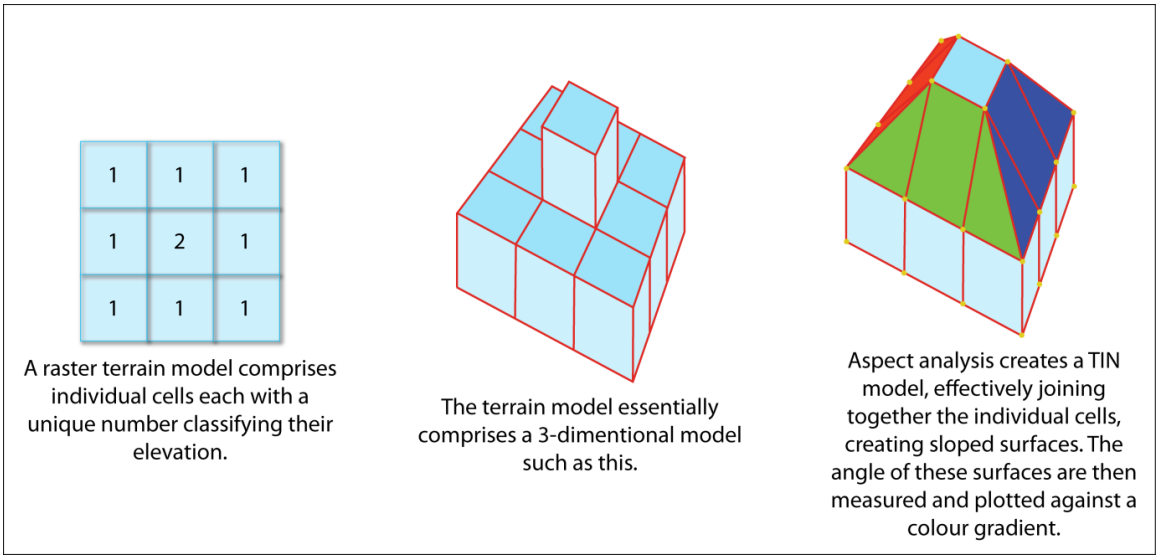

Fig. 1.5: The application of aspect analysis in GIS systems.

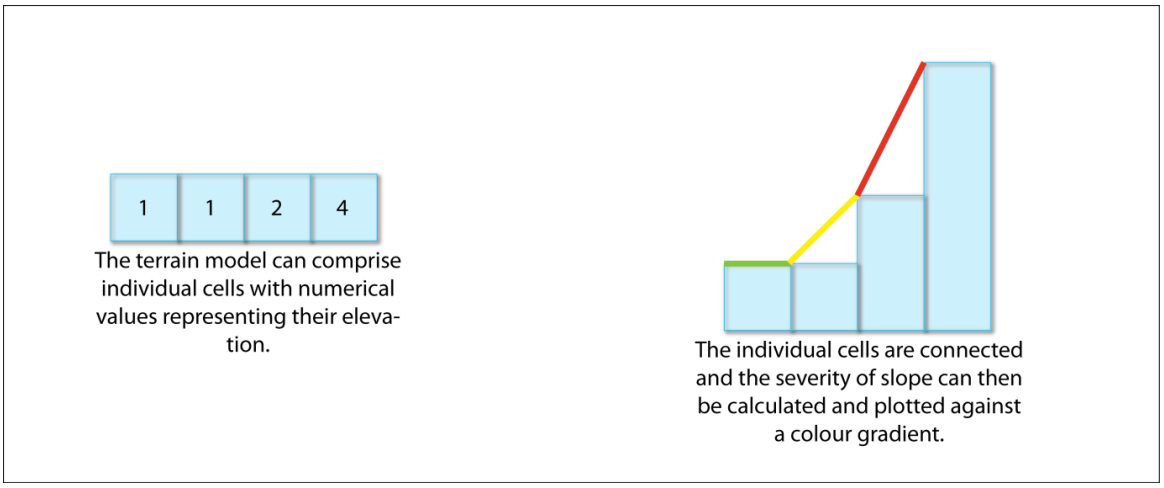

Fig. 1.6: The application of slope analysis in GIS systems.

1.4 Thesis Structure

The study comprises ten chapters with an accompanying bibliography, technical appendices and catalogue of Irish hillforts. Chapter 2 provides a general outline of Irish hillfort studies. This examines various aspects of the site type, including classification, previous excavations, chronology, settlement and the environmental record. Chapter 3 considers the international evidence, looking at hilltop settlements throughout prehistory, with particular emphasis on Bronze Age sites. This chapter has a section considering the extensive research that has been undertaken in Britain. This is particularly important as it highlights the differences between the Irish and British hillforts, and some similarities between the former and those on the Continent.

The chapters that follow form the core of this thesis. Chapter 4 introduces the Baltinglass sites and discusses their location and physical landscape setting. The forts are described and previous research in the study area is presented. The landscape setting and its cultural affinities is also discussed. The results of survey work are presented in Chapter 5, and are discussed in detail over the next three chapters. Chapter 6 focuses on chronology, with two models presented to explain the dense cluster of large forts in the Baltinglass area. Both models are discussed in relation to other evidence in remaining chapters. Chapter 7 debates theoretical issues in relation to the Baltinglass sites, such as the creation of group identity, competitive display, functionalist and ritual approaches to hillfort construction, and defence versus ritual with particular reference to locational setting. Chapter 8 contains a GIS analysis of hillfort location, visibility, territoriality and settlement.

The final discussion (Chapter 9) examines the wider significance of the Baltinglass forts with particular reference to function. It discusses the broader evidence in Ireland for trade and craft production at hillfort sites, their locational setting with respect to routeways, and their ability to act as defensive or ritual structures or as elements of competitive display. This concludes with an attempt to form a comprehensive overview of the life cycle of a hillfort and the evolution of the Baltinglass landscape. Finally, Chapter 10 presents the conclusions of the study and discusses the effectiveness of the research program in completing the aims of the project. This chapter also suggests possibilities for future LiDAR, geophysical and excavation work to further our understanding of these sites and Irish hillforts in general.

The main text is supported by a bibliography, catalogue of Irish hillforts and a number of technical appendices. The catalogue comprises individual entries of all known Irish hillforts, and includes information relating to area enclosed, the enclosing elements, entrances and so forth. The appendices consist of geophysical and excavation reports that support the main text.

CHAPTER 2

THE ARCHAEOLOGY OF IRISH HILLFORTS

This chapter explores the hillfort phenomenon in Ireland and will discuss general features associated with these sites. A brief review of this monument type confirms that many Irish hillforts were constructed in the Late Bronze Age. The construction of a hillfort probably reflected a need to communicate authority and ownership of the surrounding landscape, although it is clear that hillforts had a variety of different functions. This is reflected in the morphology and landscape setting of these monuments, as well as in the survey and excavation record.

2.1 INTRODUCTION

The term 'hillfort' is perhaps a misnomer, attributed to a category of monuments that can vary considerably in morphology, landscape setting, chronology and function. First introduced by Hawkes in 1931, the term is now used loosely to describe a wide variety of hilltop sites that are surrounded and enclosed by banks, walls, palisades, fences and ditches, with little regard to function or place in prehistoric or later society (Brown 2009, 7). The term implies a distinct and pervasive need for defence. This has been perpetuated by researchers such as Hogg, who defines a hillfort as 'an enclosure, apparently *fortified*, and so placed as to gain some *defensive* advantage from its position' (Hogg 1975, 15). Similarly, Avery (1976, 3) describes these sites as '*fortified* so as to be *defensible against human attack*...[and which] exploits the natural terrain so as to give the *defenders* an advantage of height over those approaching the site'. In a later publication he suggested that 'all hillforts are connected by the fact that each was in one way or another used for *defence* of the community which built it' (Avery 1993, 1). Similarly, Barry Raftery, one of the seminal researchers in Ireland, considered hillforts as 'hilltop enclosure[s] of considerable size and strength, which deliberately exploit the natural properties of the situation for *defensive* purposes' (Raftery 1994, 38). Recently, Grogan (2005b, 111) has defined Irish hillforts as 'large hilltop sites that take advantage of the natural *defensive* properties of the topography'. Today, the use of the term 'hillfort' is viewed as an oversimplification, but is nonetheless widely used by archaeologists (Harding 2004).

These militaristic connotations have been challenged in recent years (Brown 2009, 7; Harding 2012, 1). A post-processual backlash has downplayed the defensive role of hillforts without providing a revised definition that adequately encompasses this new stand-point (see Armit 2007). Harding (2012, 1–5) concluded that the term 'hillfort' is problematic and views it more as a term of convenience. He instead suggests that the act of 'enclosure' is a key element, both physically or conceptually demarcating an area to which access is restricted or controlled. This is achieved by the construction of a rampart and ditch, stockade or fence and by the incorporation of topographical and natural features such as cliff-edges. The scale of the enclosing works may range from a relatively modest barrier to massive earthworks. These enclosing elements may be located around hilltop contours, or on cliff-edges, ridges or promontories, spurs, hill slopes, in river bends, or across variable terrain. The enclosed area may range from under a hectare to 20ha and more, with the *territorial* or *terrain oppida* of the late pre-Roman Iron Age approximately 300ha in size (*ibid.*, 1–5). This broad definition can have regional interpretations, such as in Ireland, where coastal and low-lying inland promontory forts (viewed as a sub-set of the 'hillfort' class in Britain) are a distinct monument type attributed their own cultural and chronological horizons.

2.2 IRISH HILLFORTS

There are approximately 108 hillforts in Ireland (Fig. 2.1 and Fig. 2.2, also see Fig. 11.109 and Fig. 11.110). The Irish definition distinctly refers to monuments on or near hilltops, cliff edges and spurs and generally does not include enclosures outside this remit. This contrasts with the situation in Britain, where hillforts are not restricted topographically to hills (Harding 2012, 4). Irish hillforts are often identified by their size (see Fig. 11.111). One definition places them over 1ha in internal area, with smaller examples classified as 'hilltop enclosures' that enclose an area of under 1ha (Grogan 2005b, 116–117). Grogan has listed some 200 examples of this site type, although a large number are more likely to be Early Medieval ringforts. A review of this list reveals that approximately 73 sites can be termed 'hilltop enclosures' (Fig. 2.3), only one of which has been excavated. Grogan's excavations of the hilltop enclosure at Clenagh, Co. Clare did not produce any construction dates or artefacts that could date the occupation of the monument. These small hilltop sites are distinct from the British 'hilltop enclosure', which is usually larger than 15ha and dates to the Early Iron Age (Cunliffe 2013, 300).

There are approximately 274 recorded coastal promontory forts in Ireland (Fig. 2.4). Nine of these have been excavated and date mainly to the Early Medieval period, although a

single Late Bronze Age date from Dunbeg in Co. Kerry, may indicate an early attempt at delimiting the promontory. Approximately 82.8% of these sites are under one hectare and only 5.8% are comparable to the size of an average hillfort, although large sites such as Ballynacarriga and Downmacpatrick in Co. Cork can measure up to 84ha. Considering this, coastal promontories are not considered as 'hillforts' in this work. Similarly, inland promontory forts (Fig. 2.5) positioned in low-land areas such as river bends or non topographically dominant locations will not be considered. Promontories positioned in dominant positions, such as Caherconree (No: 16) or Faha (No: 42), Co. Kerry, are categorised as hillforts in this study.

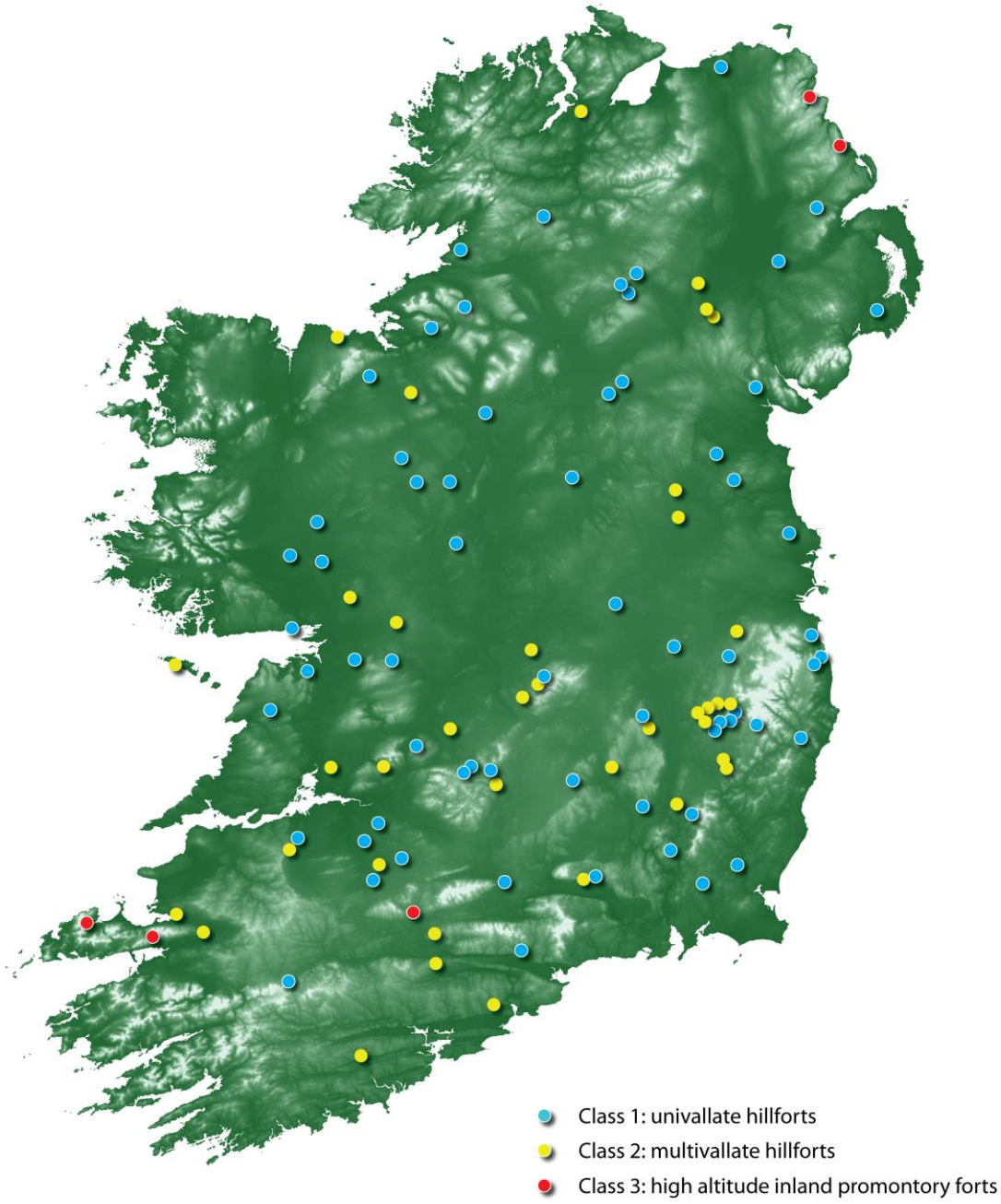

Fig. 2.1: Distribution of Irish hillforts.

A separate problem in Ireland is the large number of ringfort enclosures of Early Medieval date, many of which are sited on low hills or otherwise elevated ground. There are over 47,000 extant examples of this monument, with possibly as many more now destroyed. Recent developer-led excavations (Clarke 2002; Clarke and Carlin 2008; McConway 2002; Kinsella 2008) have highlighted the continued use of these monuments throughout the Early Medieval period and do not indicate earlier origins. The dating and function of ringforts is therefore not as 'contentious' as Harding (2012, 172) suggests. More importantly, the archaeological evidence strongly suggests that ringforts are unlikely to be chronologically or

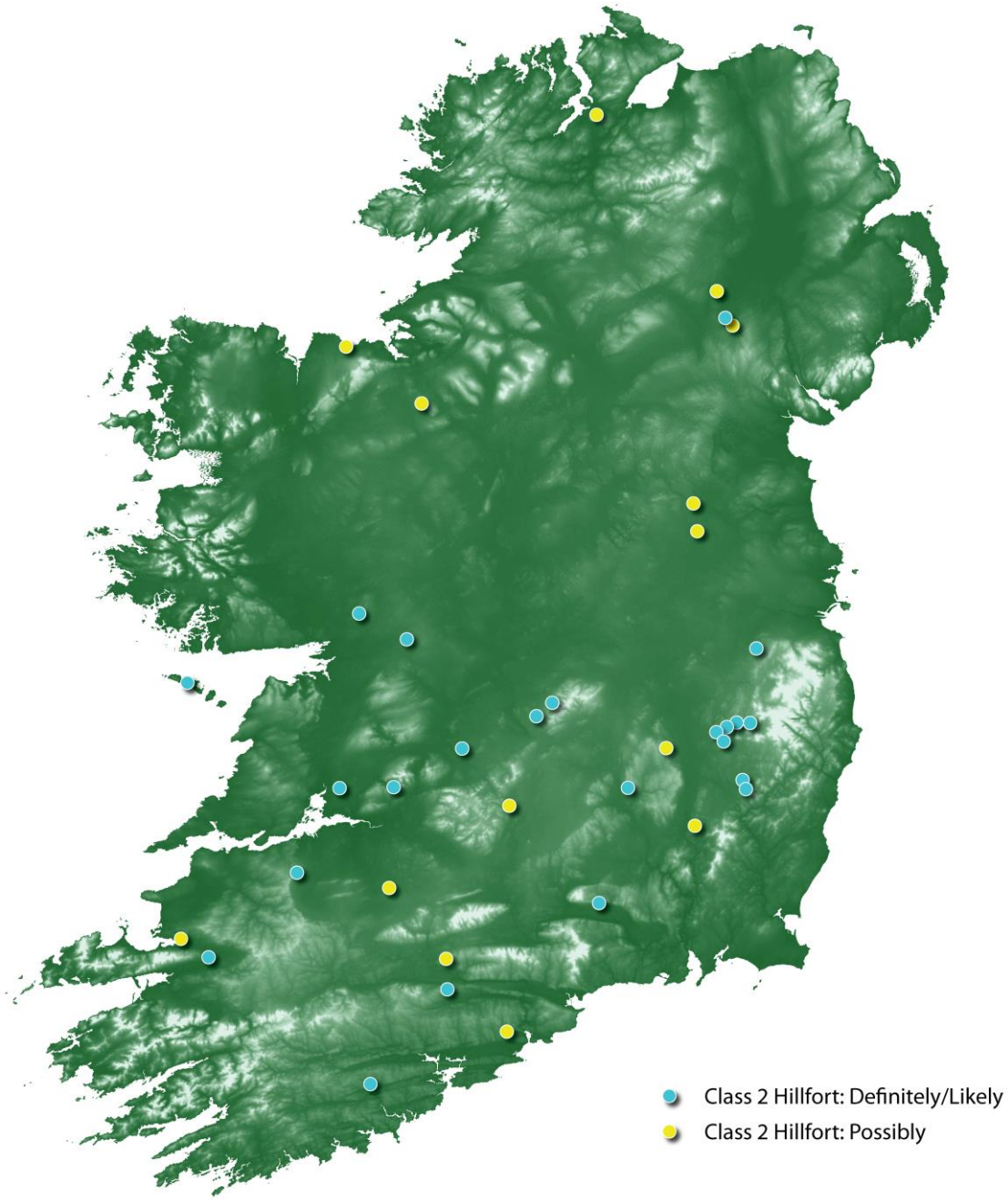

Fig. 2.2: Distribution of Irish multivallate hillforts, sub-divided between definite/likely and possible.

culturally associated with hillforts, though there can be later associations, an excellent example being the stone ringforts inside the hillforts at Mooghaun (No. 85), Co. Clare and Rathgall (No. 90), Co. Wicklow.

One could consider the large provincial royal enclosures of Tara, Co. Meath, Dún Ailinne, Co. Kildare, Rathcrogan, Co. Roscommon and Navan Fort, Co. Armagh, as hillforts. However, three of these have been dated to the Iron Age. Dún Ailinne produced Iron Age material and Iron Age radiocarbon date was returned from material recovered below the bank (Johnson and Wailes 2007; Wailes 1990, 20). Roche (1999) has confirmed that the large enclosure at Tara, Ráith na Rí, was constructed around the first century BC and Mallory (2000) has revealed the

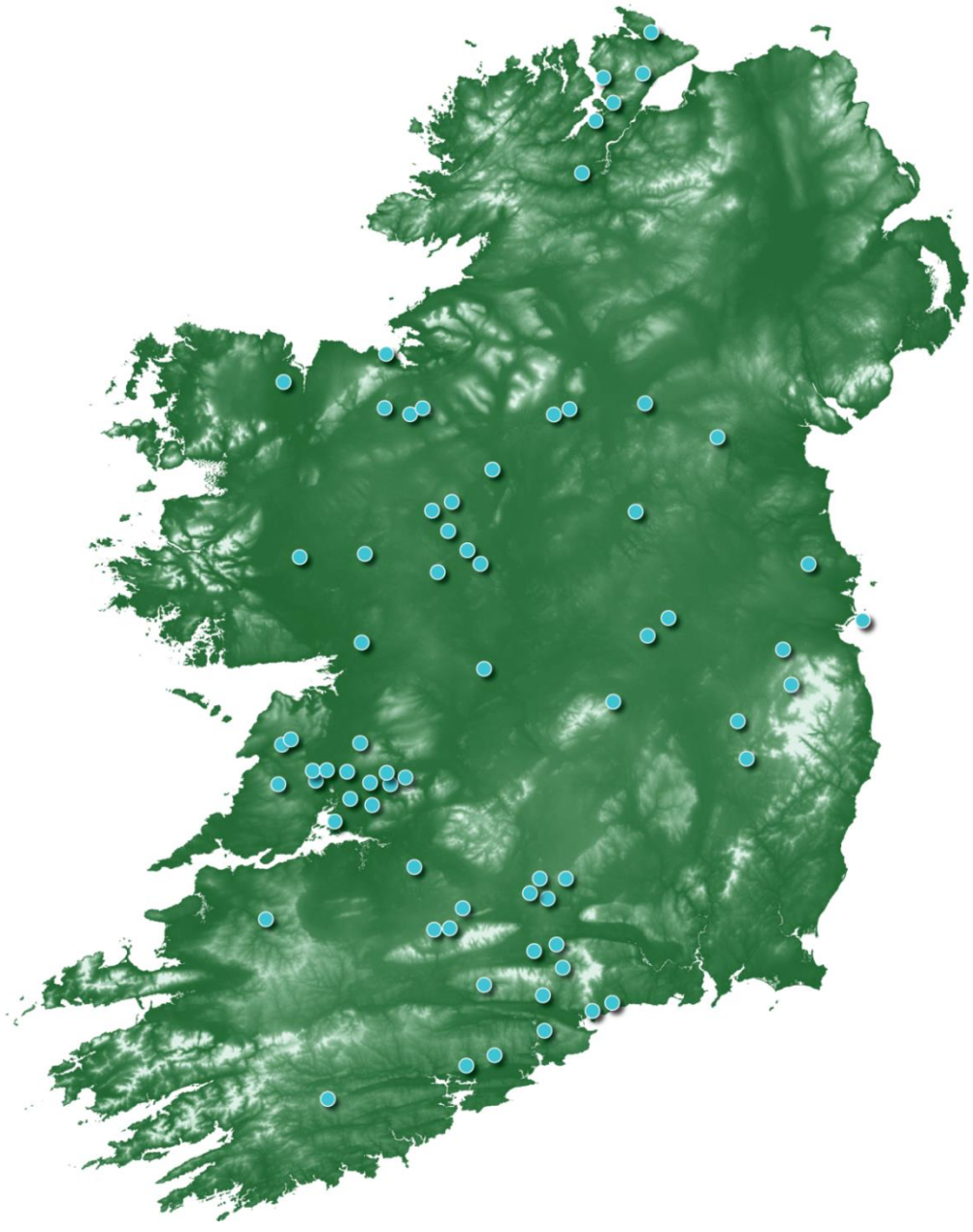

Fig. 2.3: Distribution of Irish hilltop enclosures.

construction of Navan Fort during the first century BC. The morphological layout of these enclosures is also somewhat distinct. Tara, Dún Ailinne and Navan Fort have substantial internal ditches, a deliberate feature that Warner (2000) has interpreted as a defence against the chaotic otherworld emanating from inside the enclosure. The distinct morphological differences and the chronological gap between these enclosures and 'true' Irish hillforts may suggest that these cannot be considered as hillforts proper. 'Hillforts' with substantial internal ditches, such as Kedra (No. 56), Co. Tipperary, may therefore be more appropriately categorised with Iron Age royal sites, however, further research is needed.

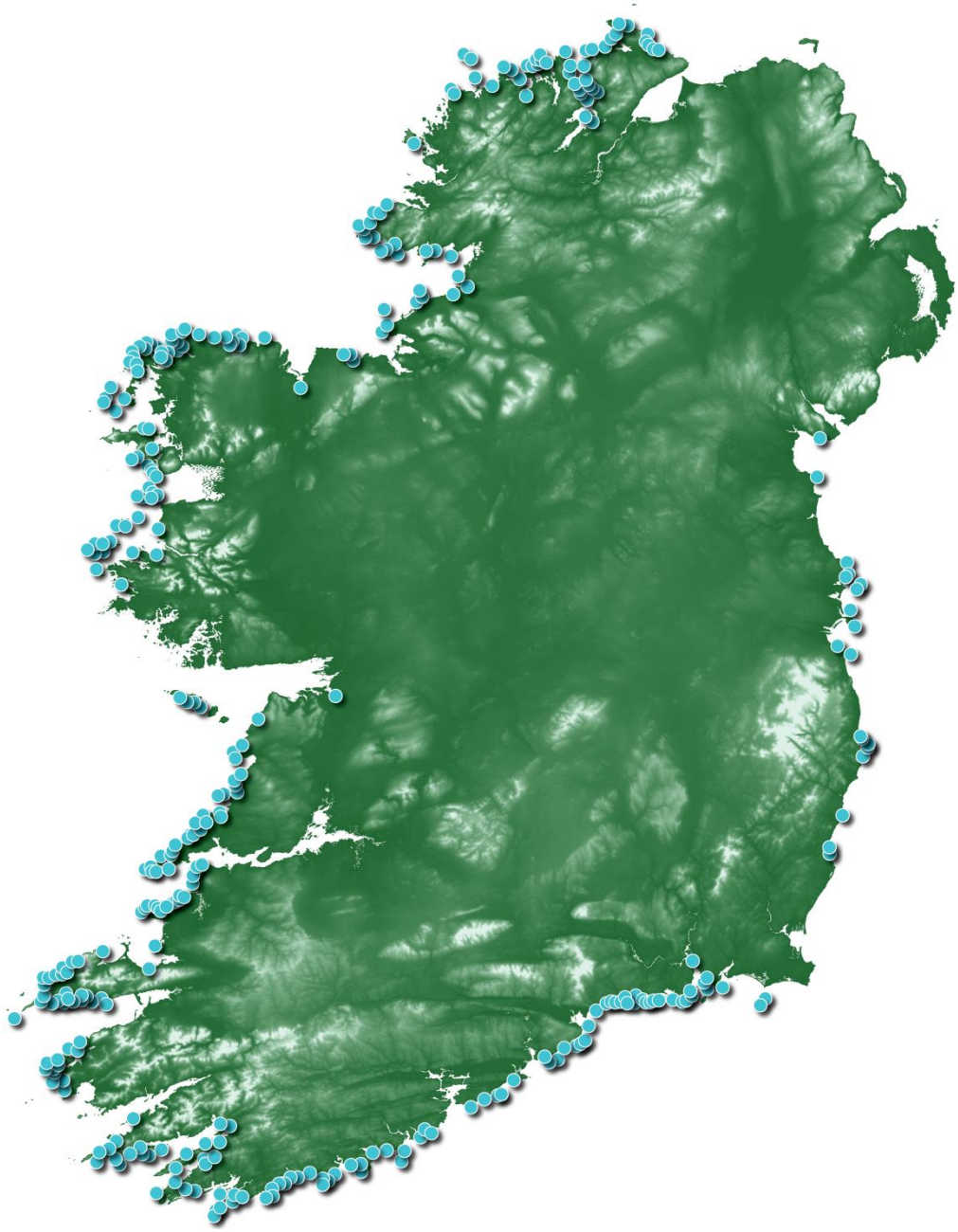

Fig. 2.4: Distribution of Irish coastal promontory forts. Note Northern Ireland, where there have been very few recorded examples.

The term ‘hillfort’ tends to be more loosely applied in Britain than in Ireland. More than half of the total number of hillforts in Britain enclose an area under 1.2ha (Harding 2012, 9). Halliday and Ralston (2009, 467) note that the majority of the 1305 hillforts in Scotland are ‘tiny enclosures’. For Britain, Cunliffe (1991, 312) proposes that that these small enclosures may legitimately be considered as a separate phenomenon. There is also the situation where many southern English hillforts are not located on high ground, but in lowland settings. Irrespective of terminology, there are also important differences in respect to chronology, with Brown (2009, 12) highlighting many of the dating issues. The difference between hillforts and smaller enclosures cannot be seen as ‘an issue of semantics’ as Harding (2004, 50) suggests. To help

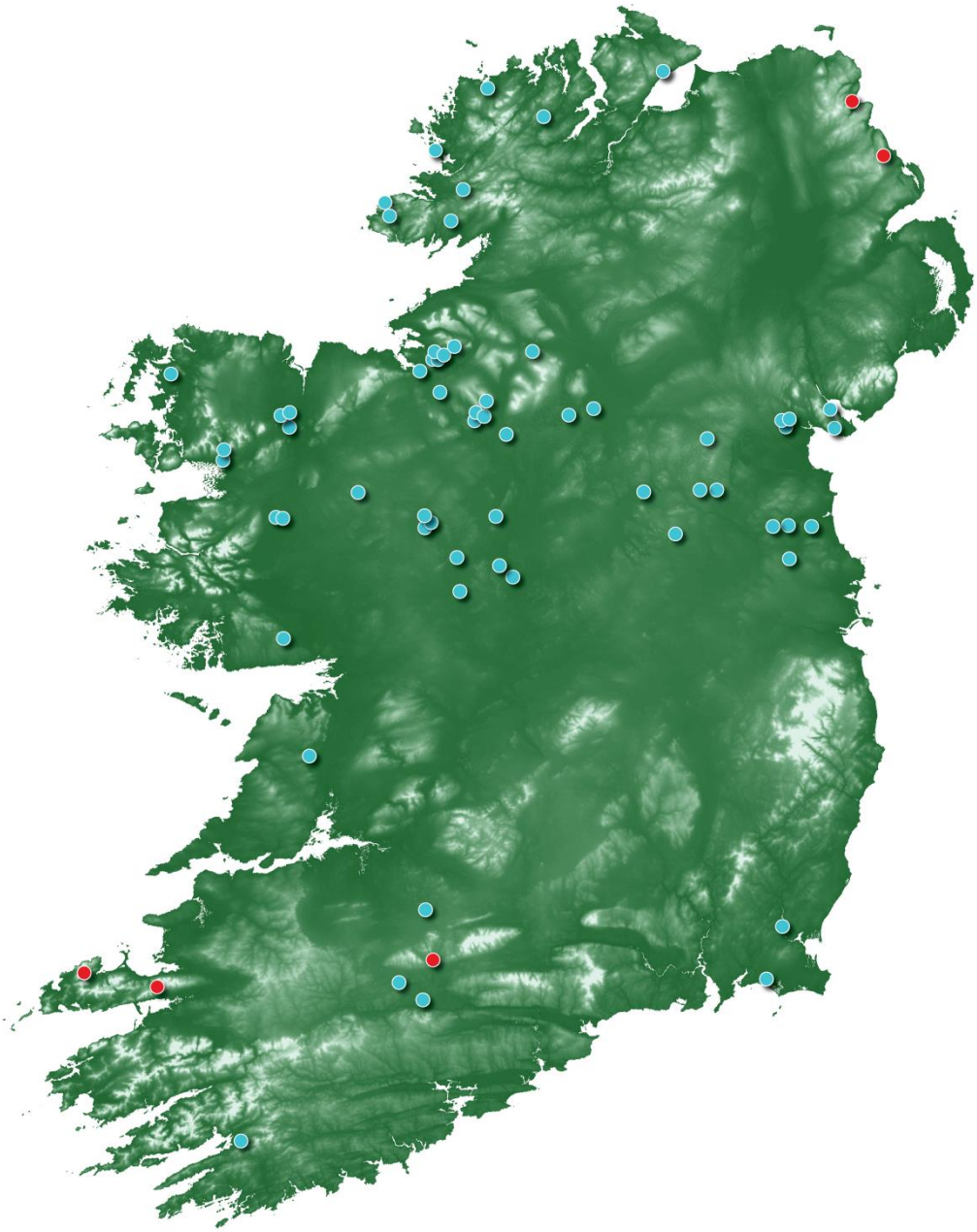

Fig. 2.5: Distribution of Irish inland promontory forts. Red circles denote upland promontories.

distinguish between these site types, Sharples (2010, 61) suggests that dominance over the landscape, as well as the monumentality of the monument, should be considered. However, Brown (2009, 12) remains cautious of this approach, suggesting that substantial variations in these aspects can exist.

The subjectivity surrounding definition and the constraints of applying blanket terminology ignore the fact that 'hillforts' defy rigid classification. Coupled with this, the process of enclosure can have multiple connotations and purposes at different times and places (Brown 2009, 7; Harding 2004, 298; Halliday and Ralston 2009, 467), meaning that a 'hillfort' built in the Late Bronze Age might be constructed for very different reasons than a 'hillfort' built in the Later Iron Age, even if the two are be morphologically comparable with a similar landscape setting. It is interesting that, despite the limitations of a classification system introduced by Raftery (1972), the distinctions between different hillfort types tends to be supported on chronological grounds.

2.2.1 Irish Hillforts: A Brief History of Research

The study of hillforts in Ireland began with Thomas Westropp's surveys in the early 20th Century. Westropp was one of the most celebrated Irish antiquarians and he had a specific interest in forts, particular the impressive sites in Co. Clare. Many of the almost 300 papers he published were used to discuss the subject. His most important work, '*The Ancient Forts of Ireland*', published in 1902, was the first significant attempted to classify monument types in Ireland that fell within the blanket term 'fort' (Westropp 1902a). He identified eleven classes (although never identified hillforts as a separate group) and examined the morphology and distribution of these groups, discussing for the first time their wider European context. This provided an excellent framework for subsequent research, one that was not surpassed until the publication of Ó Ríordain's '*Antiquities of the Irish Countryside*' in 1943 (Cotter 2012a, 11). Even before the invention of absolute dating techniques, Westropp posited that the majority of Irish forts were Early Medieval and that larger examples such as Mooghaun (No: 85) and Dún Aonghasa (No: 40) were built prior to the introduction of Christianity. Although cautious when considering the chronology of these large forts, using documentary sources and evidence from stray finds, Westropp (1902, 725) concluded that forts 'originate at least 1200 years before our era (i.e. 1200 BC) and 'by their simplicity and elasticity held their own till many centuries of our era had passed away'. This estimate coincides with the corpus of dating evidence suggesting the emergence hillforts *c.*1200 BC and the established dating of Early Medieval enclosures, *c.* 400–

1200 AD. Its accuracy reveals Westropp's impressive knowledge of Irish archaeology and his unrivalled ability to analyse this information.

Westropp was the first to criticize the mythological origins of these forts, which was widely accepted by nineteenth century scholars such as John O'Donovan, George Petrie and Eugene O'Curry. O'Donovan (1839) and Petrie (1972, 256–257) considered the origins of Dún Aonghasa (No: 40) and the forts in western Ireland were related to the mythical invasion of the *Firbolg*, an ancient tribe originally located in Scotland. This origin tale recounts how the sons of the *Firbolg* chief fled from the territory of the Picts in Scotland and attempted to settle at Tara and Newgrange (Stokes 1894). The sons were unable to afford the tribute required to settle in these territories and advanced further west, where they encountered Maeve, the queen of Connaught, who suggested that they settle outposts further to the west. There they built the elaborate stone forts of Dún Aonghasa and Dun Conor among others. Rather than accept the 'excessively improbable' explanation, Westropp saw them as part of a series of monuments stretching all across Europe (Ashe FitzGerald 2000, 56). Even at this early stage, Westropp saw beyond the defensive paradigm and acknowledged that ritual and ceremonial interpretations should be considered when interpreting these large monuments (Westropp 1911, 347).

The premises of Westropp's publications were to record monuments for future scholars who would have the resources for field survey and scientific excavation (Ashe FitzGerald 2000, 56; Westropp 1896, 143). An excellent example is Westropp's survey of Mooghaun (No: 85) hillfort in Co. Clare (Westropp 1893; 1902a; 1902b; 1908). Grogan (2005a, 107) describes these surveys as the best published descriptions of the site prior to his own study, considering there had been no modern analysis of the site prior to the commencement of the North Munster Project in 1995. Several excellent drawings of the monument accompanied Westropp's publications, the most detailed published in 1908 (Fig. 2.6). Prior to this, the only scale plan of the site was that contained in the 1st edition Ordnance Survey maps published in 1840. The detail of Westropp's map is evident, with a number of possible entrances and small structures recorded.

Westropp published various plans and descriptions of hillforts both in Ireland and abroad. He described ten of the Irish sites in his '*The Ancient Forts of Ireland*', including a number of the Baltinglass hillforts in Wicklow (see Chapter 4), although many of these were defined as large ringforts. Considering that around 40 hillforts had been identified by Raftery by 1972, the number of hillfort sites described by Westropp is remarkable. One of the most famous sites Westropp recorded was Dún Aonghasa (No: 40) in Co. Galway. Westropp published various

sketches (Westropp 1897; 1898; 1910) and plans (Westropp 1910) of the hillfort, adding to a wealth of investigations undertaken by several other eminent antiquarians (Fig. 2.7). George Petrie (Stokes 1868, 18) and John O'Donovan (1839) both visited the site and published descriptions and plan drawings. These are particularly important as they were undertaken prior to the late nineteenth century restoration works by the Office of Public Works (OPW).

The size and imposing nature of some Irish hillforts encouraged other antiquarians to study these monuments, although not to the same extent as Westropp. O'Donovan and O'Curry were both employed with the Ordnance Survey for over a decade, and recorded various details of hillforts such as Mooghaun (No: 85) and Dún Aonghasa (No: 40). A more focused

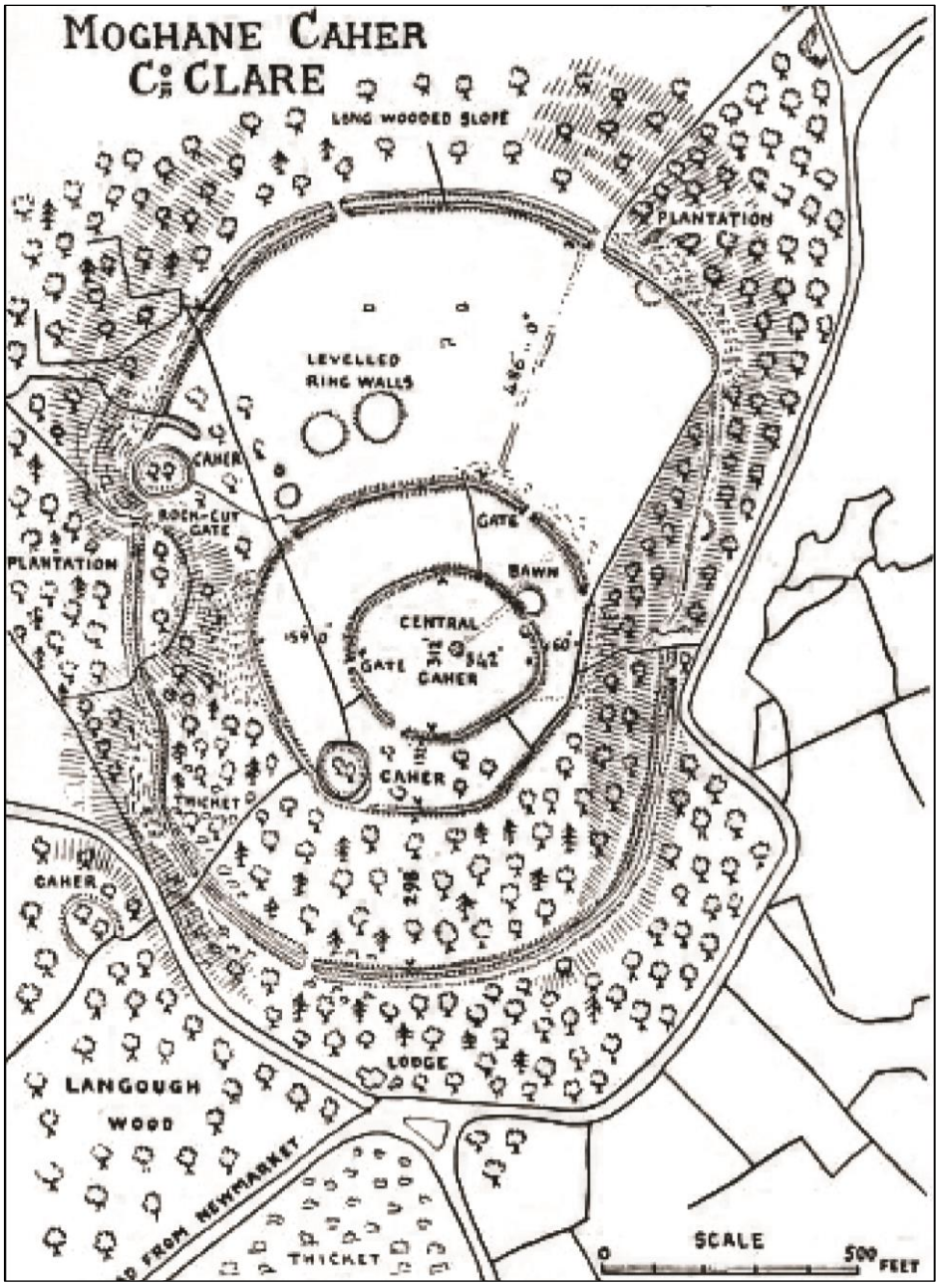

Fig. 2.6: Westropp's 1908 plan of Mooghaun hillfort.

study of the hillforts at Rathgall (No: 90) and Knockeen (No: 70), Co. Wicklow, was undertaken by Orpen in 1911. The latter was the first to record the morphological layout of Rathgall hillfort, comparing it to Dún Aonghasa and the large stone forts in the west of Ireland (Orpen 1911, 143). Orpen interpreted Rathgall as the centre of political power in south Leinster, and connected it with some of the early kings of *Okinselagh*. While this places the hillfort at the beginning of the Early Medieval period around 400 AD, high status settlement is attested by the large cashel at the centre of the earlier hillfort. In a later paper, Orpen (1916, 42) tentatively identified Rathgall as the *Dun Galion* marked on Ptolemy's map of Ireland, describing the hillfort as a primitive *oppidum munitum*.

There are no recorded amateur/antiquarian excavations at any Irish hillforts. This contrasts with the extensive evidence for such at British hillforts. Rather, the first archaeological investigation of an Irish hillfort was undertaken by Bersu at Freestone Hill (No: 45) in Co. Kilkenny and subsequently published by Raftery in 1969. This was quickly followed by Proudfoot's excavations at Downpatrick (No: 37) in Co. Down (Proudfoot 1954; 1955a). Both sites produced distinctive pottery datable to the Late Bronze Age, although at Freestone Hill

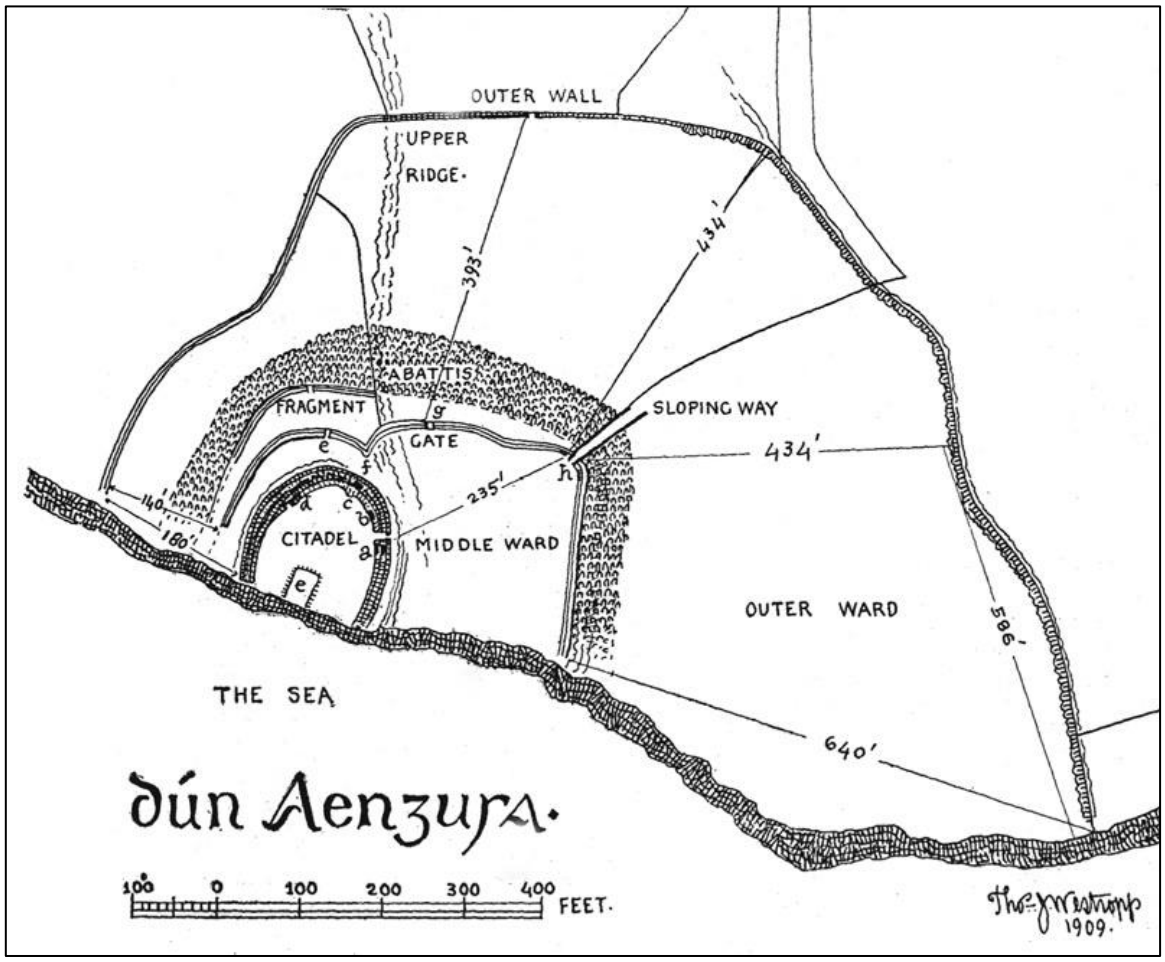

Fig. 2.7: Westropp's plan of Dún Aonghasa published in the proceedings of the Royal Irish Academy in 1909.

important high status Roman finds were recovered from a central enclosure initially suggesting to the excavator the site was Iron Age. These excavations became the foundation for the first major synthesis of Irish hillforts by Raftery (1970a; 1970b; 1972) and his subsequent excavation at Rathgall (No: 90) hillfort in Co. Wicklow. Although this excavation has not been published in full, the significance of the site is indisputable. Raftery identified extensive evidence for specialist craft-working as well as evidence for exotic items indicative of long-distance trade with the Continent. Unfortunately, the dating of the enclosing elements of the hillfort remains problematic, although the majority of the internal activity is securely Late Bronze Age in date. Similar problems were encountered by Warner (2009) when excavating the defences of Clogher (No: 104) hillfort in Co. Tyrone during the 1970's, although Late Bronze Age coarse-ware pottery found within and underneath the hillfort bank strongly implies a Late Bronze Age date.

Mallory (1995) identified similar evidence for exotic items indicative of long-distance trade at Haughey's Fort (No: 53) in Co. Armagh. A recent revaluation of the site by Mallory and Baban (2014, 26) suggests that the occupants of the site were also producing prestige goods. A large central post structure was identified and partially excavated and this has been identified by the excavation as evidence supporting the primarily ritual character of the fort. Importantly, secure radiocarbon and dendrochronological samples were recovered from the enclosing elements which could, for the first time in Ireland, scientifically date the defences of the hillfort to the Late Bronze Age. Environmental analysis was also undertaken at the site revealing that the construction of the hillfort coincided with an intensive landnam event which cleared the majority of the hillfort of forest.

Subsequently, a number of important investigations by the Discovery Programme were undertaken at Mooghaun (No: 85) hillfort in Co. Clare (Grogan 2005a; 2005b) and at Dún Aonghasa (No: 40) in Co. Galway (Cotter 2013a; 2013b). These supported the Late Bronze Age dates obtained from Haughey's Fort (No: 53) and paralleled the environment evidence, revealing extensive clearance of the hilltops prior to the construction of the enclosing elements. Other significant investigations include the extensive excavation of Rahally (No: 88) hillfort in Co. Galway in advance of road development and the research excavations at Knockdhu (No: 69) in Co. Antrim.

Despite this research, hillfort studies in Ireland have not advanced significantly, due in part to a lack of dating information and to problems of classification. In total, twenty hillfort sites have been excavated in Ireland, with only five having more extensive investigations of their interiors. This has resulted in a poor understanding of the function and economy of these

monuments and a tentative chronology. This contrasts with British hillfort studies, where numerous monuments have been subject to detailed excavations and multi-disciplinary studies. The lack of site information has pushed Irish researchers to rely heavily on data from British and continental studies, which has its limitations given the often insular character of Irish hillforts.

An integrated study of Irish hillforts and their social context currently being undertaken by University College Cork, seeks to address many of these issues. The compilation of relevant material, including databases of hillfort, hilltop enclosures and contemporary weapons, together with geophysical survey and excavation of selected hillforts and GIS analysis, is providing important data regarding the dating, topographical setting, form and function of these monuments.

2.2.2 Hillfort Classification in Ireland

Raftery (1972, 39) proposed the first classification of Irish hillforts, dividing 40 known examples into three groups. Class 1 hillforts comprised univallate sites such as Clomantagh (No: 27), Co. Kilkenny (Fig. 2.8). Class 2 sites were defined as widely-spaced, multivallate defences on (a) hill-tops, including Toor More (No: 36), Co. Kilkenny (Fig. 2.9), and (b) cliff-tops such as Dún Aonghasa (No: 40), Co. Galway (Fig. 2.10). Class 3 included inland promontory forts such as Knockdhu (No: 69), Co. Antrim (Fig. 2.11) and Caherconree (No: 16), Co. Kerry (Fig. 2.12). Since Raftery's (1972) publication, the number of identified hillforts in Ireland has risen to approximately 108 examples.

Almost 55% of Irish hillforts are univallate, 40% widely-spaced multivallate, with the remainder inland promontory forts (Fig. 2.13). There is no archaeological distinction between Class 1 and 2 hillforts other than the number of enclosing elements. Both classes are sited in similar topographical positions and height above sea level. Class 1 hillforts are sited on average at 167m OD and Class 2 are 178m OD. Only three hillforts are positioned above 410m OD (see Fig. 11.112). Grogan (2005b, 121) concluded that elevation was not an absolute factor in hillfort location and suggests that extensive views over specific parts of the local landscape were more important. It is certainly the case that most Irish hillforts have commanding views. An estimated 69% of Class 1 hillforts have panoramic views (360°), with a further 20% having extensive (approximately 270°) visibility of the surrounding landscape. Class 2 hillforts generally have more extensive viewsheds, approximately 80% having panoramic views and 15% have extensive visibility.

Fig. 2.8: A Class 1 hillfort: Clomantagh hillfort, Co. Kilkenny (Bing Maps 2015).

Fig. 2.9: A Class 2a hillfort: Toor More hillfort, Co. Kilkenny (Google Earth 2015).

Fig. 2.10: A Class 2b hillfort: Dún Aonghasa, Co. Galway (Bing Maps 2015).

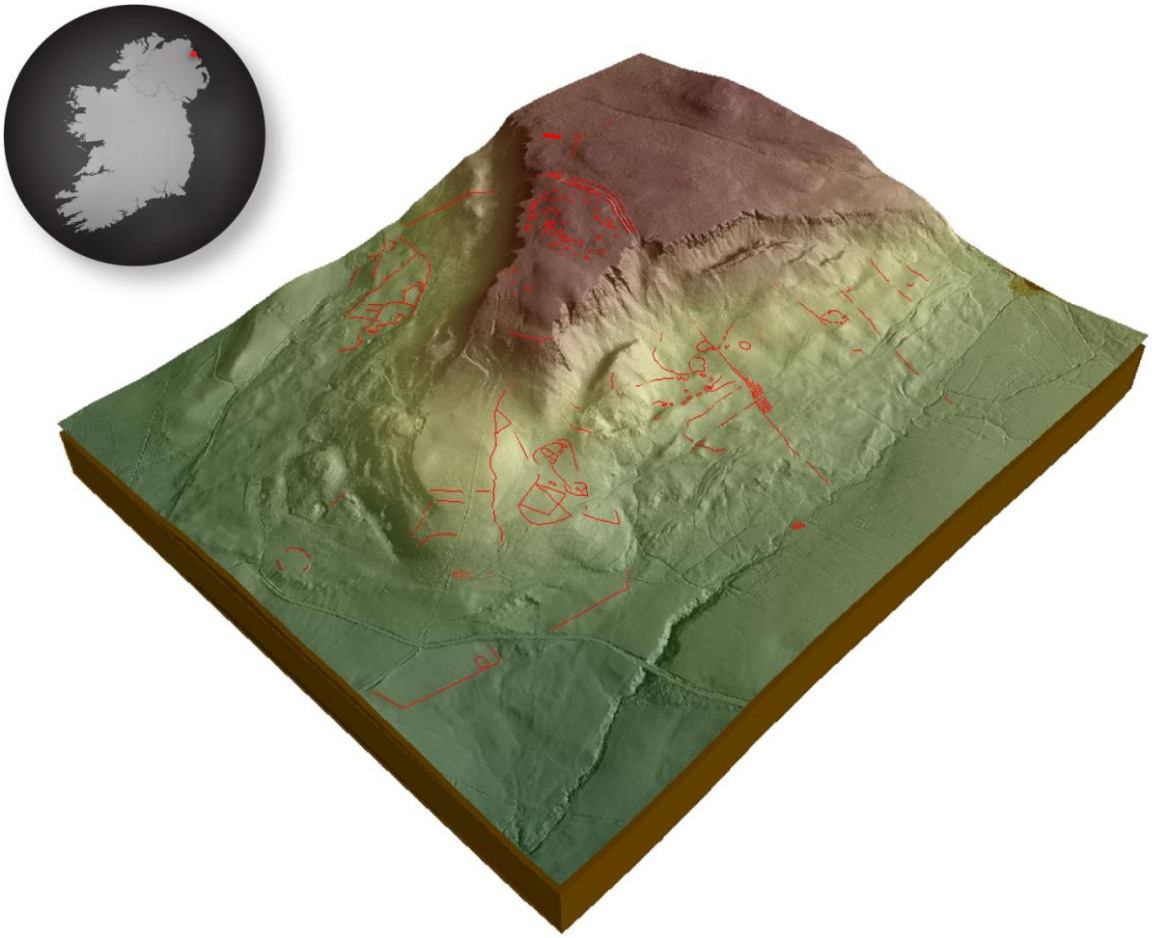

Fig. 2.11: A Class 3 hillfort: LiDAR survey of Knockdhu, Co. Antrim (after McNeary 2012, fig. 1.).

More notable differences occur when analysing the area enclosed (see Fig. 11.113), with Class 2 sites (7.39ha on average) enclosing nearly twice that of Class 1 sites (4.2ha on average). Approximately half of all univallate sites are under 2ha in comparison to 15% of widely-spaced multivallate sites. Half of the widely-spaced multivallate sites are over 5ha, in contrast to approximately 25% of univallate sites. About 27% of widely-spaced multivallate sites are over 10ha in size, compared to approximately 9% of univallate examples. Grogan (2005b, 112) has proposed a revised classification of Irish hillforts that amalgamates Raftery's Class 1 and 2 and divides the combined monuments by size, Class 1 becoming hillforts under 5ha and Class 2 represented by sites over 5ha. The merits of this approach are unclear and it is obviously problematic at the lower end of the scale in relation to the status of hilltop enclosures.

The separate classes of hillfort in Ireland do not have mutually exclusive distributions. All three of Raftery's classes of hillfort occur widely throughout Ireland (Fig. 2.1 and Fig. 2.2). Gaps may occur in hillfort distribution where sites in agriculturally rich areas have been destroyed. The recently discovered Rahally (No: 88) hillfort, Co. Galway is an excellent example. Situated at the summit of a low-rise hill, the large widely-spaced multivallate hillfort has been completely levelled and was only discovered prior to construction of the N6 Galway to East Ballinsloe road

Fig. 2.12: Caherconree, Co. Kerry.

scheme (Mullins 2008). While hillforts mostly occur in isolation, there are a number of pairs,such as the Friarstown group (No: 46 and 47) in Co. Limerick, and Rathgall (No: 90) and Knockeen (No: 70) hillforts in Co. Wicklow. An exceptional group of up to nine hillforts is located in the western edge of the Wicklow Mountains, overlooking the town of Baltinglass (No: 15, 55, 60, 92, 94, 98, 99, 101 and 103).

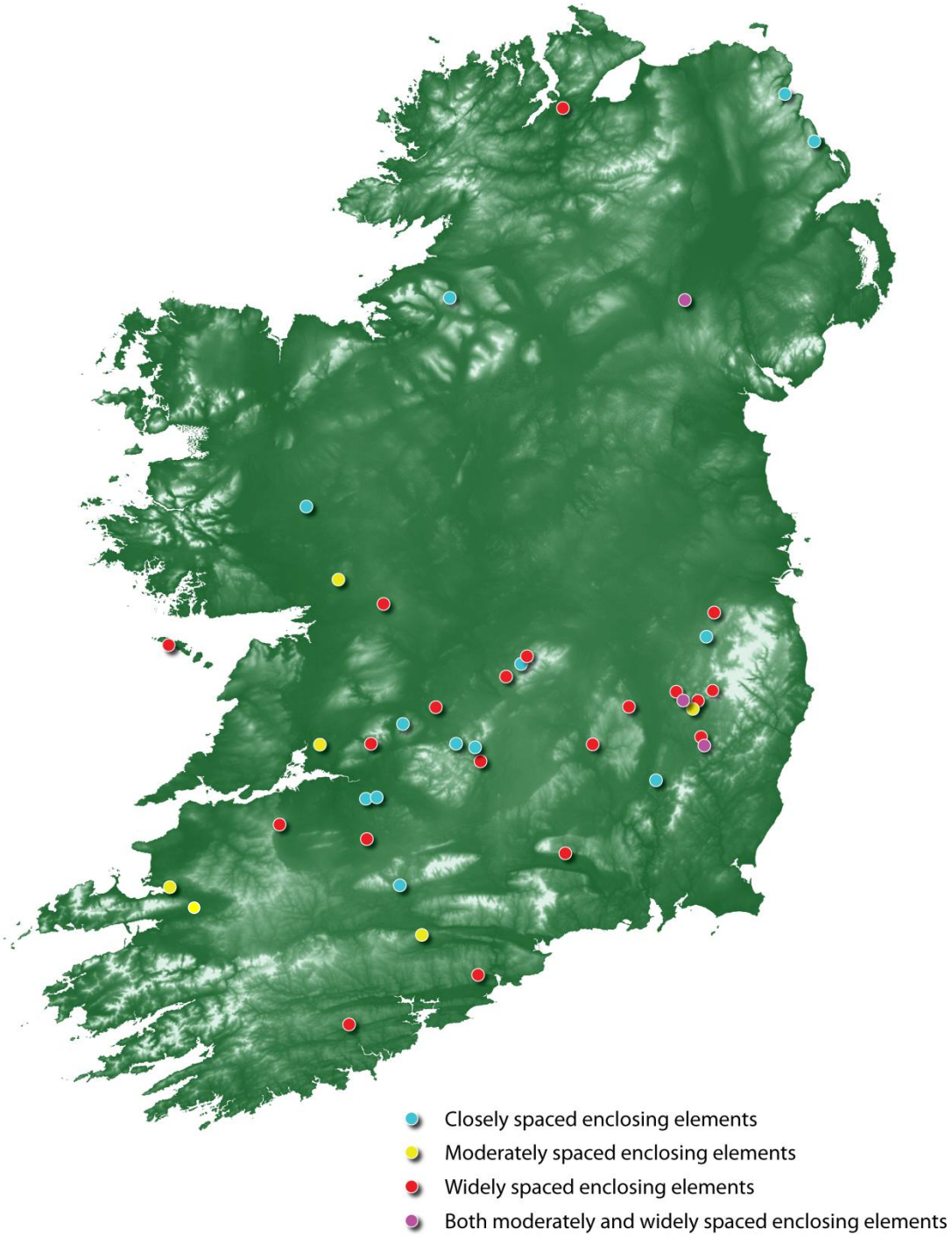

Fig. 2.13: Multivallate hillforts divided by spacing of enclosing elements.

Further classification of class 2(a) hillforts is possible (see Fig. 11.114). An estimated 51% of this class could be categorized as having widely spaced enclosing elements, the separation between these always being over 55m, an excellent example being Kill Hill (No: 58) hillfort, Co. Kildare (Fig. 2.14). About 18% have more closely spaced enclosing features, separated by no more than 30m (on average 20m), such as Rathcoran (No: 92) hillfort, Co. Wicklow (Fig. 2.15). There are three sites that fit both categories, Hughstown (No: 55), Co. Kildare, Rathgall (No: 90), Co. Wicklow and Haughey's Fort (No: 53), Co. Armagh. The remainder of hillfort sites comprise closely spaced multivallation with no intervening gap between enclosing elements, such as Ballinkillin (No: 5), Co. Carlow. Many of these, however, may be misclassified, and the outer defensive elements may instead consist of an external counter-scarp, as at Rathnagree (No: 94) or Ballylin (No: 9) hillforts. Raftery (1994, 57–58) has suggested that sites with little or no space between enclosing elements provided defence in depth, where those that are widely spaced offered space to regroup and fall back on inner ramparts. Wailes (1982) suggests that the outer enclosures of a hillfort may have been a 'token' element of ritual or symbolic significance, while most would regard multivallation as a statement of power and status.

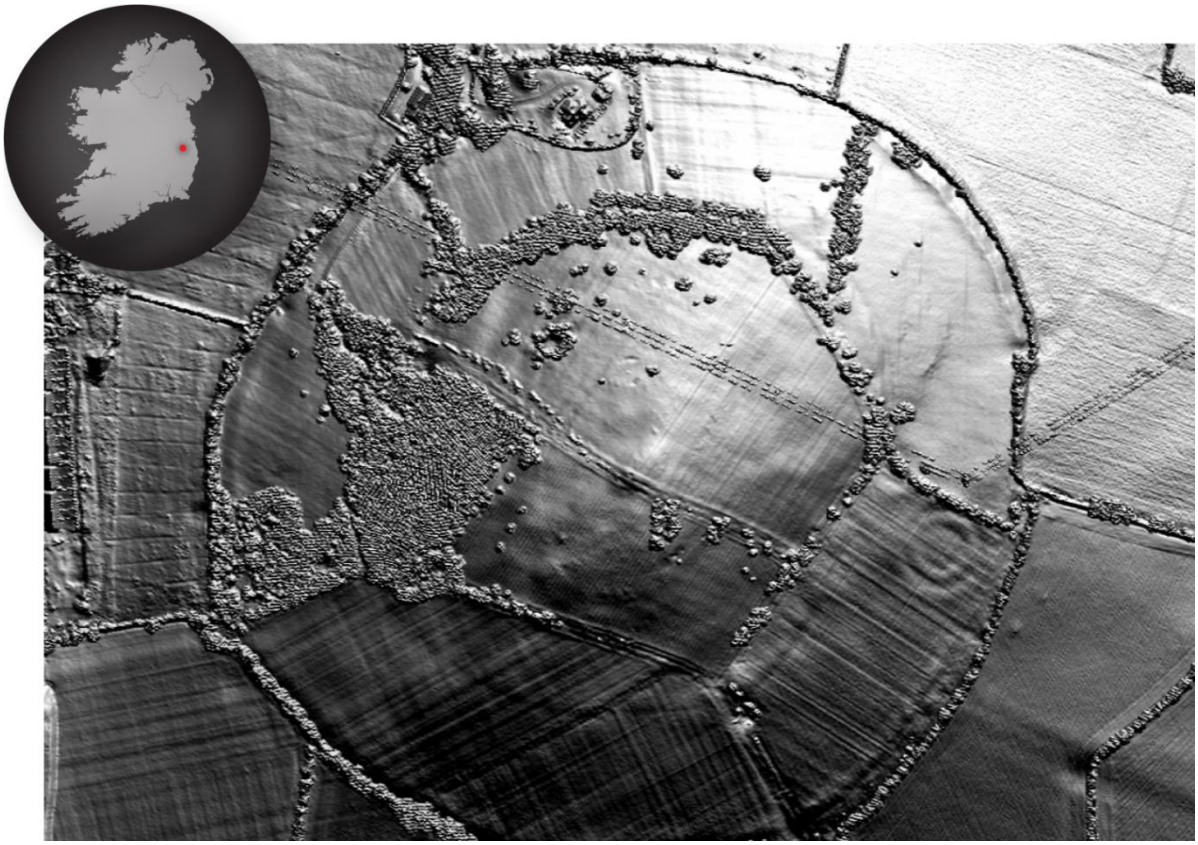

Fig. 2.14: LiDAR of Kill Hill hillfort, Co. Kildare (Transport Infrastructure Ireland).

2.2.3 Internal Features

Approximately 25% of Irish hillforts have recorded cairns or mounds and three hillforts surround recorded megalithic tombs (Fig. 2.16). About 34% of sites surround some form of burial monument (i.e. a barrow, mound, cairn etc.)(see Fig. 11.115). The incorporation of earlier burial monuments may be a symbolic attempt to both venerate the past and legitimate power and control of the landscape. The significance placed on these monuments by the hillfort builders is implied by the number of examples that survive. This is attested at Freestone Hill (No: 45), where the hillfort builders carefully avoided an earlier cairn before Iron Age occupants destroyed it (Raftery 1969, 7). The hillfort enclosures themselves may also represent a definition of sacred space giving rise to a need to defend that space (Finney 2006, 88–89).

Thirty one hillforts have surface evidence for settlement activity (see Fig. 11.116). Only nine of these sites have more than ten visible structures within their interiors. Only a small number of these have been excavated, making it difficult to establish whether these hut sites are contemporary with the construction and occupation of the hillfort in question. Brown (2009, 195) notes that the very presence of a hillfort on a prominent topographical feature would have

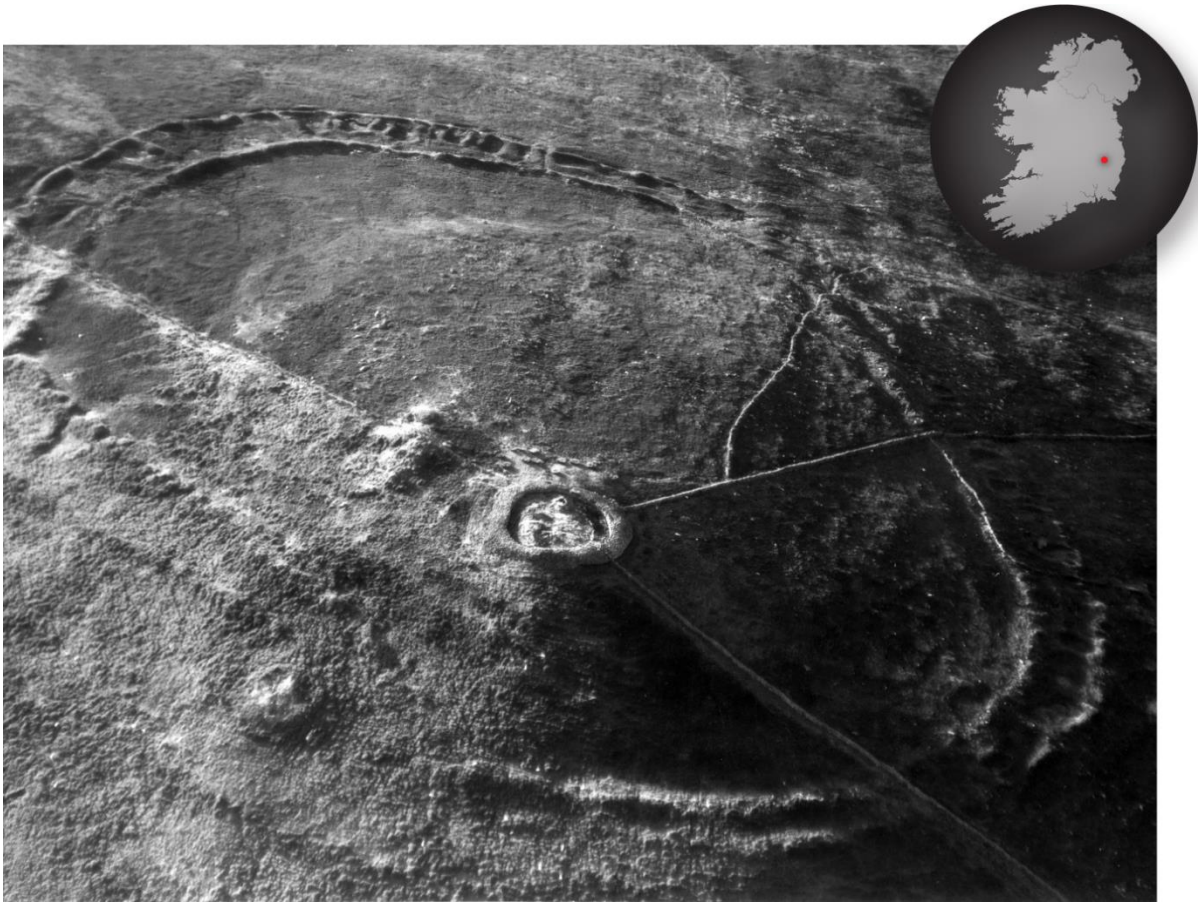

Fig. 2.15: Rathcoran, Co. Wicklow (Cambridge Aerial Photographic Collection).

been enough of a status enhancement not to warrant elaborate internal features and could explain the seeming 'absence of life' at some sites. In some instances, the limited evidence for settlement might also be explained by seasonal, rather than permanent occupation and/or activity. The inaccessibility of certain hillforts did not preclude them from extensive settlement. For example, 600m to the east of Turlough (No: 107) hillfort, Co. Clare, an extensive upland settlement comprising over 150 hut structures is positioned on the opposing summit of Oughtmama mountain and is easily accessible from the hillfort. A smaller group of seven hut structures is visible at Caherconree (No: 16), Co. Kerry, an inaccessible inland promontory fort positioned on a western facing spur of Gortaleen Mountain at 659m OD. Conversely, easily assessable hillforts such as Rahally (No: 88), Co. Galway (Fig.2.17) reveal very limited settlement activity. This is despite over 50% of the interior of Rahally (Mullins 2008) being excavated. It must also be noted that not all settlements were enclosed during the Late Bronze Age, as evidenced by the extensive settlement at Corrstown, Co. Derry (Ginn and Rathbone 2011).

2.2.4 Excavation Record

Twenty hillforts have been examined by excavation in Ireland. Fourteen of these sites have suitable evidence dating the construction of the hillfort, with a further three having contentious

Fig. 2.16: Large cairn at centre of Carn Tighernagh hillfort in Co. Cork.

dates. The dating of these monuments will be discussed in the following section. The majority of the excavations comprise small-scale examinations of enclosing elements, with limited investigation of interiors. Despite this, the evidence obtained from these excavations indicates the diverse nature of the Irish hillfort, with varying degrees of evidence relating to internal settlement, industrial and craft-working activity and ritual action.

The earliest recorded excavation was undertaken at Freestone Hill (No: 45) in Co. Kilkenny (Fig. 2.18). The site was excavated by Bersu between 1948–1949 and later published by Raftery (1969). The hillfort comprises a single low bank with an external ditch, enclosing an oval area of 1.52 ha. The enclosing elements do not follow the contours of the hill, rather the hillfort slopes partially to the south. The interior rises steeply towards a flat centre where the partial remains of a circular wall 18m in diameter was surrounded by a larger 37m x 30m oval enclosure (Raftery 1969, 6). Underneath these enclosures, the remains of a Bronze Age cairn was identified.

Excavation revealed that the hillfort ditch at Freestone Hill was rock-cut and had an irregular profile that varied from V-shaped to flat-bottomed. It is approximately 1.3–2.5m wide (averaging 2m) and 0.75m–2m in depth (Raftery 1969, 33). The bank is composed of stone and

Fig. 2.17: Rahally hillfort in Co. Galway under excavation (after Mullins 2008).

gravel. It is 2.5m–4m wide at its base, rising 0.5m–1m above the old ground surface (*ibid.*, 34).Large stones in the ditch suggest some form of stone facing (*ibid.*, 34). A potential post-hole was identified on the crest of the bank, however, Raftery (1969, 34–35) suggests that it is unlikely to form part of a larger wooden palisade. Coarse ware pottery was discovered underneath the bank and within the ditch fill. Cleary (1993; 2012, 23) suggests that this pottery type can now be seen as indicative of the Irish Late Bronze Age. Excavation of the interior revealed no discernible structures, although shallow depressions excavated within the larger enclosure at the centre contained spreads of artefacts and 'dark' soil, and so may be considered occupation areas. Raftery (1969, 41) identifies four similar features that remain unexcavated and recent aerial photography has identified up to ten further examples. Excavation of the central area revealed the truncated remains of an Early Bronze Age cairn. This measured 23m in diameter and was probably contained by a kerb of stones, with a second concentric band of stone 3m inside this (*ibid.*, 7). Three inhumations (a child, a young adult, possibly female, and an unidentified example), thirteen cremations and two possible cremations were excavated within or immediately outside this cairn (*ibid.*, 7–9). South of the cairn, at least five Food Vessels and a 'considerable number' of worked flints were identified (*ibid.*, 11–16).

Fig. 2.18: Freestone Hill, Co. Kilkenny (Bing Maps 2015).

Surrounding the cairn was a large circular enclosure that Ó Floinn (2001) suggests was contemporary with the hillfort. Later Iron Age occupants built a smaller enclosure within this and dismantled the central cairn (Raftery 1969, 7). Freestone Hill was originally dated to the Iron Age due to the recovery of Roman artefacts within the smaller central enclosure (Raftery 1969; Bateson 1973, 45). Although the assemblage is clearly representative of a strong Iron Age presence, coarse ware pottery discovered underneath the hillfort bank, in the ditch fill and within occupation areas (Raftery 1969, 91) imply that the original construction and occupation of the hillfort dates to the Late Bronze Age. Raftery (1976, 58–59) later conceded that Freestone Hill was probably Late Bronze Age. Ó Floinn (2000) suggests that the ceramic assemblage, as well as other artefacts such as four blue glass beads (Henderson 1988, 442), date the construction and occupation of the hillfort to the Late Bronze Age. A single radiocarbon date (810–550 BC) from an occupation layer confirms Late Bronze Age/Early Iron Age occupation (Raftery 1995; Waddell 1998, 270).

Downpatrick (No: 37) hillfort in Co. Down was excavated between 1954 and 1995 by Proudfoot (1955a; 1957). It comprises a single enclosing element, visible on aerial photographs, which surrounds the historic cathedral. A 3m by 45m trench was excavated in 1954 over the enclosing elements at the south-west. Several phases of construction were noted by Proudfoot (1954, 97–98), potentially ranging from the Late Bronze Age to Medieval period. Excavation revealed a ditch-bank-ditch arrangement, although Proudfoot (1955a, 66) suggests that the inner ditch is of slightly later date. Coarse ware pottery was recovered from both the ditch and underneath the bank (Proudfoot 1954, 99). More pottery of this type was recovered from the interior. Proudfoot (1954) suggests that these sherds are similar to the Late Bronze Age pottery from crannogs at Ballinderry 2, Knocknalappa and Lough Gara. Raftery (1969, 93–94) describes the Downpatrick and Freestone Hill (No: 45) pottery assemblages as 'superficially comparable' and dated Downpatrick to the Late Bronze Age (Raftery 1976, 351). Three Late Bronze Age gold hoards from the interior of the hillfort further attest to Late Bronze Age activity. A series of post-holes at the edge of the bank face suggests a palisade was used to contain an earthen bank (Proudfoot 1954, 98–99). No charcoal was present inferring the palisade had decayed *in-situ*. A similar setting of post-holes abutting the inner face of the bank was linked to the outer row of posts by a series of shallow traverse trenches and could be interpreted as the bedding trenches for tie-beams (Proudfoot 1955a, 59). The palisades suggest that the bank was originally 6.5m wide (Proudfoot 1955a, 59). A single oval structure discovered within the interior may be contemporary with the hillfort. More than a dozen clay or wattle and daub lined pits of varying size were excavated in the interior (Proudfoot 1954, 98).

The stratigraphy of the ditch suggests that there was a significant period where the enclosing elements at Downpatrick were not maintained. Following this, there was a distinctive Early Medieval and Medieval presence, identifiable by the recovery of souterrain ware and glazed pottery. This period of occupation saw a re-use of the enclosing elements, with the construction of a wooden palisade on a newly formed bank and the use of the partially infilled outer ditch for an iron bloomery. Later trial excavations led Hamlin and Lynn (1988, 61–64) to suggest that the hillfort is Early Medieval. However, this disregards clear evidence for the re-use of the enclosure in later periods and does not clearly explain the presence of Late Bronze Age pottery directly underneath the bank and in the ditch fill.

Coarse ware may also date the univallate hillfort at Clogher (No: 104), Co. Tyrone, to the Late Bronze Age (Waddell 1998, 270). This hillfort comprises a single earthen bank and a wide external ditch. It surrounds a ring-barrow and an Early Medieval ringfort. This palimpsest of monuments has complicated the dating of the site, as almost all contexts earlier than the Early Medieval period have been disturbed (Warner 2009, 512). However, some radiocarbon dates confirm occupation of the hilltop during this period (Waddell 1998, 270; 277). Excavations of the bank produced evidence for wooden lacing and an association with coarse ware pottery (Warner 2009, 509), indicating that it is Late Bronze Age. Coarse ware may be associated with the construction of the hillfort and large pits containing this pottery discovered at the centre of the monument are possibly Late Bronze Age (Warner 1972; 1974). A recent publication by Warner (2009) suggests that the hillfort is Iron Age, despite the author conceding that dating evidence for the earthwork itself is poor (*ibid.*, 510). This is in contrast to earlier summary reports that suggest a Late Bronze Age date (Warner 1971 *et seq.*).

Lyles Hill (No: 82) in Co. Antrim is a pear-shaped univallate enclosure, comprising an earthen bank 9m wide and 1m high, over an area of 6.25ha (Fig. 2.19). The site was originally dated to the Neolithic by Evans (1953) based on Neolithic artefacts within the bank core. Later excavations by Gibson and Simpson (1987; Simpson and Gibson 1989) in the late 80's produced a Late Bronze Age date of 1396–1162 BC from charcoal within the bank. The old ground surface directly underneath the bank is dated to 1526–1326 BC. Evidence for the re-use of the monument in the Late Iron Age was revealed by radiocarbon dates from the gravel capping of the bank (138 BC–AD 122) and a post-hole at the top of the bank (99–209 AD) (Simpson and Gibson, 215). Further excavation of the interior revealed two roughly parallel lines of palisade trenches placed 3–6m apart, approximately 40m inside the Late Bronze Age bank. These palisades would have a diameter of 70m and 110m respectively (Cooney 2002, 71). Charcoal

from the inner palisade is dated to 3330–2920 BC and the outer example to 2600–2350 BC (Simpson and Gibson, 215). The clear evidence for Neolithic occupation at the site suggests the hilltop was an important landscape feature throughout prehistory. Similar Neolithic activity is found at Knockacarrigeen (No: 23) and Knockdhu (No: 69) hillforts.

A univallate hillfort was excavated at Knockacarrigeen Hill (No: 23), Co. Galway, prior to the construction of a reservoir. Large areas of the interior and the enclosing elements were investigated. The hillfort is 4.85ha in size and surrounds a small cairn and stone enclosure (Carey 2002, 61). The enclosing elements comprise a drystone wall 6–7m in width with a maximum height of 1m. Dates obtained from a small stone built enclosure inside the hillfort (2121–1913 BC, 2173–1828 BC, 2600–2484 BC, 2860–2460 BC) indicate that the hilltop was occupied during the Neolithic and/or Early Bronze Age. Although there is no useful dating information for the excavated hillfort bank, Carey (2002) notes that this is 'remarkably similar' to the drystone banks at the Late Bronze Age hillfort at Mooghaun (No: 85), Co. Clare.

Mooghaun (No: 85) hillfort comprises three widely spaced limestone rubble banks, occupying a total area of 11.05 Ha. The inner enclosing element surrounds a sub-circular area of 0.76 ha. The stone bank varies from 6–9m in width and is on average 1.5m in height, although

Fig. 2.19: Lyles Hill, Co. Antrim (Google Earth 2015).

the apparent height of the banks from the exterior varies from 0.8–3.5m (Grogan 2005a, 118). There are no apparent ditches associated with the banks. A single radiocarbon date for animal bone in the inner bank material is dated to 922–813 BC (*ibid.*, 144). The middle enclosing element is roughly concentric and occupies an area of 2.88 ha. The bank is 8–11m wide and rises to a height 2m and of 3.5m externally (*ibid.*, 119). Again, there is no apparent ditch feature. A series of radiocarbon dates were attained for the middle enclosing element (see Grogan 2005a, Table 6.1) dating the original construction of the bank to 1125–918 BC., with subsequent alterations occurring between 1000 BC to 800 BC (*ibid.*, 186). The outer enclosing element is oval and encloses an area of 11.05 ha. It comprises a large inner bank, 12–15m wide, an intervening ditch 5m in average width, and a smaller outer bank (*ibid.*, 121). A charcoal sample from a burnt surface directly underneath the bank dates its construction to 1255–917 BC (*ibid.*, 188).

Grogan (2005a, 128) suggests that the series of broadly similar radiocarbon dates obtained from the three enclosing elements of the hillfort (ranging 1255–813 BC) imply that they were likely constructed as a unit during the Late Bronze Age. Grogan (2005a, 238–239) has argued for a construction date around the final two decades of the tenth century BC, although the radiocarbon dates for the middle and outer enclosing elements could potentially be earlier. Contemporary occupation evidence and coarse ware pottery was identified in numerous excavated areas, corroborating the radiocarbon evidence (see Grogan 2005a, Fig. 7.10). Two hut structures abutting the middle enclosing element may be associated with pre-rampart construction or the initial building of the rampart (*ibid.*, 183–184). Grogan suggests that a 'small compact settlement' occupied the middle and inner enclosing elements, although, considering only a small proportion of the hillfort was excavated, it is likely that more extensive occupation evidence exists. There is a strong Early Medieval presence within the hillfort, visible as two large cashels, a number of smaller enclosures and several excavated hut structures (*ibid.*, 161).

The famous cliff-top fort of Dún Aonghasa (No: 40), on the Aran Island of Inishmore, Co. Galway, is dated to the Late Bronze Age based on radiocarbon results and artefact finds (Fig. 2.10). The hillfort comprises three main drystone walls, built of limestone blocks, which surround a cliff edge to the west. These enclose an area of 5.8ha. Two main construction phases were identified. The first relates to the construction of three of the enclosing elements and dates to the Late Bronze Age. The second comprised the construction of a fourth enclosing element and *chevaux de fries* which remains undated (see Cotter 2012a, 55, Fig. 3.7; Warner 2012). The inner wall survives to a height of 4.9m and varies from 3.5m to 5.8m in width at its base. This has been rebuilt in relatively recent times, with the addition of external buttresses. The wall has two

internal tiers, with access provided by a number of steps which are built into the wall (Cotter 2012a, 54). A sample of animal bone from an occupation layer deposited 'soon' after the construction of the abutting inner enclosing element returned a date of 980–810 BC (Cotter 2012a, 158–163; Warner 2012, 224). Underneath this layer, another occupation surface is dated 1070–890 BC (Cotter 2012a, 158; Warner 2012, 224).

Up to ten structures were identified in the interior of Dún Aonghasa fort (Cotter 2012a, 262–272). Two were dated, namely structures 8 (930–810 BC) and 5 (350–1 BC) (Cotter 2012b, 230). The middle enclosing element survives to a height of 4m and varies from 1.6m to 3.8m in width at its base. Two radiocarbon dates from occupation refuse underneath the lower terrace returned dates of 1300–1050 BC and 1250–1000 BC. Samples obtained from contexts later than the enclosure construction returned dates ranging from 1080–510 BC (Cotter 2012a, 64; Warner 2012). Sherds from a minimum of 340 coarse ware vessels were recovered from the excavations, primarily from contexts dated to 1000–800 BC (Cleary 2012, 9). This corresponds well with the cumulative probability density curve which indicates a distinct peak in activity between about 1000 and 800 BC (Warner 2012, 224). Other likely Late Bronze Age finds included 460 fragments of clay crucibles and moulds (O'Carroll 2012a). Approximately 40 bronze objects, including many of Late Bronze Age type, and 17 pieces of amber (Feeney-Johnson 2012, 93) were recovered mainly from the interior. Numerous stone (Clarke 2012), bone (Mullins 2012; FitzGerald 2012a; O'Brien 2012a; Fitzgerald 2012b) and iron (Fitzgerald 2012c) implements were also recovered, which together with fourteen blue glass beads attest to Iron Age or Early Medieval occupation (Fitzgerald and Warner 2012). A large animal bone assemblage was recovered, although 95% of the material was too fragmented to identify (McCormick and Murphy 2012, 155). Cattle and sheep dominated an assemblage. Small quantities of pig, red deer, fox and grey seal were also apparent. The fish bone assemblage is the largest found in Bronze Age Ireland (McCarthy 2012, 172).

Radiocarbon samples from the three ditches at Haughey's Fort (No: 53), Co. Armagh, have produced broadly contemporary results ranging 1300–900 BC (Mallory 1995, 75). Haughey's Fort is a trivallate hillfort that occupies a large area, 10.42ha in size. Originally, the hillfort was thought to be univallate, until aerial photography, and subsequent archaeological excavations, confirmed two further enclosing elements. All three ditches are approximately V-shaped and measure 2.3 to 3.2m in depth (Mallory 1995, 74). There is no surviving bank material, although Mallory (1995, 74) suggests the ditch fill sequence indicates there were originally internal banks. Large stones found at the bottom of the inner ditch may have formed

an external revetment (Mallory 1988, 14). The inner enclosure was further enhanced by a small palisade beyond the lip of the ditch (Mallory 1995, 75). Aitchison (1998, 31) has suggested that radiocarbon dates from the three enclosing ditches indicate that Haughey's Fort was constructed *c.* 1150–1050 BC and was abandoned shortly afterwards. The features discovered within the site can also be assigned to this general period (Mallory 1995, 84). A dendro-date from a piece of water-logged wood at the base of the inner ditch has precisely dated the construction to 1166 BC (Ballie and Brown 1991; Ballie and Brown 1998). Excavation of the middle and outer enclosing elements are broadly contemporary with the inner example, and date to around 1200–800 BC. Occupation activity within the hillfort is largely contemporary with its construction (Mallory 1995, 75; 78; Mallory and Warner 1988). Large pits were excavated, containing substantial amounts of carbonized grain as well as Late Bronze Age coarse ware pottery, fragments of quern stones, metal artefacts and fragments of gold and bronze. The majority of these pits were positioned within a large (25–30m) built structure comprising an arc of three lines of stakes set outside larger post-holes. Two post-holes are dated to 1250–900 BC and Mallory (1995, 84) has suggested that this could have been a ritual structure.

Rahally (No: 88) hillfort, Co. Galway, is a large (14.24 ha) trivallate hillfort situated on a low glacial ridge. Overall, 53% of its interior and approximately 30% of the entire hillfort has been excavated. The ditches of the hillfort are U shaped, up to 4m wide and 1.5m deep, with the outer and inner elements being more substantial than the middle example (Mullins 2008, 26). Sherds of Late Bronze Age coarse-ware pottery and a damaged polished stone axe were recovered from the inner ditch, where a radiocarbon date (994–827 BC) is available for charcoal found at its base. Although there was no surviving bank material, the ditch fills indicate that banks formed part of the inner and middle enclosing elements (*ibid.*, 26). A charcoal sample from the basal layer of the middle ditch returned a date of 790–520 BC (Mullins 2008, 26). The outer enclosing element of the hillfort comprises a ditch-bank-ditch arrangement (*ibid.*, 26). A charcoal sample from the base of one of the ditches returned a date of 1090–900 BC (*ibid.*, 26). Although a large portion of the hillfort was excavated, there was a distinct lack of Late Bronze Age artefacts and/or contemporary settlement evidence, although Early Medieval settlement in the form of ringforts is well attested. A 30m gap in the northern section of the inner enclosing element incorporates a wet marshy area that extended northwards. A late La Téne artefact, possibly some horse equipment, was recovered from this context, suggesting a possible votive pond. Somewhat similar evidence is found close to Haughey's Fort (No: 53), where an artificial pool known as the Kings Stables, was constructed at the same time as the hillfort and was used for depositing bronze artefacts and human remains.

The important excavations conducted by Barry Raftery at the quadravallate hillfort at Rathgall (No: 90), Co. Wicklow (Fig. 2.20), are still awaiting publication, and only a limited number of published dates are available. The inner enclosure is likely to be an Early Medieval ringfort (Waddell 1998, 270). Excavation of the two closely spaced middle enclosing elements was inconclusive but suggested that the intervening ditch had been substantially backfilled by the Late Iron Age (see Raftery 1988, 79). A recent listing of 55 radiocarbon dates from Rathgall (Chapple 2013) includes 47 of Late Bronze Age date. Although these lack contextual detail prior to their publication, a number of these can be used to date the enclosing elements to the Late Bronze Age. Settlement activity is well attested and is dated to the Late Bronze Age (Raftery 1976, 341; 350). A substantial assemblage of crucible and clay moulds fragments, as well as various bronze, gold and amber objects, attest to the intensive production of prestige goods and long-distance trading at Rathgall during the Late Bronze Age. Contemporary burials were also recovered in the interior. Iron Age and Early Medieval re-occupation of the hillfort is attested.

Recent excavations have been conducted at the substantial inland promontory fort at Knockdhu (No: 69), Co. Antrim (Macdonald 2008). The monument uses cliff edges to the north,

Fig. 2.20: Rathgall hillfort, Co. Wicklow (Cambridge Aerial Photographic Collection).

east and south as a natural barrier. The western approach is protected using a series of three banks and two ditches. Macdonald (2008) notes that although the enclosing elements are visually impressive, the three banks are relatively slight features that have been carefully positioned to exploit the promontory's natural topography and maximise the impact of their appearance.

Excavation revealed two main phases of phases of construction. Macdonald (2008) has argued that the inner and middle banks were probably contemporary, stating that the latest dates derived from a sample obtained from buried soil beneath the inner bank (1409–1221 BC) is superseded by the latest date derived from a sample taken from buried soil underneath the middle bank (1008–858 BC). The latest date from the outer bank was obtained from a sample taken from buried soil underneath the bank and dates to (1426–1293 BC). Although all three banks could be contemporary, there was no stratigraphic evidence to validate this assumption. Unfortunately, the excavations are only published in summary format with only a limited number of radiocarbon dates, therefore, a more accurate assessment of these dates cannot be undertaken. The second phase of activity is represented by an extension of the inner bank and the re-cutting of its associated ditch after it had accumulated a substantial amount silt. The latest radiocarbon date obtained near the base of this re-cut provides a terminus post quem of 740–389 BC.

The entrance of hillfort comprises a simple corresponding gap in the enclosing elements at the southern end. Excavation of the break in the inner bank revealed a roughly cobbled surface overlaying polished bedrock that was 1.9m wide. A large post-hole 0.4m wide, was revealed underneath 0.55m from the edge of the entrance. This feature is likely to be associated with the original entrance. A radiocarbon date from twigs recovered from the fill of the post-hole dates the dismantling of the structural wood to 1118–930 BC. Sealing the post-hole, a series of heat-modified clay deposits contained charcoal were revealed. This surface had been subject to intense burning (Macdonald 2008). This feature may be associated with the burning of the wooden palisade. Although no obvious post-holes were associated with this feature, the narrow trench may not have been large enough to reveal possible palisade features. No date was retrieved from this surface.

Five circular structures or platforms were excavated within the interior of the hillfort. There have been approximately 70 possible hut structures identified within the interior, the majority recently being revealed by high-resolution LiDAR commissioned by the Northern Ireland Environmental Agency (McNeary 2012). The majority of excavated structures appear to date to

the Late Bronze Age and may be broadly contemporary with the construction and occupation of the hillfort (Macdonald 2008). One structure dates to the Late Neolithic/Early Bronze Age (dates from a hearth produced ranges of 2425–2201 and 2459–2206 BC and a charred hazelnut from a wall-slot returned a date of 2459–2206 BC), indicating that the promontory was periodically exploited prior to the construction of the enclosing elements.

Neary (2004) excavated at Commons of Lloyd (No: 30) hillfort in Co. Meath, a trivallate hillfort visible in aerial photography comprising three non-concentric ditches. A narrow trench approximately 0.5m in width was excavated on the northern side of the interior and over the enclosing elements, prior to the laying of an electrical cable. The trench was not bottomed and features were not resolved, with excavation extending only to the depth of the cable (Neary 2004). Cremated animal bone deposited in a pit close to the summit of the hillfort returned a Late Bronze Age date (1130–910 BC).

A bivallate hillfort at Knockanacuig (No: 66), Co. Kerry, was partially excavated prior to development of the site (Dunne 2006). The hillfort has a total area of 7.21 ha. It is heavily disturbed and only a small portion of the outer enclosure is extant. The external bank measures 12m in width and 0.5m in height. Excavation revealed an external ditch comprising two phases of activity, the initial construction was V-shaped, 5.2m wide and 2.2m deep, with a steeply sloping sides and a rounded base, and a second re-cut was U-shaped, 6.1m in maximum width and 1.2m in depth, with gradually sloping sides and a flat base. A sample from the basal layer of the primary ditch cut returned a date of 90 BC–79 AD, while an internal pit is dated 398–544 AD. The excavation has not been fully published and without further contextual information, this single radiocarbon date cannot be regarded as evidence for construction of the hillfort in the Iron Age.

Trial excavations at Downshill (No: 38) hillfort, Co. Wicklow, produced no datable finds or radiocarbon evidence and remain unpublished (O'Neill 2007). Similarly, monitoring of reconstruction works at Grianan of Aileach (No: 22), Co. Donegal did not produce any artefacts or radiocarbon evidence to date the construction or occupation of the hillfort (Moore 2006; 2007).

University College Cork is currently undertaking a dating programme that aims to re-evaluate the chronology of Irish hillforts. At the time of publication, this project has dated nine hillforts, eight of which are dated to the Late Bronze Age; Clashanimud (No: 26), Co. Cork, Ballylin (No: 9), Co. Limerick, Glanbane (No: 49), Co. Kerry, Formoyle Beg (No: 44), Co. Clare and

Toor More (No: 36), Co. Kilkenny; Rathnagree (No: 94), Co. Wicklow; Tinoran (No: 103), Co. Wicklow; Sruhaun (No: 101) Co. Wicklow; Hughstown (No: 55). The results emphasises an intensive construction horizon at the beginning of the Late Bronze Age, *c.* 1300–1000 BC.

Excavation of the bivallate hillfort at Clashanimud (No: 26), Co. Cork, confirmed that the enclosing elements were constructed around 1200 BC (Fig. 2.21). The site has a total area of 8.9 ha. The inner enclosing element comprises an earth and stone-built bank with external stone facing, external rock-cut ditch and a low counterscarp bank. The bank was topped by a strong wooden palisade, forming a 6–7m high barrier (O'Brien 2012a, 221). O'Brien (2012, 221) has estimated that several thousand oak pasts would have been used in the construction of the wooden palisade protecting the inner enclosure. The outer enclosing element comprises an earthen bank that was topped with a light wooden fence with an external ditch (*ibid.*, 221). Interestingly, the inner enclosing element appears to have been destroyed by fire shortly after it was constructed and was never re-occupied. An extensive sampling of the interior did not reveal any evidence of occupation.

The bivallate hillfort at Glanbane (No: 49) in Co. Kerry occupies a total area of 6.58ha. In 2012, gradiometry survey was undertaken over the entire monument (Appendix 1). This accurately mapped the enclosing elements and revealed a number of possible wooden

Fig. 2.21: Clashanimud hillfort, Co. Cork (Google Earth 2015).

structures within the interior, including a large, 45m post structure positioned at the highest point of the interior. Trial excavation was undertaken over the enclosing elements (Fig. 2.22). This revealed that the inner enclosure comprises a U-shaped rock-cut ditch 2.4–3.1m wide and up to 1.35m deep, with evidence of an internal bank. Large stones recovered throughout the lower levels of the ditch suggest the bank was stone faced. The outer enclosing element comprises a U-shaped rock-cut ditch up to 2.05m and up to 0.8m deep. No evidence for a bank was recovered; however, large stones at the lower levels of the ditch suggest that an internal bank originally existed. Radiocarbon dates from the basal layers of the internal ditch indicate that Glanbane hillfort was constructed around 1100–1000 BC.

Ballylin (No: 9) hillfort near Ardagh in Co. Limerick comprises two concentric, widely spaced enclosing elements with a total area of approximately 21 ha. Both enclosures consist of two earthen banks with an intervening ditch and possible counterscarp bank. Partial geophysical survey of the hillfort identified possible pit features within the interior and an unrecorded entrance in the inner enclosing element at the east. Partial excavation of this entrance revealed that the inner ditch is rock-cut, U-shaped and approximately 3.5m wide at the top and 1m deep (Fig. 2.23). Two large post-holes were identified on either side of the entrance, in-line with the ditch terminals represent a gate feature. Excavation of the outer enclosing element confirmed

Fig. 2.22: Ditch section of inner enclosing element at Glanbane hillfort, Co. Kerry, with reconstructed stone-faced bank.

the presence of a shallow soil-cut ditch with a low bank on either side. Unfortunately, there is no available date for the outer enclosure, although a radiocarbon sample from peat in the upper levels of the ditch indicates the outer enclosing elements were constructed before the Early Medieval period. The inner enclosing element was securely dated to the beginning of the Late Bronze Age around 1300–1000 BC.

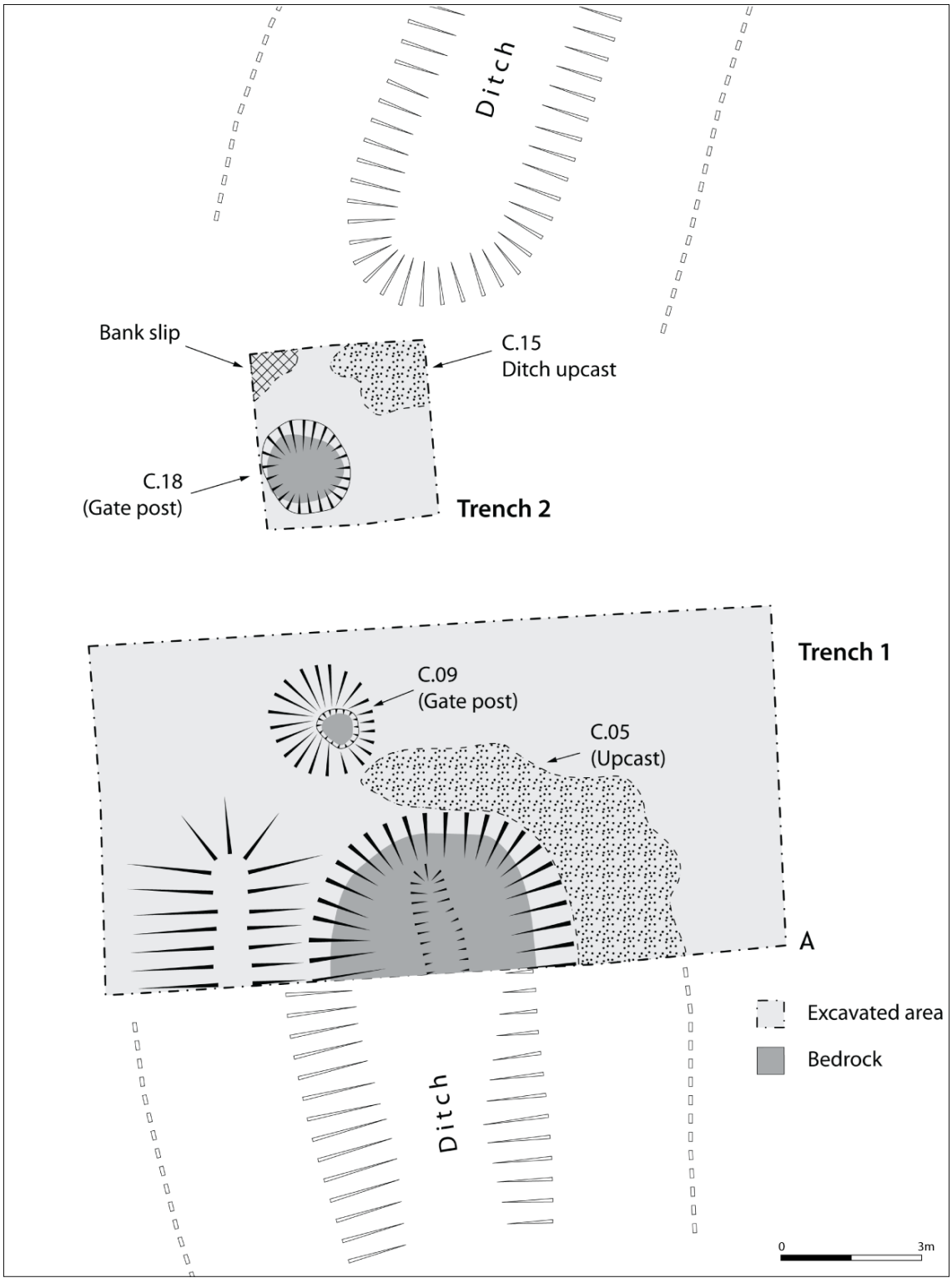

Fig.2.23: Excavation plan of eastern entrance of inner enclosing element at Ballylin hillfort, Co. Limerick.

It was previously thought that the widely-spaced multivallate hillfort at Formoyle Beg (No: 44), Co. Clare, comprised up to three widely spaced enclosing elements at the summit of Formoyle Hill (Condit and O'Sullivan 1999). The outer enclosure has been levelled and recent excavation revealed this is an early modern field drain. The inner enclosure comprises a low, heavily eroded earthen back with external ditch. Excavation revealed a second external bank, probably a counterscarp, and a closely-set line of stake-holes along the inside of the inner bank, probably comprising a light stake fence. The excavated ditch measures 2.4m in width and is up to 0.65m in depth. Excavation of the middle enclosure revealed a light stake fence at the crest of the earthen bank with an external rock-cut ditch and outer counterscarp bank (Fig. 2.24). Some of these stakes were burnt *in-situ*. The excavated ditch measures 2.7m wide and is approximately 0.7m deep. Radiocarbon dates from some of these burnt stakes indicate that the hillfort was constructed around 1100 BC.

Toor More (No: 36) hillfort in Co. Kilkenny is bivallate with widely spaced enclosing elements visible as low-relief features on the ground and in aerial photographs (Fig. 2.9). Geophysical survey over 71% of the site has mapped the enclosing elements (Appendix 2). The

Fig. 2.24: Excavation of middle enclosing element at Formoyle Beg, Co. Clare with stake-holes visible underneath the crest of the bank.

survey suggests that both the inner and outer enclosures each comprised an inner bank with possible burnt palisade features, as well as an external ditch. This was later confirmed by excavation (Fig. 2.25). Upon excavation, the inner example comprised a V-shaped rock-cut ditch, on average 3.5m wide and up to 1.5m deep. Large stones in the ditch indicates that the inner bank consisted largely of stone and probably stood about 1m high. A wooden palisade was built approximately 1.4m inside the inner edge of the bank. This consisted of a line of posts set into a narrow slot trench with packing stones. The external ditch was partially water-logged and contained some preserved wood fragments, possibly from this palisade. The outer enclosing element consisted of a V-shaped ditch 2m in average width and up to 1.45m deep, with an internal bank of stone slabs. A shallow trench measuring 2m wide and 0.3m deep is positioned directly inside the bank. A slot trench 2.3m inside this trench contained wooden posts set 0.1–0.15m apart. Evidence indicates that both enclosing elements were destroyed by fire, with some wood falling between the banks and palisades. Dates from this wood and basal charcoal from the hillfort ditches indicate that Toor More was constructed around 1300–900 BC.

2.2.5 Chronology

In Britain, the term 'hillfort' has long been synonymous with the Iron Age, despite clear evidence for the construction of these sites during the Late Bronze Age (Mytum 2013, 5). Hillforts in Britain were occupied over a 2000 year period spanning 1000BC–1000 AD (Harding 2012, 151),

Fig. 2.25: Completed excavation of inner enclosing element at Toor More hillfort, Co. Kilkenny.

with a major construction horizon around the sixth and fifth centuries BC (Cunliffe 2013, 304). Due to a lack of excavation, early hillfort researchers in Ireland assumed that the date of these monuments coincided with that major phase of hillfort construction in Britain (see Raftery 1969; 1972). Current evidence, however, suggests that the majority of hillfort in Ireland date to the Late Bronze Age, *c.* 1200–800 BC.

In Britain and the Continent, the idea of enclosing hilltop sites is a recurring feature from the Neolithic period onwards. This is also the case in Ireland, where a small number of Neolithic enclosures including Donegore Hill, Co. Antrim (Mallory *et al*. 2011), Lyles Hill, Co. Antrim (Evans 1953; Simpson and Gibson 1989), Magheraboy, Co. Sligo (Danaher 2007) and Tullahedy, Co. Tipperary (Cleary and Kelleher 2011) have been identified. Although not classified as 'hillfort' monuments, the commanding position of these sites is reminiscent of later hillforts, although the gaps in the enclosing elements at Donegore and Magheraboy are more comparable to the British causewayed enclosures of the Early Neolithic. Hill (1995) suggests that we need to see hillforts in terms of the specific manifestation of a long tradition of marking special places by enclosure, although Bradley (1981) has stressed that this 'tradition' was unlikely to have been a continuous evolution.

Earlier activity on hillfort sites is not uncommon. Excavation at Mooghaun, Co. Clare (Grogan 2005a), Haughey's Fort (No: 53), Co. Armagh (Mallory 1995) and Dún Aonghasa (No: 40), Co. Galway (Cotter 2012a; 2013b) have provided limited evidence for activity as early as the Late Neolithic. This does not reflect continuous settlement, rather, it indicates a shared preference for commanding hilltop sites. For example, at Lyles Hill (No: 82), Co. Antrim, the site of a Neolithic palisaded enclosure was later used for a larger Late Bronze Age hillfort (Gibson and Simpson 1987; Simpson and Gibson 1989; Cooney 2002, 71; Cleary and Kelleher 2011, 410–416). The presence of cairns within hillforts may also indicate earlier activity. Similarly, later activity at hillfort sites is common. Excavations at Rathgall (No: 90), Co. Wicklow, Mooghaun (No: 85), Co. Clare (Grogan 2005a) and Rahally (No: 88), Co. Galway (Mullins 2008) have produced evidence for Iron Age and Early Medieval occupation. Approximately thirteen sites have extant Early Medieval ringforts or other contemporary features such as souterrains and hut sites within hillfort interiors. For example, ringforts can be found at Rathmicheal (No: 93), Co. Dublin, Knockanacuig (No: 66), Co. Kerry and a souterrain has been identified at Cluttahina (No: 29), Co. Waterford. Again, this does not reflect continuous settlement.

In central Europe, Cunliffe suggests that 'true' hillforts appear around 1300–1150 BC (Cunliffe 1997, 41–44; Ralston 2005, 17), although it is apparent that hillforts were constructed

on the Continent as far back as 1800 BC (see Chapter 3). The increased mobility of people and commodities, driven by the prestige goods economy of the Bronze Age (Henderson 2007, 57; Yates 2007; Earle 2002; Bruck and Fontijn 2013, 202) may have facilitated the dissemination of this monument form. Cunliffe (1997, 148) argues that an intensification in the volume of bronze in circulation after the beginning of the Late Bronze Age may be explained by the metal-rich Atlantic zone being increasingly drawn into the bronze-consuming world of the Urnfield and Nordic cultures. As a result, the Atlantic communities developed new networks of communication and trade-routes to supply this demand and, in turn, absorbed aspects of Urnfield material culture. This corresponds with the increasing amount of evidence in Ireland for a major hillfort construction horizon around the twelfth century BC.

In Ireland, hillforts with securely dated enclosing elements indicate a Late Bronze Age construction horizon, beginning at the transition from the Middle to Late Bronze Age (*c.* 1300 BC) and continuing until the latter part of the Late Bronze Age (*c.* 800–600 BC) (Table 2.1). The beginning of this construction horizon corresponds with a sudden and severe intensification of hillfort construction on the continent (Primas 2002, 50). This may indicate that Ireland was deeply linked with the social and economic processes that emanated from the European mainland and instigated the conception of these large works. Of particular importance was the rise of the 'warrior culture' throughout Atlantic Europe, which has often been linked with the

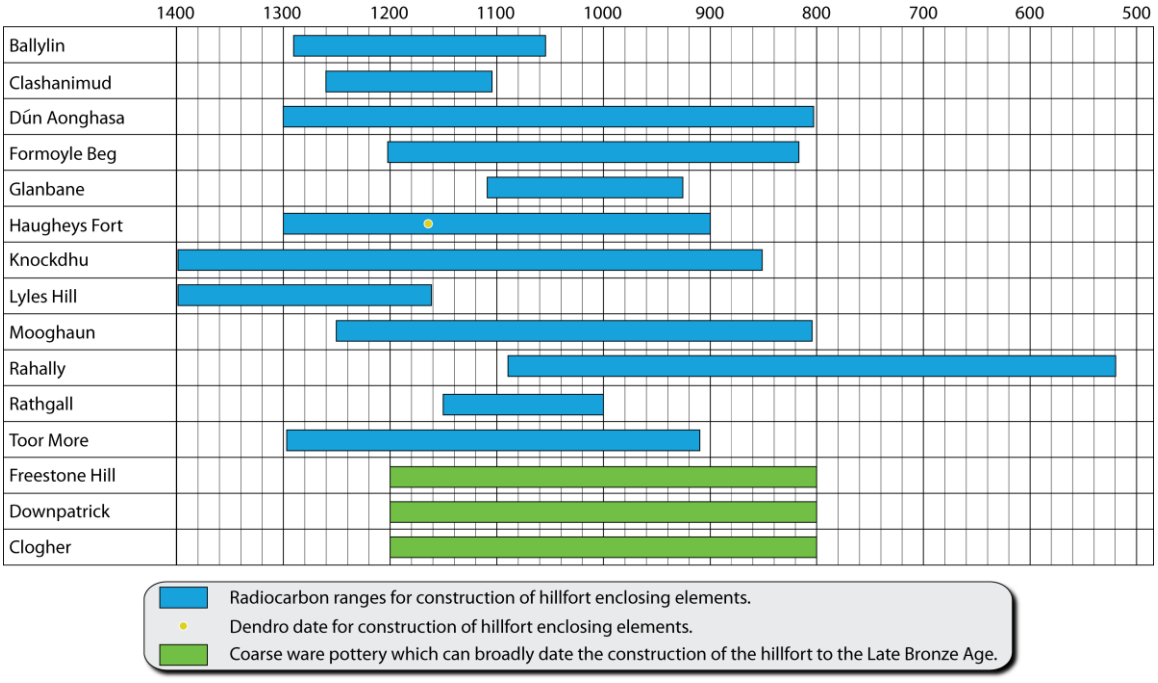

Table 2.1: Bar graph of construction dates from Irish hillforts.

appearance of hillfort societies and endemic warfare. In Ireland, hillfort societies collapsed around the 8th century BC. This contrasts with southern Britain, where there was a significant increase in the construction of these sites.

2.2.6 Environmental Evidence

Environmental studies have highlighted the intensive clearance and exploitation of land immediately surrounding Irish hillforts. At Mooghaun (No: 85), woodland had been almost completely removed and replaced by pasture and some cereals during the Late Bronze Age (Molloy 2005, 284). A clearance event in the period 1400–1100 BC was of such severity that pollen representation of trees and tall shrubs fell from 83–94% to 18% (O'Connell *et al*. 2001; Molloy 2005, 285–286). Cattle were the dominant species (followed by pig and sheep/goat) and this suggests that animal husbandry was the principal form of agriculture (McCormick and Murray 2005, 304). This may explain the absence of storage pits at Mooghaun, as well as the limited extent of excavation.

Weir's (1987a, 1987b, 1993, 1994) extensive analysis of the paleo-environment surrounding Haughey's Fort (No: 53) has revealed a major clearance episode around 1400–1000 BC. Cereals comprise 6% of the open landscape. This is amongst the highest known from prehistoric Ireland and indicates that arable agriculture was an important component of the economy (also see Plunkett 2006, 65). Animal bone from the hillfort indicates a mixed economy based on rearing cattle and to a lesser extent pig (McCormick 1991, 31). This is confirmed by lipid analysis of pottery from the site, which has found positive traces of cattle meat (Mallory 1995, 82). The major clearance phase ended by *c.* 1000 BC, a time broadly contemporary with the abandonment of Haughey's Fort (Mallory 1995, 79). Plunkett (2006, 65) suggests that the environmental data indicates that Haughey's Fort and Mooghaun (No: 85) hillfort were supported by 'thriving economies'.

At Rahally (No: 88), Co. Galway, the environs of the hillfort was cleared of deciduous woodland during the Late Bronze Age, with fewer trees and a rise in clearance indicators implying an increase in pastoral farming contemporary with the construction of the hillfort (Mullins and Bermingham 2009, 71). A reliance on cattle rearing is evident in the recovered faunal remains (*ibid.*, 71–72), which like Mooghaun, may explain the absence of pit features within Rahally.

At Lyles Hill (No: 82), Co. Antrim, pollen evidence suggests that the landscape was already being exploited immediately prior to the construction of the hillfort, when barley was being cultivated (Simpson and Gibson 1989, 215). This was succeeded by hazel scrub and grassland, the latter indicating the importance of animal husbandry. Raftery (1969, 99) suggests that snail remains found in the ditch fill at Freestone Hill (No: 45), Co. Kilkenny, are characteristic of dry fauna and infer that the sides of the hilltop were covered with patches of hazel scrub and open grassland. Pollen analysis undertaken near a potential hillfort on Croghan Hill (No: 18), Co. Offaly, shows Late Bronze Age activity in that area. Plunkett (2009, 274) has noted extensive woodland clearance comparable with other hillfort sites, with the absence of arable weeds suggesting that pastoral farming dominated. Plunkett (2006, 65–66) cites Ballylin (No: 9) hillfort, Co. Limerick as another example where an agricultural expansion occurs near a hillfort in the Late Bronze Age. This is more tenuous as the pollen core was taken from a bog 7km this Late Bronze Age hillfort. Analysis suggests that an intense phase of clearance began *c.* 1200 BC and 'flourished' from the 11th century BC, the pattern and duration of activity being reminiscent of that recorded at Mooghaun (Plunkett 2006, 66). A pollen core 3.5 km from Lurigethan (No: 81) hillfort, Co. Antrim, indicates an intensification of activity during the Late Bronze Age, attested by a major woodland clearance (Weir 1993, 21). The very low levels of tree pollen suggests that the local area was probably almost entirely clear at this time (*ibid.*, 23).

The environmental evidence strongly indicates that the immediate environs of Irish hillforts were being exploited for agricultural purposes. In certain instances, where more extensive excavation of the interior has been undertaken, features associated with the storage of agricultural produce have been identified. For example, at Haughey's Fort (No: 53), Co. Armagh, large pits within a substantial structure at the centre of the hillfort contained large amounts of carbonized grain. At Downpatrick (No: 37), Co. Down, wattle-lined pits within the hillfort have been interpreted as grain silos (Proudfoot 1954, 98). Geophysical survey at Toor More (No: 36), Co. Kilkenny and Ballylin (No: 9), Co. Limerick has revealed substantial numbers of possible pits near the summit of the hillforts. This is important, as Yates (2007, 2–4) suggests that wealth in the Late Bronze Age resulted from the successful management of available resources, particularly agricultural produce, with intensive farming possibly leading to rapid economic growth. Cunliffe (2013, 252) also considers control of agrarian surplus as connected to the maintenance and expansion of elites, used for feasting purposes or to acquire high status goods outside the local territory (Cunliffe 1995, 90; Cunliffe 2013, 257–258). Hillfort societies can be described as 'decentralised stratified societies' where the upper echelons of the community exploit farming communities through tribute and taxation (Kristiansen 1993, 19–20).

Importantly, Kristiansen (1993) argues that these 'archaic states' developed in regions where surplus can be generated and controlled before being converted into large-scale ritual activities such as building ceremonial centres, organization of craft production, and centralized trade. In Kristiansen's model, the accumulation of surplus agricultural produce is central to hillfort societies. The intensification of land exploitation surrounding Irish hillforts, therefore, corresponds with this model, and could be seen as an attempt by hillfort communities to protect important agricultural land and produce excess produce to support large scale building projects and long-distance trade.

2.2.7 The evidence of Early Irish literary sources

Early medieval literature has often been described as a 'window' to Ireland's prehistoric past (Jackson 2011). It has been argued that the epic tales of the Ulster Cycle, with its social structures, heroic warrior ethos, endemic warfare and archaic material culture, reflect a pre-Christian society that may date to the Early Iron Age (*ibid.*). The ancient narratives may have been based on an oral tradition of storytelling that originated in prehistory, before emerging as written texts at the start of the Early Medieval period. The *Táin Bó Cúailnge* is an important example, possibly written as early as the 7th century AD (Miles 2011, 2). This text is particularly important, as it recounts the deeds of kings and heroes of the pre-christian era. Many elements in this saga, such as head-hunting, feasting, the champion's portion and chariotering are attested in the archaeological record (Koch 1994).

One of the most vivid aspects of ancient Irish literature is the importance of decapitating a defeated enemy, with the head itself becoming a prize for the victor and a visual display of his power. This is well illustrated in *The Adventure of Nera*, when Nera returned to Cruachu, the prehistoric provincial royal capital of Connacht. She discovered the settlement had been burnt and the heads of its people 'heaped up by the warriors from the enemy stronghold'. Armit (2012) has recently highlighted the importance and prevalence of head-hunting in Iron Age societies throughout Europe. The skeletal evidence, some of which can be associated with hillfort sites in Britain, may be linked with power, warfare and violence. For example severed heads were recovered from the entrance area at the Late Iron Age phase of Breedon Hill hillfort in Gloucestershire, England (Hencken 1938; Redfern 2011; Weston 2008). Perforations in the skulls indicate that the human heads may have been suspended and displayed above the gate (Craig *et al*. 2005). This will be discussed in more detail in Chapter 9.3. Classical authors attest to the warlike nature of prehistoric Ireland. For example, around 200 AD, Solinus (*Collectanea*

Rerum Memorabilium) describes Ireland as 'inhuman in the savage rituals of its inhabitants [who are] an unfriendly and warlike people' (Koch 2013, 48). The ancient geographer Strabo states that the Irish people are 'more savage than the Britons, being cannibals as well as gluttons' (*ibid.*, 47).

The importance of feasting and the champions portion is best illustrated in the narrative *Bricriu's Feast*. A large banquet was prepared by Bricriu for Conchobor and the Ulstermen. Bricriu incites the Ulstermen to contest the champions portion and they 'hacked at one another till half of the great house was an ambiance of fire with the clash of swords and spear edges'. The matter was not settled until the three heroes, Cú Chulainn, Conall Cernach and Lóegaire, travelled to the south of Ireland to Cú Roí mac Dári, who settled the dispute. The significance of feasting is attested by cauldrons and elaborate flesh-hooks dated to the Late Bronze Age. There are approximately 54 bronze cauldrons in Ireland with a concentrated distribution in the northern half of the island. In Ireland flesh-hooks and cauldrons have similar distributions (Needham and Bowman 2005, 93) and the two artefact types have been found together in the Spanish hoard at Hio (Gerloff 2010, 116). There close association suggests that cauldrons were primarily used for boiling meat, a function they appear to retain throughout the Late Bronze Age and probably the Iron Age (*ibid.*, 117). Cunliffe (2008, 255) has noted that the widespread distribution of Late Bronze Age cauldrons in Europe highlights the prevalence of elite feasting. Similarly, the dense distribution of *fulacht fiadh* in Ireland, a monument type that dates to the Bronze Age and can be associated with prehistoric communal feasting (Hawkes 2014), demonstrates the importance of feasting in prehistoric Ireland. Compelling evidence for feasting has also been identified at Dún Aonghasa (No: 45) and Haughey's Fort (No: 53) and such events were likely to have taken on a ritual significance (Mallory and Baban 2014, 25–26; McClatchie 2014; Evershen *et al*. 2012) This is discussed in more detail in Chapter 9.3.

Karl (2007) has favourably compared the chariots described in *The Táin Bó Cúailnge* with Celtic Iron Age chariots found in Britain and the Continent. Two-wheeled chariots play an important role in Early Medieval literature, especially in *The Táin Bó Cúailnge*, but are notably absent from the archaeological record in Ireland. Conversely, chariots are a well-known archaeological feature in Britain and the Continent. This geographic separation is also apparent in the seeming absence of head-hunting in the archaeological record of Iron Age and Early Medieval Ireland. This contrasts with its prevalence in the ancient Irish literature. Other features depicted in these narratives, such as the use of the sling (for example, in the tale *The Destruction of Dá Derga's Hostel*, when a man depicted with having a stone and a sling was prophesied to be

king) are more archaeologically visible in Iron Age Britain and the continent. At Maiden Castle in Dorset, England, for example, a large deposit of sling stones was recovered at the entrance. Contrasting Karl's (2007) work on chariots, Mallory (1992) has demonstrated that the swords described in *The Táin Bó Cúailnge* are comparable to those found in Ireland around the 9th century AD. Further examination of this text confirms that much of the material culture probably dates to the 4th century AD or later. This has led Mallory to conclude that the learned class transcribing these tales were producing a 'historical fiction'.

Recent academic discourse has argued that this literature is purely Early Medieval and this interpretation is supported this by linguistic, chronological and archaeological evidence (Waddell 2011, 192). The dating of the texts themselves is contentious. For example, while the *Táin Bó Cúailnge* may have been originally written in the 7th century AD, the earliest surviving copy dates to the 11th century and most of the ancient literature survives in 14th century AD manuscripts (Miles 2011, 51). Miles (2011, 51) suggests that we may not be able to distinguish 'original' text from the work of Late Medieval transcribers who often edited these texts. This is obvious in *The Book of the Lays of Fionn*. The work revolves around Oisín, son of Finn mac Cumhaill, and Saint Patrick. Chadbourne (2005, 28) discussed the text in detail and suggests that the pair seem to exist almost entirely in separate time periods: Patrick arguing for pious attention to the future, while Oisín pulls backwards into the thrilling, vital, heroic past. Written Irish was developed and monopolised by the monastic community in Ireland and remained so for about six hundred years (Mac Cana 1995, 780). In this example, it is clear that the pagan elements which may have existed in the oral tradition were merged with the Christian ideals of the contemporary world. Mac Cana (1995, 780) has questioned the extent of this monastic innovation and the degree of continuity between the written and oral traditions. Aitchison (1987) has argued against any continuity and has suggested that the Ulster Cycle was entirely an Early Medieval literary composition. Various scholars have emphasised the thousand-year gap between the two worlds and questioned the possibility of beliefs and practices surviving in the oral tradition for so long. Waddell (2011, 194) has stressed that this question of demonstrable continuity of tradition is a crucial one.

This has been tentatively established by Warner (1987), who has outlined the stylistic connections between certain motifs on Iron Age artefacts, such as the Bann disc and the Petrie crown, with later decorated objects such as the escutcheons on the famous Sutton Hoo hanging bowls. Similarly, Waddell (2011, 195) has highlighted significant links with a pagan past in the Early Medieval funerary record. At Glebe South in north Co. Dublin, for example, Iron Age

cremations in two ring-ditches (dating from 300 BC to 400 AD) were followed by unburnt extended burials, one of which was dated to 430–640 AD. Waddell (2011) also notes that archaeological continuity of cultic practice is demonstrable at the major royal sites such as Teltown, Co. Meath, Tara, Co. Meath and Rathcroghan, Co. Roscommon. These landscapes consist of a palimpsest of archaeological monuments dating from the Neolithic to Early Medieval periods that continued as important ritual centres well into the Christian era.

Interestingly, there are a number of references to hillfort sites in the ancient narratives. The best example is the fort of Cú Roí in southern Ireland, which has been linked with the inland promontory fort of Caherconree (No: 16), which translates as 'the fort of Cú Roí'. Cú Roí seems to have been a non-historical figure with strong mythological associations, who played an important role as ruler over Munster (Cotter 2012a, 18). His fort is described as being near Sliabh Mis in the tale of Cú Roí's death. At 659m OD, Caherconree in the Sliabh Mis mountain range of the Dingle peninsula is the second highest hillfort in Ireland. Curiously, the literature explains that at night, Cú Roí casts a spell on the fort so that the stronghold revolves or is covered in mist, hiding the entrance. This may be an indication of the extreme height of the fort which is often covered in mist and cloud. In *Silva Gadelica*, Finn mac Cumhaill's hunting mound is positioned 'on top of high Keshcorran'. Keshcorran mountain in Sligo, is notable for the large cairn at its summit, which is surrounded by a hillfort (No: 72). Kelly and Condit (1998) have suggested that the two closely positioned hillforts on the two summits of Friarstown Hill (No: 46 and 47) can be associated with Tara Luachra. This ancient stronghold is described as the Luachair of many hill's in *The Intoxication of the Ulstermen* and is often divided into the eastern and western Luachair, possibly reflecting the topographical setting of the two hillforts at Friarstown. There is an interesting connection between mountains and warrior heroes, who are often depicted visiting or fighting on these summits. In cases where hillforts have been mentioned in these texts, they seem to be mentioned as pagan or prehistoric centres.

2.3 SUMMARY

Irish hillforts consist of large enclosures strategically positioned on prominent topographic positions. These sites were often located near natural routeways or in commanding positions in the landscape. There are approximately 108 examples in Ireland and these are somewhat evenly distributed throughout the country. The site type known as the hilltop enclosure may be contemporary, though the dating of these is problematic, which is why they are not considered

in this study. Irish hillforts are on average around 5ha in size, with some examples well in excess of 20 ha. The available evidence suggests that hillforts were built and occupied in the Middle to Late Bronze Age, with a particular flourish occurring during the Late Bishopland and Rosscommon Phase *c.*1300–900 BC. Excavation of some hillforts has uncovered artefacts indicative of long-distance trade, as well as evidence for the on-site production of prestigious metalwork. This suggests that Irish hillforts may have functioned as central places of redistribution controlled by an elite. There is varying evidence for settlement at the Irish sites, with some examples such as Knockdhu (No: 69) in Antrim revealing dense internal settlement, and other sites such as Rahally (No: 88) in Galway showing no contemporary habitation. A ritual/ceremonial element is also apparent at these sites. For example, the artificial pool known as the King's Stables, close to Haughey's Fort (No: 53) was clearly used as an area for ritual deposition. The different types of widely-spaced multivallation outlined in section 2.2.1 may also be related to ritual activity, where it was necessary to have the enclosing elements spaced a certain distance apart. Unfortunately, there have been few Irish hillforts that have been extensively investigated, either through scientific excavation or survey and it is therefore difficult to confidently assess the broader aspects of function. It would therefore be useful to consider similar sites found in Britain and the Continent.

CHAPTER 3

HILLFORTS IN BRITAIN AND THE CONTINENT

This chapter will consider the evidence for British and continental hillforts and will discuss general features associated with this phenomenon. The dating of these monuments is particularly important from an Irish context. Three main construction horizons have been identified by a number of authors; the first spanning the transition between the Early to Middle Bronze Age, the second spanning the transition from the Middle to Late Bronze Age and the third spanning the end of the Bronze Age/Early Iron Age. The dating of the Irish sites corresponds well with this chronological model. As such, this chapter examines possible parallels for Irish hillforts in Britain and mainland Europe.

3.1 EUROPEAN HILLFORTS

In Europe, the concept of enclosing hilltop sites is a recurring feature from the Neolithic period onwards. However, it was not until the later part of the Early Bronze Age that fortified settlements positioned on hilltops began to be built and for some of these sites, the term 'hillfort' may not be inappropriate (Harding 2007a). Hillforts were mainly constructed in three periods; during the transition between the Early to Middle Bronze Age (1800–1600), the transition from the Middle to Late Bronze Age (1300–1000) and the end of the Bronze Age/Early Iron Age (800–600). Jockenhövel (2013, 740) has discussed this cyclical fluctuation in terms of the German evidence and has connected it to changing social, economic, and ecological conditions. In many instances, there is no settlement continuity, particularly after the first cycle of hillfort construction, where hilltop settlements were almost completely abandoned throughout Europe (*ibid.*, 740). The beginning of the Late Bronze Age (or around 1300 BC) brought about the most intensive building cycle, when there was a significant increase in hilltop fortification throughout Urnfield and Atlantic Europe (Harding 2000, 296). Considering this prolonged period of construction, and despite the problems of classification and terminology, which have been discussed in the previous chapter, Ralston (2006) has suggested that there may be up to 30,000 hillforts in Europe. The correlation of a definitive number has been hampered by the language barrier and regional variation with regard to terminology. For example, in Spain

and Portugal, hillforts are often termed '*castros*', but can also be referred to as *citanias*, *cividades* or *cidás*. Their distribution is concentrated in Central Europe, in Britain, France, Germany, Spain, Austria, Switzerland, Poland, Slovakia, Hungary and the Czech Republic, although distributional variability occurs across the three identified construction phases. Considering the number of hillforts in Europe, a sufficient distribution map has not been produced and only regional maps are available. For example, Parkinson and Duffy (Fig. 3.1) have attempted to map enclosed fortified Neolithic and Bronze Age sites in Europe with little success, particularly with regard to Ireland

3.1.1 Early/Middle Bronze Age

Early hillforts were often built near natural resources or in areas that could control the flow and distribution of such materials, and in many cases, artefacts indicative of metalworking are found within these forts. Early hillforts are rare in western countries such as France or Germany and are generally concentrated in the Alpine region, although early '*castros*' are found in the Early

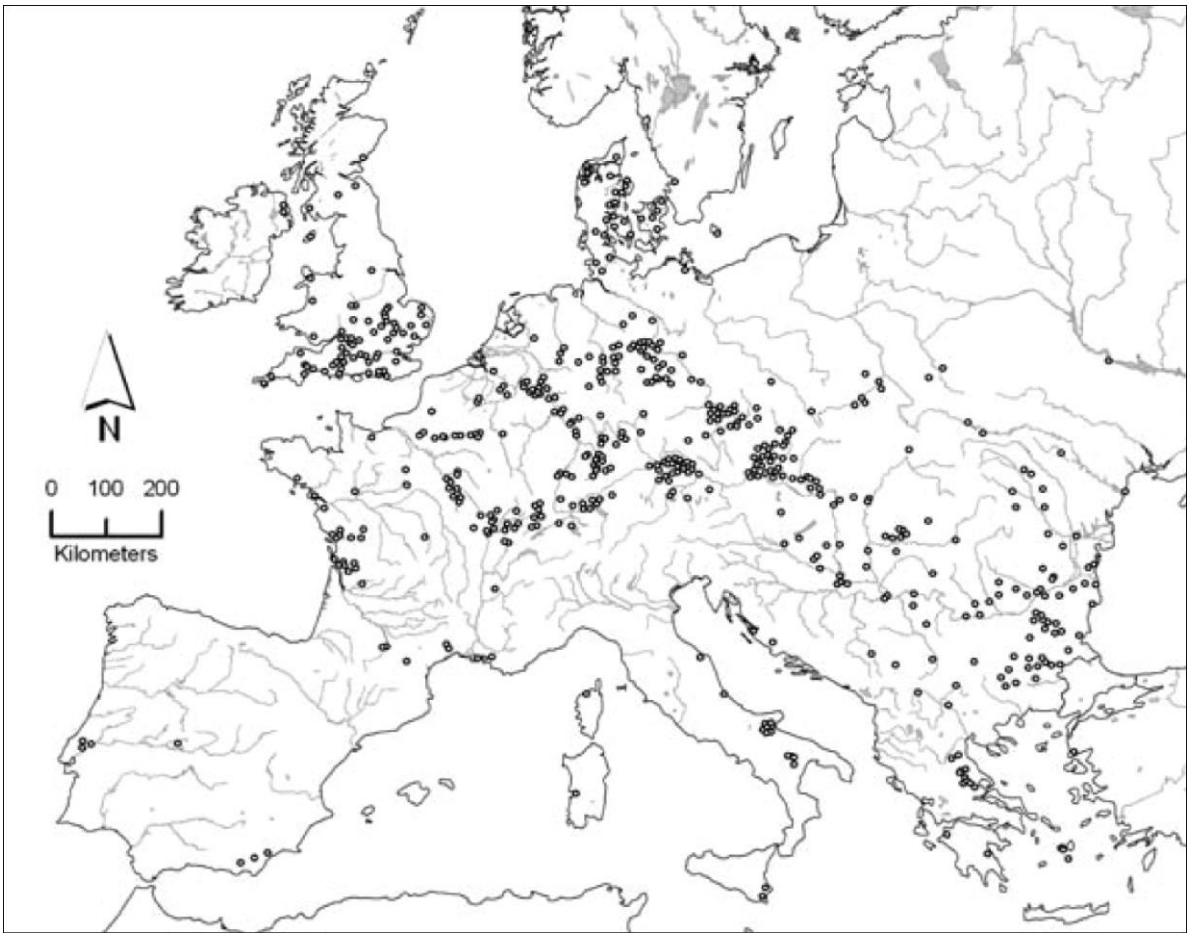

Fig. 3.1: Distribution of enclosed and fortified Neolithic and Bronze Age sites in Europe (after Parkinson and Duffy 2007, Fig. 2).

Bronze Age in some parts of north-west Spain and Portugal (Pardo *et al.* 2009). An excellent example is the early fortified settlement at Bruszczewo, Poland (Fig. 3.2). The site is positioned at a spur of high ground overlooking a lake-shore to the east and comprises a ditch up to 4m in depth and up to 21m wide, with two palisade trenches immediately inside, enclosing an area of

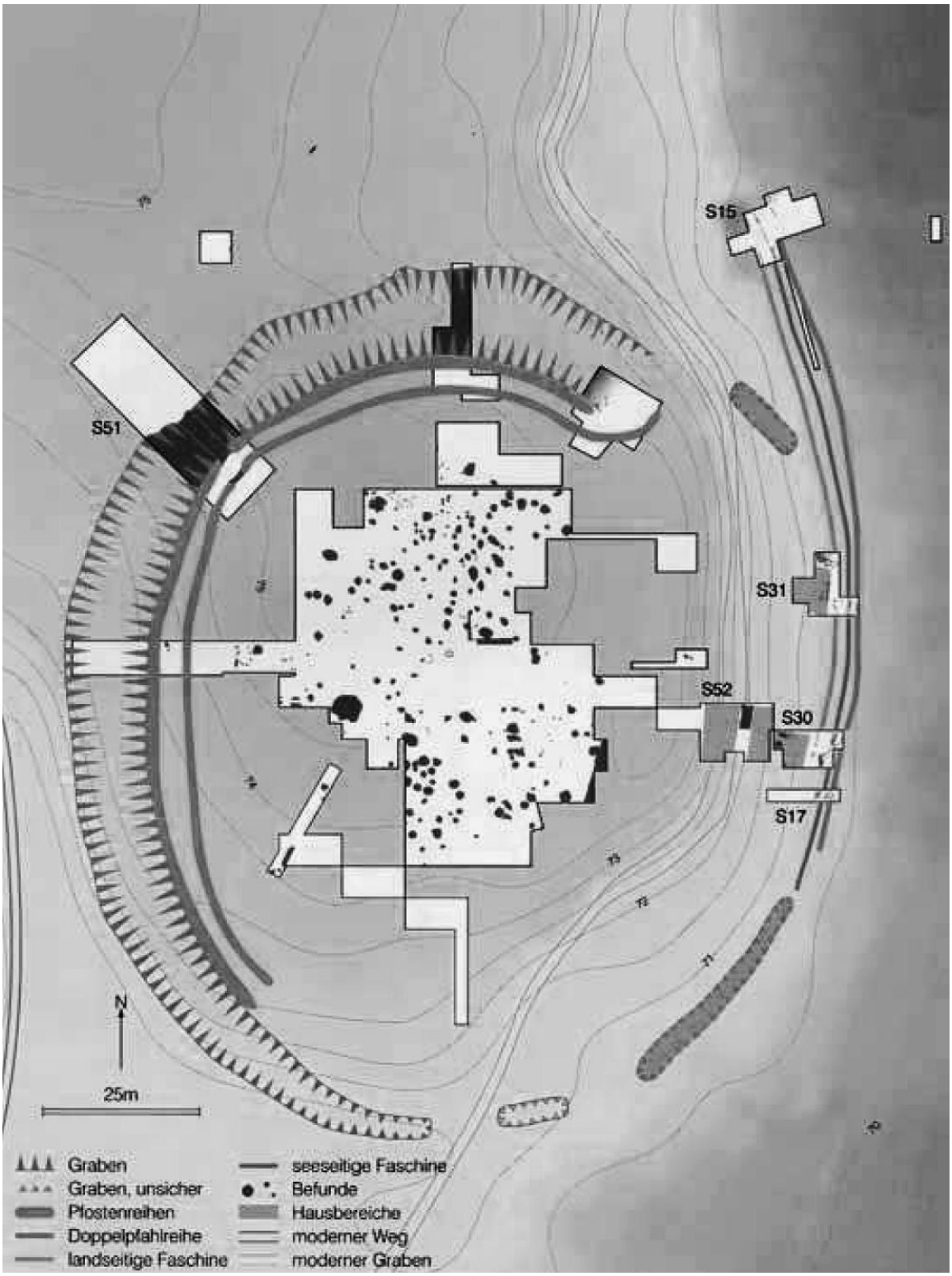

Fig. 3.2: Bruszczewo hillfort (after Jaeger and Czebreszuk 2010, fig. 1).

approximately 1.5 ha (Czebreszuk and Müller 2004; Müller and Czebreszuk 2010). Dendrochronological dates place the construction and early occupation of the site to around 1800–1700 BC. The occurrence of metalworking at the site and the distribution of contemporary monuments in the environs of the fort has lead Müller and Czebreszuk (2010, 395) to interpret Bruszczewo as a central place in the landscape positioned to control trade and communication. In Poland, an Early Bronze Age phase of the Biskupin hillfort comprises a number of ditches, although there is no obvious evidence for contemporary internal settlement in the form of hut structures (Grossmann 1995; Harding 2007b, 107). Primas (2002, 44) notes that sites comprising powerful ramparts with an internal skeleton of wooden beams evolved during the Early Bronze Age in eastern parts of Europe.

Other early hillforts occur in Slovakia at Spissky Sprtok (Fig. 3.3) and Nitriansky Hradok, both of which comprise substantial stone walls. Spišsky Štrvtok is located in eastern Slovakia and has been dated to the later part of the Early Bronze Age. The western part of the settlement abuts a steep natural slope and was protected by a palisade with stone footing. In the northern and southern section an earthen bank with internal and external stone facing was constructed. Another stone wall was built inside and parallel to the later. Outside of these enclosing elements on the eastern side, a 6m wide and 2m deep ditch was dug. A single entrance is visible at the east and is flanked by two round towers (Gogâltan 2008, 52). The site has a total foot print of approximately 6.6 ha (*ibid.*, 52). Nitriansky Hrádok was of similar construction, although the entire settlement was surrounded by a ditch, rather than just a single side and the entrance did not incorporate flanking towers (Točík 1981). Spišsky Štrvtok was destroyed by fire, while at Nitriansky Hrádok, the settlement was simple abandoned with no traces of destruction (Gogâltan 2008, 52). Spišsky Štrvtok is considered one of the best examples of Aegean influences in Central Europe, although Alusik (2012) has convincingly argued that such influences have been overstated. Connections between hillforts and low-land settlements may have been common during this period. Primas (2002, 45) has noted that the material assemblage of hilltop sites along the Danube and in the Slovakian mountains indicate that they were linked to low-land settlement sites such as the 'Tells' of the Hungarian plain.

Tell settlements comprise of an artificial mound created through successive sequences of building and rebuilding of structures over centuries. Over 65 % of these sites have visible defensive features enclosing the settlement (Gogâltan 2008, 45). These enclosing elements are generally simple banks and ditch arrangements with some sites also incorporating palisades (*ibid.*, 45). The majority of Tell sites were constructed between 2300 and 1950 BC, although

construction continued until around 1500 BC (*ibid.*, 40–41). These fortified settlements protected the community and the goods of the satellite villages associated with the Tells (*ibid.*, 39). These sites are generally positioned in natural defensible locations such as river courses, marshes or high and steep terraces. There are some cases when fortifications were destroyed by fire (*ibid.*, 52).

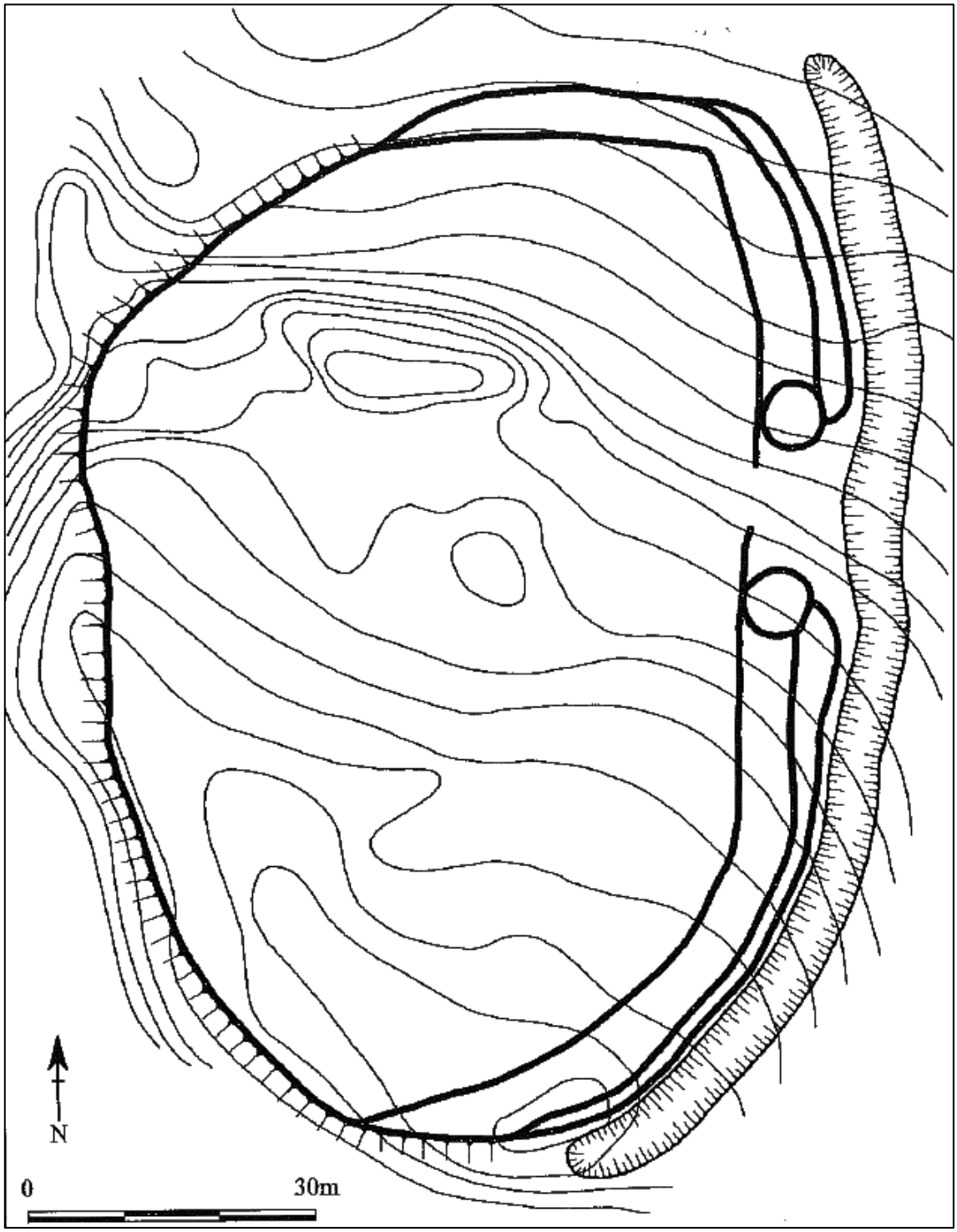

Fig. 3.3: Spišsky Štrvtok (after Harding 2007b, fig. 7.13).

In the Alpine region, large numbers of hillforts, positioned in strategic locations, date to this period (Della Casa 2013, 714; Jiráň *et al.* 2013, 791; Krause 2008, 65) (Fig. 3.4). Hilltop settlements are the most prevalent settlement type in the Alps in the Bronze Age (Krause 2008, 65). Krause interprets these hillforts as central places that controlled smaller neighbouring sites and copper ore deposits in the vicinity. The move into the Alps itself can be seen as a consequence of the growing need for copper (Kienlin 2013, 424). In Germany, Early Bronze Age hillforts are confined to the regions influenced by the Middle Danube Culture in southern Germany, in the plains north of the Alps (Jockenhövel 2013, 740). This may be connected, at least in part, to a need to control the flow of copper near its source. The numerous finds from higher elevations and mountain passes, indicates the intensive use of these routes for exchange and communication between the inner Alpine valleyscapes (Krause 2007, 120; Krause 2008, 65; Della Casa 2002).

In Austria, early hillforts in the Alpine region, such as Götschenberg at Bishofshofen (Lippert 1992) and St. Veit Klinglberg in the Salzach Valley (Shennan 1995), were constructed around 1600 BC, in areas close to sites of mineral extraction. The Klinglberg hillfort was built at

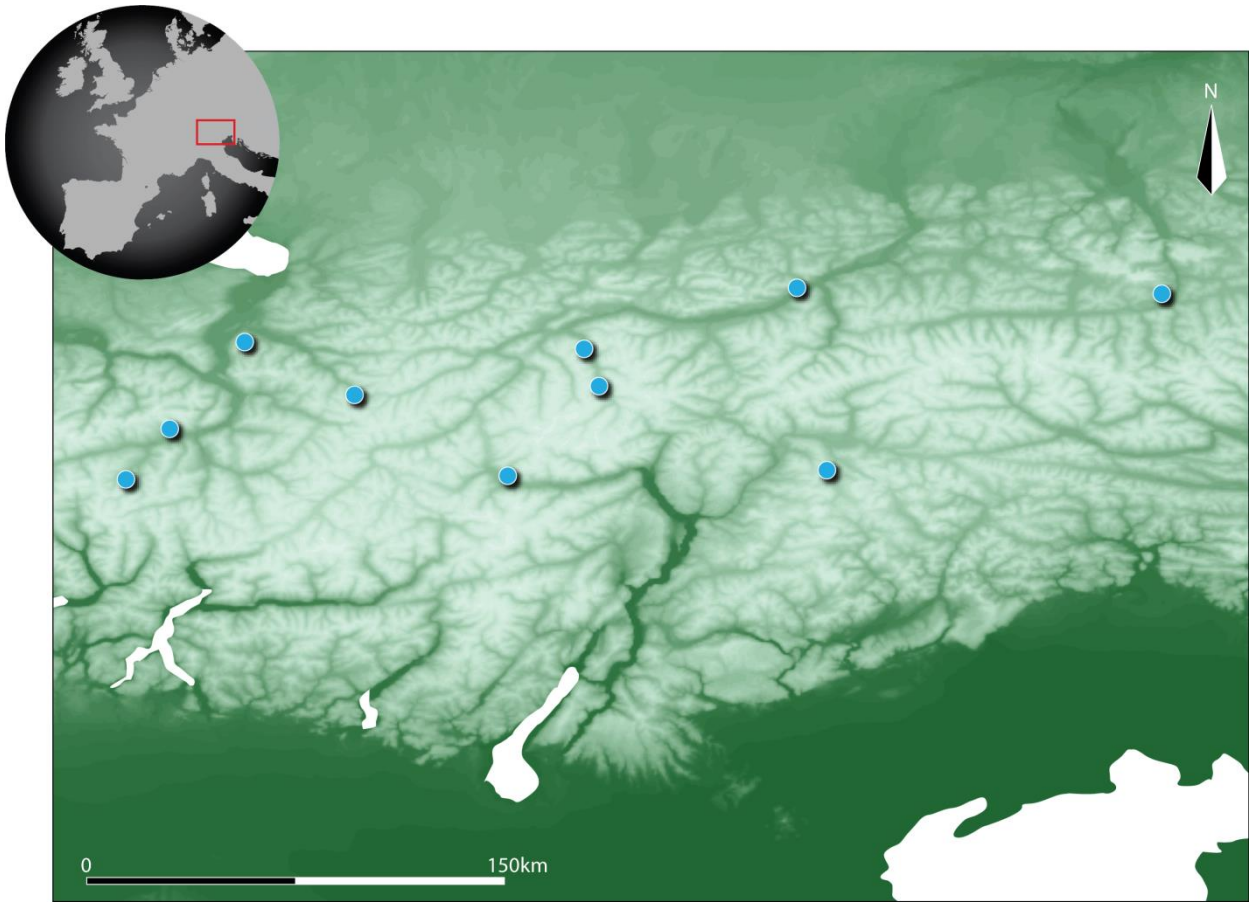

Fig. 3.4: Distribution of Early and Middle Bronze Age hillforts in the eastern Alps (after Krause 2008, fig. 13).

the edge of a mountainous spur in a strategically positioned part of the Danube Valley, overlooking the River Salzburg and positioned close to sources of copper, gold, iron and salt (Shennan 1995, 23). The enclosing elements were constructed after an initial phase of open settlement. Excavation by Shennan (1995, 75) reveals the enclosing elements comprised a rubble stone wall approximately 2m in width and up to 2.5m in height. This wall was approximately 100m in length and protected the western, most accessible approach. Radiocarbon dates and the distribution of pottery suggest that the wall was built around 1685–1400 BC (*ibid.*, 281). A number of domestic structures were excavated within the interior and a large pottery assemblage was recovered (*ibid.*, 283). The vast majority of the assemblage is tempered with copper slag (*ibid.*, 253; 283). Ceramic petrology and neutron activation analysis suggests that some pottery may have been imported from the contemporary hillfort at Götschenberg (Shennan 1995, 283; Lippert 1992). Metal items represent the most common non-ceramic finds from Klinglberg, the majority comprising small fragments and lumps of raw cast metal (Shennan 1995, 285). These were all made of copper, rather than bronze which may indicate that the settlement was involved in the production and control of raw copper. No moulds have been recovered, implying that the casting of metal objects was not taking place on site (*ibid.*, 284). There is no evidence that cereal crops were being processed on site. Shennan (1995, 287) suggests that the small animal bone assemblage indicates that cereals may have been imported and possibly traded for raw copper (the acidic soils and poor preservation of the site may have been a factor in the recovery of the animal bone). Sinnhubschlößl hillfort, which overlooks the confluence of the Salzach and Fritzbach rivers in western Austria, also has the same evidence for primary copper production (*ibid.*, 288).

A similar situation occurred at the nearby hillfort at Götschenberg. The hillfort is situated on an impressive outcrop of red limestone with extensive views of the Salzach valley and the Mitterberg mining district. Early activity associated with copper mining was abandoned by the end of the fourth millennium BC. The site was re-occupied around 2000 BC and after a period of open settlement, an enclosure was constructed using stone walls to cut off the northern and north-western approach. Shennan (1995, 290) suggests that the abandonment of the hill settlements may be associated with the expansion of centralised control in the Mitterberg-Pongau region, where a single centre controlled the mines and copper trade of the entire region.

A recently discovered hillfort at Bartholomäberg, in the Friaga Wald in Montafon, Austria, can also be linked with early mining activity. The site is located in the Alps above the Sole and Schruns Valleys where the Litz River flows out of the Silbertal into the Ill River. This is a

strategic position with extensive views of the surrounding valleys (Krause 2003, 219). The hillfort was probably constructed at the beginning of the Middle Bronze Age (*ibid.*, 216). It comprises a promontory separated from the landward side by a stone bank 80m in length and approximately 2–3m wide. Krause (2003, 216) estimates that the wall could have stood to a height of 2–3m. Excavation has also revealed an associated rock-cut ditch (*ibid.*, 217). The fort was separated by an internal wall that divided the upper and lower terrace. This inner wall has been dated to the beginning of the Middle Bronze Age (*ibid.*, 214) the excavator suggests a similar date may be proposed for the outer wall. Hut structures, pottery and bronze objects attest to sporadic settlement throughout the Bronze Age. The presence of copper and iron ores at the site may indicate that prospecting and exploration of ores occurred prior to construction of the hillfort. The hillfort may have been a visible means of both protecting the natural resources and projecting the ownership of these raw materials through the use of monumental architecture. Krause (2008, 79) has argued that hillforts such as Bartholomäberg were at the summit of a hierarchy of Bronze Age settlements in Montafon, with a structured society and governing leadership that probably controlled mining and metal production.

During this period, many hillforts produce evidence for craftworking of various types. An excellent example is Sotciastel hillfort, in the Southern Alps, Italy. The site is positioned on a mountain spur in a commanding position overlooking a prominent north–south running valley. A stone wall protects the most accessible approach and occupation of the interior dates to the end of the Early Bronze Age (Tecchiati 1998). Metal objects and a mould for casting axes were found during excavation. It is clear that the hillfort and its inhabitants were not involved in the mining of copper ore, as the site is too far from copper sources. However, a bead of blue glass paste and a number of distinctive leaf-shaped clay tablets, which have a widespread distribution throughout the Alpine region, indicate that the hillfort was embedded in a wider network of communication and trade (Primas 2002, 47). Hillforts were being built for a variety of functions during this early period, although, it is increasingly clear that the control of trade and communication routes was a paramount concern. Della Casa (2013, 714) has identified a concentration of largely undated hillforts in the Alpine Rhine Valley between Chur and Bregenz. The sites are usually positioned in commanding positions on large hillocks along the edges of the valley and Della Casa (2007; 2013, 715) has suggested there importance as trans-Alpine pass routes. He argues that such sites are positioned on natural obstacles such as promontories in order to control access and transit.

An excellent example of this is Ochsenberg hillfort, near Wartau, Switzerland. This hillfort comprises a stone wall constructed along the eastern face of the large hilltop at the edge of the Rhine valley. This enclosing element was built at approximately 1800 BC and preceded an intermittent, but not permanent, occupation of the hilltop that commenced 4300 BC (Primas 2002, 49). Interestingly, a concentration of storage pits was identified within the interior of the fort (*ibid.*, 49). Della Casa (2013, 714–715) suggests that the site holds an excellent strategic position, which must have been a key factor in the location of the hillfort. Primas (2002, 44) notes that a common feature of Early Bronze Age hillforts is their excellent visibility at potential routes of traffic, cross-roads, or river crossings. However, open settlements on hilltops also occupied such strategic positions in the landscape. An excellent example is a settlement on Frauenberg hilltop, near Weltenburg, Germany. The site is in a commanding position that overlooks the Danube River before it cuts through a mountain ridge. Primas (2002, 44) notes it could not have remained unnoticed to anyone passing along the river. The hilltop was settled in the Early Bronze Age but was probably not enclosed until 1200 BC. The importance of this natural routeway is further attested in the location of the Early Bronze Age hillfort on the Michelsberg near Kelheim, Germany, positioned at the other end of the mountain pass.

3.1.2 Middle/Late Bronze Age

During the Middle Bronze Age, hilltop settlements were almost completely abandoned and construction ceased across central Europe (Jockenhövel 1990, 219; 2013, 740). It is not until the beginning of the Late Bronze Age (around 1300 BC) that hilltop sites are again being fortified in different parts of the continent, with a highly structured method of enclosure in place involving considerable natural and human resources (Harding 2000, 298). The sudden and severe intensification of hillfort construction during this period has been described as unprecedented (Primas 2002, 50) (Fig. 3.5). Jockenhövel (2013, 740) notes over one hundred examples of hillforts in southern, central and eastern Germany from this period, while Primas (2002, 43) states that hillforts with radiocarbon dated enclosing elements in this area seem to be essentially a Late Bronze Age feature. This construction phase was highly dispersed, with hillforts being built throughout Atlantic and Urnfield Europe. Härke (1979, 31) has noted a topographical relationship of a large number of German hillforts with densely settled, fertile basins, such as Glauberg and Bliebeskopf at the Wetterau loess basin, Dommelberg overlooking the Neuwied basin, Ipf near the edge of the Nordlinger Ries loess plain, Bussen in the alluvial plain of the Upper Danube and Hohlandsberg at the valley of Munster. It is likely that this topographical relationship can be applied to other regions, although the importance of controlling natural

routeways seems to be an ever present concern for hillfort builders throughout the Bronze Age. Jockenhövel (1975, 57) has noted that German hillforts of the Urnfield period were located along important long-distance routes. The enclosing elements usually comprise an unsophisticated layout with simple entrance features (Jockenhovel 2013, 741; Härke 1979, 30; 166–167). There is often dense settlement within interiors which may indicate increasing population (Jockenhövel 2013, 741; Härke, 1979, 30), although there are also examples where well defended hillforts show low levels of settlement activity, such as Thinsberg hillfort in northern Switzerland. Interestingly, there is a notable increase in the evidence for violence at these sites and traces of destruction are not uncommon (Thorpe 2013, 240). Harding (2001, 334) and Bogucki (2004, 88–89) both suggest that 'almost all' of the Urnfield hillforts in Central Europe were rapidly destroyed, with artefact assemblages often indicating a single phase of occupation that rarely exceeded one hundred years. An excellent example of this is Biskupin hillfort in Poland. Here there are up to three phases of Late Bronze Age settlement which were destroyed and rebuilt in rapid succession (Harding 2001, 335).

The hillfort at Velim, Bohemia, Czech Republic, was destroyed soon after construction and there is substantial evidence indicating that this hillfort was attacked. Positioned surrounding a low hill, Velim overlooks an old branch of the Labe River, which was probably the most important communication route in the region in prehistory (Harding *et al.* 2007, 154). The fort was constructed around 1400 BC and comprises an inner ditch and palisade, and an outer

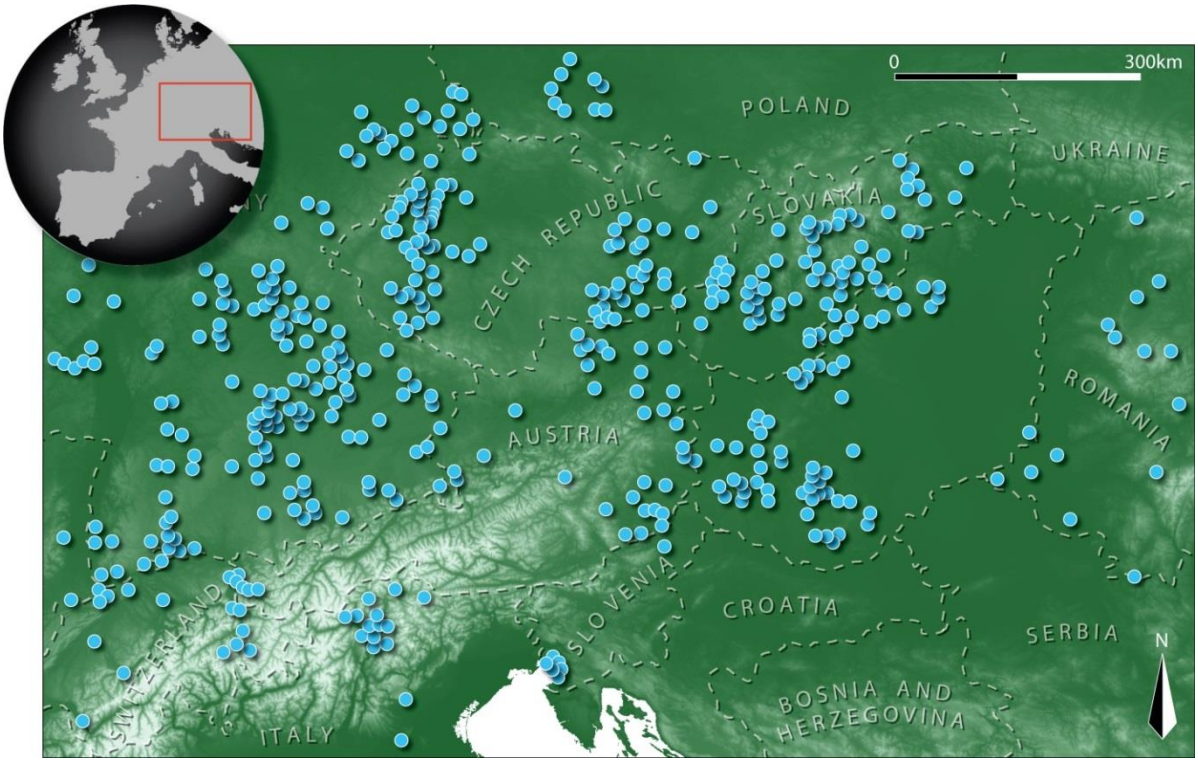

Fig. 3.5: Late Bronze Age hillforts in central Europe (after Rind 1999, 7, fig. 2; reproduced in Primas 2002).

ditch and palisade, with isolated pits dispersed irregularly across the site (Harding *et al.* 2007, 144). Interestingly, almost all of these pits contained human bone, with the remains being haphazardly deposited. Evidence of peri-mortem trauma is apparent on a number of bones. Some crania were found separated from other remains and evidence for attempted decapitation suggests that this was an occasional occurrence on the site (*ibid.*, 145). In part of the ditch circuit, a minimum of thirty human individuals were discovered, represented by 710 bones, with 'traces of cutting, breaking and chopping' (*ibid.*, 145). Twenty six socketed bronze arrowheads were found were recovered on site, although the precise location of the arrowheads is unknown (*ibid.*, 145). This evidence might indicate that a hostile attack on the site resulted in many deaths (*ibid.*, 145). The site was abandoned after a 'catastrophic burning event' that destroyed the entire fort. Thorpe (2013, 240) has suggested that the site may have been constructed to control trade. There is a similar site also dating to the Late Bronze Age, at Cezavy Hill near Blucina in Moracia, Czech Republic. Here, incomplete skeletons were often deposited with bronze artefacts (Jiran *et al.* 2013, 792). Evidence of metalworking may suggest these artefacts were produced at the site. The site is interpreted as a religious centre on a commanding height, where cult rituals were repeatedly carried out in association with the production of metal goods (*op. cit.* 2013, 792).

The Heunischenburg hillfort near Kronach, Bavaria, Germany, is located on a high mountain spur near the summit of the Bergsporn des Wolfsbergs. The site was possibly positioned to control copper and tin resources in the area. The landward approach at the north-east was protected by a palisade built around the first half of the 10th century BC. A stone wall replaced the palisade in the second half of the 10th century BC. This was approximately 2.6m wide and 3.5m high. A substantial wooden gateway was positioned at the east edge of the wall. A wooden fence probably surrounded the remainder of the site, which was already naturally protected by steep slopes (Abels 2002). The latter phase of the site was destroyed by fire. Bronze weapons, including a large number of arrowheads, some of them burnt, fragments of swords, spearheads and possibly armour, are indicative of a hostile attack (Thorpe 2013, 240).

The site of Bernstorf, near Freising, Germany was situated on a hilltop overlooking the River Amper. The enclosing element comprises a bank with a palisade at its crest. It enclosed an area of up to 13 ha (Moosauer and Bachmaier 2000). Radiocarbon dates from burnt wooden posts indicate that the enclosing elements were constructed *c.* 1675–1330 BC and a dendrochronological date from one of these examples gave a *terminus post quem* of 1360 BC for construction (Primas 2002, 51). Amber artefacts and an impressive assemblage of gold may

indicate that Bernstorf functioned as a means of controlling trade routes and high status goods in the region. Excavation suggests that the wooden palisade was systematically destroyed (Moosauer and Bachmaier 2000), although there is no evidence to suggest that the fort was destroyed in a hostile attack (such as arrowheads, human remains, etc.), this must be considered. Burnt destruction layers at many of the German hillforts indicate that many of these were destroyed by fire (Härke 1979, 33).

The Late Bronze Age hillfort at Limberg, Austria, was also destroyed by fire. The site comprises three widely spaced enclosing elements cutting off a natural plateau, occupying an area of approximately 30 ha. The enclosing elements comprised a wooden box rampart filled with clay and external ditches. The site lies near copper ore sources at Wallerfangen (Schindler 1968; 1974, 435).

The Bullenheimer Berg in northern Barvaria, Germany is another example of a large hillfort with evidence for destruction (Diemer 1995). The site comprises a wooden palisade enclosing an area of approximately 30 ha. This was destroyed by fire around the 12th century BC, but was re-occupied in the 11th century BC before being abandoned by the 9th century BC. The site is well known for the large number of bronze artefacts and the number of hoards. It is interesting to note the increased incorporation of wood into the enclosing elements across central Europe at this time. Primas (2002, 50) suggests that there is increasing evidence to suggest that wooden enclosures were constructed in almost every phase of the Late Bronze Age.

There is growing evidence to suggest that by the Late Bronze Age metalworking and specialized craftworking was taking place within or immediately outside some hillforts. Lull *et al.* (2013, 612) have highlighted that all of the excavated hilltops sites in Portugal, such as Senhora da Guia de Baiões in Beira Alta, have produced evidence for metalworking, while Härke (1979, 30) has suggested similar evidence is often found on German hillforts during this period. Jiran *et al.* (2013, 792) have noted that crafts and especially metalworking, were also concentrated at hillfort sites and their environs in Austria. Vandkilde (2004, 32) suggests that *all* of these sites should be interpreted as protected centres of crafts and trade that were presided by local elites. Although it is important to note that craft-working was not confined to these locations, there is a clear concentration of such activities at hillforts in Late Bronze Age Europe.

An excellent example is the hillfort at Várvölgy–Nagy-Lázhegy, Hungary, which has recently been excavated (Fig. 3.6). This occupies a total area of 160 ha. The enclosing elements comprise a stone wall that surrounds the hilltop, which survives to a height of 5m in places

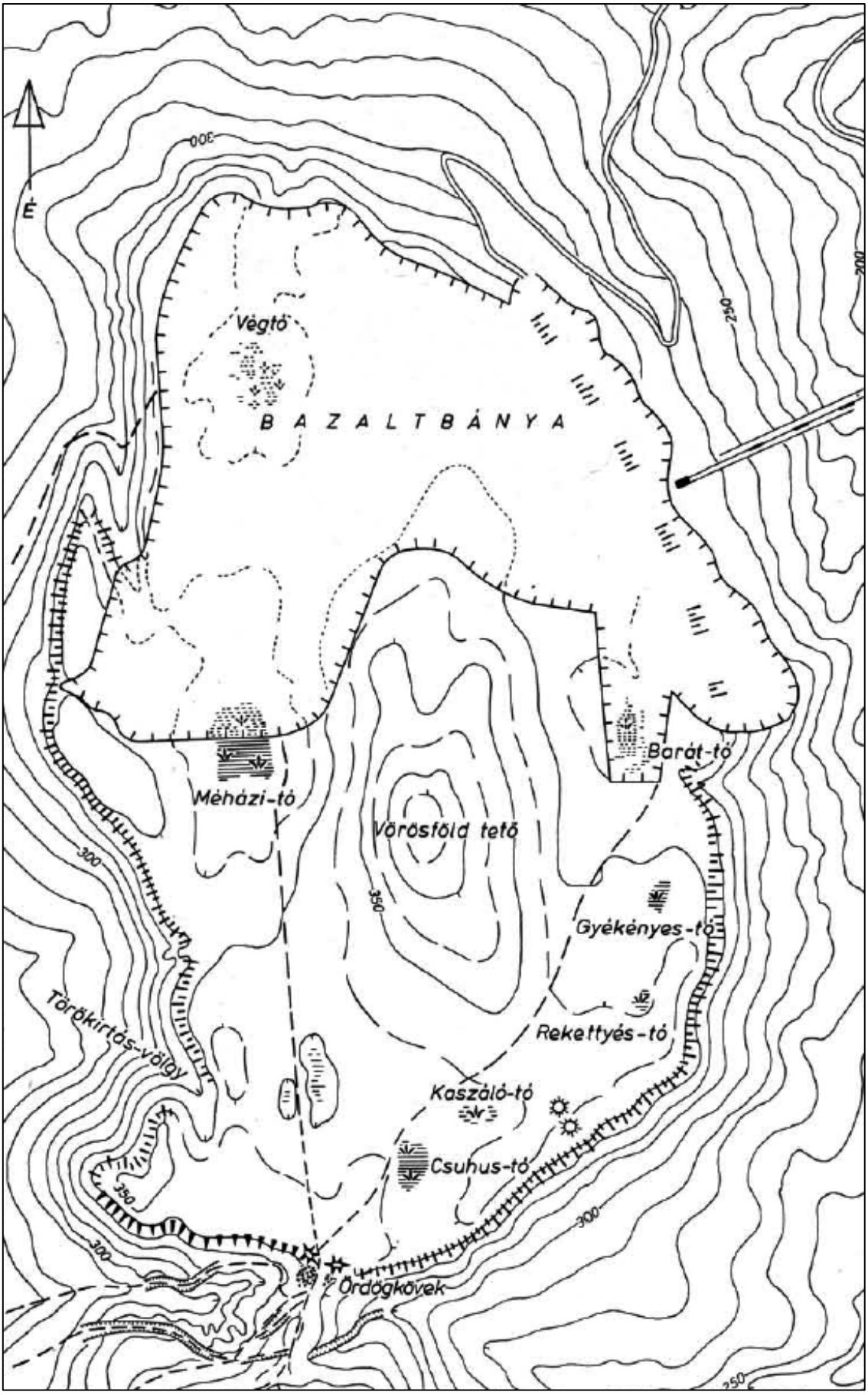

Fig. 3.6: Várvölgy–Nagy-Lázhegy (after Gyula and Iván 1991, fig. 2).

(Müller 2006, 189). An area of approximately 48,000m² was excavated between 2003 and 2006, prior to the extension of a basalt quarry. An estimated seven tons of ceramics were recovered from various contexts, with a considerable assemblage retrieved from 43 large pits (*ibid.*, 190). Müller (2006, 190) has interpreted these as grain storage pits. Some of the larger examples were dug into natural clay and may have functioned as water cisterns (*ibid.*, 191). A number of stone hammers, 51 mould and 102 crucible fragments attest to on-site bronze working (*ibid.*, 191). Twelve bronze and one gold hoard, together comprising 620 objects, were recovered from the interior (Müller 2012). The gold hoard is particularly impressive and contained thin gold ribbons that were probably used on a garment (Müller 2012) (Fig. 3.7). Radiocarbon dates and the bronze artefacts have dated the occupation at the site to the Late Bronze Age. Although there is a lack of definitive evidence for structural features, Müller (2006, 192) suggests later agricultural

Fig. 3.7: Várvölgy–Nagy-Lázhegy gold textile (after Müller 2012, fig. 2).

activity has truncated the site, and there may have been up to 32 hut sites may have been present within the excavated area. The distribution of the artefacts suggests a bilateral internal division, with bronze craftsmen and merchants occupying the northern section, and individuals involved in processing and preparation of bronze at the southern end (Müller 2006, 191). In total, Müller (2006, 193) estimates that the site may have had a population of over 1000.

There is considerable evidence of bronze working taking place inside hillforts during this period. Markova and Ilon (2013, 831) have noted that metallurgical centres appear at fortified settlements during the Late Bronze Age and have suggested that foreign goods recovered at the sites could indicate they functioned as inter-regional and intercultural trade centres. An excellent example is the hillfort at Pod, Bosnia and Herzegovina, constructed during the early part of the Late Bronze Age. The site sits on a plateau on the slopes of Mt. Koprivnica overlooking fertile land surrounded by mountainous terrain and dominates a natural north-south routeway through the region. The hillfort comprises a stone wall and probably a palisade. The interior was heavily occupied (Terzan 2013, 847). Evidence for bronze and iron working suggest that the hillfort played an important role in the manufacture of metal products for a broad region between Pannonia and the Adriatic (*ibid.*, 847). Terzan stresses the exceptionally strategic position of the site, the dense internal occupation and metalworking activities within the interior, which together make this hillfort a central settlement.

The Hunenburg hillfort near Waterstedt, Germany, built around 1100 BC, revealed evidence for a possible metal workshop where cast objects include swords and high-quality hanging bowls (Jockenhovel 2013, 741). Hut structures and storage pits were also found during excavation. Interestingly, aerial photography has identified a subsidiary settlement outside the enclosing elements of the hillfort which occupies an area of approximately 15 ha, considerably larger than the hillfort. Here, excavations by Heske *et al.* (2010) have recovered evidence for metalworking activities in the form of crucibles with bronze residue, grinding stones and casting moulds for the production of bronze tools and weapons. The excavations did not reveal an obvious class distinction between the hillfort and open settlements in the vicinity (Heske *et al.* 2010, 186). Rather, the evidence suggests specialised craftsmen within and immediately outside the hillfort. Jiran *et al.* (2013, 792) subsequently noted the high frequency of metalworking evidence at hillfort sites in the Czech Republic and Austria. They have also noted a concentration of metalworking evidence within the immediate environs of these hillforts.

Also relevant is a site excavated at Ormož, Slovenia, which was built around 1000 BC in a commanding position overlooking the Drava River (Dular and Tomanič Jevremov 2010). The

hillfort comprises an earthen bank and external ditch with possible evidence for a palisade. The interior was densely occupied. Open settlement immediately outside the hillfort was also detected. At Ormož, there was a clear separation activities with metalworking and craft activities recovered inside the hillfort, contrasting with the lack of such evidence in the external settlement (Teržan 2013, 847). A similar pattern of ancillary settlement was identified at Feadvar hillfort in Serbia.

Of exceptional importance in this regard are the Late Bronze Age phases of the French hillforts at Fort-Harrouard at Sorel-Mousel (Mohen 1987) and Saint-Pierre-en-Chastre at Vieux-Moulin. Both sites have produced large numbers of bronze objects, as well as evidence for metalworking in the form of mould fragments, furnaces, tuyère fragments, metal-working tools and bronze ingots (Mohen and Bailloud 1987, 140). The numerous mould fragments from Fort-Harrouard constitute the largest assemblage of such material in France. These fragments indicate the large-scale production of weapons, which Brun (1993, 178) suggests may have been intended for export. In total, 1252 metal objects were recovered, the majority of which are of bronze. Approximately 18 per cent of the bronze artefacts found were weapons. Twenty-nine swords were found at the site and moulds for at least 39 individual swords. Interestingly, 46 per cent of the moulds were used to create ornaments. The layout of the artefacts on the site allowed the excavators to identify specific areas of specialisation, such as specific zones where spearheads were bring created (Mohen and Bailloud 1987, 138). At Saint-Pierre-en-Chastre, 78 per cent of the bronze artefacts recovered were ornaments, while 58 per cent of the moulds found were used to create weapons. The evidence indicates that the hillforts at Fort-Harrouard and Saint-Pierre-en-Chastre were centres for the intensive production of prestige goods. Unfortunately, there is limited information available for French sites where bronze production took place, with Fort-Harrouard and Saint-Pierre-en-Chastre being an exception (Mordant 2013, 580). Brun (1987) has categorized bronze artefacts from French hillforts and compared them with other finds contexts such as hoards and isolated finds. This has highlighted the increased amount of bronze tools and ornaments found at hillfort sites in comparison to a distinct lack of tools in hoards and isolated finds. This is a further indication that many hillfort sites were being used as production centres for prestige goods. Other sites with evidence for dedicated craft-workshops include Mont Beuvray, France. There, a large hillfort of 135 ha was internally divided with an enamel workers and metal-workers quarters located near the main entrance (Ralston 2006).

A type of settlement known as *castro* became common in Spain and Portugal during the Late Bronze Age *c.*1150–950 BC (Burgess and O'Connor 2008, 48) (Fig. 3.8). The Late Bronze Age hillfort at Nossa Senhora da Guia de Baiões, Viseu in central Portugal, is particularly important. The construction of Baiões coincided with the widespread appearance of the hillfort in Spain and Portugal (González-Ruibal 2004, 290). The site is located in a dominating position, overlooking

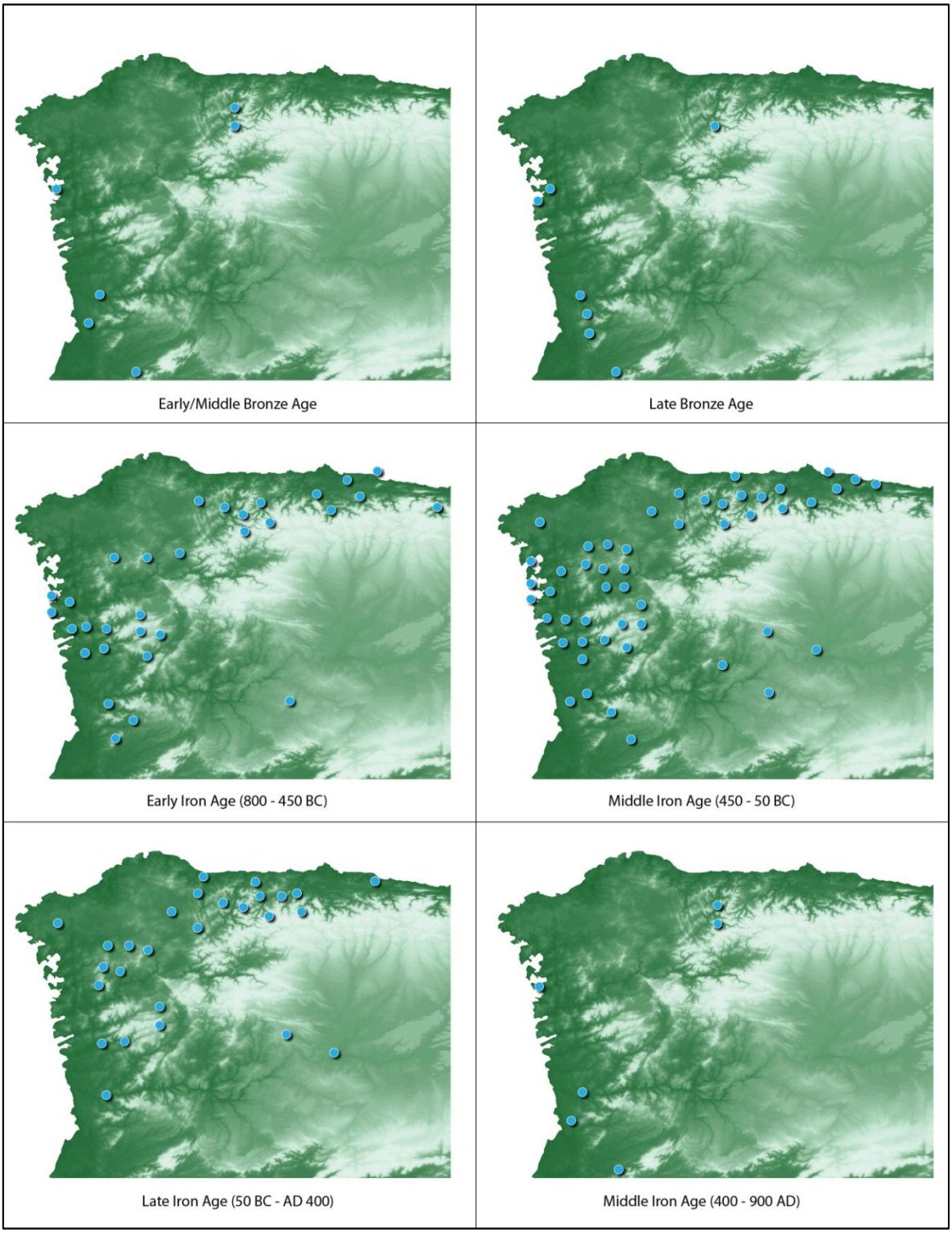

Fig. 3.8: Distribution of hillforts in north-western Spain and Portugal (after Pardo *et al.* 2009, fig. 7).

the western passes of the Gralheira massif and the Vouga River (Figueiredo *et al.* 2010, 1624). Several early excavations of the hilltop by Silva (1979) and Kalb (1978) revealed gold and bronze objects including torcs and bracelets, as well as a large corpus of pottery. The majority of bronze objects comprise scraps and ingots. Clay mould fragments and slag strongly indicates the on-site manufacture of objects. The famous Baiões hoard was discovered within the hillfort. This hoard included a mixture of high status Mediterranean items with Atlantic artefacts such as cauldrons, axes torcs and bracelets (Silva *et al*. 1984). The nearby *castro* of Santa Luzia produced a similar mix of Atlantic and Mediterranean Frattesina. While this is not positioned on a hilltop, it is located on a strategically important branch of the Po River in northern Italy. It was occupied from 1200–1000 BC, with dendrochronological dates providing a *terminus post quem* of between 1060 and 1049 BC. Excavations at the site produced semi-fused glass and other industrial by-products such as crucibles and large numbers of artefacts (Burgess and O'Connor 2008, 50). Burgess and O'Connor (2008, 46–48) have noted that an unusually large proportion of Late Bronze Age metal artefacts have come from *castros*. This may indicate that *castros* were used as both domestic sites and craft-working centres and therefore correspond with other hillfort throughout continental Europe.

It is interesting to note that at many hillforts where evidence for metalworking has been recovered, large pits possibly used for storing grain have also been identified. Várvölgy–Nagy-Lázhegy and the Hunenburg hillforts are excellent examples. Storage pits have also been identified at the Late Bronze Age hillfort of Burgberg, near Burkheim in southwestern Germany, where hundreds of round pits were discovered. Storage pits were also found at the Late Bronze Age hillfort at Feudvar and at Btuszczewo in west-central Poland. The identification of storage pits may be an indication of centralized storage of agricultural produce (Czebresuk and Müller 2004), or perhaps storage of excess produce to sustain craftsmen.

Although Osgood and Monks (2000, 66) suggest that by the end of the Late Bronze Age, much of the production of goods seems to have taken place at fortified sites, important craft production centres also occurred in low-land settings. The best known example is the 20 ha site of Frattesina. While this is not positioned on a hilltop, it is located on a strategically important branch of the Po River in northern Italy. It was occupied from 1200–1000 BC, with dendrochronological dates providing a *terminus post quem* of between 1060 and 1049 BC. Excavations at the site produced semi-fused glass and other industrial by-products such as crucibles and large numbers of glass ingot fragments, strongly indicating that glass-working and/or production was taking place (Brill 1992; Henderson 1988). The distinctive LMHK (low

magnesium-high potassium) glass has been found as far away as Freestone Hill hillfort, in Ireland, indicating that Frattesina was engaged in long-distance trading. The settlement was also involved in the Mediterranean trade system, importing raw materials such as amber, ivory, and ostrich eggs, and exporting finished goods (Pearce 2004, 39; Nocolis 2013, 697).

Similarly, important settlement sites were constructed in low-lying areas which incorporated large, monumental enclosing elements. Corneşti-Iarcuri, a Late Bronze Age multiple enclosure nearly 6km across, had a dense complex of development, dense occupation and signs of destruction by fire (Szentmiklosi *et al.* 2011, 819) (Fig. 3.9). The site is located in the expansive plains of the Banat in western Romania. The site comprises four enclosing elements, some of which survive to a height of 4m, and has a total site foot print of 1722 ha. This is at present the largest prehistoric settlement in Europe (Szentmiklosi *et al.* 2011, 819). The second inner enclosing element was excavated in 1932 and 1939 (Medeleţ 1993). This revealed parallel rows of vertical wooden posts filled with soil and are dated to the Late Bronze Age (Heeb *et al*. 2008, 183). Interestingly, the posts show signs of burning *in situ*. Recent excavation has focused on this enclosing element and the inner example. These investigations confirmed the presence of the inner enclosure and provided information on the construction and date of the inner enclosing element. This was constructed in two phases, both of which comprised multiple parallel palisades with a core of earth. An external ditch approximately 11m wide and 4.7m

Fig. 3.9: Corneşti-Iarcuri (after Szentmiklosi *et al.* 2011, fig. 2).

deep, positioned 4m from the palisades was associated with the initial phase of construction (Szentmiklosi *et al.* 2011, 824). There were no traces of burning associated with this phase. The second phase probably saw the infilling of the original ditch, as the bank of the later phase partially overlies it (*ibid.*, 826). An outer ditch was dug to a depth of 2.1m and a width of 7m. This was positioned 24m outside the contemporary bank. Excavation revealed that the phase 2 bank was destroyed by intense burning, predominantly on the outer edge (*ibid.*, 827). Radiocarbon dates from burnt wood provide a clear indication of construction between 1450–1200 BC (*ibid.*, 827). Geophysical survey over sections of the inner and second inner enclosing elements reveal that this burning, indicating that much of the enclosing elements were probably destroyed in this burning event (*ibid.*, 830). Furthermore, the survey has revealed large pits and large rectangular houses possibly forming an urban scheme with lanes orientated along the second inner enclosing element. There is also a remarkable number of circular anomalies with may represent hut structures (*ibid.*, 830). Field walking recovered a large assemblage of [pottery which is dominated by Late Bronze Age material, strongly indicating that the main settlement phase belonged to this period (*ibid.*, 832–834).

3.1.3 Final Late Bronze Age/Early Iron Age

A final construction phase occurs at the Late Bronze Age/Iron Age transition, although in a more confined region spanning Southern Britain, Northern France, Belgium, Southern Germany, the Czech Republic and Slovakia. Härke (1979, 261-263) has previously suggested that there may have been a complete cessation of building during the latter phase of the Late Bronze Age, although it is clear that some hillforts were being continuously occupied throughout the period. Härke (1979, 33) has suggested that the end of the Urnfield culture (800 BC) coincided with the abandonment of hillfort sites in much of Europe during Hallstatt C1 (800–650 BC). While this seems to be the case in regionalized areas such as southern Germany (Gerlach 1998; Rind 1999; Metzner-Nebelsick 2012, 425), northwest France (Delrieu 2013, 144) and eastern parts of Hungary and Slovakia (Matuz and Nováki 2002), there is also some occupation of hillfort sites in western Hungary, northeast Austria and western Slovakia (Metzner-Nebelsick 2012, 425). Markova and Ilon (2013, 831) note that particularly large hillforts were built in Slovakia at this time. In fact, Primas (2002, 51) has suggested that a considerable number were occupied in Central Europe between 1000–800 BC. Similarly Ralston points out that in eastern Germany, hillforts built during this period are generally larger, although less densely inhabited (Ralston 2006, 14). This pattern occurs throughout this European hillfort zone. Metzner-Nebelsick's

(2012, 426–427) study of a group of excavated hillforts in north-eastern Hungary show that few of these sites were occupied beyond the 8th/7th centuries BC and that there is no evidence that new hillforts were being constructed at this time. This is a trend that occurs throughout many areas of Europe. In Germany and France, most of the large, dated hillforts are Late Bronze Age, although in regional zones such as southern Germany, the phenomenon was at its height during the 6th and early 5th centuries BC (Cunliffe 2001, 341–352). This period saw the emergence of a limited number of small hillforts with readily apparent signs of elite occupation (Ralston 2006, 22). Known as *Fürstensitze*, or princely seats, these sites often produce very elaborate brooches (*ibid.*, 22) and in some cases, such as Mont Lassois in Burgundy, Heuneburg in southern Germany (Fig. 3.10) and Châtillion-sur-Glâne in Switzerland, Mediterrean luxury goods have been found (Cunliffe 2001, 346). It is around this time that hillforts begin to develop more regionalized qualities such as the incorporation of towers and bastions in southern France and Iberia (Ralston 2006, 76), and *cheveaux-de-frise* in Atlantic areas such as northern Spain(although *cheveaux-de-frise* has a more protracted period of use, with examples being constructed as late as the Middle

Fig 3.10: LiDAR survey of Heuneburg hillfort (after Fernández-Götz and Krausse 2012, 30).

Iron Age at Castell Henllys hillfort in Wales (Mytum 2013) and possibly Kaimes Hill, Midlothian. Finally, enormous sites termed 'oppida', emerged in south–eastern Britain, central, eastern and southern France, central, western and southern Germany, Austria and Czech Republic, around the 2nd and 1st centuries BC. These are often hundreds of hectares in extent.

Often described as a hillfort, the fortified settlement at Biskupin, central Poland, is positioned on a slight rise overlooking a lake. The settlement comprised 13 rows of buildings each with up to a dozen or more identical houses (Czebreszuk 2013, 782). Interestingly, there is no evidence of significant social differentiation (Cunliffe 2001, 341–352). These structures were protected by a substantial wooden rampart. Dendrochronological dates from this wood reveal that they were felled between 750 and 708 BC (Czebreszuk 2013, 782). The site was destroyed by fire and never reoccupied. Harding and Razckowski (2010) have identified a complex of a dozen or so contemporary settlements in central Poland, with evidence suggesting these fortified settlements were abandoned at the beginning of the Early Iron Age.

An important analysis of the dated hillforts in north-western Spain and Portugal by Pardo *et al.* (2009) has established a chronology for the region (Fig. 3.8). Examination of sixty nine sites with 388 radiocarbon dates has revealed that the majority of hillfort are being constructed and occupied between the 8th century BC to the 2nd century AD (*ibid.*, 96). Two major construction phases occur around 800 BC and 450 BC. The length of occupation varies, with some hillforts such as Torroso, Penalba or Penarrubia being constructed and abandoned between 800 – 450 BC, and A Graña, for example, having a long history of occupation beginning around 800 BC and continuing until the turn of the millennium (*ibid.*). A general abandonment of these sites occurs from the 3rd – 4th centuries AD, although intermittent occupation occurs at various sites throughout the Medieval and modern period (*ibid.*, 96).

The 6th and early 5th centuries BC saw the establishment of hillforts directly associated with high status elites. The Heuneburg hillfort in Baden-Wurttemberg, southern Germany, is an excellent example (Fig. 3.10). Artefacts recovered from the hillfort are indicative of elite occupation. Prestige goods (such as gold neck and arm rings and the remains of a wagon) in richly furnished graves under enormous earthen mounds near the hillfort highlight the presence of prestigious peoples (Fernández-Götz and Krausse 2012, 29). Extensive excavations of the hillfort have revealed up to 14 building phases and 10 phases of fortification. The enclosing elements of the original phases comprised a wall of unfired mudbrick, 5m in height, resting on a stone foundation, with an external V-shaped ditch 14m wide and up to 6m deep (ibid., 30). The partial remains of a wooden bridge was recovered in the ditch. This has been

dendrochronologically dated to 590 BC (ibid., 30). An entrance with a gatehouse and the remains of forward-projecting rectangular bastions, both of mudbrick construction, were also identified. Bastions and the incorporation of mudbrick as an architectural phenomenon were unknown in the region and may derive from Mediterranean prototypes (Ralston 2006, 78; Fernández-Götz and Krausse 2012, 29). Evidence suggests that the hillfort was the subject of repeated attacks as the walls were rebuilt on numerous occasions (Ralston 2006, 78). The original mudbrick wall was replaced around 540–530 BC with an earth and wood rampart, in what Fernández-Götz and Krausse (2012, 34) suggests was an iconoclastic reaction to the exotic building technique. A wider study of the environs of the hillfort provided even more spectacular results. There is evidence of dense settlement over 100 ha adjacent to the enclosing elements, which Fernández-Götz and Krausse (2012, 31) suggest represented a population of approximately 5000 at its height. The site was abruptly abandoned around the mid-5th century BC., around the same time when the hillfort at Glauberg in south western Germany was becoming more important (ibid., 34).

Glauberg was enclosed as early as the Late Neolithic when a ditch was constructed at its northern end (Baitinger 2010). The site was briefly occupied during the Late Bronze Age at the end of the 10th century BC. Settlement resumed in the early 6th century BC, and the hillfort was extensively refurbished with over 1.5 km of large stone banks with wooden lacing. The enclosing elements surrounded the flat plateau of a steep-sided hilltop, with a triangular annex on the northern slopes. Excavation shows signs that the hillfort was destroyed by fire in the 5th century BC, the burnt stone fusing to form a 'vitrified fort'. This was not uncommon in Europe at the time, as Cunliffe (2001, 341–352) notes that a significant number of hillforts provide evidence of attack. The monument was quickly rebuilt in a similar form. The hillfort was largely abandoned by the 4th century BC. Although prestige goods were not recovered within the interior of the hillfort, exceptionally furnished graves under large and elaborate mounds in the immediate environs of the hillfort may infer the presence of elites (Knipper *et al.* 2014). Mont Lassois in Burgundy, France and Châtillion-sur-Glâne in Switzerland are also excellent examples of 'princely seats' from that period.

The development of the hillfort in Europe culminates in the enormous '*oppida*' that can generally be dated to the final stages of the pre-Roman Iron Age, around the 2nd and 1st centuries BC. These monuments are confined to a broad band that extends from Hungary through temperate Europe, west to Atlantic France and north into southern England (Ralston 2006, 14). However, massive fortifications occurred as early as the Late Bronze Age and size

should not be the defining factor of an *oppida*. For example, the low-land promontory of the Fossé Saint Philibert at Yainville and Jumiéges (Seine Maritime) encloses an area of approximately 2000 ha and has been dated to the Late Bronze Age (Ralston 2006, 29).

An excellent example of an *oppida* is the extensively excavated Manching in Bavaria, Germany (Fig. 3.11). This site is strategically located in a riverine plain overlooking important north–south routeways across the Danube and east–west overland routes (Krämer 2002, 63–65). The site comprises a bank with an outer face of dry-stone walling and wood which extended over 7.2 km. The outer face was later reconstructed with vertical wooden posts. The enclosing elements surrounded an area of approximately 380 ha. Excavation revealed an impressive gate-house at the east, consisting of five rows of massive post-holes set within and on the margins of in-turned bank terminals (Ralston 2006, 81). Circular post structures, 160 large storage pits, some 250,000 animal bone fragments and 110,000 sherds of wheel-turned pottery are indicative

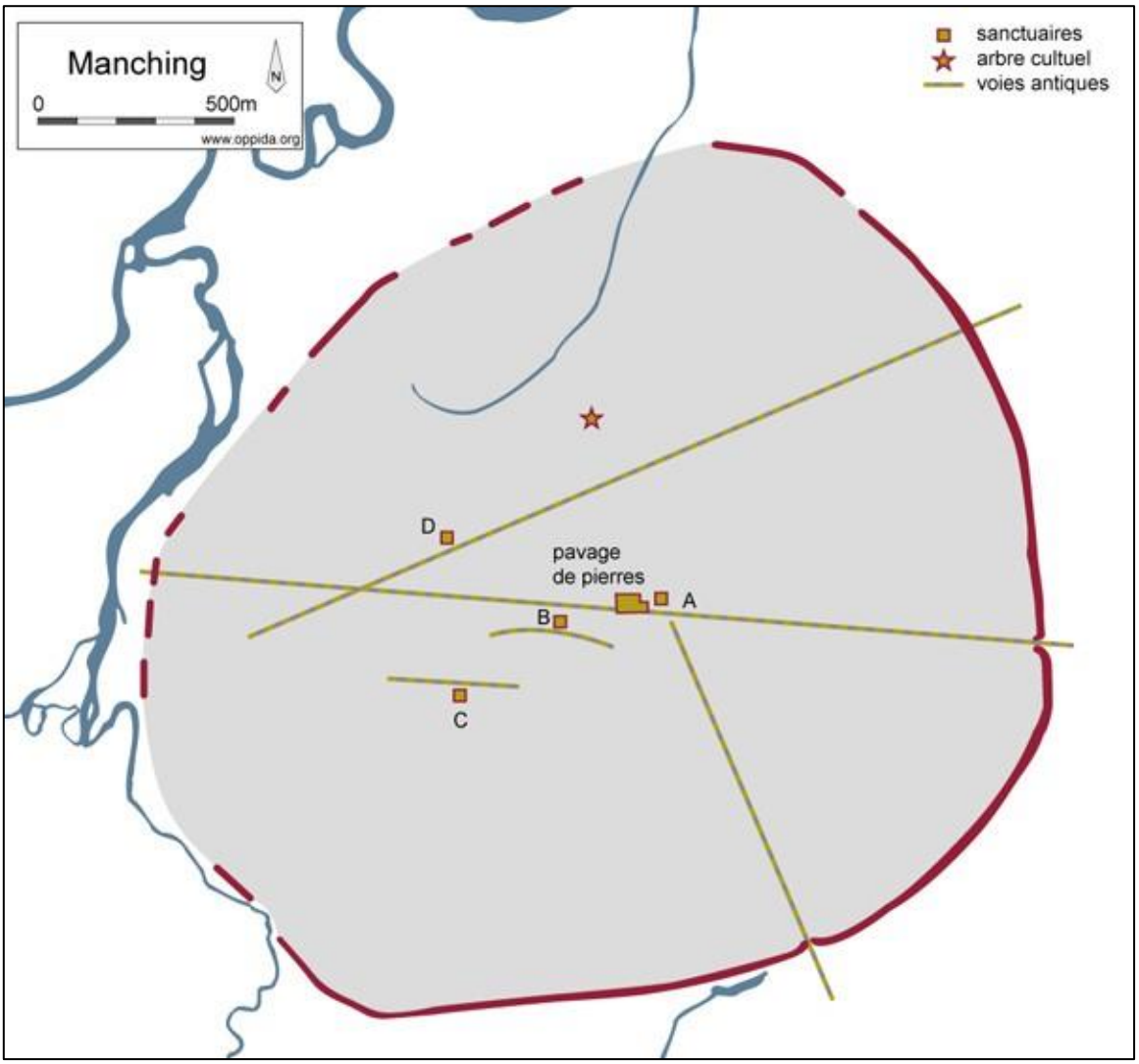

Fig 3.11: Manching oppidum (http://www.oppida.org/page.php?lg=fr&rub=00&id_oppidum=77).

of dense internal occupation (Krämer 2002, 66–70). Industrial activity is also represented by an iron craft-working area as well as evidence for copper and bronze working (*ibid.*, 71). Approximately 100 swords, 40 spearheads and iron shield bosses were found scattered within the settlement likely indicates that the settlement was attacked and destroyed by the Roman army in 15 BC (*ibid.*, 75–77). Other *oppida* include Heidengraben in south-west Germany and Ferschweiler (Kresi Bitburg-Prum) in the Eifel of western Germany.

3.2 BRITISH HILLFORTS

The intensive research on hillfort sites in Britain began as early as 1600, when the impressive hillfort at Maiden Castle, Dorset (Fig. 3.12) was recorded in William Camden's *Britannia* (Harding 2012, 30). A rich history of research followed as these massive sites drew the attention of leading antiquarians such as General Pitt Rivers. Pitt Rivers' (1887; 1888) excavations at Cranborne Chase and his work at other sites is often considered the beginning of modern hillfort research (Harding 2012, 33). The development of hillfort studies accelerated with the publication of a paper by Christopher Hawkes in 1931. The publication considered the origins of the British hillfort and provided a theoretical framework (the invasion model) for the subject area. Hawkes saw hillforts as a reaction to invading communities, acting primarily as defensive barriers

Fig. 3.12: Maiden Castle (Bing Maps 2015).

protecting the inhabitants. By 1940, approximately 80 hillforts had been excavated, although many of these focused on the enclosing elements (Cunliffe 2011, 12). This included the famous Maiden Castle, Dorchester, excavated in 1934–1938 by Sir Mortimer Wheeler (1935; 1943). Wheeler employed an innovative grid system of area excavation that would later be adopted byarchaeologists throughout Britain. The scale of the excavation and the targeting of the interior was also an innovation (Cunliffe 2011, 16). By the 1940's, Hawkes' invasionist model was seen as a simplistic explanation for hillfort origins (*ibid.*, 18), and theoretical approaches were beginning to incorporate ideas such as trade and exchange, cultural and political organisation and landscape (Brown 2009, 20).

Commencement of the excavations at Danebury in Hampshire by Barry Cunliffe in 1969 was the next leap in hillfort research in Britain (Fig. 3.13). A sustained programme of excavation over 20 seasons was followed by an extensive investigation of its environs with publications continuing until 2008. Critically, the project assessed the hillfort in its landscape setting. Large areas of the interior were excavated revealing intensive occupation throughout the Middle Iron Age. This is indicated by the discovery of thousands of post-holes and approximately 2,500 storage pits (Cunliffe 2011, 79; 99). The Danebury excavation resulted in a shift in theoretical approach. Cunliffe considered that the construction of hillforts was a reaction to population stresses and environmental instability, which resulted in the need for places to coordinate agricultural storage, production and exchange. Cunliffe positioned his 'central place' concept

Fig. 3.13: Danebury hillfort (after Corney and Payne 2006, fig. 2.16).

within the broader context of defence. He argued that the large enclosing elements of Danebury were primarily defensive in character and supported this argument with excavation evidence (*ibid.*, 67). He argued that the remains of some 100 individuals within the interior of Danebury, a number of which show signs of severe injury by weapons such as spears and swords, were evidence of the 'ever-present social horrors of endemic warfare'. A single deposit of 10,300 sling stones near the internal eastern gate and the 'defensive ingenuity' of the entrance was further evidence supporting this theory. By the mid 1970's, hillforts were commonly thought of as serving or controlling a territory as central places (Harding 1979, 11).

In Britain, the Danebury model came under increasing scrutiny in the 1980's, as further excavations yielded little evidence for hierarchical societies (Payne 2006, 8), leading to a rethink of the evidence for the military function of hillforts (Armit 2007, 29–30). Papers by Bowden and McOmish's (1987; 1989) contributed to this change in thinking. They considered the enclosing elements of hillforts as a symbol of status and a projection of the power of the community that built the monument. Sharples (1991) excavations at Maiden Castle in the 1980's reflected these changes in archaeological theory. Here, Sharples (1991) viewed the massive enclosing elements as an expression of power and status rather than for primarily defensive purposes. Lock (2011) has recently emphasised this theoretical approach, although the defensive aspect of hillforts has recently been re-introduced by Armit (2007). Current theoretical approach also view hillforts as permanent displays of power and authority and as physical acts of competitive display (most recently summarised by Driver 2013).

3.2.1 Late Bronze Age

Evidence for the construction of hillforts in Late Bronze Age Britain has not received much attention (see Needham 2007; Sharples 2010, 55), despite considerable evidence supporting this phenomenon. When these sites are recognised they are considered 'atypical' (Sharples 2010, 55). However, it is clear that the hillfort phenomenon is Britain partly reflects the situation on the continent. In both regions, a significant construction phase is evident at the beginning of the Late Bronze Age. Hillforts built during this period are characterized by their simplistic layout, simple gap entrances and often slight defences. Many earlier hillforts comprised palisades rather than earthen ramparts (Lynch *et al.* 2000, 15). While there is a limited number of examples, such as Cadbury Castle, Somerset, where a continuous span of occupation through the first millennium BC can be demonstrated (Tabor 2008, 74), most hillforts cease to be built and occupied around the 9th/8th century BC.

Rams Hill, Berkshire, lies close to the northern edge of the Wessex chalk massif, overlooking the Vale of the White Horse and the Thames Valley to the north (Bradley and Ellison 1975, 3–4). The site has a complex, multiphase layout, comprising a central enclosure dated to the Late Bronze Age, surrounded by a much larger hillfort of Early Iron Age date. A rectangular Roman enclosure abuts the Iron Age rampart at the northeast. The central enclosure has been extensively excavated and recent radiocarbon dating has refined the chronology (Needham and Ambers 1994). The first phase of the site can now be securely placed at the beginning of the Late Bronze Age *c.*1200 BC. The construction comprises a stone-faced rampart with external ditch. Subsequent phases of refurbishment occurred during at approximately 1100 BC, when a wood-laced rampart with an external wooden revetment was constructed, and again at 1000 BC, when a double palisade was constructed in the in-filled ditch (Bradley and Ellison; Needham and Ambers 1994, 231–235). Two entrances, a number of small circular hut sites and four-post structures were recorded within the interior (Bradley and Ellison 1975, 153).

A comparable site is Taplow hillfort in Buckinghamshire. This enclosure is positioned on a projecting spur of the Burnham Plateau on the east bank of the Thames, overlooking the river and its valley (Allen *et al.* 2009, 1). The hillfort was constructed around the 11th century and continued through several phases of refurbishment until the 9th century BC (*ibid.*, 119). The earliest phase comprises two rows of post-holes dated to 1120–980 BC (*op cit.* 2009, 193). These likely comprised a composite structure comparable to the double palisade at Rams Hill. These posts may have formed a wooden revetment and raised internal walkway, or could have been used to form a glacis-style rampart. As at Rams Hill, the post-hole rows were replaced by an adjacent palisade with a continuous trench setting, which, in turn, was replaced by a rampart and V-shaped ditch (*ibid.*, 35). The site was largely abandoned by the 9th century BC before being re-occupied during the Early/Middle Iron Age. A wooden-laced rampart with evidence for burning and a U-shaped ditch were constructed inside the line of the earlier bank and ditch (*ibid.*, 73). Evidence also suggests that the entrance was burnt quite soon after its construction (*ibid.*, 85). Allen *et al.* (2009, 87) suggest this may have been an attempt at slighting the defences by a competing community. Other examples of burnt ramparts have been discussed by Allen *et al.* (2009, 205).

Cunliffe (1991, 313) has suggested that the earliest type of hilltop enclosure of hillfort proportions was the palisaded enclosure. Allen *et al.* (2009, 191–196) have discussed in detail the evidence for paired post-hole rows, citing the hillforts at Thwing (Manby 2007), Springfield Lyons in Essex (Buckley and Hedges 1987) and Rams Hill (Bradley and Ellison 1975, 34–35) as

comparable examples to Taplow. At Breiddin hillfort, Montomgery, the earliest phase of hillfort construction dated to the 10th/9th century. This comprised a closely spaced double palisade and preceded a complex series of earthen enclosures. At Moel y Gaer, Flintshire, Wales, one or more palisades probably reflect the earliest phase of hillfort construction and may date to the 8th or 7th century (Cunliffle 1991, 313). Similarly, palisaded enclosures at Blewburton Hill, Oxfordshire, and Bindon Hill, Dorset, predate the construction of the box ramparts and represent the earliest phase of hillfort construction at these sites (*ibid.*, 313). Cunliffe (1991, 313) has also noted that at Woodbury Castle in Devon; Skelmore Heads, Lancashire; Wilbury, Hertfordshire; Hembury, Devon and Eddisbury in Cheshire, short lengths of palisades predating the construction of earthen ramparts have been revealed. In many cases, therefore, wooden palisades formed the earliest enclosure at hillfort sites. This type of defence may be characteristic of the Late Bronze Age in Britain.

A number of other sites may be dated to the early part of the Late Bronze Age, including Highdown Hill, Sussex (Hamilton and Manley 1997; Wilson 1940; Wilson 1950); Norton Fitzwarren, Somerset (Eillis 1989); Hog Cliff Castle, Dorset (Ellison and Rahtz 1987); and Thundersbarrow Hill, Sussex (Hamilton and Manely 1997). However, Ambers and Needham (1994) have demonstrated that the association between the dating evidence and the enclosing elements at some of these sites is not conclusive. Despite this, there are a number of other hillforts that can be dated to the beginning of the Late Bronze Age, such as Camp Gardens, Stow-on-the-Wold, constructed between 1400–990 BC (Parry 1999) and Fairfield, Stotfold, built at 1250–1000 BC (Webley *et al* 2007). Allen *et al.* (2009, 191) suggest that the dating evidence implies that the *floruit* for these early hillforts seems to have begun around 1100 BC and continued to around 900 or 800 BC. Reflecting the situation on the continent, some Late Bronze Age hillforts in Britain produce evidence for metalworking. Examples include Mucking (Jones and Bond 1980), Thwing (Manby 1980), Springfield Lyons (Buckley and Hedges 1987) and South Hornchurch (Guttmann and Last 2000, 344), although, there is no comparable evidence for metalworking at Taplow (Allen *et al*. 2009) or Rams Hill (Bradley and Ellison 1975). Settlement evidence at these sites varies. For example, Ellis and Rawlings (2001, 84–86) note 'relatively little' evidence for permanent or long-lived internal settlement activity, which is in 'stark contrast to the resources expended on the periodic maintenance of the enclosure circuits'. Conversely, excavations at Rams Hill revealed a large number of post- and stake-holes relating to successive buildings and fences (Bradley and Ellison 1975).

Larger hillforts began to be constructed at a slightly later period around the end of the 10th century BC. Examples include The Breidden (Musson 1991), Dinorben (Savory 1971), Grimthorpe (Stead 1968), Beeston Castle (Ellis 1993), Balksbury Camp (Ellis and Rawlings 2001), Castle Hill (Allen *et al*. 2009, 193), Thrapston (Hull 2000) and Wolstonbury (Hamilton and Manley 1997). These sites are still characterized by the simple design and entrance features. At Balksbury Camp, for example, the main enclosure consisted to a single ditch less than 7.3m wide and at least 0.9m deep, with an internal bank averaging 3–3.5m wide and simple entrance gap (Wainwright and Davis 1995, 10). This simple enclosure defined a roughly triangular area approximately 18ha in extent (Ellis and Rawlings 2001, 84). These sites precede the more widespread construction of hillforts in the 8th century (Allen *et al*. 2009, 193).

3.2.2 Iron Age

Hillforts re-emerged in Britain during the Late Bronze Age/Iron Age transition around 800–600 BC and usually comprise simple curvilinear enclosures (Needham 2007; Sharples 2007, 116; Sharples 2010, 55). The hillfort phenomenon continues in Britain until the Roman invasion, and in rare cases, sites were still in use during the Early Medieval period. Some Early Iron Age hillforts can be connected with river valleys (Corney 2006, 134) and may have been sited to control such natural routeways. Examples include the Avon, and its tributaries, the Wylie and the Bourne and the Stour in Dorset. Sharples (2007, 66) has questioned this assumption, noting some important rivers that are not have associated with hillforts. Sharples (2007, 66) does state that hillforts built during the Late Bronze Age/Early Iron Age transition are often located on prominent hilltops or at the edges of inland escarpments. Cunliffe (2013, 304–305) has noted that such hillforts are likely to have been sited to dominate discrete territories that are often defined by natural boundaries such as river valleys. This connection with highly visible topographic landmarks is also a feature of continental hillforts. Hillforts such as Winklebury, Wiltshire (Smith 1977); Balksbury, Hampshire (Wainwright 1969; Wainwright and Davies 1995); Martinsell, Wiltshire; Walbury, Berkshire (Payne *et al.* 2006); and Harting Beacon, West Sussex (Bedwin 1978, 1979) were constructed during this period. In Wessex, the famous Danebury and Maiden Castle were constructed within a densely populated zone of hillforts, known as the 'hillfort dominated zone' (Fig. 3.14). This extended from south-eastern coast of England to north Wales (see Cunliffe 2013, 304; 1991, 312). The excavation evidence indicates that most of these hillforts were built during the 6th and 5th centuries BC, the forts themselves characterized by a rampart and ditch of 'defensive' proportions and two opposing entrance features (Cunliffe 2013, 304). Evidence of occupation varies from one hillfort to another. At one extreme, there are

hillforts which were never occupied and show little trace of sustained use, while some were intensively occupied by a permanent population throughout the length of their life, such as Maiden Castle or Danebury (Cunliffe 2013, 305; Harding 2012, 206; Mytum 2013, 10). Sharples (2007, 120) has noted that there may be a link between the complexity of the enclosing elements and more intensive occupation of the interior.

For the period 450–200 BC, the mobilisation of resources for boundary construction is considered the principal medium for elite competition (Sharples 2007, 120). This manifests in the evolution of the hillfort through the substantial enhancement of enclosing elements and creation of complex entrance features. These forts are termed 'developed hillforts'. An excellent example is Maiden Castle in Dorset. This is one of the most extensively studied hillforts in southern England (Sharples 1991, 257). Positioned in a commanding position at the eastern edge of an east-west running ridge, the earliest phase incorporated the remains of a Neolithic

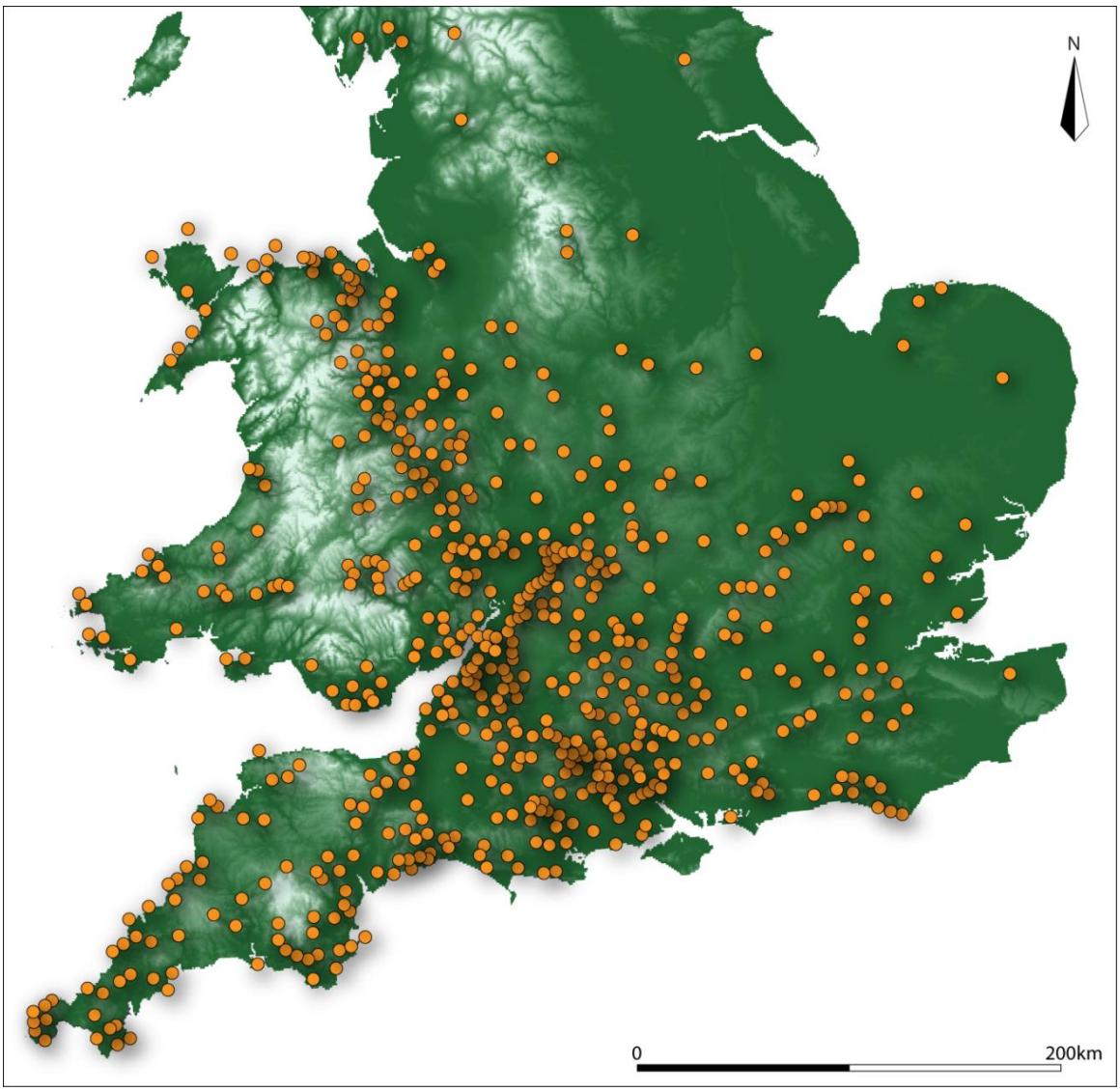

Fig. 3.14: Distribution of hillforts over 1.2ha in southern Britain (after Payne 2006 fig. 1.2).

causewayed enclosure. The Early Iron Age hillfort dates to around 600 BC and comprised a bank and external V-shaped ditch up to 6.5m in depth. It enclosed an area of 6.47 ha at the eastern summit of the hilltop. There are two opposing entrance features at the east and west. In the Middle Iron Age, around 450 BC, the enclosing elements are dramatically refurbished and the hillfort was extended to the west, enclosing an area of approximately 17.22 ha. Throughout this period, there is sustained development of the enclosing elements with the addition of ramparts and ditches, a significant increase in the scale of these earthworks and the gradual development of complex entrance features (Sharples 1991, 63). In total, the hillfort occupied an area of approximately 45.28 ha. The interior appears to be densely occupied throughout this period, with evidence for dense clusters of domestic structures and large storage pits. Analysis of the surrounding landscape indicates that contemporary settlements and hillforts were abandoned, and the inhabitants may have been absorbed into the hillfort at Maiden Castle (*ibid.*, 260).

This trend is apparent elsewhere in Britain, such as at Danebury and may be seen as a sign of the increasing importance of these developed hillforts (Sharples 2007, 76). Cunliffe (2013, 306) considers this as evidence for the amalgamation of individual polities to create larger social units. This led to the decline of once-active hillforts, while others took on a greater significance to serve a larger territory (*ibid.*, 306). Storage pits are a key feature of the Wessex hillfort group, and particularly the developed hillforts of that area. Sharples (2007, 122) has noted that the storage capacity at many of these sites could have provided resources for communities much larger than those occupying the interior. He (2007, 122–123) linked this increased storage capacity with the construction and development of the enclosing elements, suggesting that the success of a hillfort construction event depended not only on available labour and resources, but also the ability to keep everyone content by supplying them with food. At its height, Maiden Castle exerted its influence on an area approximately 600 km² in size, covering most of south Dorset (*ibid.*, 170). By about the 2nd century BC, occupation at Maiden Castle had evolved a regular layout of streets. In the later part of the Iron Age, settlement became restricted to the eastern half of the interior and the regular pattern of houses regressed to a loosely structured agglomeration. Settlement and craft-working areas are also found outside the eastern entrance at this period. The hillfort was largely abandoned at the end of the 1st century AD (Sharples 1991).

Danebury hillfort was constructed in the late 6th or early 5th century BC and continued in use until around 100 BC (Fig. 3.13). The original enclosure comprised an earth-filled box-structure of wood backed by a chalk rampart, with external ditch and two opposing entrance

gaps at the east and south-west (Cunliffe 2011, 47–53). The east entrance was refurbished up to three times during the 1st phase of the enclosing elements. The back slope of the rampart was subsequently heightened with chalk rubble, the material deriving from a series of shallow, discontinuous quarry hollows within the interior. At this time, the east entrance was widened and remodelled. These early phases were associated with four-post structures interpreted as raised granaries, a dense distribution of storage pits and circular hut structures. At the beginning of the 3rd century BC the hillfort was extensively refurbished. This involved further heightening of the rampart, an extension of the ditch, and the addition of complex forward-projecting hornworks. The north and east side of the rampart was substantially increased, the material being dug from a deep continuous quarry, 10m wide, abutting the interior of the rampart. The ditch was re-dug into a deep V-shaped profile, 11–12m wide and 6m in depth. Subsequent maintenance of the ditch resulted in the creation of a 2m high and 7m wide bank. This phase of use is characterized by a dramatic increase in the internal population as indicated by the dense, structured layout of roundhouses and storage pits. At this time, contemporary hillforts at Bury, Woolbury and Quarley Hill, located in the environs of Danebury, were abandoned (Cunliffe 2000, 166). During this period, Danebury is thought to have exerted control over a territory 25 km by 30 km (Cunliffe 1995, 178). This intensive occupation continued for more than two centuries. Around 100–50 BC, the eastern gate was destroyed by fire and the fort was largely abandoned (Cunliffe 2011, 64).

Broxmouth hillfort is one of the most comprehensively dated hillforts in Britain (Armit and McKenzie 2013), with a total of 158 radiocarbon dates from 101 archaeological deposits providing an excellent sequence for chronicling the evolution from palisaded enclosure to developed hillfort (Hamilton *et al.* 2013; Armit and McKenzie 2013). The hillfort is situated on the East Lothian coast and commands views across the North Sea, the First of Forth, and along the coastal routeway leading south to the Tweed Basin (Armit and McKenzie 2013, 494). The development of the enclosing elements began around 640/570 BC with the construction of a palisaded enclosure. This fits with the British evidence where palisaded enclosures are frequently being constructed in the Late Bronze Age and Earliest Iron Age (*ibid.*, 12). After this initial enclosure was removed, a number of large roundhouses were built. This open settlement was enclosed by a single rampart and external ditch around 490–430 BC. Two opposing entrance gaps at the east and west were recorded. This has been noted as a feature of the Early Iron Age Wessex hillforts. The enclosing elements were later elaborated with the addition of a second rampart and external ditch that incorporated a monumental wooden entrance corridor. Around 395–375 BC, this entrance was blocked and a new entrance was built at the south-west.

Successive phases saw the creation of a third enclosing element at the west. By around 295–235 BC, the settlement had expanded over the enclosing elements and a number of hut structures were built over the infilled ditches. The settlement contracted around 235–210 BC and a small inhumation cemetery was created north of the hillfort. The final phase of the hillfort began around 100–60 BC and comprised a compact agglomeration of hut structures surrounded by a low bank. This settlement continued for a number of generations, with the hillfort finally being abandoned around AD 155–210 (*ibid.*). This sequence of hillfort evolution is a pattern which is beginning to emerge throughout Britain (*ibid.*, 11). Another excellent example is Dinorben hillfort in Wales (Gardner and Savory 1964; Savory 1971). Here, the earliest palisaded enclosure, dating to the Late Bronze Age, preceded a series of Iron Age earthworks that evolved from a simple box rampart to a complex multivallate hillfort with an embellished entrance and elongated passage. For a more comprehensive discussion on the evolution of hillfort defences in Britain, see Cunliffe (1991, 313–329).

3.3 ETHNOGRAPHIC PARALLELS

Fortified hilltop settlements have been built by different cultures the world over from ancient to modern times. Harding (2012, 249) has cautioned that these ethnographic sources are divorced in space and time from hillforts in Ireland, Britain and Europe and that there can be no expectation that the social, political, economic, or belief systems are comparable. Many early ethnographic analogies derive from contact between native communities and European colonists. These models are inherently compromised as native behaviour will have adapted to the new cultural presence (*ibid.*, 249). Harding concludes that the basic requirements of providing food, shelter and protection are universal and this may have manifested in morphologically similar ways in communities widely separated in time and space. For this reason, an examination of some ethnographic parallels may help to advance functional interpretations of hillforts sites in Ireland.

An often cited parallel is the Maori Pā of New Zealand. Bellwood (1971, 56) has described Pā as morphologically similar to the Late Bronze Age and Early Iron Age earthworks of north-western Europe. First described by James Cook in 1769, Pā generally comprise an internal earthen bank with wooden palisade and an external ditch (*ibid.*, 56) and enclose an area of a few hectares. There are an estimated 7000 Pā sites in New Zealand. The earliest examples are dated to around the fifteenth century AD (Harding 2012, 251), but there is also evidence that these sites were still in use until around the nineteenth century AD (Fox 1976, 7). Ethnographic records

describe three types of Maori settlements; defended villages (Pā), undefended villages (*kainga*), and seasonal camps (Bellwood 1971, 59), of which Pā were the most common. Golson (1957, 73) has further divided Pā sites into two major classes: Class 1 comprise upland Pā, promontory Pā and ridge Pā; Class 2 consist of Pā positioned on flat land, low islands in lakes or swamps, near meandering river courses, or in poor defensive positions.

Bellwood (1971, 59) and Groube (1965) have noted that Pā acted as a home base with a fluctuating population throughout the year. The population was dependant on considerable seasonal movement within defined territories. Their distribution is generally confined to the North Island and areas suitable for *kumara* (a sweet potato) cultivation. Sutton *et al*. (2003, 1) and Groube (1970) have argued that the emergence of Pā coincided with an increase in competition for cultivatable land which could support this crop. This argument has been supported by the archaeological evidence. Belwood (1971, 63) noted that every excavated Pā in the Province of Auckland had revealed large rectangular pits interpreted as storage pits and that most Pā in the region had internal hollows suggesting the presence of such pits. Upon excavation, these features can be up to 1.5m in depth. Harding (2012, 254) has suggested that storage of food produce was an important, if not the major function of Pā sites. Certain sites, such as Taniwha Pā, appear to have been designed specifically as a storage facility, with over 45 storage pits occupying the crest of the hilltop and the majority of the Pā interior (Law and Green 1972). This has clear parallels with Iron Age hillforts in Britain that have revealed large concentrations of storage pits within their interiors (see Van Der Veen and Jones 2006, 224, Fig. 4). Similarly, four-post structures within British hillforts emphasise the importance of food storage at many of these sites. As with the Pā, these hillforts may have functioned as centralized storage facilities for excess food produce, the defensive elements protecting the produce while also providing a protected area for settlement.

Armit (2007, 34–35) has noted that James Cook's descriptions of Pā in the eighteenth century indicate a variety of other functions. For example, in Queen Charlotte Sound, Pā were used as base settlements and seasonal retreats, while on the east coast this settlement form had been abandoned and in the north they were used as permanently occupied defensive centres. At Otakanini Pā in South Kaipara Harbour, North Island, for example, midden deposits and ethnographic evidence strongly indicates that the site was utilized for the greater part of the year (Bellwood 1971, 73). Here, large earthen banks up to 4m high were topped with a palisade dated to 1493 ± 49 and 1561 ± 48 (*ibid.*, 69). There is no ethnographic or archaeological evidence to indicate that Pā had any religious function (Armit 2007, 35; Harding 2012, 256), though it has

been suggested by Armit (2007, 35) that the arrangement of space within Pā can sometimes reflect hierarchical spatial divisions created by terracing settlement structures, and placing the chief's house at the summit. Harding (2012, 256) has also proposed that there may have been some element of ritual involved in the construction of the enclosing elements and a conscious element of monumental display.

There is limited archaeological evidence for fighting in and around Pā (Harding 2012, 252). Bellwood (1972, 80–81) interpreted the discovery of a concentration of weapon fragments, broken and burnt human bone at the entrance of Mangakaware 2 Pā, North Island, as evidence for a battle, although Harding (2012, 252) suggests it could have been a ritual event. Davidson (1984, 192) has also noted the possible destruction of Peketa Pā in Kaikoura, South Island. Vayda (1960) has suggested that military action was focused at the front of Pā and involved ritual displays. This may be archaeologically visible in the 'fighting stages' identified at Otakanini Pā (Bellwood 1971, 68–69). These comprise two platforms elevated up to 4m above the top of the defensive bank of the Pā. Measuring 5m by 1.5m and 4m by 2m, Bellwood (1971, 70) subsequently lists the eighteenth century descriptions of similar 'fighting stages' at Paeroa Pā in the Bay of Islands, North Island, an unidentified Pā in Mercury Bay, North Island. Paeroa Pā was described by Crozet in 1772 as a wood platform, 7.5m in height, with a collection of stones and javelins at its summit, and was used as a look-out tower and to defend the entrance. Armit (2007, 35) has attempted to address this lack of archaeological evidence for violence by suggesting that Pā existed largely as a deterrent and were therefore rarely attacked. Rather, Maori warfare involved few formal battles or large-scale wars (Vayda 1960) and was based on ambush and raids.

In North America, two group of native Indians, the Iroquoian and Huron tribes, began surrounding their villages with palisades as early as the thirteenth century AD (Birch 2010, 29). By the late fifteenth century, these small villages with a population of a few hundred began to coalesce into larger communities with approximately 1500 to 2000 individuals (*ibid.*, 30). These villages, often over 4ha in size, were surrounded by a number of concentric, closely spaced wooden palisades up to five metres in height and were positioned in elevated positions in reasonable proximity to cultivatable ground (Birch 2010, 30; Engelbrecht 2003). These enclosures have been interpreted as the residences of farming communities. There is no ethnographic or archaeological evidence to suggest that these sites were used as regional centres for craft production, trade or storage (Harding 2012, 260). Archaeological evidence suggests that this period saw an increase in the level of violent conflict at these sites (Birch 2010,

30). Birch (2010, 32) notes that in Iroquoian culture, warfare was fundamental to notions of masculinity, status and spiritual power and an essential part of the construction and maintenance of social relations. Iroquois and Huron tribes did not practice large-scale warfare. Rather, raids and ambushes were often organised by groups of young men who sought prestige. The display of heads or scalps of defeated individuals was one of the primary means of displaying this status. Warfare, therefore, was not used to control resources or territory and did not include attacks *en masse* or the siege of entire villages (*ibid.*, 33). Birch (2010, 38) has subsequently interpreted the construction of multiple palisades surrounding these villages as a social boundary of some importance that can be defended if necessary. Defence may not have been the primary function of the palisades. Rather, it may have been an important symbol of place and community, as well as a platform for competitive display (*ibid.*, 38).

Prior to European contact around the later fifteenth century, West African villages were commonly surrounded by multiple, widely spaced walls, often separated by 100 to 1000m (Harding 2012, 265). Comprising earthen banks, these vary in height from 2m to more than 7m and were sometimes topped by wooden palisades. Harding (2012, 266) has noted that although the enclosing elements were probably designed as defensive barriers, the location of the settlements was not tactically defensive. Instead, they were positioned close to natural resources and established trading routes. The earthworks, therefore, may have been constructed to proclaim ownership of the surrounding land, resources and routeways and were principally used to control the movement of people and goods. These villages may also have fulfilled other functions. For example, stone sculptures, terracottas, bronze alloy casting and evidence for glass working discovered at the Ife village in south-western Nigeria confirmed that this settlement was both a ritual and craft-working centre (*ibid.*, 263).

Fortified hilltop settlements in Fiji were constructed and settled during the period 1100 to 1850 AD, with a large number occupied in the later periods (Bentley 2000, 82). Oliver (1989, 456) states that the construction of enclosing elements around settlements was a widespread practice. These usually comprised banks of earth, stone or wood with an external ditch or pitfalls, and were often positioned in deliberately defensive locations, on hilltops or in strategic low-land settings (*ibid.*, 456–457). These are generally interpreted as residential settlements, although ethnographic sources indicate that they were often hierarchical, with the chief also residing within the fort. Oliver (1989, 458) notes that these fortifications were often ‘stocked’ with food and water, suggesting that the enclosures may also have functioned as storage places.

Late pre-Hispanic societies in the Andean highlands also built hilltop fortifications known as *Pukaras*, *c.* AD 1300–1450. These comprised imposing stone walls surrounding the summits of hilltops and mountains and overlooking broad flat expanses. *Pukaras* were constructed by a number of societies surrounding Lake Titicaca, most notably the Colla and Lupaca cultures. These prehistoric societies were recorded indirectly by Spanish clerics and bureaucrats in the early colonial period (*c.* AD 1534–1650), when Incan peoples described the great domain ruled by a powerful society considered a threatening rival to the fledgling Inca state (Arkush 2011, 2). Reports indicate that these were extremely aggressive societies that had consolidated large regions through conquest warfare before the rise of the Inca. Archaeological survey and excavation suggests society was much more fragmented than the ethnographic record suggests (*ibid.*, 3). Arkush believes that *Pukaras* were constructed to convey military power and strength, but also conveyed the fear of violence that drove people to build and live in inhospitable places, describing these sites as 'durable traces of fear and hostility' (*ibid.*, 1). *Pukaras* generally comprise one or more concentric or parallel stone walls surrounding a hill or mountain summit. Arkush (2011, 84) notes that where there is more than one enclosing element (which is common), the walls are nearly always spaced 15 to 30m apart and spaces between are often free of structures, a defining feature of some Irish hillforts. Arkush (2011, 84) has interpreted these as possible 'killing alleys', where a defending force would funnel the attackers into a narrower space. At Apu Pukara, the mountain summit was protected by seven concentric enclosing elements on the most approachable sides and by a steep, rocky slope at the east (*ibid.*, 77). These walls were on average 1.9m high and 1.45m thick. Simple, narrow entrances were 2m in maximum width and narrowed considerably as one progresses through the fort. The walls around these entrances are often larger and are further protected by parapets. At Apu Pukara, however, the concentric walls were also used as sheltered areas where the inhabitants constructed up to 150 hut structures. Up to 120 burial tombs are positioned on a level saddle of ground immediately outside the enclosing elements. As such, Apu Pukara exemplifies the multifunctional uses of the hilltop fortification (*ibid.*, 81).

3.4 SUMMARY

There is well established evidence for the chronology and design of hillfort construction in Britain and the Continent during the Bronze Age and Iron Age. Although not uniform in distribution, the hillfort phenomenon flourished in three distinct construction phases: the Early Bronze Age/Middle Bronze Age transition, the Middle Bronze Age/Late Bronze Age transition and the Late Bronze Age/Early Iron Age transition. It is interesting to note that construction of

hillforts generally occurred at transition periods, possibly indicating that social upheaval may be a cause for these construction events. Evidence for the initial construction phase during the Early Bronze Age/Middle Bronze Age transition can often be associated with copper sources and a need to control natural resources and routeways. The hillforts at Götschenberg and St. Veit Klinglberg were probably built to convey ownership of copper resources in the immediate environs and to control the flow of this metal. The excellent visibility at potential routes of traffic, cross-roads or river crossings has also been noted by Primas (2002, 44). The concentration of early hillforts in areas close to the Alpine region may be indicate an increasing need to control the flow of copper near its source (Jockenhövel 2013, 740; Kienlin 2013, 424).

During the Middle Bronze Age, hilltop settlements were almost completely abandoned (Jockenhövel 1990, 219; Jockenhövel 2013, 740). It is not until the Middle Bronze Age/Late Bronze Age transition that hillforts re-emerge with an 'unprecedented' intensification in construction (Primas 2002, 50). This construction phase was much more dispersed than previously, with hillforts being built in many parts of Urnfield and Atlantic Europe. The importance of controlling natural routeways and highly visible locales continues to be an important facet of hillfort location during this period. This may be due to the increasing reliance on long-distance trading for high status materials such as bronze. A need to control the flow of exotic goods or attract traders with this material may be an undercurrent for the construction of hillforts and so explain their dense distribution during this phase. A notable increase in the evidence for violence at these sites and traces of destruction, exemplified at Velim hillfort, may be an indication of increasing competition to control these routeways.

A final construction phase occurs at the Late Bronze Age/Early Iron Age transition, although only in specific regions of the Continent. Again, these are largely associated with natural routeways. This period also saw the emergence of the 'princely seat', a type of hillfort that can be associated with the production of high status goods and elite occupation. In Britain, the hillfort phenomenon partly reflects the situation in mainland Europe where a significant construction phase is evident at the beginning of the Late Bronze Age. In Britain, the hillfort tradition continues into the later part of the 1st century BC, when some were still being intensively occupied. Many of the British hillforts were built between 800–450 BC, in contrast to the Continent, when a small number of 'princely seats' were being constructed and hillforts proper were largely abandoned. The hillfort phenomenon culminated with the construction of large enclosures known as *oppida* both in Britain and the Continent, dating to around the 2nd and 1st centuries BC.

CHAPTER 4

THE BALTINGLASS HILLFORT GROUP: THE ARCHAEOLOGICAL LANDSCAPE

This chapter focuses on the physical and cultural landscape of the Baltinglass area (Fig. 4.1). This comprises a synopsis of hillforts in their topographical setting as well as a discussion of contemporary monuments and artefacts in the wider landscape. Rather than defining the study area as an arbitrary land block, the landscape setting of these hillforts is represented by a topographically defined zone of visibility. This is demarcated by the Castlecomber Hills to the west, the Blackstairs Mountains to the south, the Wicklow Mountains to the east and the northern edge of the Wicklow Mountains to the north (see Fig. 4.2).

4.1 THE PHYSICAL LANDSCAPE

The Baltinglass cluster comprises nine of the largest hillforts in Ireland, situated in a landscape with numerous monumental ritual and secular monuments from all periods of history (Fig. 4.1). It has been described by Condit (1992) as 'Ireland's hillfort capital', having the single largest concentration of these monuments. These hillforts are sited overlooking the town of Baltinglass, on the highest points of a series of prominent hills orientated east–west and join the southwestern section of the Wicklow Mountains. These mountains form an imposing physical barrier to the eastern coastline. Despite being dwarfed by this mountain range, the Baltinglass hills are highly visible against the low-lying landscapes to the north, west and south. They divide these landscapes and overlook areas with diverse natural resources and excellent agricultural lands on either side of the meandering Slaney River.

Two distinct landforms are apparent in the study area: the Wicklow Mountains to the east and north-east, and the flat plains to the south and west. The Wicklow Mountains are the predominant landscape feature (Fig. 4.2). These are mostly igneous geology and form part of the largest mass of granite in north-western Europe (Fig. 4.3). This formation extends into the flat landform of Co. Carlow, which is surrounded by a relatively thin band of metamorphic rock such

as mica-schist (Jackson *et al*. 2010; Williams and Harper 1999) (Fig. 4.3; Fig. 4.4). These were formed over millions of years, when large amounts of mud, silt and sand accumulating on the floor of the ancient Iapetus Ocean were compressed into rock. The mountains began to be formed at the end of the Silurian period, approximately 443–415 million years ago, when the Iapetus Suture closed as the North American and European plates collided, forcing these rocks out of the Iapetus Ocean at the start of the Devonian period around 415–358 million years ago (Williams and Harper 1999, 23–28). The heat from the collision metamorphosed the mudstone and sandstone into schists and also created what Whittow (1975, 261) describes as Ireland's most significant metalliferous belt, with evidence for minerals including copper, sulphur, lead, zinc, iron, gold and silver. Underlying this, the molten layer of the earth's crust was also raised and this subsequently cooled to form granite (Holland 2003, 29). Between 2.6 million–11,700 years ago, glaciation during the Pleistocene epoch eroded much of the overlying metamorphic rock, revealing the underlying granite (*ibid.*, 29). This glaciation also created the deep U- shaped

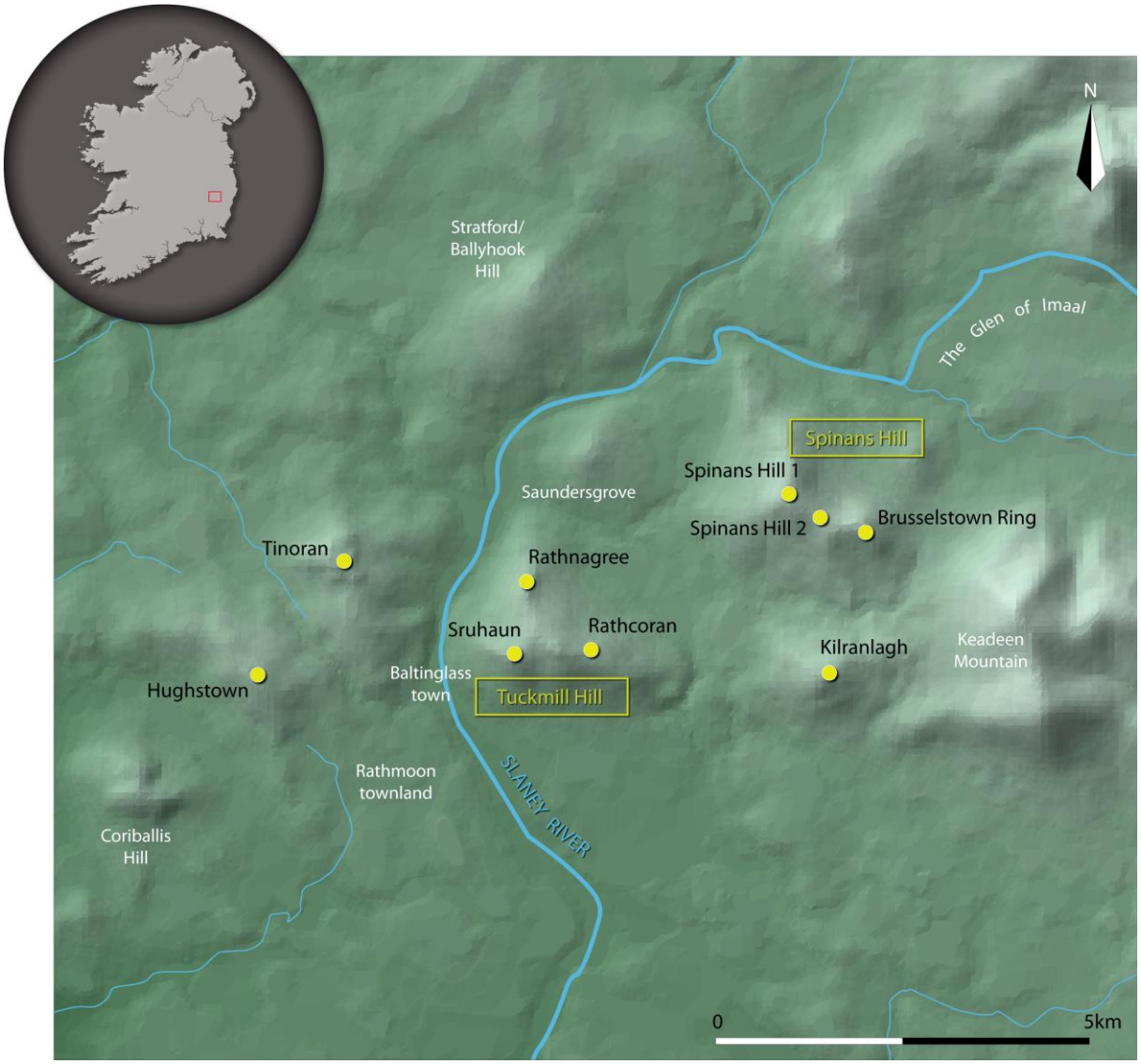

Fig 4.1: The Baltinglass hillfort group.

valleys that characterise the edges of the mountain range and contained a number of lakes, such as those found at Glendalough (*ibid.*, 30). A small ice dome formed over the Wicklow Mountains forcing the pattern of glaciation to occur in an outward direction from the centre (see Sleeman *et al.* 2004, 111).

The Baltinglass hillforts are positioned just off the northern edge of the granite mass which extends into the southern plain occupying the majority of County Carlow (Fig. 4.3). At this contact point, a number of different Lower Palaeozoic rocks meet. The hillforts at Hughstown

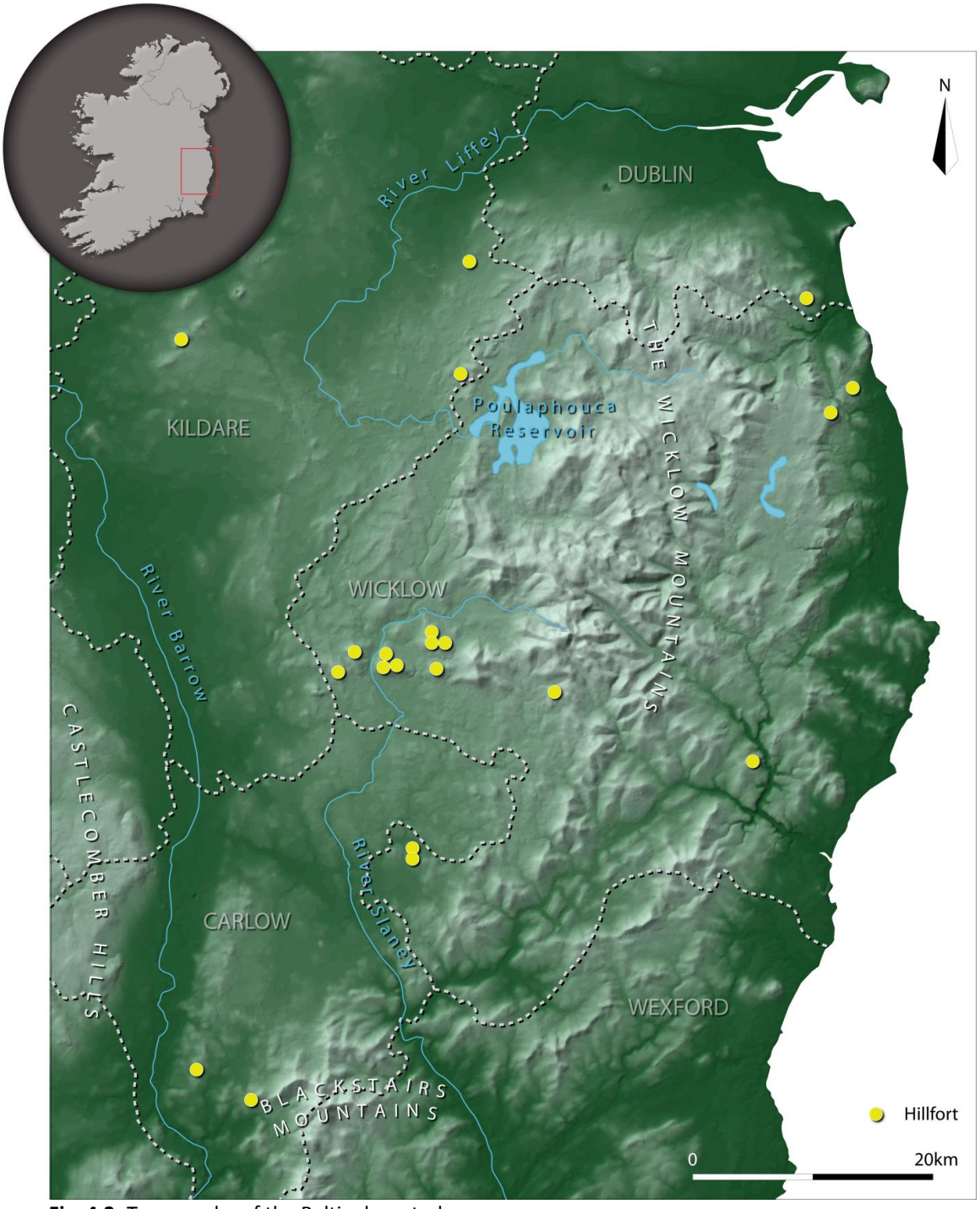

Fig. 4.2: Topography of the Baltinglass study area.

(No: 55) and Tinoran (No: 103) are located on a large formation of Silurian sandstone, greywacke and shale that extends northwards to the southern edge of Dublin City (Fig. 4.4). The three hillforts (Nos: 92, 94 and 101) on Tuckmill Hill (Rathnagree, Rathcoran and Sruhaun) are positioned on a Lower/Middle Ordovician slate formation that extends 14km to the north-east,

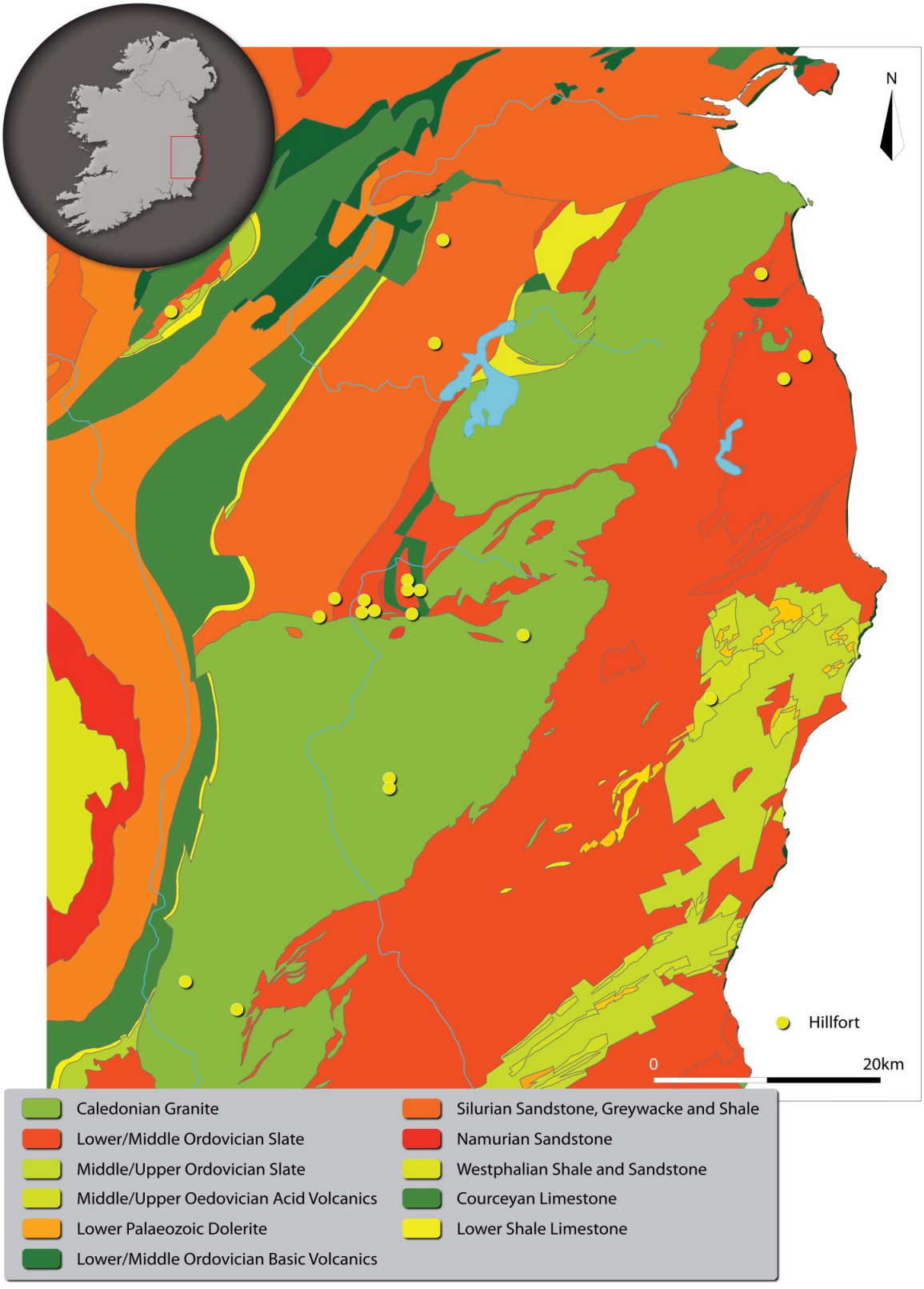

Fig. 4.3: Geology (1:500,000 scale) of the Baltinglass study area. Data taken from www.gsi.ie.

although the central portion of Rathcoran sites on a small ridge of granite. Spinans Hill 1 (No: 98) and the northern and western portions of Spinans Hill 2 (No: 99) east, are located on the same formation. Brusselstown Ring (No: 15) and the southern and eastern portion of Spinans Hill 2 are positioned on a small formation of andesite and andesitic tuff formed in the Lower/Middle Ordovician period, a consolidated volcanic rock that belongs of the igneous type.

The mountains area is characterised by a series of peaks and ridges that broadly extend north to south. The largest of these is Lugnaquilla Mountain (925m OD), a granite massif and foothills that surrounds the Glen of Imaal to the west. The mountain environment primarily consists of heathland and thin blanket bog, which probably formed in mid-to-late Holocene times (Nairn and Crowley 1998, 20) (Fig. 4.5). Prior to this, the habitat was likely covered in deciduous forest (*ibid.*, 20). The predominant soils types in Wicklow are brown earths at lower elevations and brown podsols with a skin of peat, blanket bog and lithosols at higher elevations. At the foothills of the Wicklow Mountains, a mixture of shallow lithosolic and podsolic soils with potentially peaty topsoil dominates. These poor quality soils are generally used for sheep grazing. All of the Baltinglass hillforts are sited on thin, lithosolic- podzolic type soils, while the

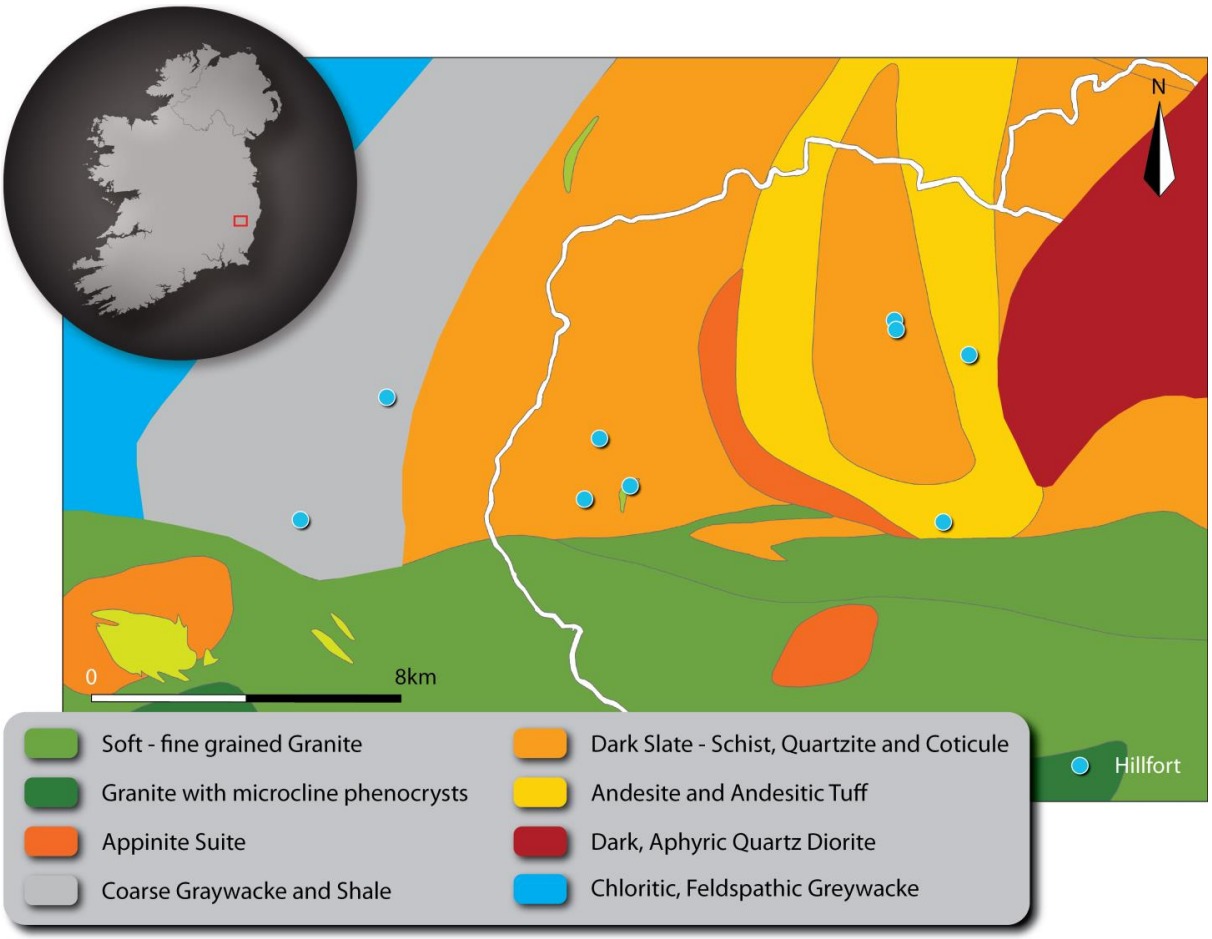

Fig. 4.4: Geology (1:100,000 scale) of the Baltinglass hillfort group. Data taken from www.gsi.ie.

hill slopes hold shallow well-drained mineral soils. The underlying geology of Carboniferous slates, shales, schists and igneous rock types tend to produce productive soils. For that reason, the base of these hills and much of the surrounding landscape is primarily composed of deep well drained mineral brown podsol soils appropriate for intensive farming. The wider study area

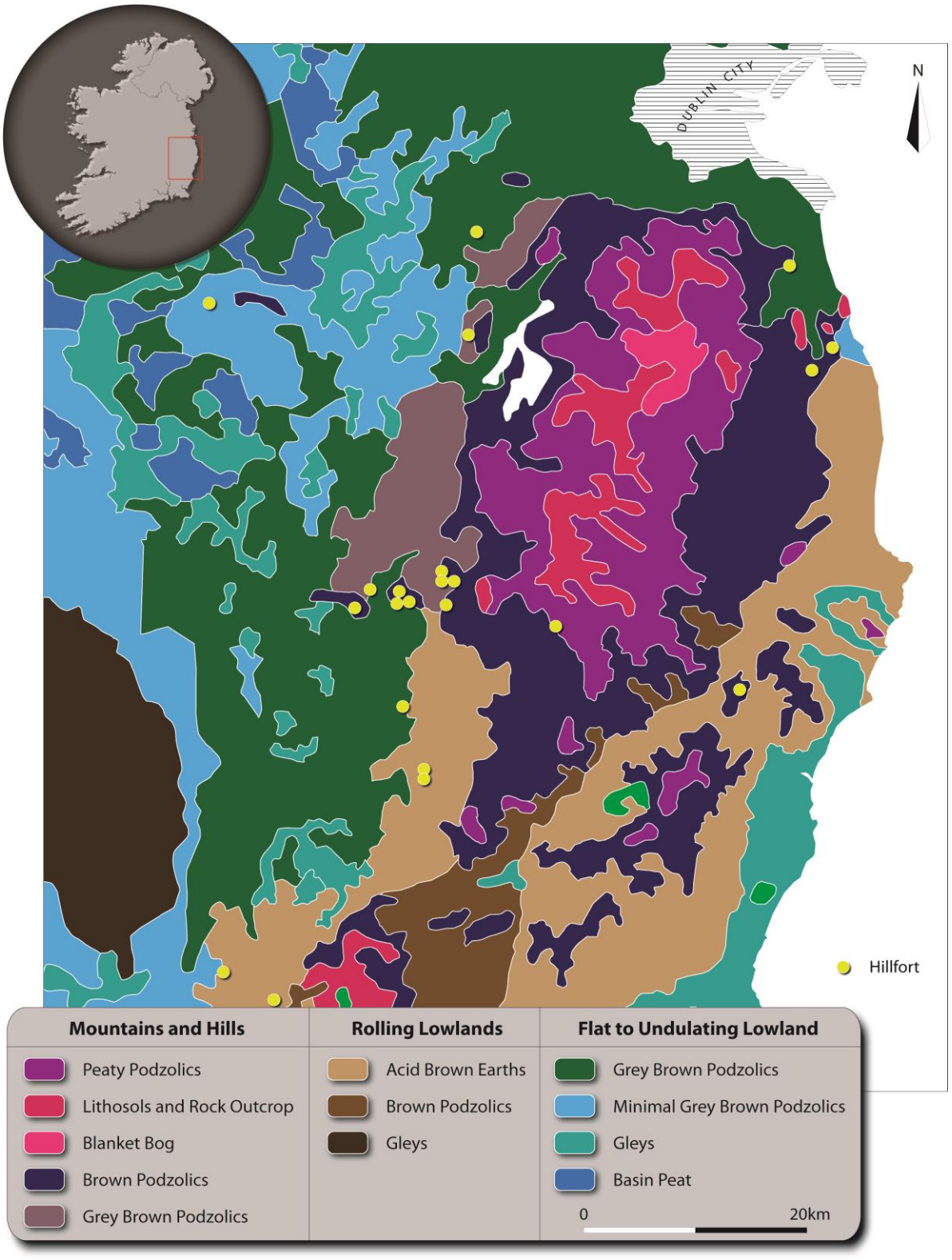

Fig. 4.5: Soils (1:575,000 scale) of the Baltinglass study area. Data based on the second edition Ordnance Survey 'General Soils Map'.

comprises a mixture of brown and grey-brown podzolics and brown earths of varying depth and drainage, with alluvium terraces near river edges. This provides excellent quality soil cover suitable for various agricultural activities.

The Wicklow Mountains are the source of several major river systems, including the rivers Liffey, Slaney and Avoca. The Liffey rises between Kippure and Tonduff mountains at Liffey Head bog. It flows westwards, meandering around Naas, before running north towards Lucan and then east towards the mouth of Dublin Bay. The Slaney flows westward from Lugnaquilla Mountain towards Baltinglass town where it curves and runs south towards Wexford Harbour. The Avoca River is feed by a number of small tributaries which originate in the southern Wicklow Mountains. In 1795, gold was discovered in in the Avoca Valley. Around 80 kg of gold was extracted from alluvial placer deposits by locals, including a nugget weighting 682g, the largest gold nugget discovered in Britain and Ireland. The British government subsequently seized the mine workings and opened Ireland's only commercial gold mine and extracted approximately 300 kg of gold (Vines 2007). Copper was also commercially mined at Avoca between 1720 and 1983, with a total output of 16 million tons of copper ore (Sleeman *et al.* 2004, 36).

4.2 THE HILLFORTS

There are nine hillforts in the Baltinglass complex. These are clustered along an east–west line of prominent hills, with two distinct groups and a number of isolated examples (Fig. 4.1).

4.2.1 Spinans Hill

The Spinans Hill hillfort complex is the easternmost group of hillforts in the Baltinglass cluster (Fig. 4.6). It comprises three hillforts; Brusselstown Ring (No: 15), Spinans Hill 1 (No: 98) and the Spinans Hill 2 (No: 99) contour fort. All three lie on a north-east/south-west running hill with two summits. The northern summit rises to a maximum height of 406m OD and is surrounded by Spinans Hill 1. The southern summit at 386m OD is surrounded by Brusselstown Ring, with Spinans Hill 2 enclosing the entire hill.

Brusselstown Ring

The only Brusselstown Ring (Record of Monuments and Places: WI027-018) is a large bivallate hillfort with widely spaced stone walls enclosing a total area of 32.43ha (Fig. 4.7; Fig. 4.8). The site is recorded on both the first and second editions of the Ordnance Survey six-inch maps. The

inner enclosure closely follows the 370m contour, deviating by less than five metres along its 824m perimeter. A stone bank of varying width (maximum 11.7, minimum 5.3m) surrounds a natural oval terrace within an area of 4.63ha. A modern wall was built on the inner face. The bank comprises large stone of andesite and andesitic tuff. Loose stone and boulders are scattered on the immediate lower slopes suggesting that the original stone bank was more extensive. In 1947, Price identified some coursed stone facing on the north-west side of the inner wall enclosure (in Corlett and Weaver 2002, 466). The outer rampart is located 124–305m outside the inner rampart, but unlike the latter, does not follow the contours of the hill, varying from 366–298m OD. It comprises a less substantial stone bank, the eastern and south-eastern section of which is incorporated into modern field systems. The outer enclosing element is best preserved to the north, where the stone bank averages 10.2m in width and is more comparable in size to the inner enclosing element. It encloses an area of 32.43ha.

There are numerous rock outcrops in the interior of Brusselstown Ring. The largest of these is located at the centre of the monument where it forms a prominent rise overlooking most of the interior. There are two recorded structures within the inner enclosing element and

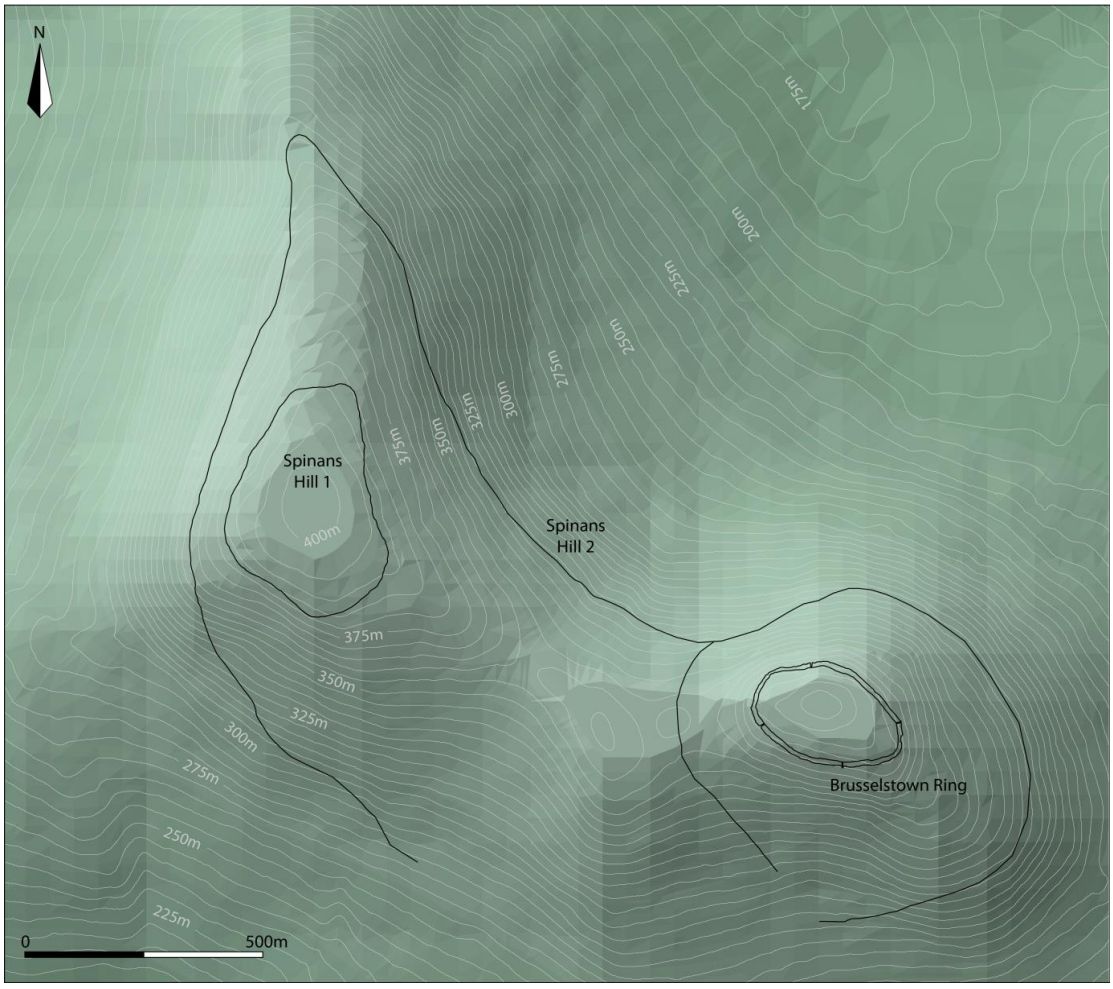

Fig. 4.6: The hillfort complex on Spinans Hill.

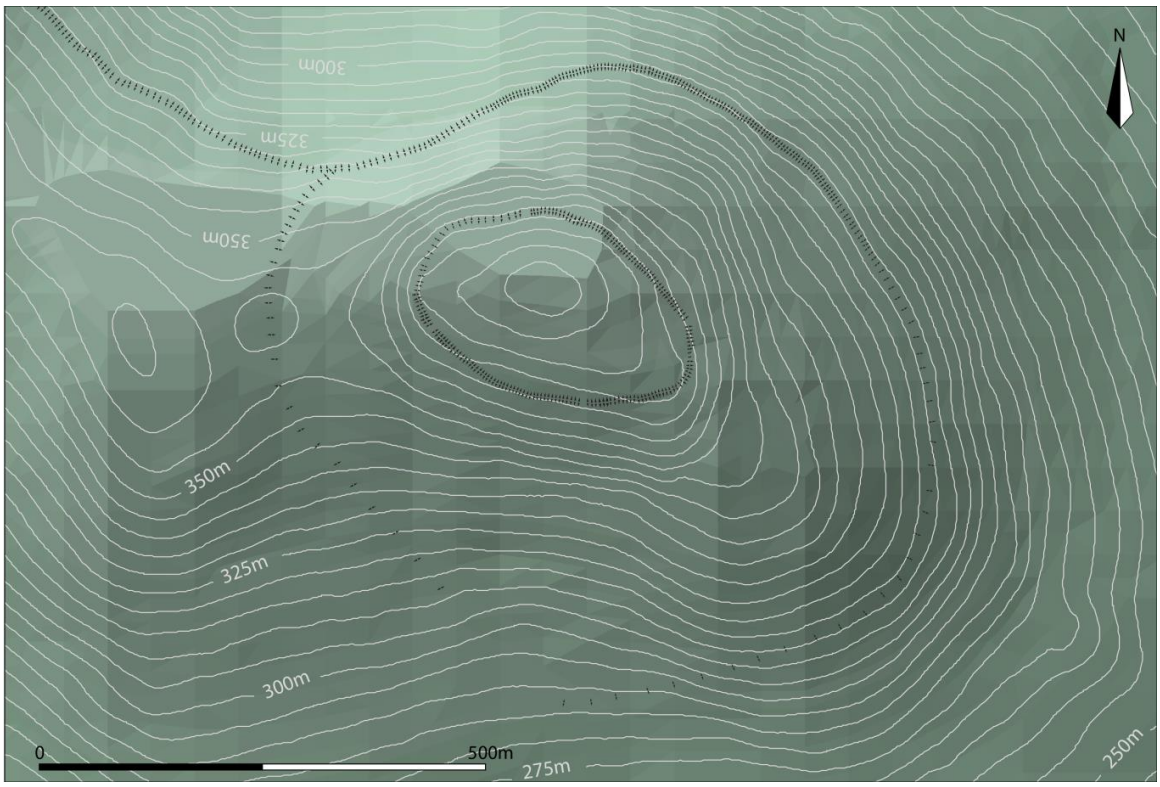

Fig. 4.7: Brusselstown Ring.

Fig. 4.8: View of Brusselstown Ring from Spinans Hill 1.

twenty four examples immediately outside that rampart to the south. These are visible small circular platforms, 7–8m diameter, marked by a setting of roughly laid stones or boulders. The largest of these platforms is 18.6m by 20.8m. A settlement area immediately to the north-west of the outer enclosing element comprises enclosures, hut sites and field walls covering an area of 320m by 145m (Condit 1992, 16–20). The majority of this settlement has been forested.

Spinans Hill 1

On the northern summit of Spinans Hill, the hillfort of Spinans Hill 1 (WI027-078002) is comprised of irregularly shaped area enclosed by a peat-covered earthen bank over an area of 11.11ha (Fig. 4.9; Fig. 4.10). The bank is best preserved at the north and east and is largely levelled over the remainder of its perimeter (Grogan and Kilfeather 1997, 40–41). It was identified through aerial photography by Condit (1992). Price had previously noted an element of the hillfort but did not identify it as such (in Corlett and Weaver 2002, 538–539). The interior of this hillfort is overgrown with heather, making identification of ground features difficult. No habitation evidence has been identified within the interior. Condit (1992, 19–20) recorded six cairns at the centre, including a large central cairn (WI021-080004) at the summit is surrounded by five smaller examples (WI021-080003, WI021-080006, WI021-080007, WI021-080008, and WI021-080009). This group of cairns has been interpreted by Condit (1992, 20; 1998, 20) as a possible passage tomb cemetery. Structural features at the centre of the smaller cairns indicate

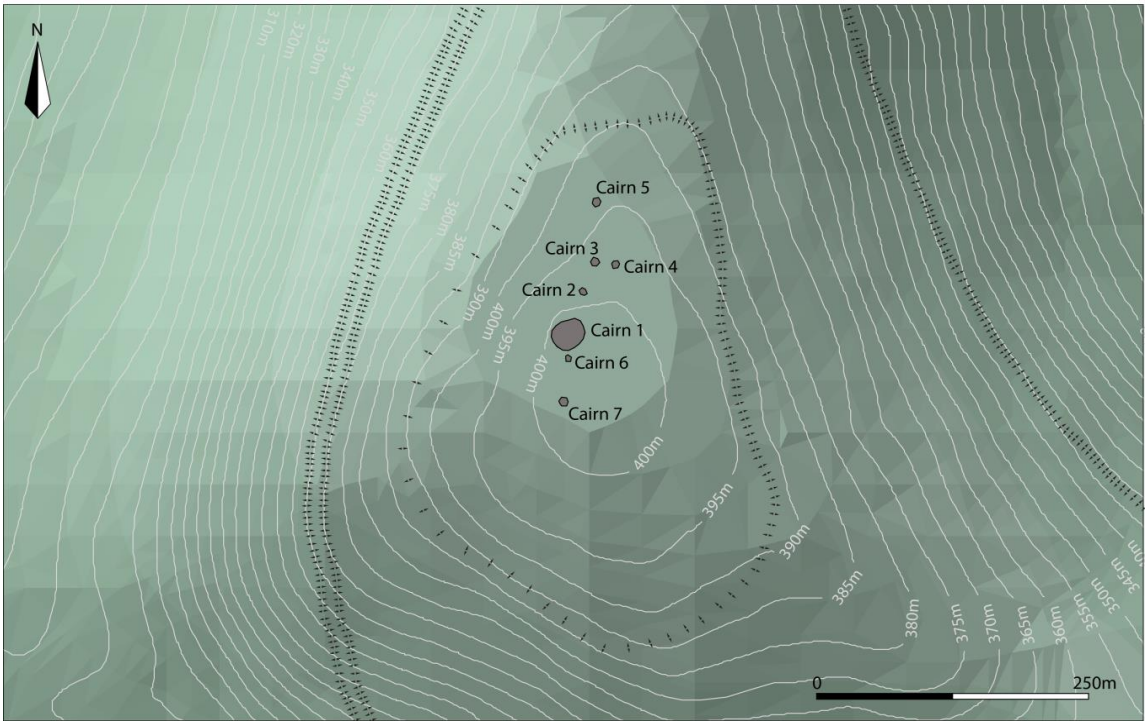

Fig. 4.9: Spinans Hill 1.

that these may well be megalithic tombs. Price identified ruined cists in several robbed out smaller cairns (in Corlett and Weaver 2002, 467).

Spinans Hill 2

Spinans Hill 2 (WI027-078001) is an extensive earthwork over an area of 131ha that surrounds both Brusselstown Ring and Spinans Hill 1. Over the course of its perimeter, the enclosure varies from 295–368m OD, being on average 330m OD. It is most complete at the north and north-west where it comprises a double bank with an intervening ditch, 15m in total width. Some sections of the banks are stone faced. The south-eastern section of the contour fort integrates a large portion of the outer enclosing element of Brusselstown Ring. Condit (1992, 19) has noted that there are 'a number of breaches' to the north which he believes are original entrance features. Bersu identified a possible roadway to the hillfort at the south-west corner of Brusselstown Ring (in Corlett and Weaver 2002, 504). To the south of the interior there is a cairn (WI027-078004) currently under forestry. Fifty metres to the north-east, a 17m diameter circular enclosure (WI027-078004) located on level ground between two natural mounds has been interpreted as a possible ritual monument (Condit 1992, 20).

Fig. 4.10: Spinans Hill 1 (Google Earth 2015).

4.2.2 Tuckmill Hill

Three hillforts are positioned on the northern, south-eastern and western summits of Tuckmill Hill, a prominent hill located at the centre of the Baltinglass cluster (Fig. 4.11). Tuckmill Hill overlooks the modern town of Baltinglass directly to the south. The northern summit is 318m OD and is surrounded by Rathnagree (No: 94) hillfort. The south-eastern summit rises to a height of 378m OD and is enclosed by Rathcoran (No: 92) hillfort. The author discovered a previously unrecorded hillfort in Sruhaun (No: 101) townland, on the western summit at 315m OD.

Rathcoran

Rathcoran (WI027-026001) is the largest of the three hillforts (Fig. 4.12; Fig. 4.13). The name probably refers to a large prehistoric cairn at its centre ('rath of the cairn'). The monument was identified prior to the first edition Ordnance Survey mapping of 1835, with Lewis (1837, 174)

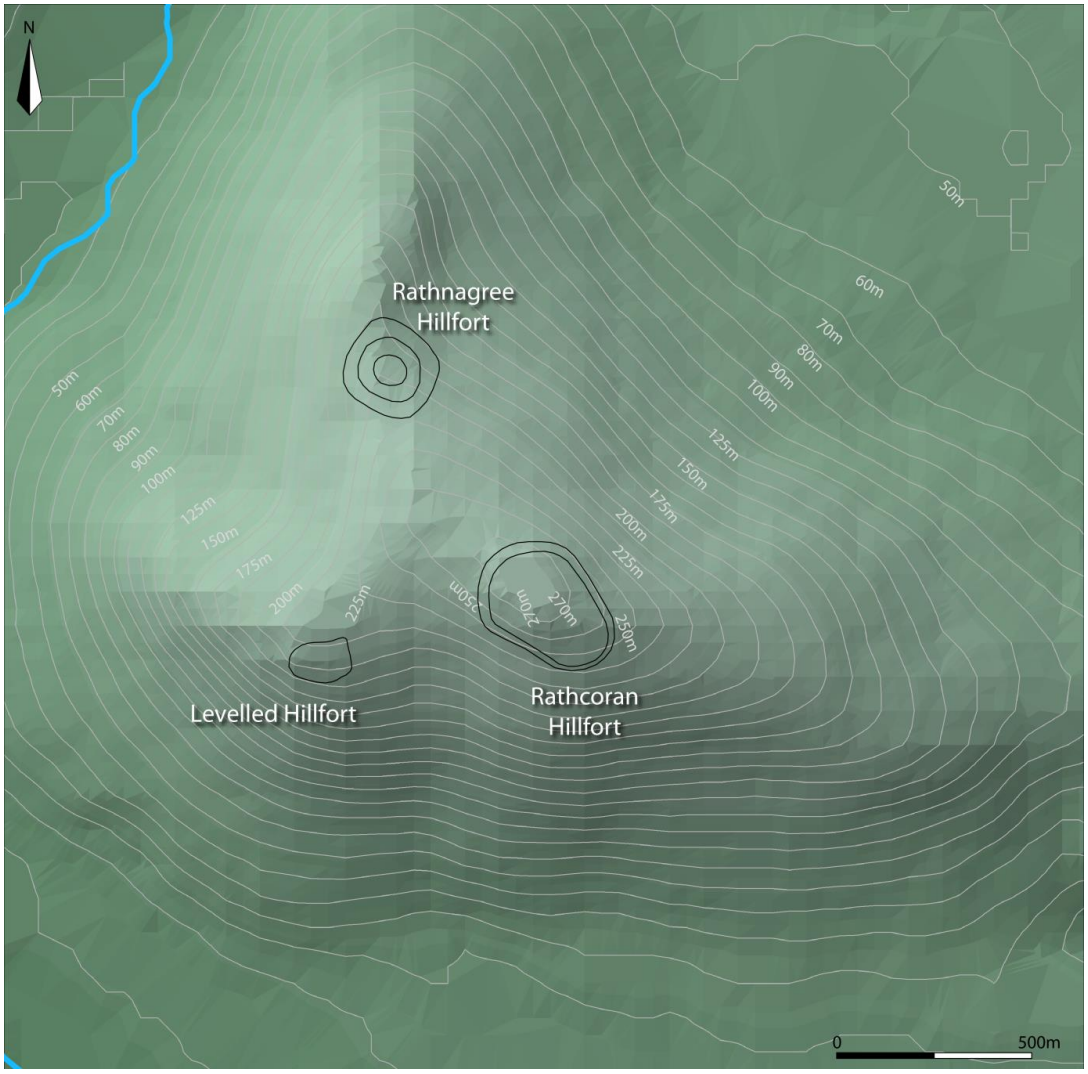

Fig. 4.11: Tuckmill Hill.

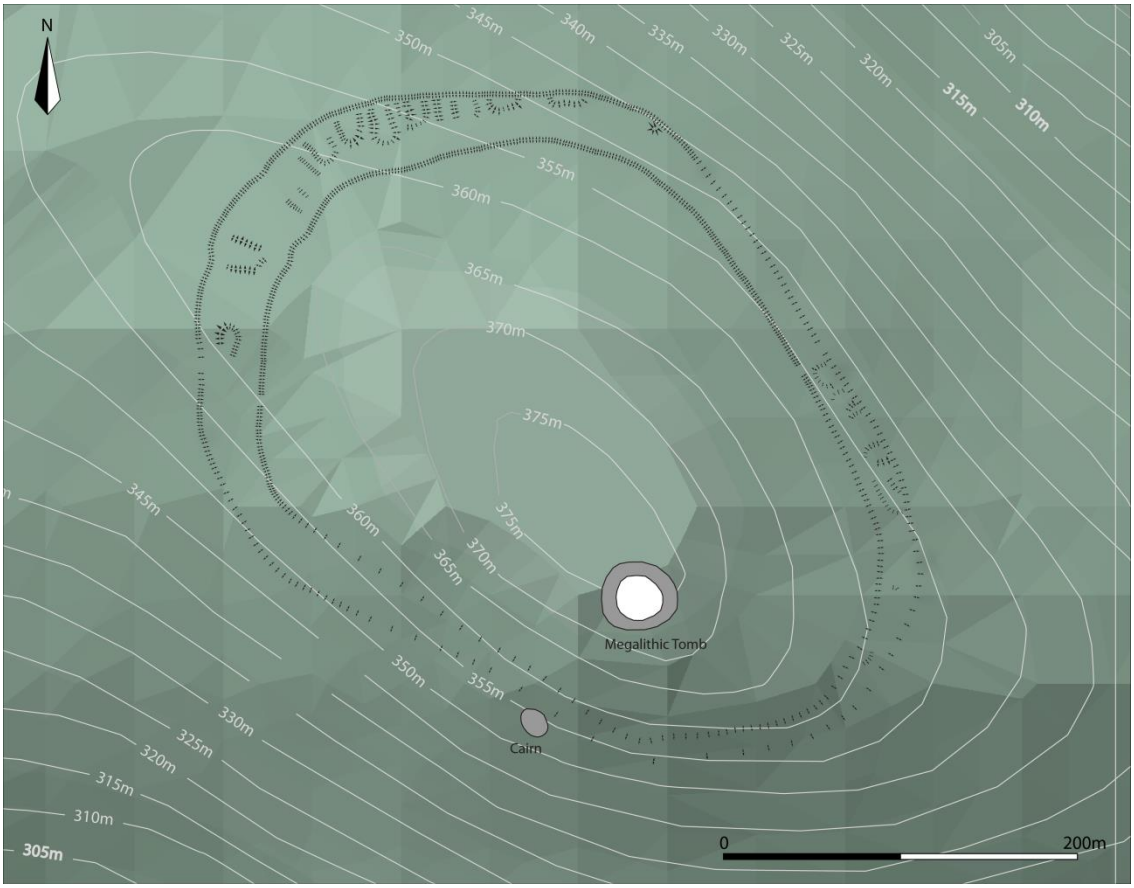

Fig. 4.12: Rathcoran.

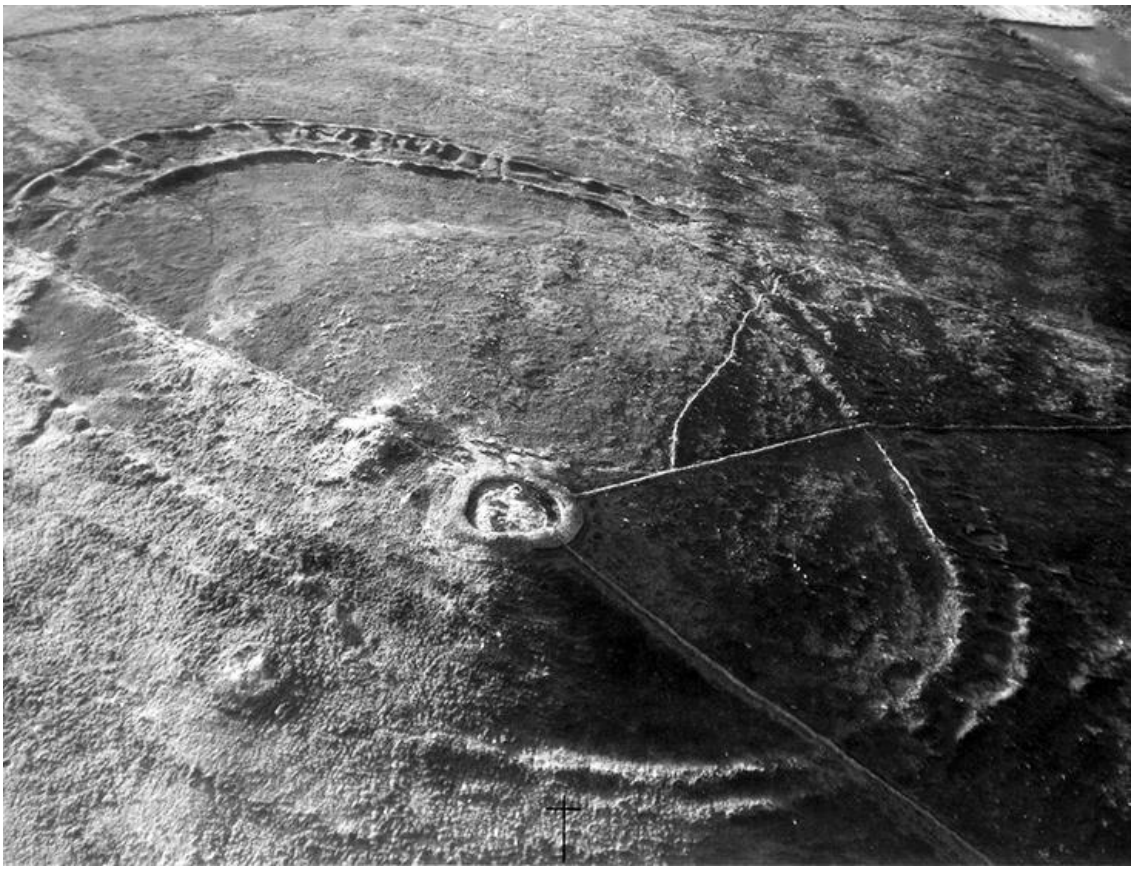

Fig. 4.13: Rathcoran (Cambridge Aerial Photographic Collection).

observing that a hoard of gold coins were discovered in one of the enclosing banks. This explains why the hillfort became known as the Golden fort. Westropp (1902a, 81), however, suggests that this hoard was recovered from the interior of Rathnagree. Rathcoran is recorded in the second edition Ordnance Survey map published in 1942, while Westropp (1902a) has also published a sketch plan of the hillfort. This pear-shaped bi-vallate monument occupies a total area of 10.06ha, with an internal area of 7.03ha. The shape is dictated by the topography of the hill to which the enclosing elements largely follow. The inner rampart is situated between 353–363m OD and the outer example 347–361m OD. Waddell (1998) and Condit (1998) have both interpreted Rathcoran as an unfinished hillfort, due to the incomplete nature of the enclosing elements and intervening quarry features. The enclosing elements are most complete at the north and north-west, where the inner example is 16m in width and comprises a mixture of earth and stone. The remaining sections of the enclosing elements are mainly composed of large granite stones. The internal enclosure has an average internal height of 1.7m and average external height of 2.6m. The outer enclosing element has an average internal height of 1.3m and an average external height of 2.1m. Here, the banks are separated by approximately 28m (maximum 35m). There is no evidence of an adjacent ditch. To the east, the gap between the enclosing elements narrows to an average of 12m. Although the banks are slighter, the steeply sloping ground enhances the exterior perception. The inner enclosing element is on average 0.8m in height internally but almost 3m in height externally. Similarly, the outer enclosure is 0.4m in average height internally and 2.1m high externally. To the south, a 185m section of the enclosing elements are more closely spaced and comprise slight banks.

Quarry pits and associated spoil are visible in many sections between the enclosing elements. Presumably, the material from these pits was used for constructing the banks, although loose stone and glacial erratics within the interior may also have been used. There is no indication of an entrance, although Waddell (1998) suggests an original break in the banks is located in the eastern section. The interior of the hillfort rises towards a rock out-crop at the south-east corner of the site and is characterised by significant heather growth, loose stone and glacial erratics. The summit of the hillfort is crowned by a substantial passage tomb (WI027-026003) excavated in the 1930's (Walshe 1941). A significant amount of the stone that originally covered the monument now forms a protective wall around the tomb and is often mistaken for the hillfort. A second cairn (WI027-076) abuts the exterior of the outer enclosing element to the south. There are three previously recorded hut structures (WI027-026002, WI027-026004, WI027-026007) within the hillfort.

Rathnagree

Rathnagree (WI027-027010) is a trivallate hillfort positioned on a northern spur of Tuckmill Hill, 400m north-north-west of Rathcoran (Fig. 4.14; Fig. 4.15). The name translates as 'rath of the king'. First recorded on the first edition Ordnance Survey (1840), the site occupies a total area of 5.78ha, with an internal area of 0.69ha. In contrast to Rathcoran, the enclosing elements do not follow the contours of the hill. The ramparts disregard topographical variation to form three circular enclosures. The inner and middle enclosing elements are separated by approximately 37m, while the middle and outer examples are 35m apart. The enclosing elements do not have a uniform composition. The middle enclosure is the most impressive of the three. It comprises a well preserved inner bank, outer ditch and counterscarp bank best preserved to the south. The bank and counterscarp seem to be composed mainly of earth with indications of stone facing. The height of the bank ranges 2.4m–0.5m and is on average 7m wide. The ditch ranges from 2.9m–1.3m in depth and is on average 7m wide. The counterscarp ranges 0.4m–0.9m in height and is on average 3m wide. There are a number of small breaks along the perimeter although there is no clear indication of an original entrance(s).

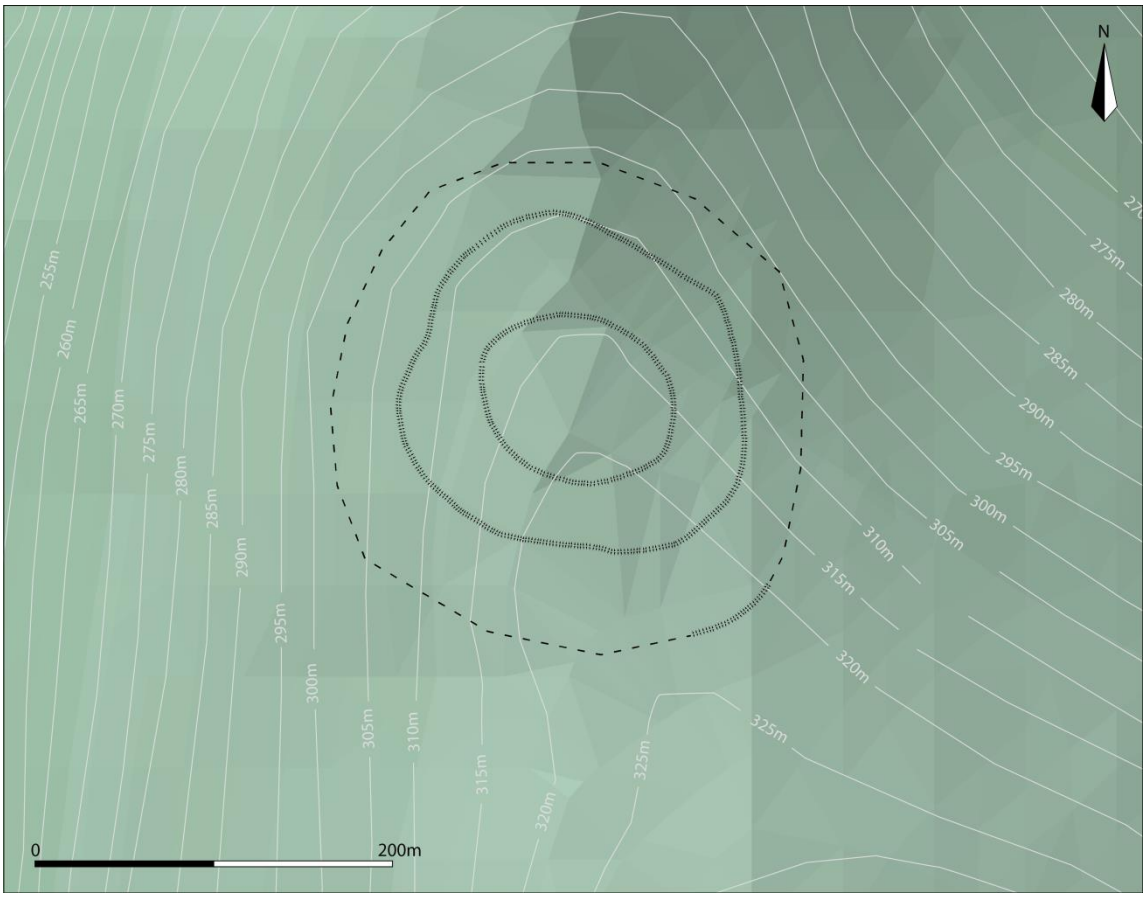

Fig. 4.14: Rathnagree.

The inner rampart comprises a low-rise stone bank with no corresponding ditch. The bank is on average 0.2m in height and 6m wide. There two entrances to the north-north-east and north which may be original. There are no features to suggest habitation, however, there is extensive vegetation cover inside the enclosure. The outer enclosing element is similar in composition where visible. It is denuded and remains in forestry or actively farmed areas, but is visible from the south where it is 0.1m high and 5m wide.

Sruhaun

An unrecorded univallate hillfort was recently identified by the author on the south-western spur of Tuckmill Hill in Sruhaun townland. Positioned on a level terrace with steep slopes to the south and east, the enclosure comprises as single low-rise bank approximately 4.5m wide, occupying a total area of 1.43ha. It measures 108m north–south by 166m east–west (see Chapter 5; Fig. 5.29).

Fig. 4.15: Rathnagree, showing the middle enclosing elements.

4.2.3 Hughstown

Hughstown (No: 55) is recorded as a bivallate hillfort (KD038-025001) with a small enclosure at its highest point (295m OD). It is located on the border between counties Kildare and Wicklow (Fig. 4.16; Fig. 4.17). It is the westernmost fort of the Baltinglass cluster. The site is heavily truncated by modern agricultural activity and is currently used for cattle grazing. Irish Army Air Corp and Cambridge University aerial photographs reveal the two enclosing elements as parch-marks, separated by a distance of 23–48m. These were not recorded by the first or second edition Ordnance Survey mapping of the nineteenth century. Condit (1998, 16) has described the site as a hillfort consisting of inner banks with external ditches that appear to be rock cut. The north-east of the outer enclosure may be partially preserved as a curving field bank. This is a distinctive boundary comprising large boulders, in contrast to the earth and stone composition of the modern boundaries in the vicinity. There is no corresponding ditch feature. The inner enclosing element ranges 288–274m OD and the outer example 292–285m OD, both generally following the contours of the hill. The small enclosure at the centre of the hillfort comprises a large boulder bank with no corresponding ditch feature, and is similar in construction to the possible extant section of the outer bank. Condit (1998, 16) recorded a 2m wide entrance gap to the north that may be original. A large circular setting of stones, 17m in diameter, is visible near the centre of the enclosure. No other structural features are visible on the surface, although

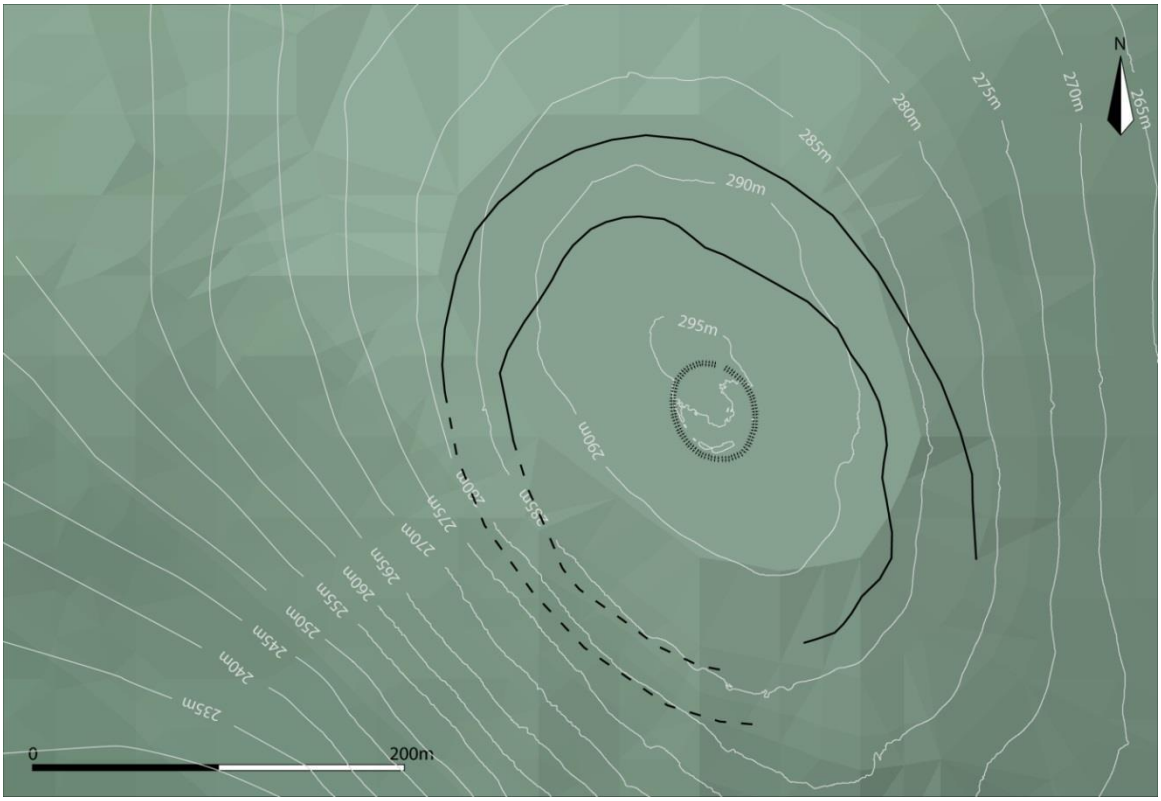

Fig. 4.16: Hughstown.

Condit (1998, 16) notes ‘circular arrangements’ of boulders, indicating more than one such feature was visible in the past. There is a recorded mound (KD038-025002) within this enclosure although this cannot be identified today. This monument may instead be located 180m to the north of the hillfort, where a 1.5m high mound of earth 12m in diameter is present. Approximately 80m to the south of the hillfort is a recorded habitation site (KD038-026), however, the RMP files state this is in fact a cursus monument.

A large, unrecorded, embanked pond 350m to the east of the hillfort is cut into the slope of the hilltop. The western side of this feature is approximately 4m beneath the modern ground surface. The north, south and west edges of the pond are embanked, while the eastern perimeter is level with the surface and unprotected. The pond appears on early Ordnance Survey maps and is therefore constructed before 1842. Today, water is continually drained from the pond to prevent flooding. The source is likely to be a natural spring. Approximately 150m to the south-east is an unrecorded ring-barrow. The monument is approximately 18m in diameter and comprises a 4m wide band of stone, 0.3m high, with a low-rise central mound.

Fig. 4.17: Hughstown (Bing Maps 2014).

4.2.4 Tinoran

Tinoran (No: 103) is the second largest hillfort in Ireland (WI026-004), occupying a total area of 84.03ha (Fig. 4.18; Fig. 4.19). It comprises four widely spaced enclosing elements and a central enclosure at the summit 312m OD. Tinoran can be translated as 'house of Odhrán'. Most of the hillfort was forested in the modern era, with resulting destruction to large parts of the interior. The inner enclosure comprises an earth and stone bank, 2.2m in average width, and 0.9–1.2m in height. It was recorded on both the first and second edition Ordnance Survey maps. The exterior face of this bank has a stone revetment. There is a ditch immediately outside this, measuring 1.6m wide and 0.8m deep, which is best preserved to the south-south-west. These features enclose an area of 0.062ha.

The second enclosing element is oval in shape and surrounds an area of 4.67ha. This enclosing element was recorded on the second edition Ordnance Survey map (1942). It strictly

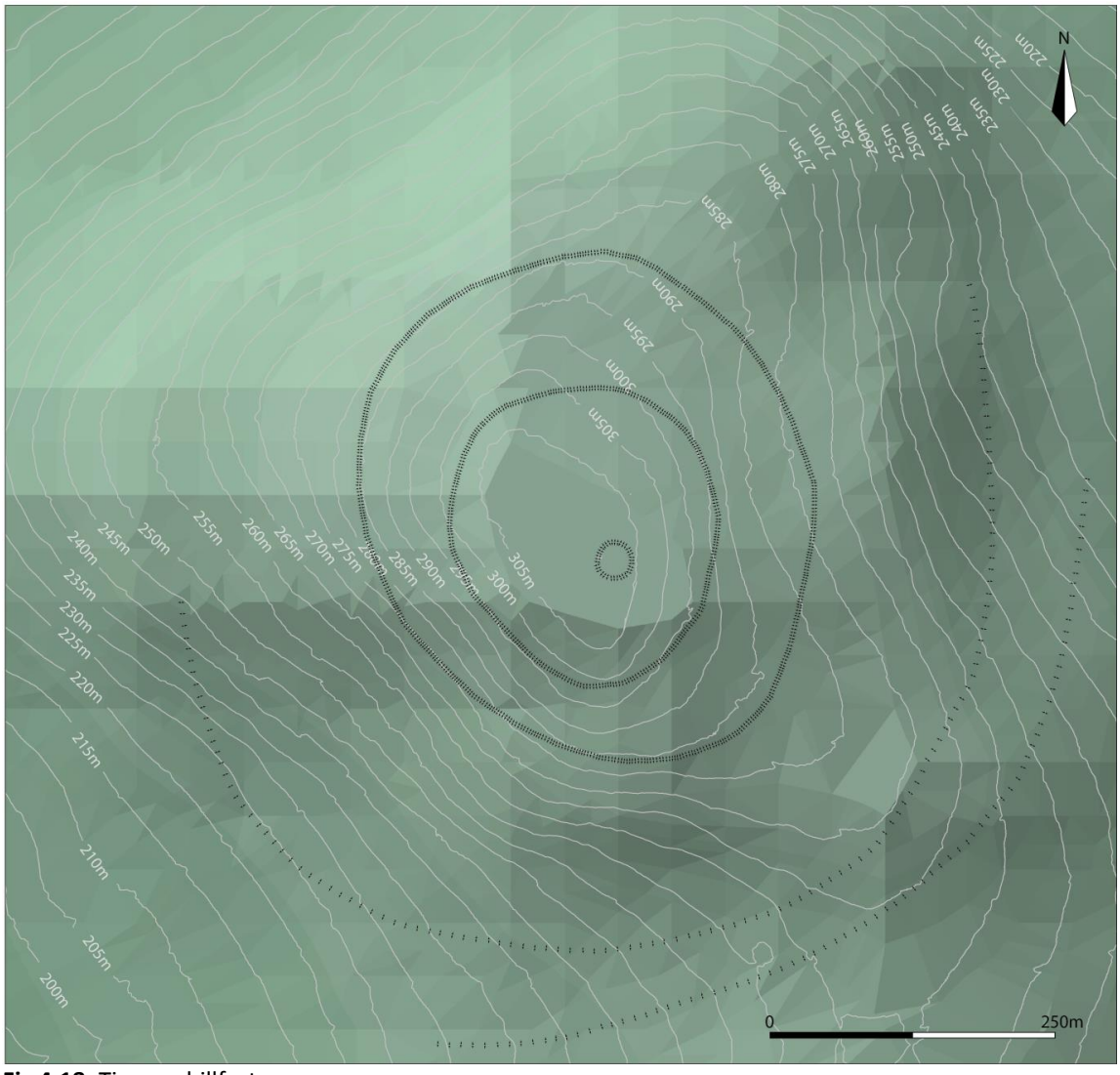

Fig 4.18: Tinoran hillfort.

follows the 300m contour varying from 304–296m OD. This bank has been incorporated into modern field systems. Immediately inside the southern section of the bank is a hut structure (WI026-004001). This consists of a D-shaped platform measuring 14m by 12m, cut into the hillslope. This is defined on the north and east slope by a boulder wall, 1.2–1.3m in width, and a steep scarp 0.8m in height to the south.

The third enclosing element is located 65–127m outside of the second enclosure. It is somewhat oval in shape and follows the 280m contour, ranging 276–284m OD over the course of its 1.37km perimeter. The southern half of this enclosure occupies an area of 14.46ha and has been incorporated into a field wall, which is largely responsible for its survival. The partial remains of a fourth enclosing element has been identified through aerial photography (Condit 1998, 15).

The southern half of this enclosure survives as a low-rise bank feature on agricultural land rather than forestry. When projected, the enclosure occupies an area of 55.74ha. The bank of this enormous enclosure ranges from 221–244m OD. A large ring-barrow (WI026-005) abuts

Fig. 4.19: Tinoran hillfort (Bing Maps).

the outer enclosure to the east. This comprises a low domed interior 16–22m in width and 0.4m in height surrounded by a ditch 7-9m in width and outer bank 11–18m in width and 0.3m in average height. The barrow is approximately 55m in diameter. The author has recently identified a possible fifth enclosure using LiDAR, approximately 50m from the outside former example. This is best preserved at the south where it survives as a low-rise bank 11.6m in maximum width. When projected, this bank may enclose an area of 84.03ha.

4.2.5 Kilranlagh

A possible hillfort was recently discovered by the author on the summit of Kilranlagh (No: 60), a prominent hill located 5km to the east of Baltinglass town. It is covered in scrub and heather and is partially forested. Recent survey has identified a curving stone bank on the western side of the hill, 140m in length and extending into newly planted forestry. The bank is approximately 14m in width and has exterior facing comprising large slabs. A change in vegetation on the immediate outside may indicate an outer ditch feature. This corresponds with a curving section of bank on the eastern side of the hilltop, depicted on the 1840 Ordnance Survey map. These may be the remains of a hillfort bank that, when projected, would have enclosed an area 5.33ha. Three large cairns are visible on the hilltop and on the eastern foot of the hill there is a barrow and stone circle consisting of 11 stones. Though undated, the stone circle is important, as it may indicate Late Bronze Age ritual activity in the immediate environs of the hillfort.

4.3 PREVIOUS RESEARCH

4.3.1 The Hillforts

There has been relatively little work conducted in the Baltinglass hillfort cluster. The published research is largely descriptive and no scientific survey or excavation has been undertaken. The first researcher to take an interest in the hillforts of this area was Liam Price, a barrister and amateur historian, who visited the Baltinglass hillforts on numerous occasions during the early – mid twentieth century. His field notes have been published by Corlett and Weaver (2002a; 2002b) and are an important source even though the provide little in the way of interpretation or critical analysis. Price was the first to identify and record the cairns at the summit of Spinans Hill (Corlett and Weaver 2002b, 539). He describes a large unrecorded enclosure at the base of Kilranlagh Hill, which was subsequently levelled (*ibid.*, 540). This remains the only published

description of this site which he states consisted of an outer ditch approximately 10m wide with an internal bank and inner ditch measuring about 6m in width. Price states the bank was 'only a couple of feet high' (*ibid.*, 540). He also recorded a small cairn 6.6m in diameter and 0.6m high and surmises that this may be the location where the owner of the land had previously discovered a 'Late Bronze Age urn'. Aerial survey has confirmed the presence of an enclosure which survives as a circular vegetation mark approximately 172m in diameter occupying an area of 2.37ha. The enclosure and surroundings are overgrown, making further identification of features difficult.

Subsequent research at the Baltinglass hillforts has relied heavily on aerial photography and desk based analysis. A recent unpublished MLitt by Flood (2009) considered the hillfort complex, although this was descriptive and did not offer any in depth critical analysis. The most comprehensive study of these monuments was undertaken by Tom Condit and published in two small articles (1992, 1998). These provide descriptions and basic ground plans of some of the hillforts, together with a short discussion placing them in the wider context of Irish hillforts. The 1992 article focused on the identification of the Spinans Hill 2 contour fort. Condit summarised the morphology of these monuments, discussing the phenomenon of hillfort pairs and briefly considered the available evidence with reference to Mitchell and Ryan's (1997, 240) interpretations. The latter suggested two models to explain this unique concentration of sites. The first proposed that the hillforts were assemblies or defensive structures on either side of the Slaney River erected by two opposing polities, the hillforts being 'rival works inspired by competitive emulation between political groups whose areas of influence bordered each other. The second suggests that the hillforts represent the movement of a single polity's tribal centre over a period of time. Waddell (1998, 356) comments briefly on this 'remarkable concentration'. He favours the latter interpretation and considers the hillforts as representing 'a sequence of activity over a long period of time'. Conversely, Grogan (2005b, 124) supports the former, stating 'their location is suggestive of the confrontational siting of forts belonging to rival neighbouring territories'. Neither author supports their interpretations with any evidence and, as such, these interpretations should be viewed as speculative.

More thought has been given to the Spinans Hill complex due to the large size of the enclosure. It has been speculated that Spinans Hill 2 could have been used to delimit an area of tribal assembly or may be comparable to the Dorsey 'enclosure', Co. Armagh, which represents a series of cross-dykes rather than an actual enclosure (Raftery 1994, 63). Condit (1998, 22) stresses caution in such an interpretation. The Dorsey and the Dun of Drumsna, Co. Roscommon

likely functioned as defensive dykes protecting multiple fording points in rivers (Condit and Buckley 1989). While these enclosures compare with Spinans Hill 2 in terms of size, Condit (1998, 23) points out that Spinans Hill 2 encloses a hilltop and 'is not a gateway in the fashion of the Dorsey and the Dun of Drumsna'. We must also note the somewhat comparably large size of the nearby Tinoran hillfort. More recently, Flood (2009, 83) has proposed Knocknarea Mountain in Co. Sligo as a possible parallel. Bergh (2000) discovered a system of discontinuous banks on the eastern summit of the mountain which effectively blocked the peak from the lower eastern shoulder. Conversely, there features have been tentatively dated to the Neolithic (Bergh 2000) and are therefore a poor analogy for Spinans Hill 2.

Comparably large enclosures have been found in Britain and the Continent. For example, Bindon Hill in Dorset, England is approximately 114ha in size. This site has been interpreted an invasion base, assembly place or trading centre rather than a densely populated settlement (Hogg 1975, 36). Similarly, Raftery (1994, 63) has questioned the defensive function of Spinans Hill 2, suggesting that it could never have functioned as a single defended settlement. Whatever its function, it is clear that the construction of such a large monument represents a huge and concentrated effort by a significant number of people and that Spinans Hill was a place of exceptional importance (*ibid.*, 63). Waddell (1998, 356–357) suggests that the complex was likely conceived of and constructed as a unit. This is supported by limited fieldwork undertaken by Grogan (Grogan and Kilfeather 1997, 41), which identified up to 24 hut structures within the Spinans Hill 2 contour fort. The lack of critical analysis and speculation regarding these monuments is partly a consequence of the absence of detailed fieldwork at this hillfort cluster.

4.3.2 Excavations and finds in the Baltinglass environs

Neolithic

The only excavation undertaken within the hillfort complex was at the passage tomb (WI027-026003) within Rathcoran (No: 92) hillfort on Tuckmill Hill (Fig. 4.20: No.1). This was excavated in 1934–1936 by Walshe (1941). The monument consists of a kerbed cairn measuring 27m in diameter. Underneath the cairn, five structures were identified, as well as an inner kerb of smaller stones. Three stones are inscribed with rock art, two from the inner kerb and another from the outer. The main tomb consists of a 3.2m long passage leading to a 2m diameter chamber roofed by slabs at the northern side of the cairn (Fig. 4.21). This chamber contains three recesses, the central example containing a large ornamented stone basin (Fig. 4.22). The

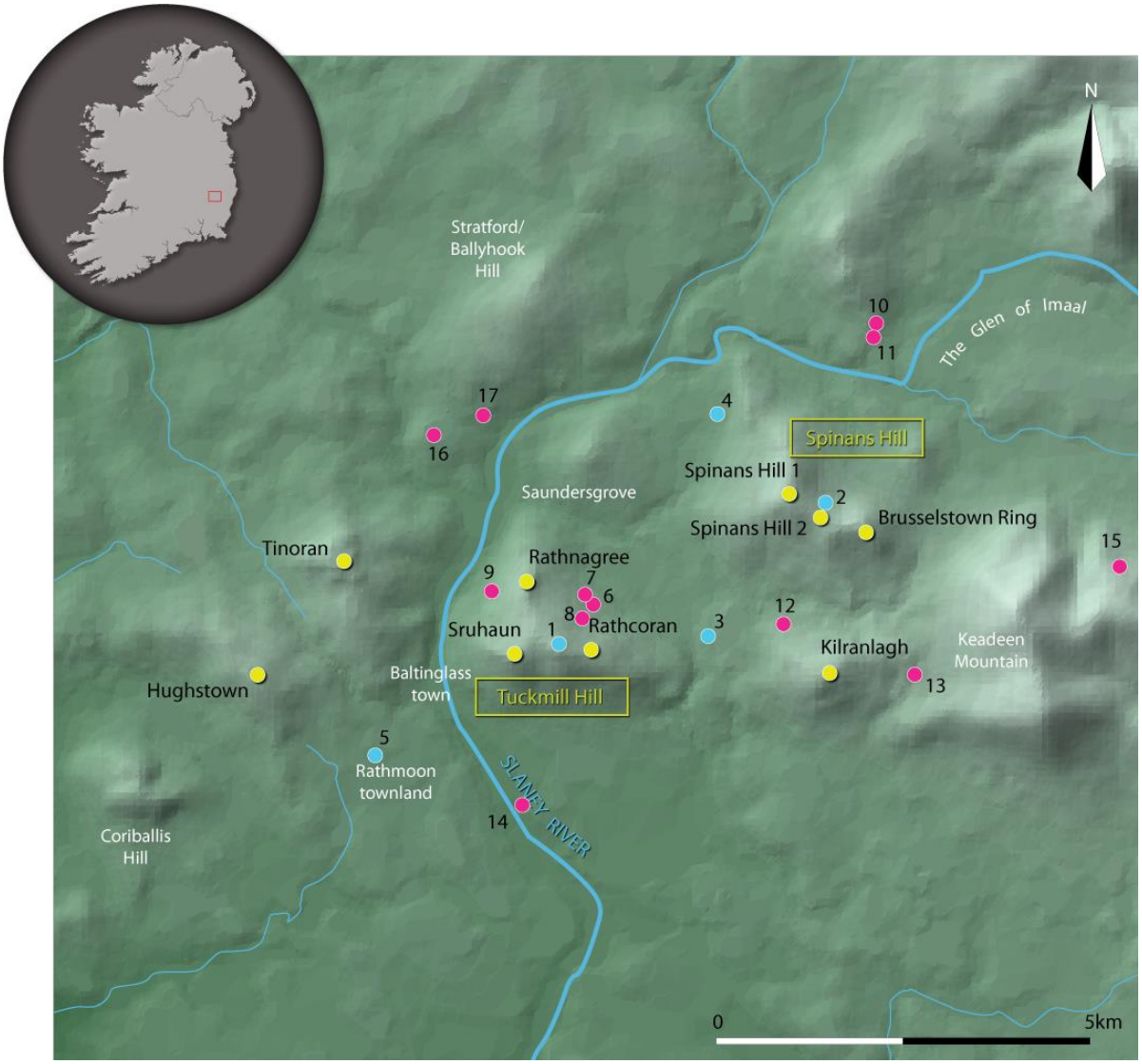

Fig. 4.20: Location of sites mentioned in text.

Fig. 4.21: Main chamber of passage tomb at summit of Rathcoran.

only other examples of stone basins found in such a context is from the famous passage tombs in the Boyne valley, Co. Meath. A second chamber was found in the southern section of the cairn, although no associated passage was identified. This chamber was similar to the former example, comprising three compartments. A third chamber is located to the north-east of the cairn with no associated passage. Two further structures were revealed during excavation consisting of a 'small cist-like' feature and a corbelled structure. A number of artefacts associated with the use of the tomb include flint scrapers, bone pins and Carrowkeel pottery. At least three adults and one child were recovered. A stone axe and a flint javelin-head are among the most notable pre-cairn artefacts recovered. Condit (1992, 20) notes a stone axehead was

Fig. 4.22: Large stone basin with art in recess of main chamber of passage tomb at summit of Rathcoran.

recovered from Spinans Hill (Fig. 4.20: No. 2) and a perforated stone axe-hammer was found in 1947 just over 1Km to the east of Tuckmill Hill (Fig. 4.20: No. 3).

At the north-western base of Spinans Hill, the investigation of a circular mound 24m in diameter and 2m in height (WI021-057) produced one pit burial containing an adult male and part of a second inhumation (Ryan 1973) (Fig. 4.20: No. 4). A second burial containing two adolescent inhumations protected by a polygonal cist. One of these had a simple Neolithic bowl and a piece of lignite, with a crouched burial dated 3338–2910 BC. Although Raftery (1973) has argued that the burial is consistent with the Linkardstown burial tradition, Brindley and Lanting (1990, 3) have suggested that this date is later than that burial type and belongs to a different tradition. Immediately to the north-west is a cluster of unclassified barrows, visible in aerial photographs.

Another mound (WI026-006001) in Rathmoon townland, 1.3km west of Baltinglass town and approximately 1km to the south of Hughstown hillfort, produced cremated remains (Fig. 4.20: No. 5). Price (Corlett and Weaver 2002a, 175) describes the monument as a circular mound 26m in diameter and 3.9m high standing on the crest of a hill. The lower part of the mound formed a terrace just over 1m wide, with a central dome-shaped mound rising out of this. The monument may have originally had an outer bank (*ibid.*, 75). During the destruction of the mound in 1958, a rectangular cist was recorded near the southern edge, measuring 0.8m by 0.45m and was 0.5m deep. Lucas (1960, 86) notes that the top of the cist was probably at the old ground surface. The cist contained a 'very considerable' amount of cremated bone (*ibid.*, 87). The number of individuals was estimated to be three adult females and two adolescents, one a newly born and another aged 6–8 years. A leaf-shaped arrowhead was the only artefact recovered from the deposit. It was found within the cist with the cremated bone, and showed signs that it had been burnt with the human remains. No radiocarbon dates have been retrieved from the burial. Typologically, the arrowhead dates to the Early/Middle Neolithic (Sharpe *per comm.*).

Early/Middle Bronze Age

There have been a number of cist burials discovered through agricultural activities throughout the last century. These features comprise a simple structure of stone slabs protecting burial remains and can date from the Early Bronze Age to the Late Iron Age. There is a concentration of these monuments around the base of Tuckmill Hill. On the eastern side, a cist burial (WI027-074) (Fig. 4.20: No. 6) comprising two sherds of food vessel pottery with cremated bone are located

9m from a pit burial (WI027-074001) (Fig. 4.20: No. 7) also containing cremated bone (Ó Ríordáin 1972). A third possible cist burial is recorded 450m to the east of Rathcoran hillfort and approximately 500m from the aforementioned examples (Fig. 4.20: No. 8). This is described as a possible destroyed cist which contained human remains (http://www.heritagecouncil.ie/heritage-maps/heritage-maps/). At the north-western base of Tuckmill Hill, a cist burial (WI027-008002) (Fig. 4.20: No. 9) containing an inhumation was discovered within a now destroyed ring-barrow comprising a low circular mound 19m in diameter and 0.5m in height (Price 1934, 46–47). This was located 400m to the west of Rathnagree (No: 94). Two kilometres north/north-east of Spinans hill, two cists are positioned 5.5m apart (WI021-036; WI021-036001) (Fig. 4.20: No. 10 and 11). One cist was heavily disturbed but produced sherds of a bowl/food vessel. The second produced the cremated remains of an adult, a food bowl and a plano-convex flint knife (Hartnett 1952, 153–160). Price recorded a possible cist burial at the base of Kilranlagh Hill within a levelled enclosure (Corlett and Weaver 2002b, 540) (Fig. 4.20: No. 12). Price also notes a small cairn 6.6m in diameter and 0.6m in height to the east, and questioned whether this was the location where the owner of the land had previously found a 'Late Bronze Age urn' (*ibid.*, 540). Another possible cist (WI027-040) was discovered within the centre of a mound barrow, 75m north-west of a stone circle on the eastern side of Kilranlagh Hill (Fig. 4.20: No. 13). The finds database of the National Museum of Ireland highlights other cist and cremation burials in the Baltinglass landscape (Fig. 4.20: No. 14 and 15). Although the artefacts and pottery often associated with these burials imply that many are significantly older than the hillforts, it is important to note the significance placed on the hilltops in this region prior to the construction of the latter.

There have been relatively few excavations in the area in modern times (Fig. 4.23). Within a 10km radius of Baltinglass town there have been 15 excavations since 1969. Eight of these yielded no features of archaeological significance and four revealed activity dating to the Early Medieval period or later. Two *fulacht fiadh* (WI021-085; WI021-086) were excavated approximately 3.5km north of Baltinglass town (Fig. 4.24) (Fig. 4.20: No. 16 and 17). One of the monuments produced a Middle Bronze Age date *c.* 1607–1570 BC. A recent analysis of this monument class indicates that the majority were constructed during the Bronze Age (Hawkes *per comm.*). Their dense distribution throughout the Irish landscape means that *fulacht fiadh* can be used as proxy indicators of prehistoric settlement. Excavation of the M9 motorway indicates that the lack of visible *fulacht fiadh* in the Baltinglass area is a false representation of the archaeology. Within a 50km length of this motorway to the east of Baltinglass town, approximately 55 *fulacht fiadh* have been excavated, comprising the most common form of

archaeological monument encountered during road works. This dense concentration of *fulacht fiadh* is typical throughout Ireland and is an indication of the dense settlement of the landscape throughout the Bronze Age. Significant collections of copper and bronze objects attest to Bronze Age activity in the general area of Baltinglass (Fig. 4.25). An Early Bronze Age hoard of six flat axheads and two ingots was recovered near Tullowbeg, Co. Carlow, approximately 15km to the south of Baltinglass town. Other examples of this axe type or copper axheads are not found elsewhere in the local area.

Late Bronze Age

A number of Middle/Late Bronze Age unenclosed settlements have been identified at Mullmast, Co. Kildare, 11km north-west of Baltinglass town and Burtown Little, Co. Kildare, 12km north-west of Baltinglass town (Fig. 4.23). These sites highlight the diversity of settlement during the Bronze Age and confirm that some settlements were not enclosed.

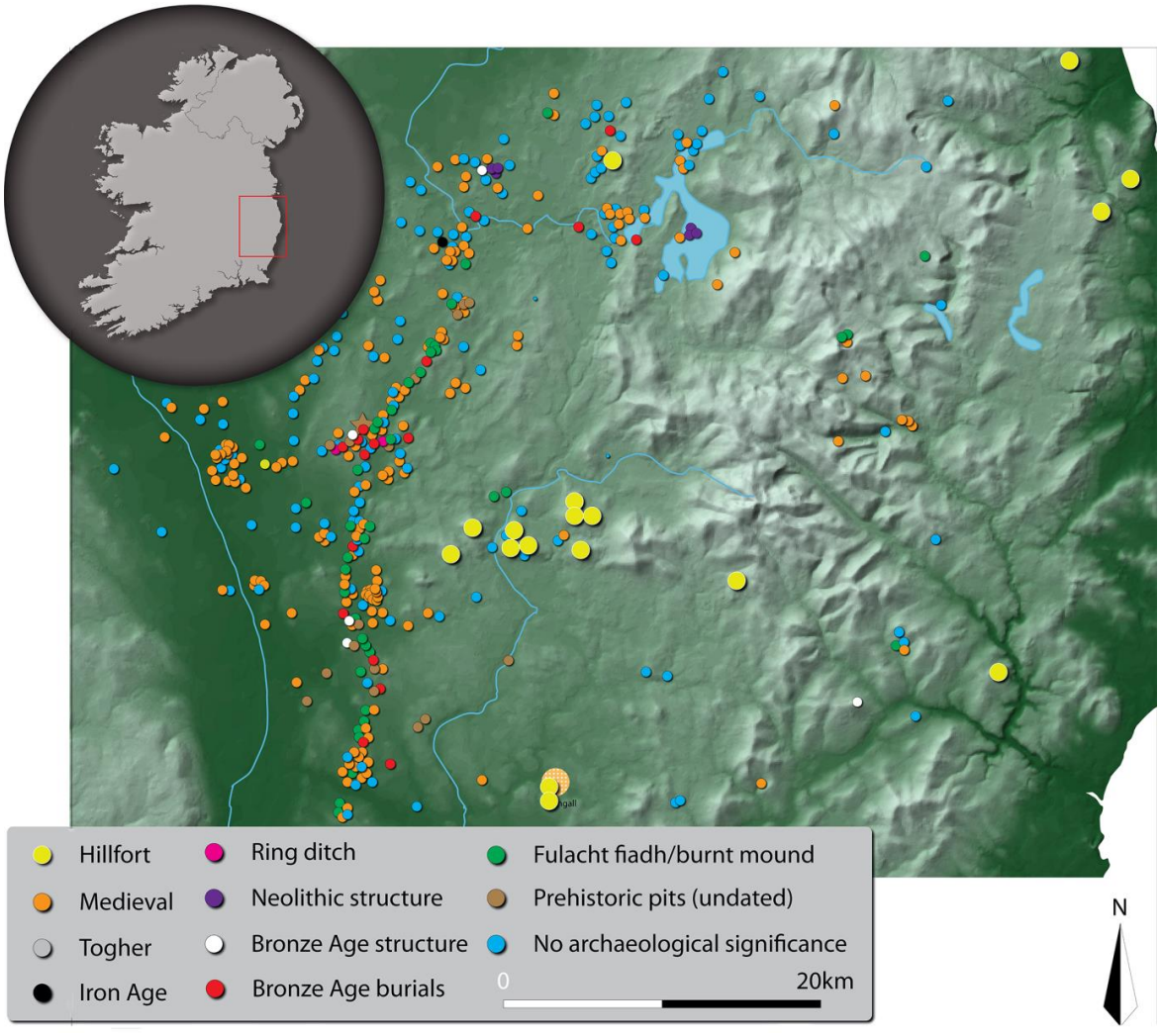

Fig.4.23: Excavations in the study area (1970 to present).

Middle/Late Bronze Age axes are more numerous than their earlier counterparts, with one palstaves, two bronze axes with stop ridges and sixteen socketed axes discovered within 25km of Baltinglass town (Fig. 4.25). Ten of the socketed axes are of Eogan's (2000) Class 11 type which are the most common type in Ireland. The majority of the axheads were recovered from the flat plain to the south of Baltinglass town. At Ballytegan, Co. Laois, two socketed axes were deposited in a shallow pit with ornaments including an annular bracelet, a disc-headed pin, a

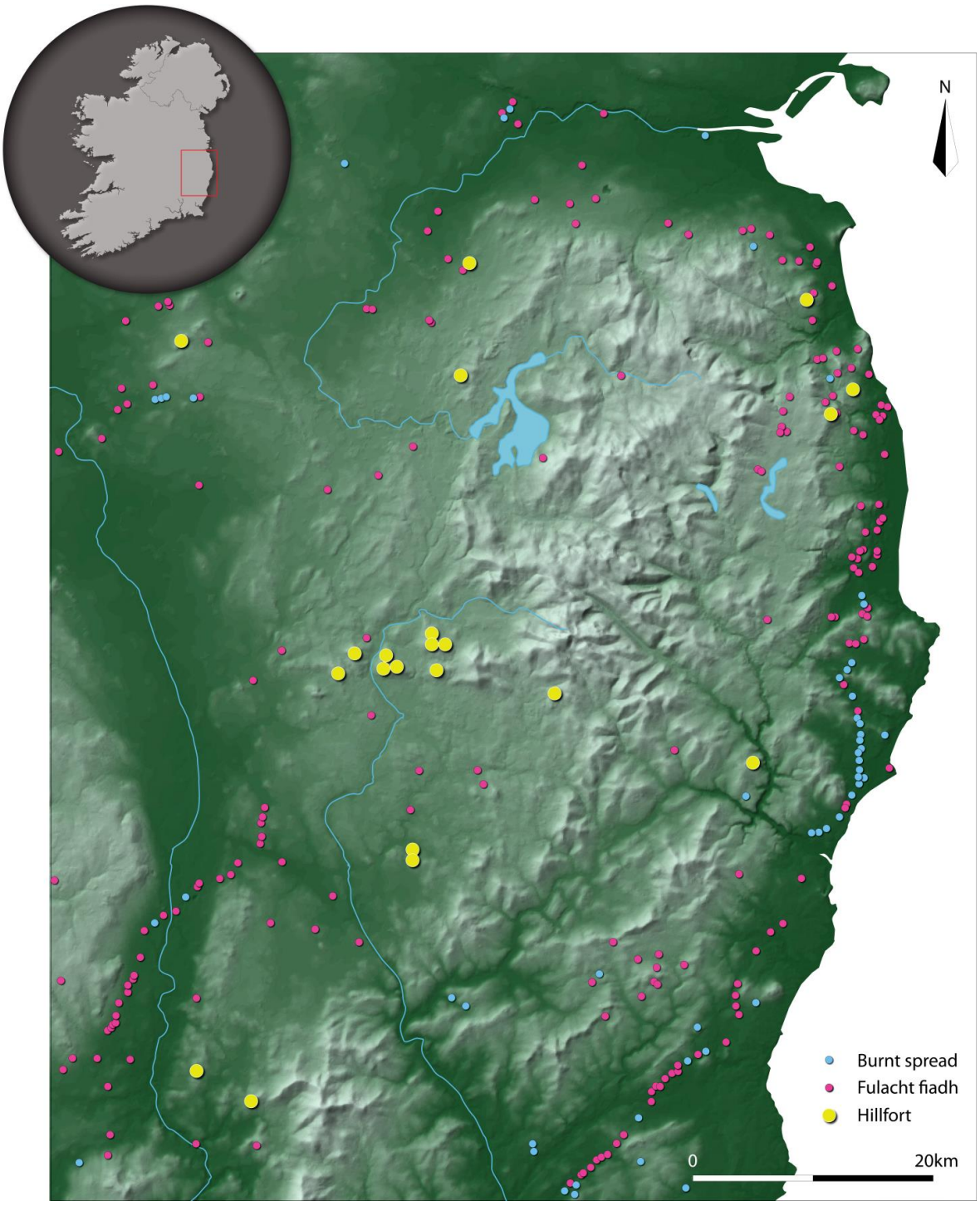

Fig. 4.24: *Fulacht fiadh* in the study area.

small cylindrical-shaped bronze object, part of a sheet bronze hook and up to 53 rings of various size and decoration. Two other Late Bronze Age hoards have been recovered in the local area and have produced similar ornamental objects (Fig. 4.26). A hoard discovered in a field at Saintjohns, near Castledermot, comprises five gold ornaments, including a bracelet, two twisted armlets and two pieces of decorated sheet gold. A Late Bronze Age sword was recovered less

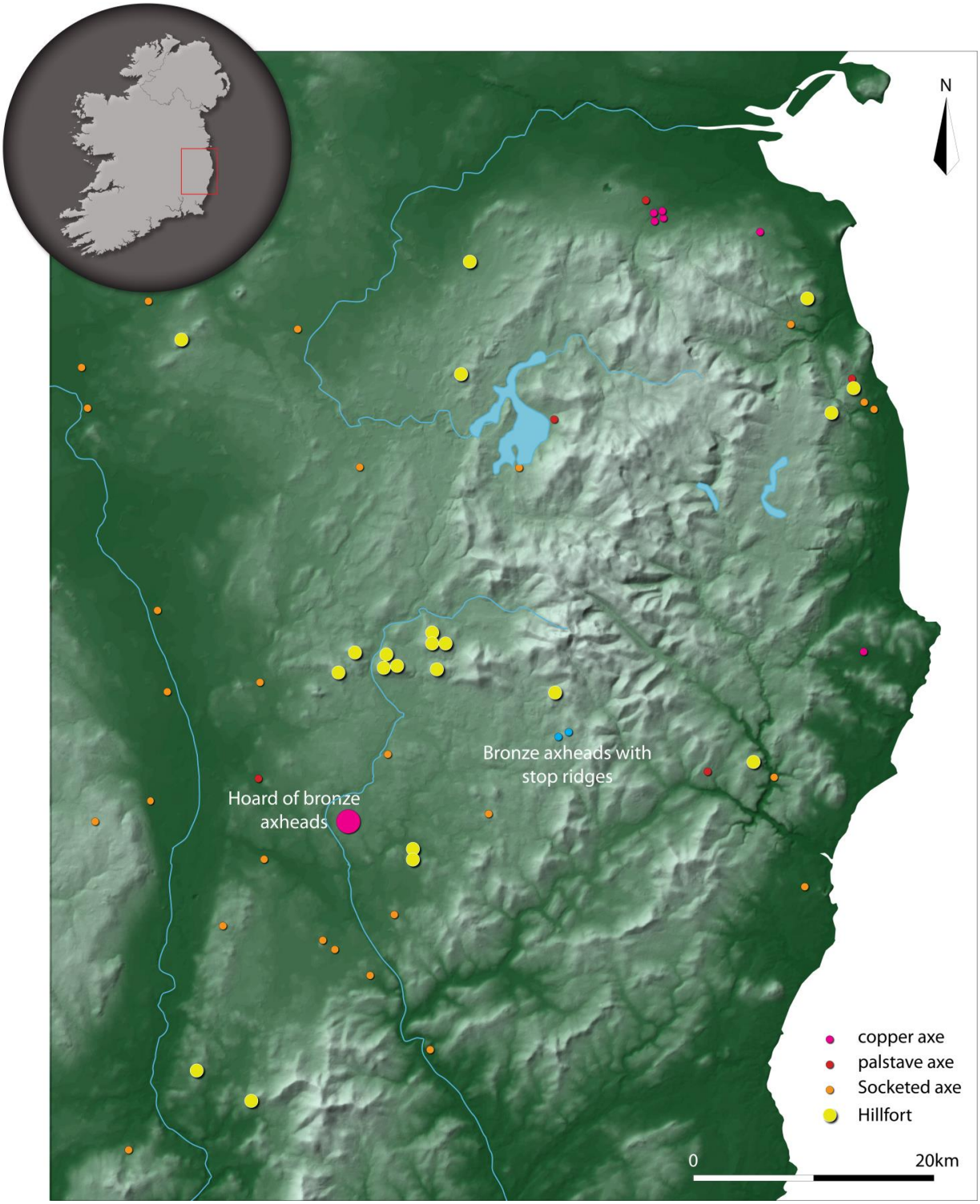

Fig. 4.25: Copper and bronze axes recovered within the study area.

than 0.5km to the south. At Coolmanagh Upper, a flanged torc and ribbon torc were deposited on a knoll projecting into marshy land. The famous Bishopsland hoard from Co. Kildare is located less than 20 km to the north of Baltinglass.

Two Class 9 socketed axes were found on and close to a newly discovered hilltop enclosure on Ballon Hill, Co. Carlow, 21km to the south of Baltinglass (CW013-124). Thirteen complete and fragmented food vessels, 6 cemetery urns, and a cremation from the same hilltop indicate an important Early Bronze Age burial ground, however, it is the number of Late Bronze Age artefacts that is particularly notable. The stray finds catalogue of the National Museum of Ireland has a number of artefacts on record discovered on the hill, including a Class 4 leaf-shaped bronze sword, a Class 9 socketed axe with decorated mouth, another plain socketed axe, a spearhead with side-loops (Fig. 4.27) and a bronze sickle were also recovered (Graves 1953).

Fig. 4.26: Hoard of bronze objects from Ballytegan in Co. Laois.

Fig. 4.27: Late Bronze Age side-looped spearhead from Ballon Hill in Co. Carlow.

Two further spearheads were found at the base of the hill and a bronze blade was discovered at the top of a sand-filled cist (*ibid.*, 298). It is difficult to assess the artefactual assemblage as there is a lack of contextual data. The bronze weapons and tools may have been associated with burial customs, possibly as part of a Late Bronze Age hoard, or could indicate that the hilltop enclosure was the centre for specialised craft. The latter is an interesting interpretation considering that Rathgall hillfort is located approximately 10km to the north-east. At Rathgall, extensive evidence for specialised craft-working and contemporary burials were discovered within the hillfort (Raftery 1976). Regardless of the function of the site on Ballon Hill, it seems this was a focal point in the landscape during the Late Bronze Age.

A single kite-shaped side looped bronze spearhead with a blunt blade found in Baltinglass. No radiocarbon dates are available although this type of spearhead generally dates to the Killymaddy/Acton Park Phase of the Middle Bronze Age (1500–1350). The large number of this type recorded by Ramsey (303) suggests a prolonged period of use possibly extending beyond the Killymaddy phase. It is probably of Irish origin. There is decoration on the midridge and blade.

A number of weapons have also been recovered in the vicinity of the Baltinglass hillforts, with particular concentrations of swords and spearheads deposited in the River Barrow and its tributaries. Up to eight swords have been recovered from these contexts. These comprise five Class 4 swords, two Class 2 swords and one Class 3 sword. Approximately 16 spearheads have been recovered consisting of one protected loop type, one pegged example with wooden core, one socketed spearhead, and twelve undefined examples. The majority of these have been recovered less than 20km from Baltinglass town. The recovery of weapons elsewhere is limited to a sword blade located near the foothills of the south-western section of the Wicklow Mountains (Fig. 4.28). The importance of the river is attested in the concentration of bronze weapons.

There are a number of ritual and secular monuments within the Baltinglass area that may be contemporary with the construction and use of these hillforts and may broadly date to the Late Bronze Age. These include two stone circles, Castleruddery, Co. Wicklow (WI021-032), located at the northern base of Spinans Hill and Boleycarrigeen Co. Wicklow (WI027-029), situated on a plateau immediately to the east of Kilranlagh Hill (Fig. 4.29). Boleycarrigeen stone circle comprises 11 evenly spaced stones positioned in a circle 15m in diameter (Fig. 4.30). The site is also known as the Griddle Stones. The stones rise in height from the entrance which is positioned to the south-west. These range from 1.3m to 1.94m in height. A low-rise bank 0.4m in

height and approximately 2m in average width surrounds and abuts the outer edge of the stones. The available evidence suggests that multiple stone circles in south-west Ireland broadly date to the period 1400–800 BC (O'Brien 2012a, 182) and a similar date could be ascribed to the Wicklow group. O'Brien (2004) has discussed the potential 'fusion' of ritual tradition in the West Cork region (stone circles with barrow monuments). Reanascreena South in Co. Cork is somewhat comparable with Boleycarrigeen, comprising a circle of 13 stones 9.35m in internal

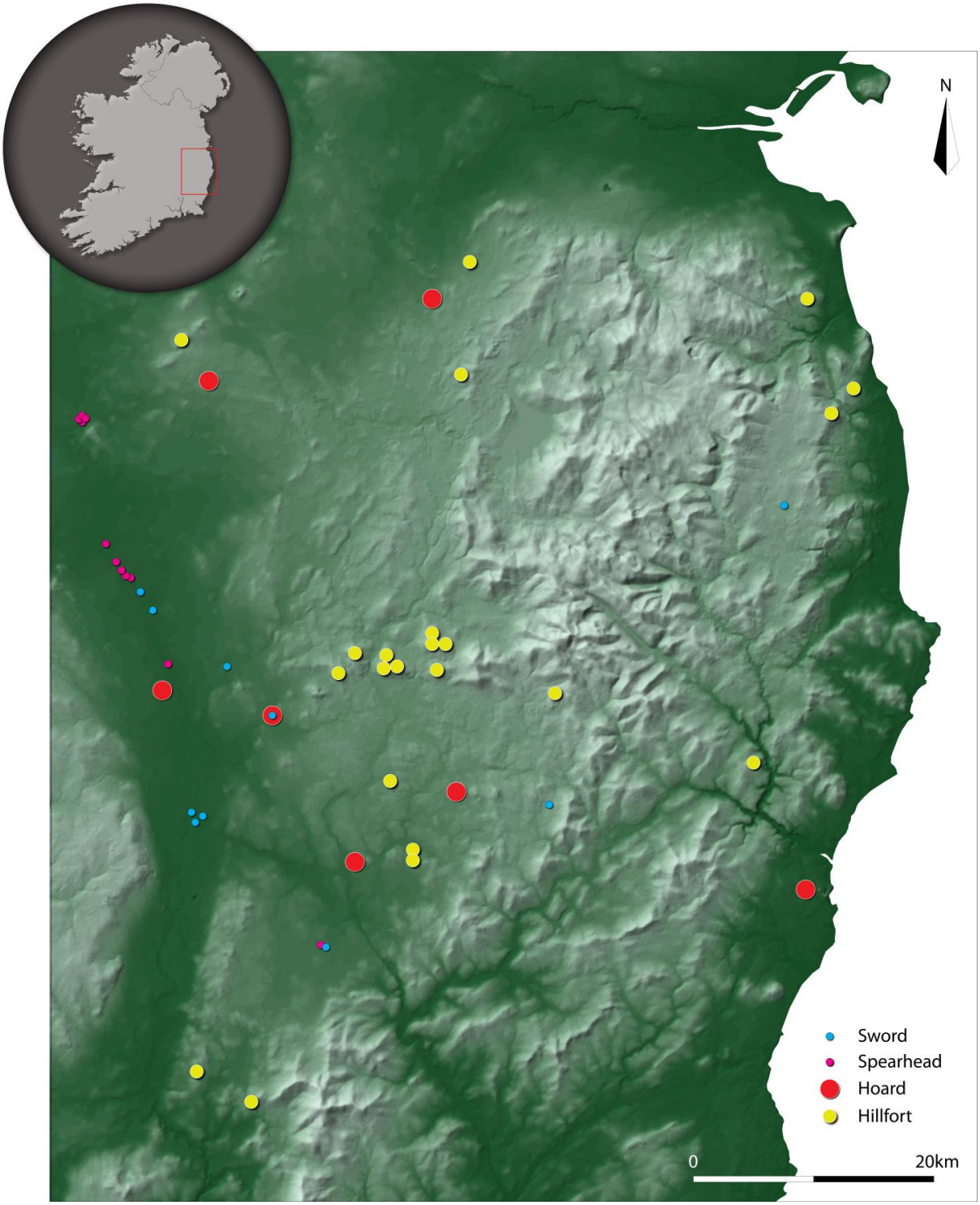

Fig. 4.28: Weapons and hoards in the study area.

diameter, with individual stones ranging 0.86–1.52m in height (O'Brien 2012a). Surrounding and abutting the stones is a shallow ditch 3.75m wide and 0.42m deep. This provided soil for an external bank 3.5m wide and 0.3m deep. The site was excavated by Fahy (1962) and radiocarbon dates were later obtained from archive samples by O'Brien (2012, 184). The samples indicate that the surrounding bank and ditch are contemporary with the stone circle which is Late Bronze Age. A similar site is found at Glantane East, Co. Cork. Notably, Boleycarrigeen does not have a

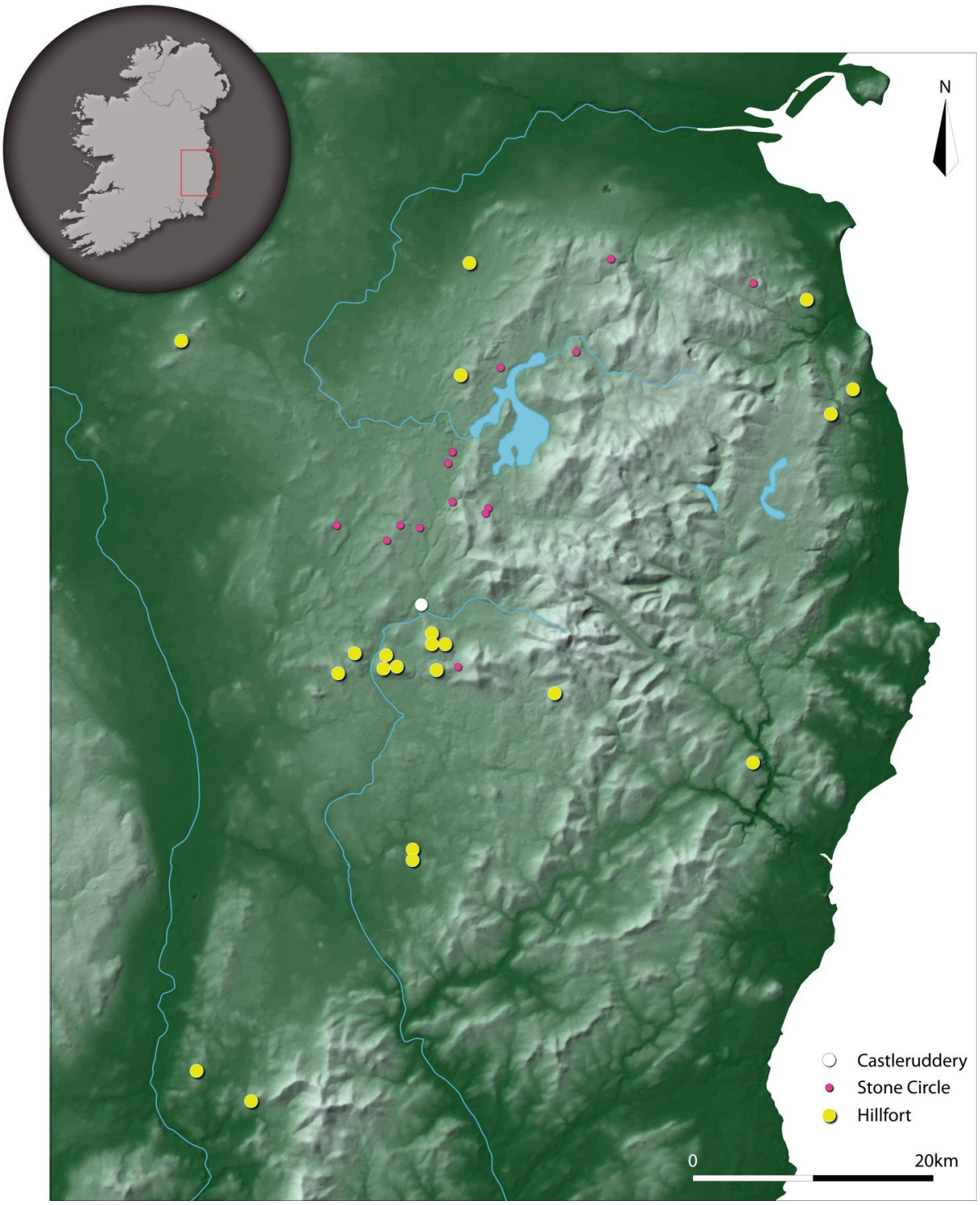

Fig. 4.29: Stone circles in the study area.

ditch inside its bank, and may therefore be more comparable with the embanked stone circle at Castleruddery. The number and size of the stones at Boleycarrigeen are more comparable with the West Cork–Kerry stone circle complex rather than the Ulster group. The stones in the Ulster group are much smaller in size, rarely exceed 0.5m in height, generally have more than 20 stones, often occur in groups and are associated with long stone rows.

The embanked stone circle at Castleruddery, Co. Wicklow, sits near the northern base of Spinans Hill, overlooking the Slaney River to the south (Fig. 4.31). It comprises a series of 29 large boulders and stones and is approximately 30m in diameter. Smaller boulders are located at the centre of the circle and may originally have been incorporated into the circle. Many of the boulders exhibit a linear series of deep elongated wedge marks. At the edge of a number of stones set into the bank, the remains of these elongated groves are visible. These may be associated with the shaping of the stones which might suggest that the monument is incomplete. Conversely, the marks could be associated with the destruction of the site at a later period. Similar cut marks are visible at the possible stone circle at the summit of Brewel Hill. The

Fig. 4.30: Booleycarigeen stone circle with Keadeen Mountain in the background.

entrance at Castleruddery is marked by two large quartz boulders marking a gap approximately 1.5m in width. An earthen bank on average 5m wide and 1m in height abuts the exterior face of the stone circle. A break in the bank corresponds with the entrance. Here, two large quartz boulders flank the terminals. Two enclosures, 50m and 80m in diameter, are visible surrounding the stone circle on aerial photographs. Again, this is comparable with the possible stone circle on Brewel Hill which is surrounded by a circular ditch approximately 60m in diameter.

The date of embanked stone circles is contested. The pottery assemblage from the embanked stone circle at Grange, Co. Limerick prompted Ó Ríordáin (1952) to considered a later Neolithic date, however, Roche (2004) has argued for a Late Bronze Age date. Recent dating of this monument has largely clarified the issue and has confirmed that the monument was constructed in the Late Neolithic (Cleary and O'Driscoll 2014; O'Driscoll and Cleary 2016). A similar date could be argued for Castleruddery, however, this remains speculation. Aerial photographs have revealed a number of linear earthworks orientated on the stone circle to the immediate north. These comprise two banks 14m apart with an intervening ditch that run north-north-east for approximately 205m. At the northern end are three unclassified cairns. These are unusually positioned in a low-lying area with poor visibility. Leask recorded one of these circles as a cairn circle comprising up to 24 stones (National Monuments of Ireland Topographical files, undated). The embanked stone circle, cairns and linear earthworks could have formed a

Fig. 4.31: Castleruddery embanked stone circle in Co. Wicklow.

contemporary ritual centre dating to the Late Neolithic/Early Bronze Age. These monuments are another indication that this was an important landscape prior to the construction of the hillforts.

A concentration of stone circles, comprising up to fourteen examples, exists at the edge of the mountain range to the north and west of the Baltinglass hillforts, with Boleycarrigeen stone circle representing the southernmost example (Fig. 4.29). In Ireland, this is the largest cluster of stone circles outside of the Cork-Kerry and Ulster groups. These stone circles characteristically have a large diameter and incorporate a considerable number of orthostats. For example, Tornant Upper (KD015-037) stone circle in Co. Kildare is up to 37m in diameter and incorporates over 20 stones. Broadleas Commons (KD029-023) stone circle, Co. Kildare, is approximately 31m in diameter and comprises up to 48 orthostats. Significantly, six of these stone circles are within an enclosure or have small embankments abutting the face of the stone circle; Boleycarrigeen Co. Wicklow, Brewel Hill, Co. Kildare (KD032-026002), Tornant Upper, Co. Kildare, Plezica, Co. Wicklow (WI015-088), Athgreany, Co. Wicklow (WI015-010) and Whiteleas, Co. Kildare (KD029-032). Another six have no available information regarding the site. Burl (2000) has recognised the Wicklow cluster of stone circles and suggests that there are tentative links between these examples and examples from Cumbria, England. As previously stated, multiple stone circles are generally seen as a Late Bronze Age phenomenon and therefore may be contemporary with the hillforts in the area.

There is a similar concentration of standing stones and standing stone pairs at the western foothills of the Wicklow Mountains (Fig. 4.32). These monuments function as burial markers, indicators of routeways or boundaries and generally date to the Late Bronze Age. Therefore, they may be contemporary with the hillforts in the area. Four standing stones are found within the immediate environs of the hillforts. None of these have been excavated and there is no distinctive distributional trend to suggest a function.

One of these standing stones (WI027-043002) is positioned at the centre of a large enclosure at the base of Keadeen mountain. This enclosure was identified through aerial photography (Corlett 2004) and comprises a collapsed stone wall 1.5–1.8m in width and 0.5m in average height (*ibid.*). Seven hut structures were identified within the interior. Corlett (2004, 90) wrongly compares this enclosure with the hillforts on top of the surrounding hills, stating 'this enclosure may belong to the general family of hillforts in the area in as much as representing a political symbol of tribal strength'. While the size of the enclosure (2.75ha) is somewhat comparable, its siting and morphology suggest it did not function in the way as a hillfort. More comparable are a number of other large enclosures at the base several hills in the immediate

area. At the northern base of Kilranlagh Hill, a large, unrecorded enclosure (see above) was identified by Price (Corlett and Weaver 2002b, 539). At the southern base of Hughstown hill in the townland of Rathmoon, a large trivallate enclosure with widely spaced enclosing elements (WI026-009) is visible in aerial photographs. The inner and middle enclosing elements are separated on average by 20m and the middle and outer examples are on average33m apart. This widely spaced multivallation can be compared with Late Bronze Age hillforts than the closely

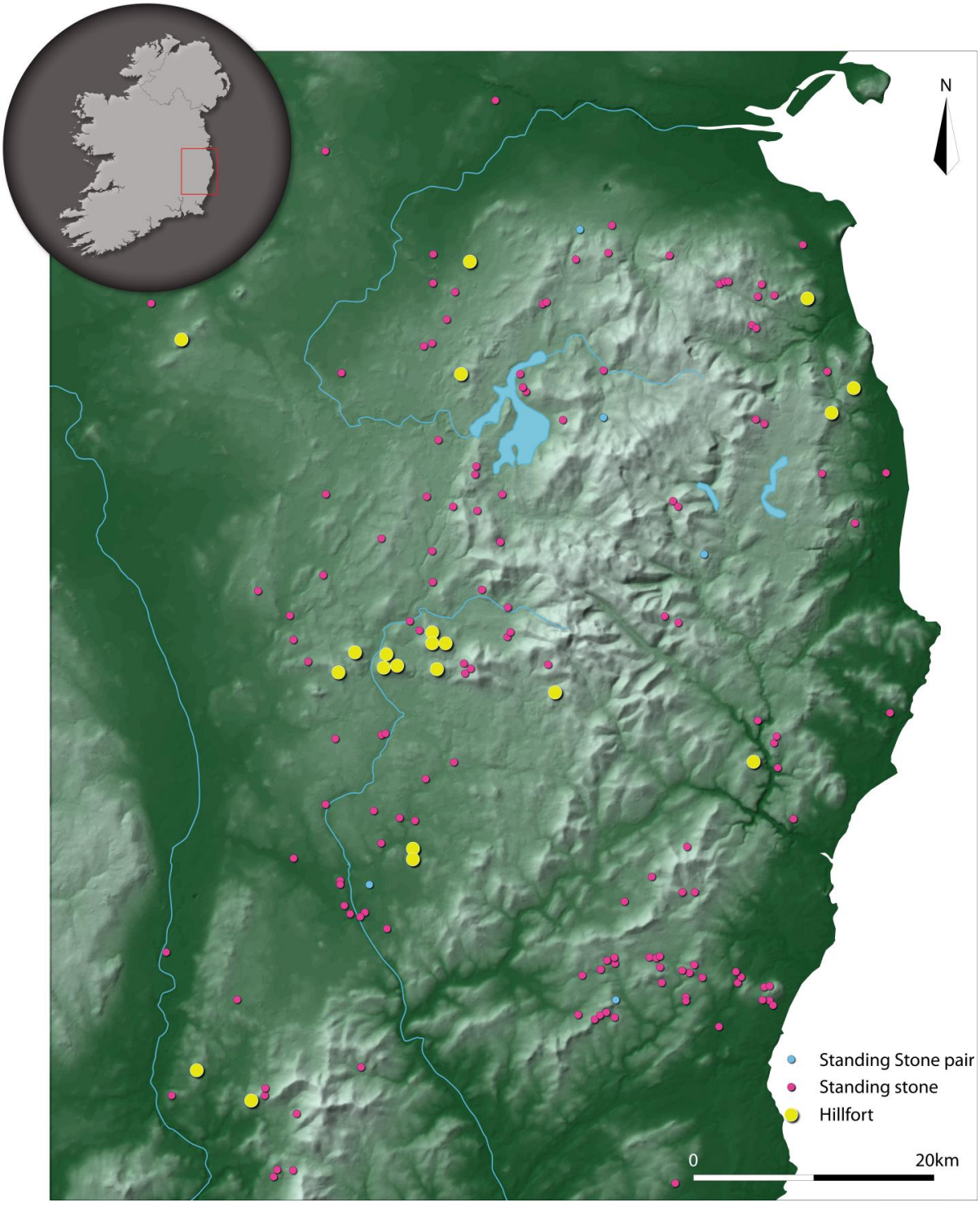

Fig. 4.32: Standing stones and stone pairs in the study area.

spaced multivallate enclosures ubiquitous in the Early Medieval period. At the north-eastern base of Corballis Hill, a prominent hill 4.5km to the east-south-east of Baltinglass town, a levelled circular enclosure (KD038-041) depicted on the 1942 Ordnance Survey map and visible in aerial photographs occupies an area of 1.07ha. The size of these enclosures is considerably larger than ringfort monuments of the Early Medieval period. Their size and location may suggest that they form a unique monument type that may be associated with the large hillforts and the wider contemporary settlement of the landscape and may be a further indication of the importance of the landscape throughout prehistory.

This significance is further attested by cairns on or near the summit of many hills in the Baltinglass area that also have hillforts (Fig. 4.33). Rathcoran, Spinans Hill 1, Spinans Hill 2 and Kilranlagh hillfort have cairns within or close to the enclosing elements. The acceptance of these monuments by the hillfort builders and there subsequent survival suggests that these were important to the hillfort communities. A concentration of cairns is apparent at the northern and western edge of the Wicklow Mountains. Significantly, the cairns are not located on higher ground at the centre of the mountain range. The cairns may be positioned in areas that were highly visible in a populated landscape. Although they are probably earlier than the hillforts in the area, the concentration may be a proxy indicator of dense settlement during the Bronze Age.

A significant cluster of barrows is apparent to the north-west of the Wicklow Mountains (Fig. 4.34). Although barrow monuments can date from any part of the Bronze Age or Iron Age, this cluster is probably associated with the Iron Age provincial royal site of Dun Aillinne. Two other clusters are visible at the west and north of the mountains. The north-eastern group is positioned 6 km to the east of a very large hillfort on Kill Hill in Co. Kildare. Intriguingly, the Bishopsland hoard, Co. Kildare, a Late Bronze Age hoard of specialist craftsman tools, is positioned approximately 4km to the west of this impressive hillfort. Within the area visible to the Baltinglass hillforts, there is a clear increase in the distribution of these burial monuments, although this may simply reflect more intensive agricultural activity in the midlands.

4.4 SUMMARY

The mountainous terrain of Wicklow probably restricted early settlement in the area, which is partly reflected in the distribution of monuments from the historic and prehistoric periods. Conversely, the distribution also shows the intensive occupation of the buffer area between the mountainous uplands and the flat plains to the south and west. This was probably a meaningful

and deliberate attempt to exploit a number of diverse ecozones and the resources they contained. The uplands would have provided excellent hunting grounds whereas there is significant potential for agriculture in the fertile low-lying plains surrounding the Baltinglass area. The well-drained brown earth and podzolic soils have afforded farmers in modern times to undertake cattle and sheep rearing for dairy and meat production, as well as tillage farming. The

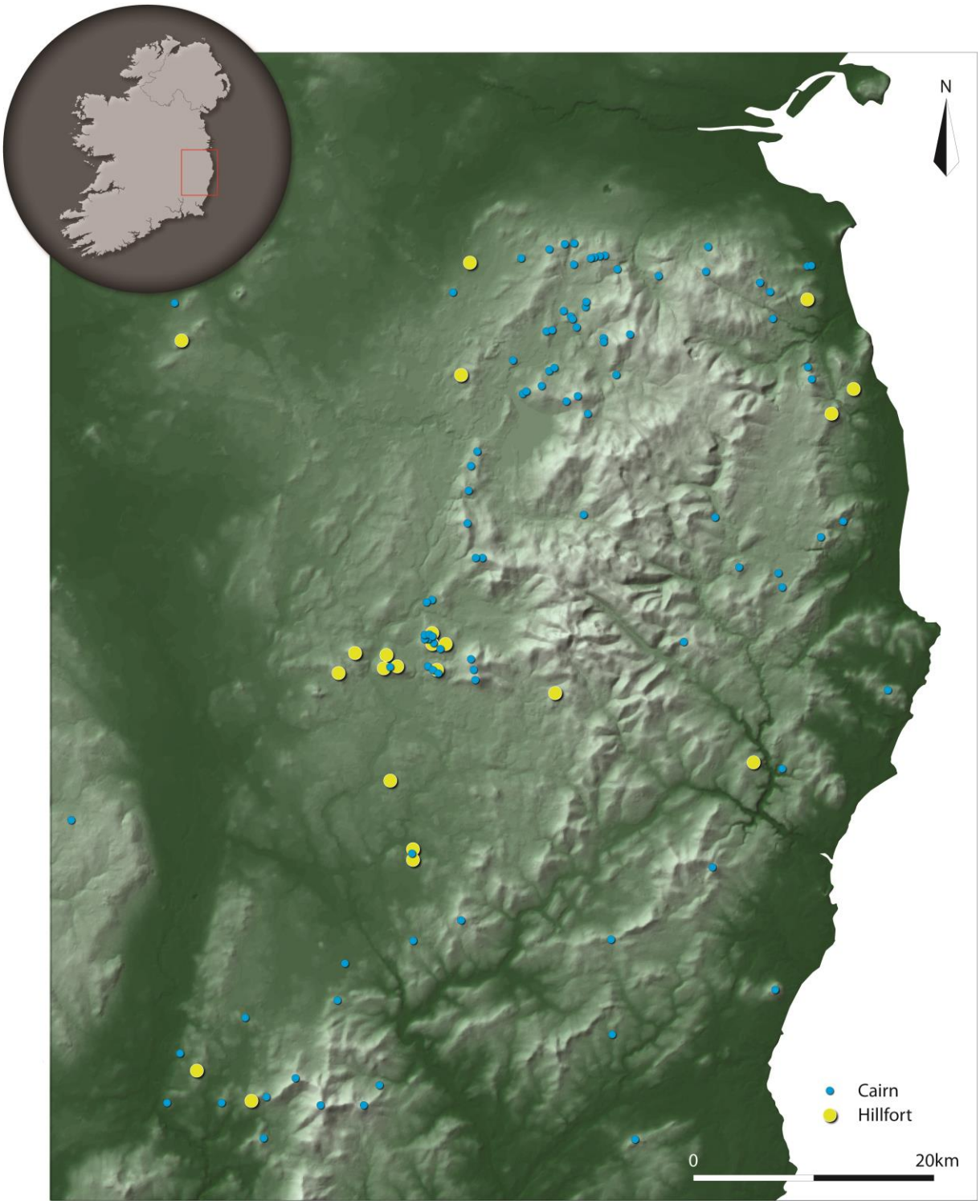

Fig. 4.33: Cairns in the study area.

Slaney River also holds good stocks of trout and salmon, and the surrounding valley produces a variety of edible plants and berries. Woodland would have been readily available in this area, while other resources such as mineral deposits may also have been exploited.

The physical environment of the Baltinglass area was probably attractive for settlement. The earliest evidence of a human presence extends back some 5500 years. Numerous cairns and

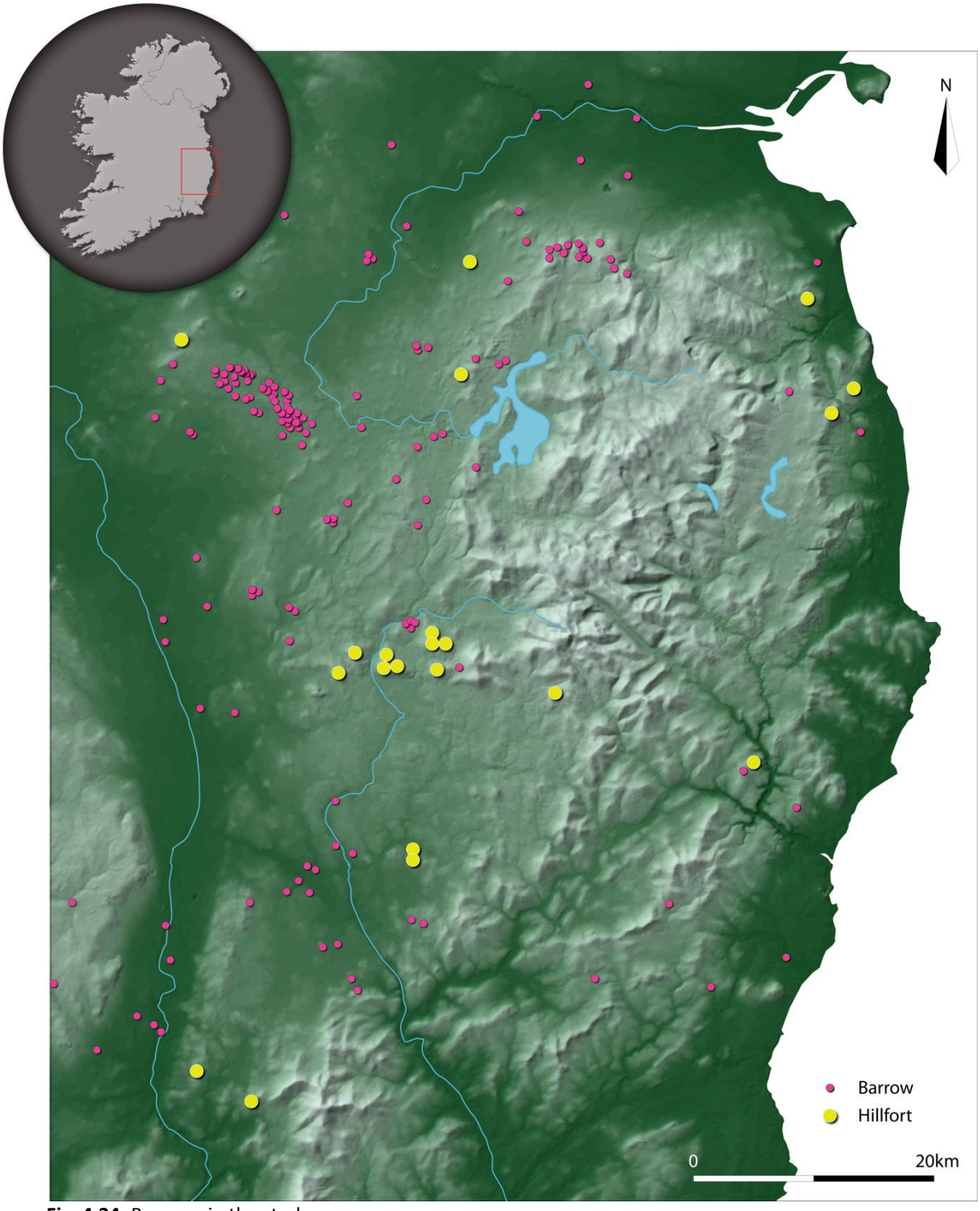

Fig. 4.34: Barrows in the study area.

possible passage tombs line the edge of the mountainous zone and extending into the flat low-lying regions on hilltops such as Tuckmill Hill. Linkardstown burials are also indicative of Neolithic settlement and there is a notable concentration of this burial type around the Baltinglass area. The most intensive period of human settlement probably occurred during the Middle/Late Bronze Age, when many of the hillforts seem to have been constructed along with other ritual and settlement sites.

CHAPTER 5

THE BALTINGLASS HILLFORT GROUP SURVEY

An extensive desktop and field survey programme was undertaken in the Baltinglass area to collect data relevant to the research questions posed in Chapter 1. This comprised an assessment of available aerial and satellite imagery, GPS and LiDAR surveys, as well as geophysical investigations incorporating magnetic gradiometry and electrical resistance techniques and general monument recording. The areas surveyed were appropriate to the applicability of different techniques and the potential for recording underlying archaeological remains. The results of these surveys are summarised below and discussed further in Chapter 6 (for more detailed information see corresponding appendices).

5.1 SPINANS HILL

There is currently no LiDAR data or other high-resolution topographical data available for Spinans Hill. Peat cover and the igneous geology on the hill limit the use of geophysical techniques in the area. Considering the number of unrecorded sites identified by such techniques on nearby Tuckmill Hill (see below), the use of LiDAR and geophysics would likely increase the amount of recorded archaeology on Spinans Hill. This is confirmed by field walking and GPS survey, with a significant number of unrecorded archaeological sites discovered by the author on Spinans Hill.

5.1.1 Brusselstown Ring

Brusselstown Ring (No: 15) is a widely spaced bivallate hillfort occupying a total area of 32.43ha. It is positioned on the southeastern ridge of Spinans Hill. Both banks comprise loose stone with some evidence for facing and are 11.7m in maximum width. Approximately 25 hut sites have been recorded between the inner and outer bank at the south-south-west.

The underlying geology prevented geophysical survey at Brusselstown Ring. The applicability of magnetic techniques was tested at the site using the scanning function on a

Bartington 601 gradiometer. The excessive and irregular readings confirmed this method as unsuitable. Similarly, the applicability of the electrical resistance technique was tested and found unsuitable. The extensive areas visible around and in the interior of this enclosure indicate a thin soils over and near-surface bedrock. This was confirmed by the excessive and irregular readings in the electrical resistance tests.

Two enclosing elements were recorded by GPS survey at Brusselstown Ring. This revealed that they are broadly similar in terms of composition and size. A 98m length of the inner enclosing element was shown to have stone facing (Fig. 5.1). The inner edge of the stone bank is 7.5–12m from the external face. They are on average 9.5m apart and this may represent the original thickness of the inner defences. There is no obvious ditch associated with this bank. The sub-rounded stones that make up the bank suggest that it was constructed from field clearance. Considerable amounts of scree and glacial erratics at the eastern and southern slopes immediately outside the inner enclosing element may have been left unclear, as the severe slopes there were not suitable for settlement.

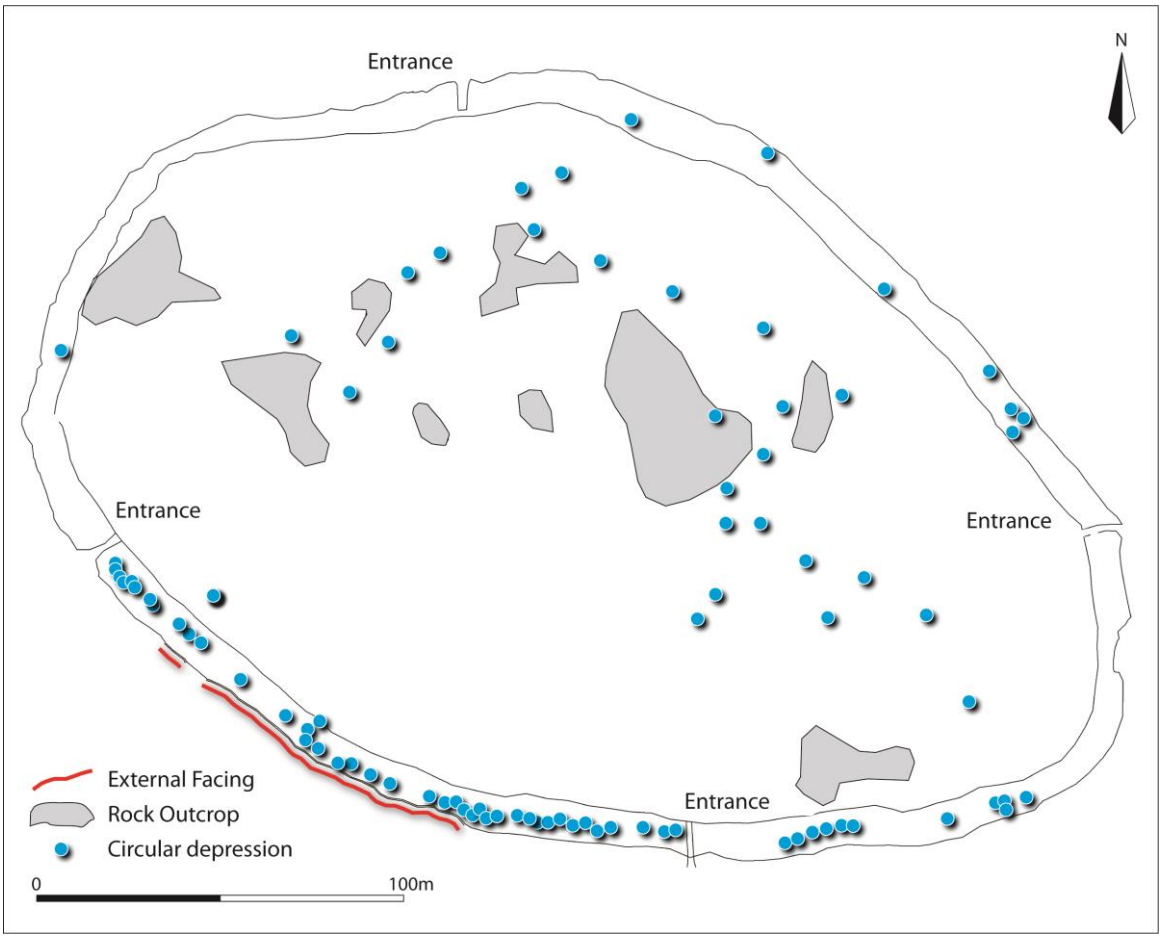

Fig. 5.1: GPS plan of the inner enclosure of Brusselstown Ring with various features of archaeological potential.

An estimated 61 small, circular depressions were recorded on top of the inner bank (Fig. 5.1). These features measure 1.5–2.7m in diameter and are most visible on the southern side. These were initially interpreted as possible hut sites constructed sometime after the hillfort was abandoned. However, they are more likely to represent the remains of large post-holes. To the south, there is a continuous series of 17 of these features. They are inline and spaced evenly apart, separated on average by 0.7m. In absence of geophysical survey and excavation there is no evidence that these possible post settings were destroyed by fire. No such features are apparent in the outer enclosing element, although this is more denuded than the inner example and partially obscured by vegetation.

Four unrecorded entrances were identified during the course of surveying (Fig. 5.1). These are positioned at the north, south, east and west sides of the inner bank respectively. There were no corresponding entrances identified in the outer bank, although overgrowth may obscure such features. The entrances are morphologically similar and consist of narrow breaks ranging 1.7–2.6m in width. In each example, there is a short avenue or 'funnel' of stones extending from the terminals. These measure up to 4m in length. This may have been used to highlight the position of the entrances to outsiders but could equally be interpreted as more modern features where gaps in the bank were created and stones were pushed out forming these 'funnel' features.

GPS survey identified up to 288 possible hut sites at Brusselstown Ring (Fig 5.2; Table 5.1), 25 of which were previously identified and recorded (Grogan and Kilfeather 1997). Of the total number, 25 are positioned within the inner enclosure and a further 263 are located between the inner and outer enclosing element. These features consist of flat, circular areas 3–12m in diameter often defined by a band of grass-covered stone at its outer edge (Fig. 5.3). Thick over-growth may have obstructed identification of such features within the interior of the hillfort, while rock outcrop may also have limited their construction in certain areas.

5.1.2 Spinans Hill 1

Spinans Hill 1 (No: 98) is positioned on the northern summit of Spinans Hill. It comprises an irregularly shaped single earthen bank and external ditch with some evidence for a counterscarp bank and occupies a total area of 11.11ha (Fig 5.4). There is no obvious evidence for habitation within the interior although blanket bog may obscure possible features. Condit (1992, 18–20) recorded six cairns within the interior.

Condit (1992) identified a possible hillfort on the northern summit of Spinans Hill through analysis of aerial photography (Fig. 5.5). Elements of this monument were noted by Price as early as the 1950's (in Corlett and Weaver 2002b, 538–539). The GPS survey undertaken by the author was the first to map the outline of the enclosure and its internal features.

The hillfort has a perimeter of approximately 1.29km. The defences are best preserved at the east, where they comprise a bank/ditch/counterscarp bank arrangement. The bank measures 7–9m in width and is approximately 2.8m above the current level of the external ditch. It is approximately 0.8m in internal height and has an external stone facing. The ditch is 7–9m wide. The eastern section of the enclosing elements is broadly straight and follows the contours of the hilltop. The northern and north-eastern side is apparent as a low-rise bank approximately8–10m wide and up to 0.4m in height. It can be differentiated by grass growth on the bank contrasting with heather growth across the interior of the hillfort (Fig. 5.6). This may be

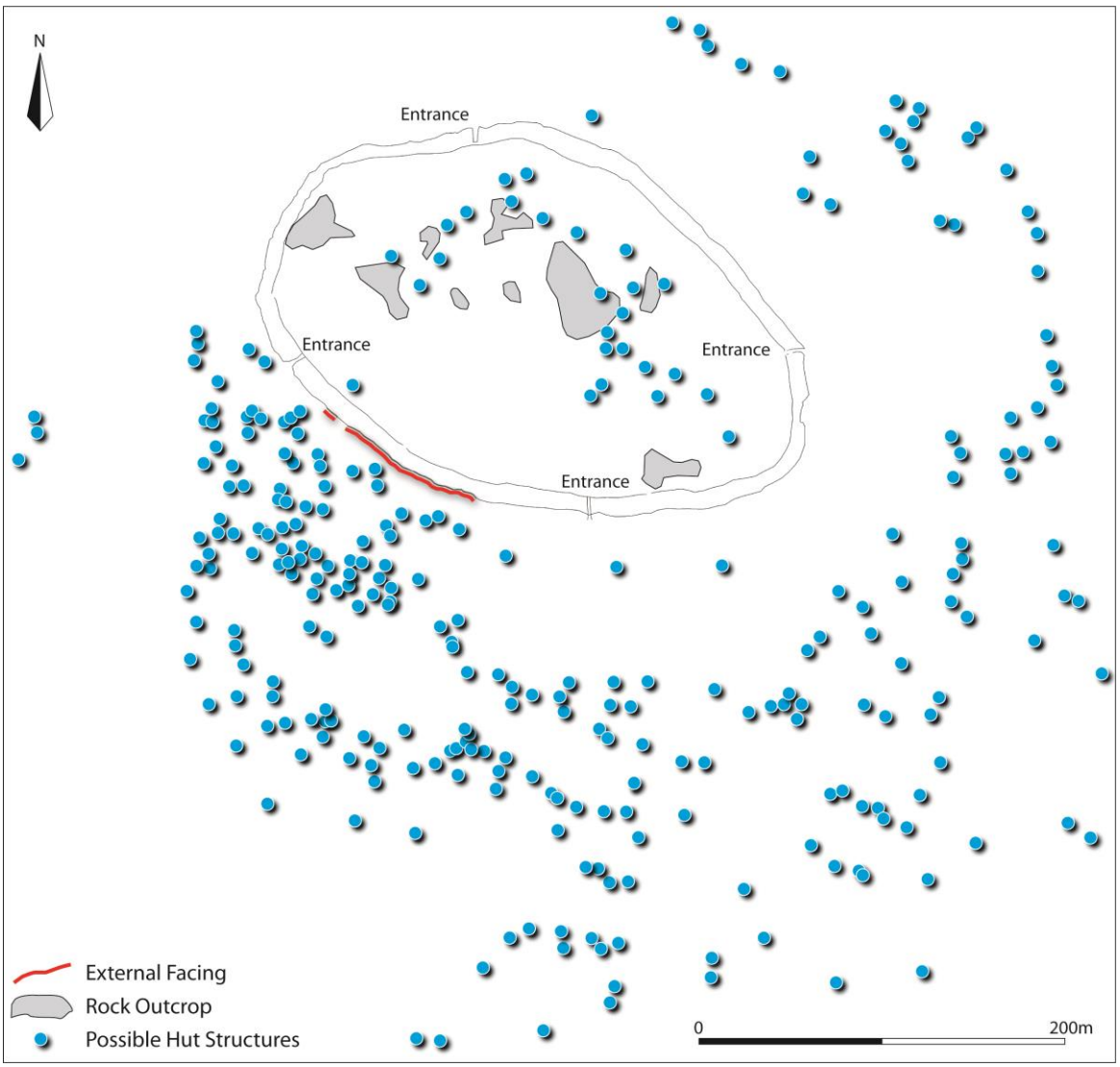

Fig. 5.2: Layout of possible hut structures at Brusselstown Ring.

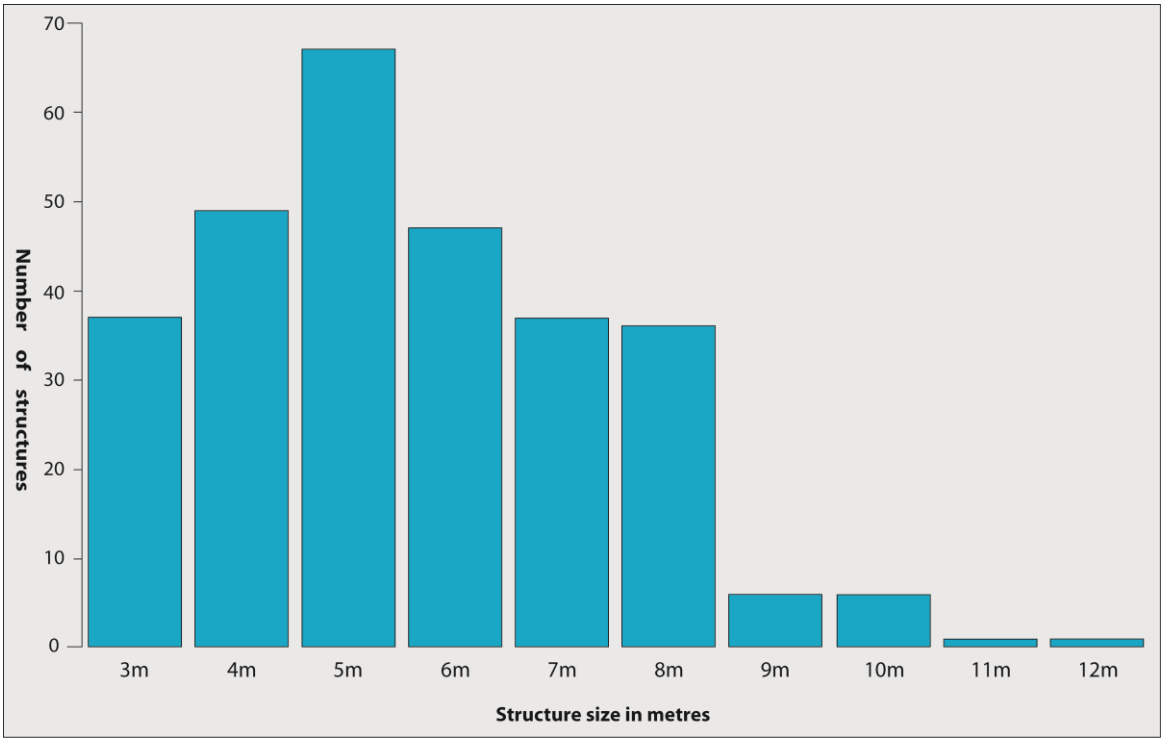

Table 5.1: Brusselstown Ring structures.

Fig. 5.3: Possible hut site within interior of Brusselstown Ring.

Fig. 5.4: Plan of Spinans Hill 1 hillfort and cairns.

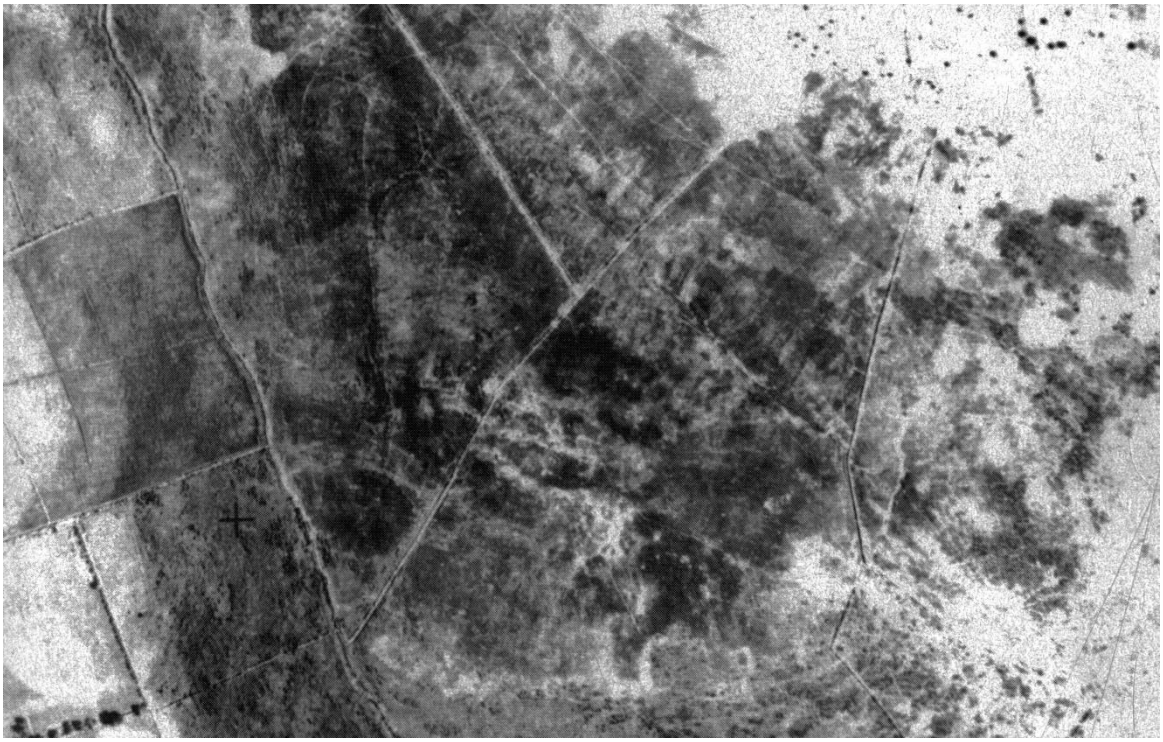

Fig. 5.5: Aerial photograph of Spinans Hill 1 (after Condit 1992)

a reflection of bog growth around the bank. There is no clear indication of an associated ditch feature on that side of the hillfort. This vegetation pattern continues around the perimeter at the west. It continues as a low scarp at the south-west. At the south, the enclosing elements comprise a 1.1m high earthen bank approximately 2.1m wide. This may be the remains of a later field boundary that followed the line of the bank and incorporated elements of same. The western and southern section of the bank is more influenced by the topography and largely follows the contours of the hilltop. There was no obvious entrance feature identified.

At the highest point of the interior, six cairns have been identified (Condit 1998). None have been recorded in detail (Fig. 5.6). The largest (**C1**) is approximately circular and measures 30m (east–west) by 27m (north–south), and is 1.1–2.3m in external height. The cairn may have been robbed to create a field wall that runs east–west across the southern side of the monument. There is a large circular depression approximately 14m in diameter at the centre of the cairn. This could indicate a now destroyed megalithic chamber or cist of some type, but could also relate to the robbing of the cairn.

Four cairns are position to the north of the large cairn **C1** (Fig 5.7). **C2** is 22m north-north-east of **C1** and consists of an approximately circular setting of loose stone, with a diameter

Fig. 5.6: Low-rise bank of Spinans Hill 1, apparent as a vegetation mark on the surface.

of 7.5m up to 0.3m in height. The cairn is partially grass covered. There is a rectangular stone-lined depression at its centre, with its longest axis orientated north-north-west by south-south-east (Fig. 5.8). It measures 1.8m by 1.2m and is 0.6m in depth. It may represent a cist exposed during robbing of the overlying cairn material.

Approximately 50m to the north of **C1**, there is another cairn (**C3**), visible as a grass-covered circular setting of loose stone and further defined by a growth of grass that contrasts with the surrounding heather and bog. The cairn is approximately 8.9m in diameter and 0.4m in height. There is a slight rectangular depression at the centre, with its longest axis orientated north-north-east by south-south-west. It measures 2m by 1.1m and is 0.1–0.2m deep. This may also represent the remains of a robbed-out cist.

About 55m north-east of **C1** and 11m east of **C3** is another cairn (**C4**), also defined by loose stones and grass growth. This is approximately circular and measures 7m in diameter and 0.4m in height. A central stone-lined rectangular depression is visible at the centre and its longest axis is orientated north–south. It measures 2.4m by 1.6m and is up to 0.4m deep. The northernmost cairn (**C5**) is positioned 102m north of **C1**. This comprises a grass-covered circular area of loose stones, with a diameter of 8m and up to 0.2m in height. It is defined by grass growth that contrasts with the surrounding heather and bog. This cairn is more denuded than

Fig. 5.7: Cairns inside Spinans Hill 1, visible as vegetation marks.

the aforementioned examples. Condit (1998) have previously noted a central depression that is not visible today.

A small circular cairn (**C6**) is located 4m to the south of **C1**. This comprises an approximately circular setting of grass and heather-covered loose stones, measuring 6.5m in diameter. It is heavily overgrown but is also defined by differential growth. Condit (1998) have previously noted a central hollow, again not visible today.

A seventh cairn (**C7**) was recorded near the summit by the author. This is located 43m to the south of the large central cairn and measures approximately 9.2m in diameter. It is visible as a partially raised area, 0.3m in height, and is also defined by grass growth that contrasts with the surrounding heather and bog. There is no obvious central structure or other identifiable features. There are no other features inside Spinans Hill 1 that may relate to the occupation of the hillfort, however, these may be masked by peat and bog growth.

5.1.3 Spinans Hill 2

Spinans Hill 2 (No: 99) surrounds the entire summit of Spinans Hill, enclosing both Brusselstown Ring and Spinans Hill 1. The extensive earthwork encloses a total area of 131ha and has a 5.46km long perimeter. This is visible in various aerial and satellite images, although

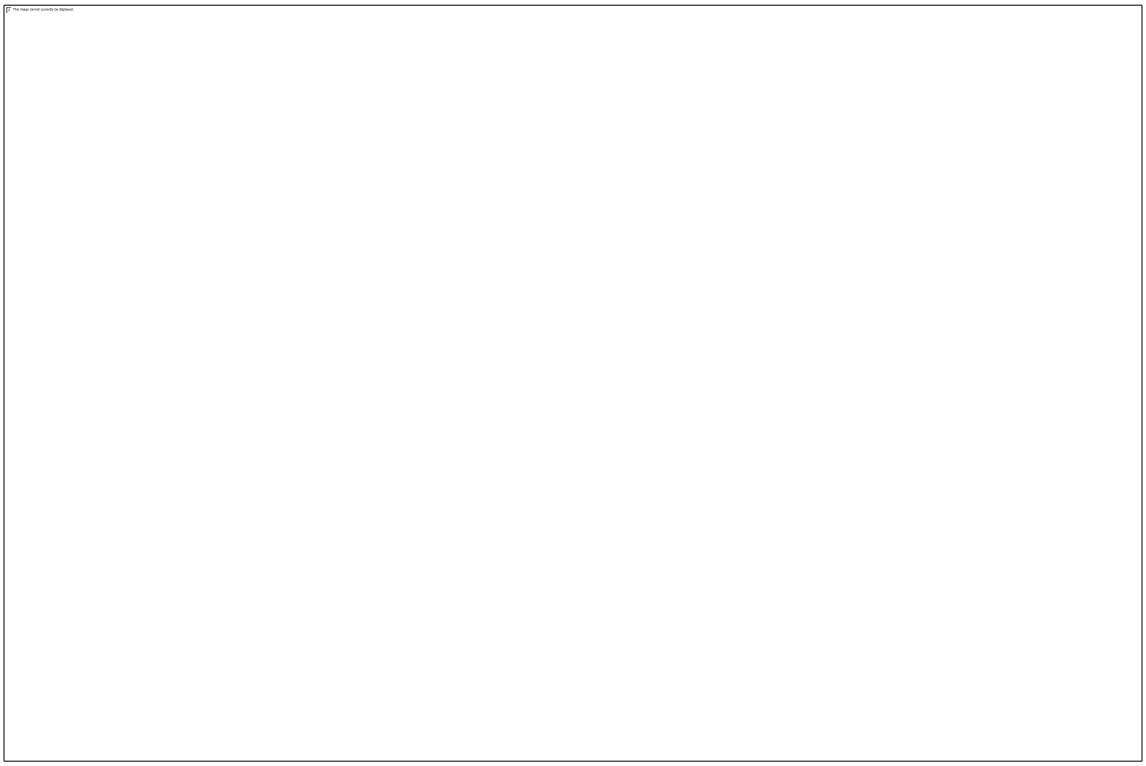

Fig. 5.8: Central 'structure' in cairn C2, possible cist.

there are sections that have been levelled. GPS survey undertaken by the author recorded the line of the extant earthwork and confirmed its presence in these areas. This revealed two morphologically distinct sections; the first comprising a bank/ditch/counterscarp arrangement visible throughout most of the perimeter (Fig. 5.9; Fig. 5.10), the second consisting of a stone bank that also acts as the second enclosing element of Brusselstown Ring. This particular arrangement may indicate that the latter hillfort was constructed before Spinans Hill 2.

The bank/ditch/counterscarp bank arrangement was recorded by Condit (1992, 20), although not in detail. It is most visible on the northern side, where the internal bank ranges 5–8m in width and comprises mostly stone and boulders, capped in places with soil. Some sections comprise entirely of large boulders and this may be where the builders took advantage of natural erratics. The external ditch ranges 7–10m in width, is 1.4m deep externally and up to 2.4m below the crest of the inner bank. The external counterscarp bank measures 4–5m wide and up to 1.1m in height. In places, the total width of the defences is up to 23m. At the north-west, the defences are built along the edge of a steep drop. A modern fence line incorporates the internal bank as a boundary, although it does not seem that the defences were altered

Fig. 5.9: Bank/ditch/counterscarp arrangement of Spinans Hill 2.

significantly here. The internal bank is up to 1.2m high internally, whereas the external ditch takes advantage of a steep of fall up to 3.6m. A small counterscarp bank is visible in places, although this has probably been affected by land reclamation and other agricultural processes.

A large portion of Spinans Hill 2 is under forestry, and therefore, potential habitation structures and burial or ritual monuments are not exposed. Immediately outside Spinans Hill 2 to the east, Condit (1992) recorded a 'settlement cluster' comprising enclosures, hut sites and field walls (Fig. 5.11). This 'cluster' was identified through aerial photography, however the full extent of the settlement was not recorded and Condit (1998, 12) suggests that it was partly planted with forestry in recent times. These features cannot be dated without excavation, and may not be contemporary with the hillforts.

A survey by the author in that area identified a less extensive settlement zone, comprising enclosures, hut sites and field systems. The largest of these is a sub-rectangular enclosure measuring 38m (east–west) by 27m (north–south) (**E1**). The earthen banks of the enclosure measure 2.4–3.2m wide and are up to 0.4m high. There are three entrances on the north, south and south-east sides respectively. They comprise simple breaks in the bank measuring between 1.2–2m wide. There is no obvious ditch feature. There are two visible hut

Fig. 5.10: Preserved section of enclosing elements on northern side of Spinans Hill 2.

sites within the interior, abutting the north-eastern and western edge of the bank. These are 5m and 7m in diameter respectively.

A second small enclosure (**E2**) is positioned 61m south-west of **E1**. It is sub-circular in shape measuring 15m (east–west) by 17m (north–south). The enclosure is similar to **E1** and consists of an earthen bank, 2.1 – 3.2m wide. An entrance in the north-west side consists of a 1.8m wide opening in the enclosing bank.

An unrecorded rectangular structure (**E3**) was identified 58m west of **E2**. This comprises the foundations of a rectangular building measuring 3.5m by 6.5m. The stone foundations are approximately 0.6m wide, up to 0.55m high and consist of flat stone slabs. The structure is cut into the hillside on steeply sloping terrain. It overlooks a series of unrecorded field systems (**E4**).

Fig. 5.11: 'Settlement cluster' at south-eastern slopes of Spinans hill 2 (Bing Maps 2015).

5.2 KILRANLAGH

Kilranlagh (No: 60) hillfort was identified by the author through a combination of GPS survey and aerial photography (Fig. 5.12 and Fig. 5.13). The hillfort occupies a total area of approximately 5.33ha, most of which is now under conifer forestry. The enclosing element comprises a stone

bank, approximately 14m wide and up to 0.6m high on the west and south-west sides (Fig. 5.14). The outer side of this bank is revetted with large stone slabs placed horizontally. A change in vegetation immediately outside the bank may indicate the presence of an outer ditch, approximately 6m wide. This section of the enclosing elements extends for approximately 140m in length and continues into forestry to the north, abutting a 3–6m high cliff face which forms the southern portion of the hillfort defences (Fig. 5.13). The eastern section is under dense scrub growth and is not visible on the ground. A curving field system recorded in the 1910 edition of the six-inch Ordnance Survey mapping may represent the remains of the enclosing elements in this area. There are no obvious internal features visible on the surface. Bedrock is close to the surface in some areas of the interior. The south-western section of the hillfort perimeter abuts the outer edge of a large cairn (RMP: WI027-036). Two other cairns (RMP: WI027-035 and WI027-037) are recorded on the western slopes of the hillfort. A stone circle (RMP: WI027-039) and barrow (RMP: WI027-040) have been identified on the eastern slopes.

The underlying geology prevented geophysical survey at Kilranlagh. The igneous geology prohibited magnetic surveying, while near-surface bedrock, as well as blanket bog, limits the use of electrical resistance survey.

Fig. 5.12: Kilranlagh Hill (centre right) viewed from Brusselstown Ring.

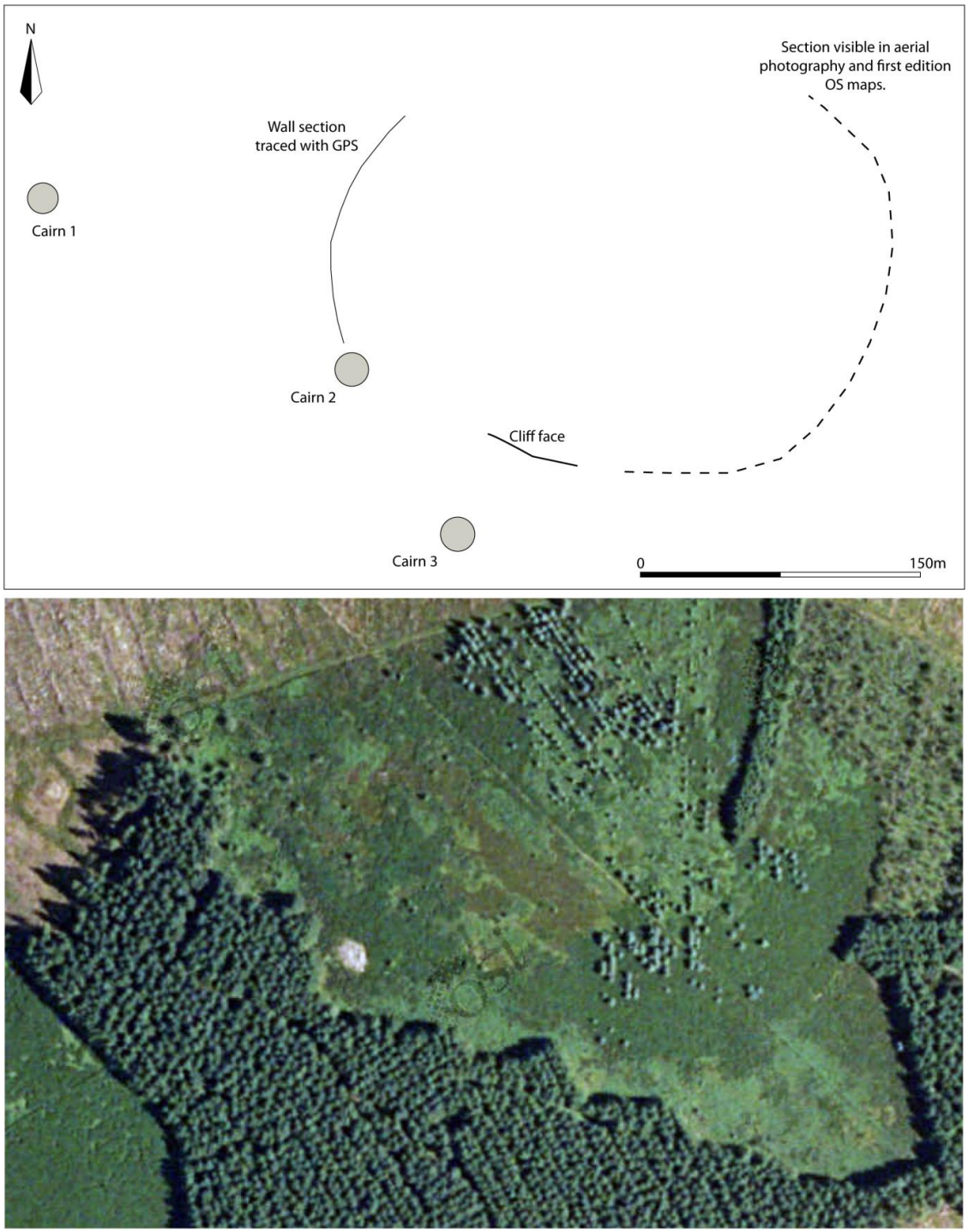

Fig. 5.13: Plan of possible hillfort on Kilranlagh Hill.

5.3 TUCKMILL HILL

Three hillforts are positioned on the northern, southeastern and southwestern summit of Tuckmill Hill. LiDAR data collection and processing for Tuckmill Hill was commissioned for this study and undertaken by Furgo–BKS Ltd. Sixteen points per square metre were interpolated to form an evenly spaced set of floating points at 0.5m resolution over 3 Km². This was accurate

Fig. 5.14: Section of hillfort bank cleared of heather overgrowth, highlighting possible facing and external ditch.

enough to identify micro-topographic features, and to record the present state of the monuments and their physical landscape.

The LiDAR survey identified a complex pattern of unrecorded fields, many of which are not recorded on the historic Ordnance Survey mapping (Fig. 5.15). This suggests that many of these fields were destroyed before the middle of the 19th century. Many of these field patterns are narrow (20–30m wide) and elongated and are probably early 17th or 18th century in date. There is a notable absence of field walls on the upper slopes and summit of Tuckmill Hill. There may have been practical reasons for this, with upland environments presenting challenges for farming, with difficult topography and accessibility, as well as exposure to high winds and rainfall contributing to poor soil fertility (O'Brien 2009, 4). However, ancient field systems do exist and survive particularly well in upland environments, such as in the Burren, Co. Clare (Jones 1998) and the Céide Fields in Co. Mayo (Caulfield 1978; 1983). The possibility that some of the Tuckmill field patterns are ancient cannot be dismissed. Shallow ridge and furrow marks are apparent on near the summit on the western slopes indicating some form of cultivation in the past.

A number of Medieval monuments are known in this area, including a church (RMP: WI027–027001), graveyard (RMP: WI027–027003) and ecclesiastical enclosure (RMP: WI027–027002) positioned at the eastern edge of the survey area. This enclosure, which measures 57m in diameter, surrounds the stone foundations of a possible early church site. The monuments are in excellent condition considering they are currently under forestry. Two ringforts are positioned approximately 100m apart. The south-western example is extant and measures 38m in diameter. It comprises a 6m wide and 0.6m high earthen bank with an external ditch measuring 0.9m deep and 4m wide. The banks have a steep outer face in contrast to the gradual internal slope that extends from the crest of the bank towards the centre of the monument.The levelled ringfort to the north-east is faintly visible in the LiDAR data as a broad, low-rise earthwork approximately 31m in diameter. A third ringfort is recorded near the summit of Tuckmill Hill, 153m to the west

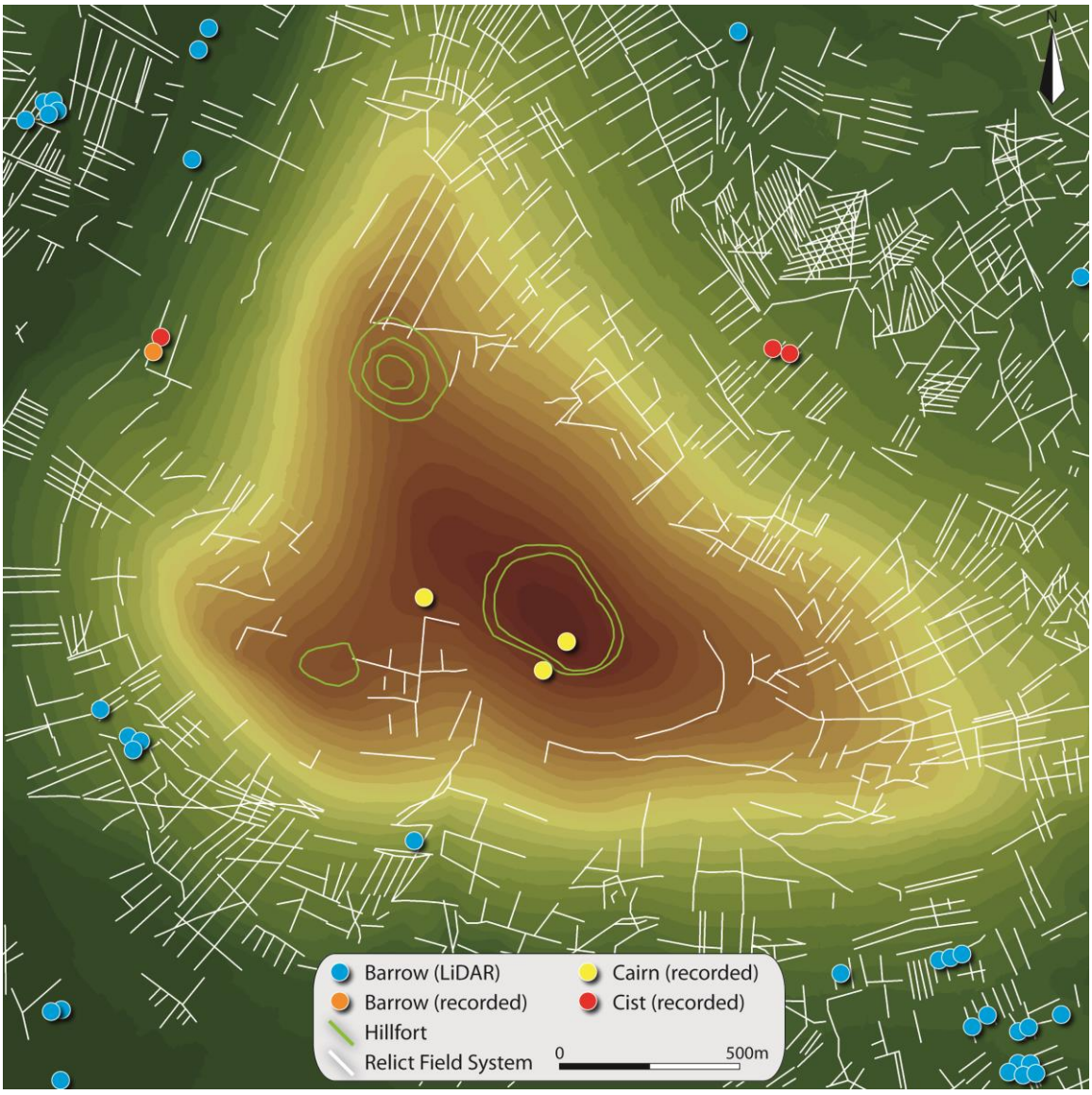

Fig. 5.15: Relict field systems identified from LiDAR data of Tuckmill Hill.

of Rathcoran. LiDAR survey, however, reveals that the monument is probably a prehistoric cairn. It comprises a raised circular area of grass-covered stone approximately 22m in diameter.

A total of 32 possible ring-ditches or levelled/low-relief ring-barrows were revealed by LiDAR (Fig. 5.16). These are visible in the LiDAR data as faint circular banks with slight internal mounds at their centres. These generally occur in groups, although there are a number of isolated examples. They range in size from 4.8–18.6m in diameter, averaging 7.3m. This corresponds well with available data for later prehistoric Irish ring-ditches (McGarry 2009; also see Ahern 2012). McGarry (2009, 415) states that Irish examples average 11m in diameter, although there are a considerable number that measure less than 7m. Modern farming practices may be also produce somewhat comparable topographical features. For example, a circular cattle feeder may encourage animals to congregate around the feeder, in turn creating a slight sunken band. This can generally be distinguished from possible barrows by the presence of a bank feature, although caution must be taken when applying such terms.

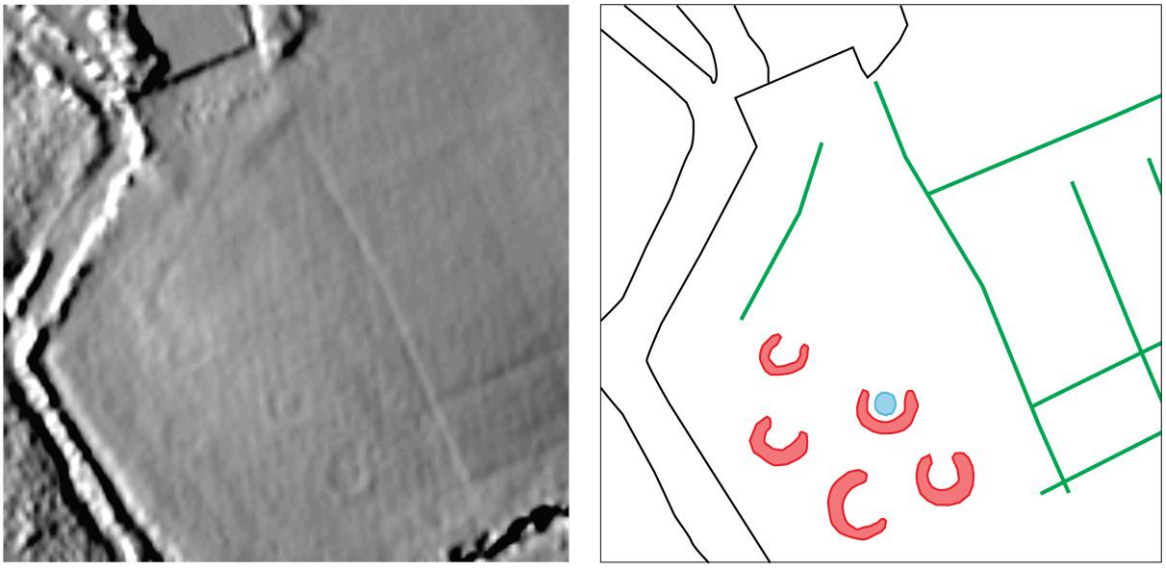

Fig. 5.16: A possible cluster of barrows at the north-eastern base of Tuckmill Hill.

5.3.1 Rathcoran

Rathcoran (No: 92) is a moderately spaced bivallate site that is positioned on the southern summit of Tuckmill Hill (Fig. 5.17). It occupies a total area of approximately 10.06ha. Prior to this study, there were three recorded hut sites within the interior (Condit 1992). Between the enclosing elements on the northern and southeastern sides are a series of possible quarry pits which have previously been interpreted as evidence that the site is unfinished (see Condit 1992, 1998).

The LiDAR survey records the enclosing elements of Rathcoran in detail (Fig. 5.18). This confirms that the largest, more complete section of the hillfort is the north and north-west sides. There, the inner bank is a maximum of 3.1m in height and is 12m wide, while the outer bank measures 2.2m high and 8m wide. This contrasts with the size of the banks at the southern end of the hillfort. At their smallest, the inner bank is 0.2m high and 0.4m wide and the outer example measures 0.4m high and is 0.45m wide. The size of the banks correspond with notable changes in its composition. For example, breaks in the banks on the north-west side, where the banks are largest and some erosion has taken place, reveal a core of medium to large stone capped with a 0.2–0.5m layer of soil. For the remainder of their circuit, the defences consist of stone banks covered in gorse and heather. The slight remains of a possible third bank is apparent at the east, 15m outside the second bank. This measures approximately 0.8m high, 6m wide and is 100m in length.

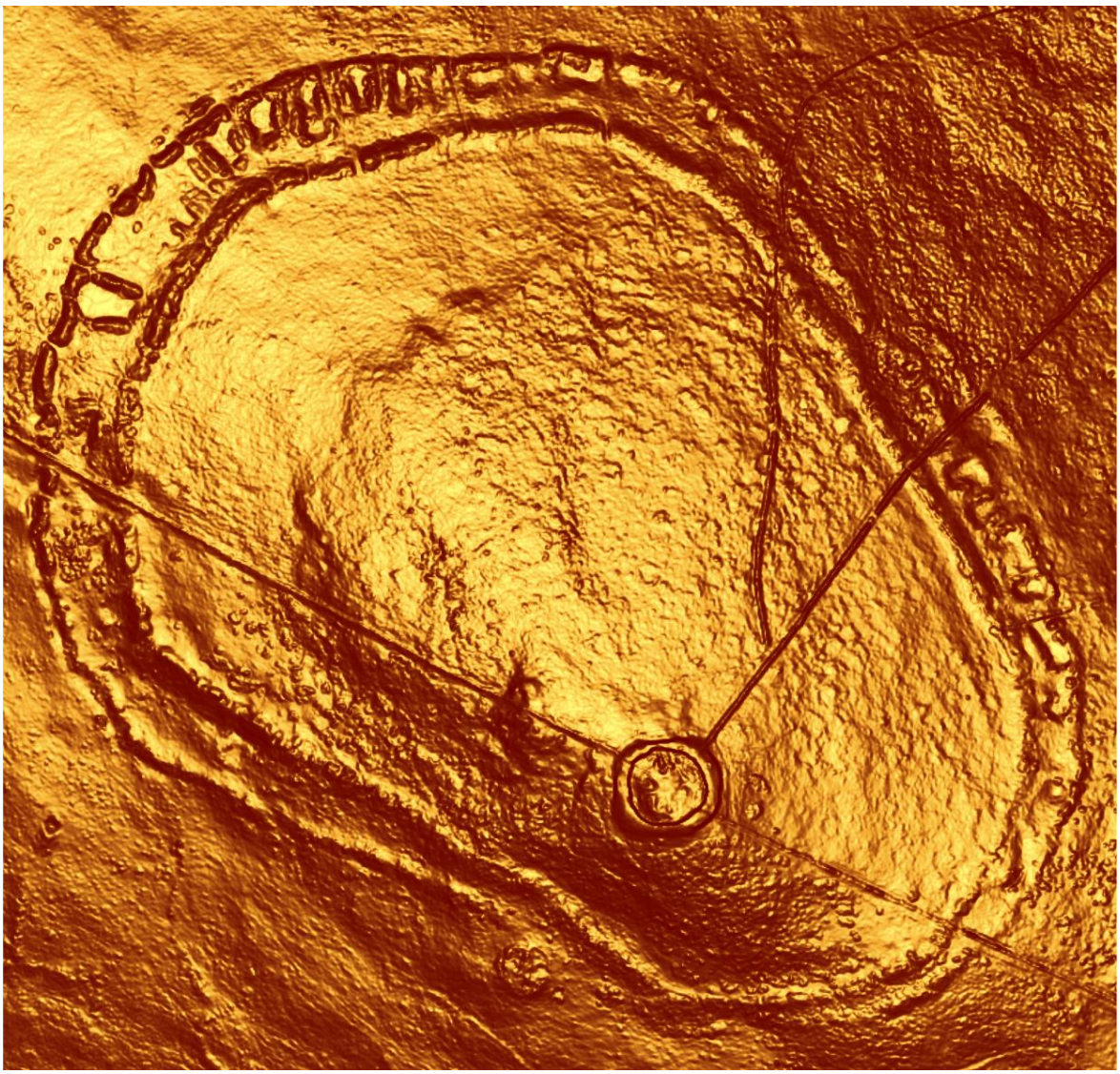

Fig. 5.17: GIS slope analysis of Rathcoran hillfort, highlighting the layout of the site.

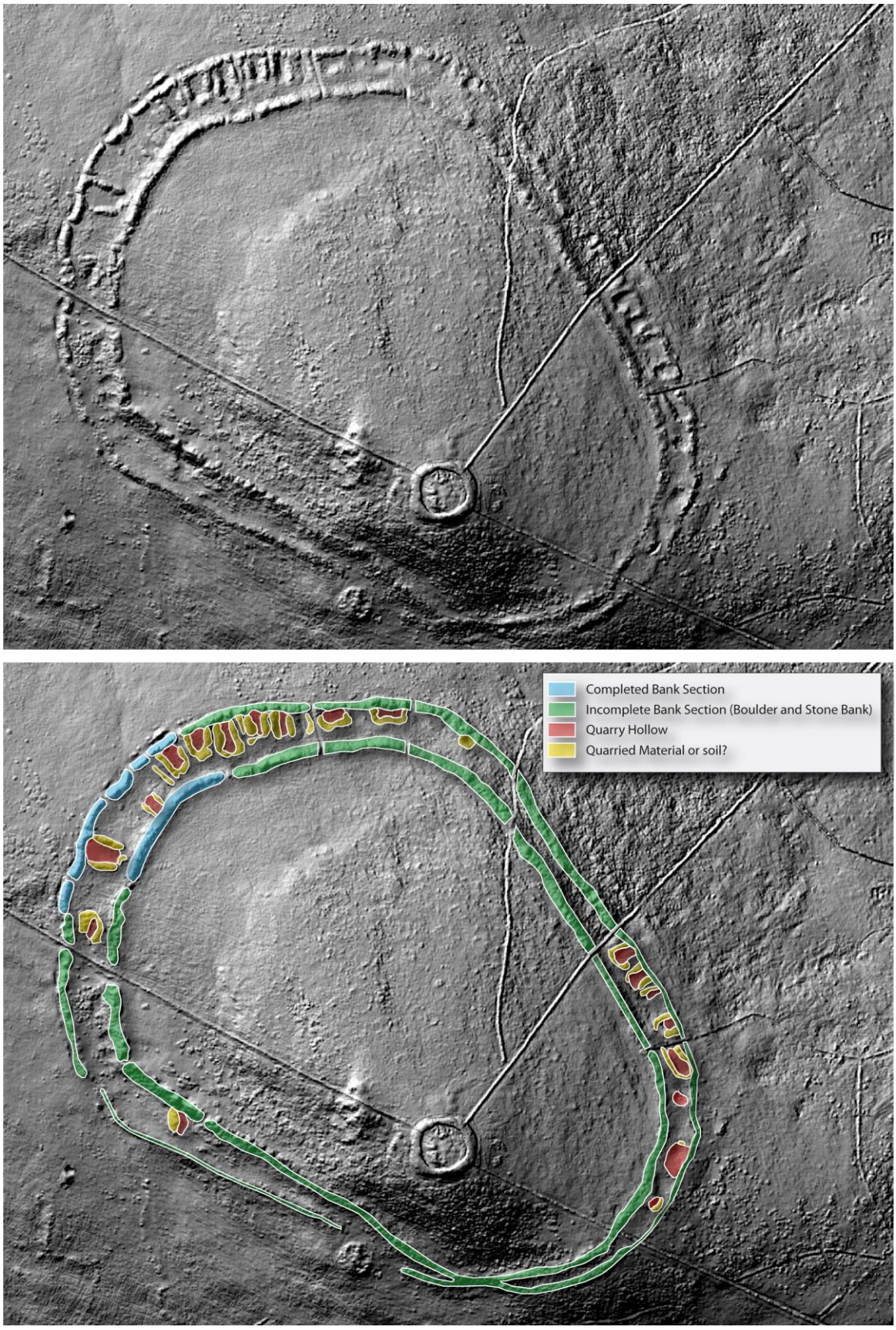

Fig. 5.18: Composition of enclosing elements at Rathcoran.

Geophysical survey (Appendix 3) revealed a series of strong magnetic anomalies along the crest of the inner bank on the north-west side (Fig 5.19; Fig.5.20). These probably represent an intensive burning event, possibly related to the destruction of a wooden palisade. Considering the responses are restricted to the top of the bank, the posts may have been burnt *in-situ*. As the bank reduces in size to the east the responses become diffuse and less intense. These more modest responses may also represent post-holes associated with a palisade.

The LiDAR did not reveal any convincing ditch associated with the inner bank of the hillfort. The partial remains of a slight ditch and counterscarp bank were recorded at the north-west (Fig 5.21). These features are intermittently visible for a length of 53m. The ditch measures 0.3m in maximum depth and is up to 4m wide. It corresponds with a vegetation change on the ground. The counterscarp bank is 5.5m wide and up to 1.1m high.

A 4–7.2m wide level terrace is apparent along the inner edge of both hillfort banks (Fig 5.21). This feature extends throughout the majority of the perimeter and is most evident in the north and north-east.

A total of 39 breaks in both enclosing elements have been identified at Rathcoran and some of these are apparent in the contour map Fig. 5.21. These are narrow, simple gaps in the bank approximately 2m in average width. These are often positioned on either side of the rectangular pits and associated quarry material located in-between defences and therefore may be original features. Corresponding gaps in both the inner and outer enclosing elements at the north, measuring 3.2m wide, may form an original entrance. This is orientated on the most accessible approach to the summit of Tuckmill Hill and Rathcoran hillfort.

A total of 23 pits have been identified in the area between the two banks of the hillfort in the north-western, northern and south-eastern sides (Fig. 5.18). They comprise shallow rectangular depressions that mostly abut the inner side of the outer bank. They range in length from 22m–14m, in width 14–8m, with a depth variation of 0.2m–0.9m below modern ground level. In most cases, the quarries have been dug into the naturally sloping ground to create a level surface. They occur in groups at the north-north-west and east and south-east, although there are some isolated examples in the west. At the north-north-west, the pits are surrounded by low banks, the largest measuring 1.2m high and 6m wide. The eastern and south-eastern examples do not have associated banks. Where the pits occur the opposing banks are larger, with the size and depth of the pits often reflecting the size of the opposing enclosing elements (larger and deeper pits often abut larger and wider sections of bank). This may establish a

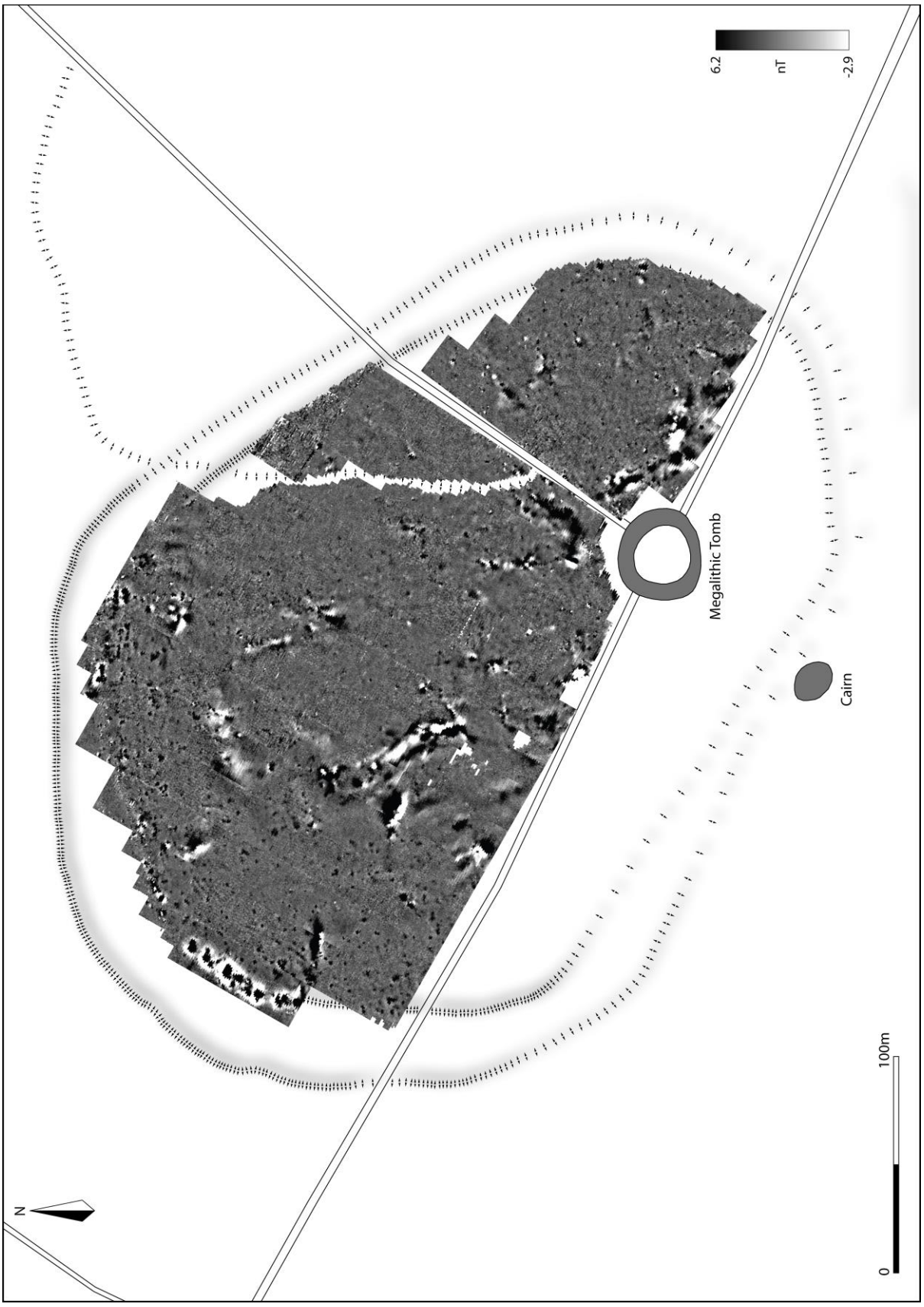

Fig. 5.19: Gradiometry survey results at Rathcoran.

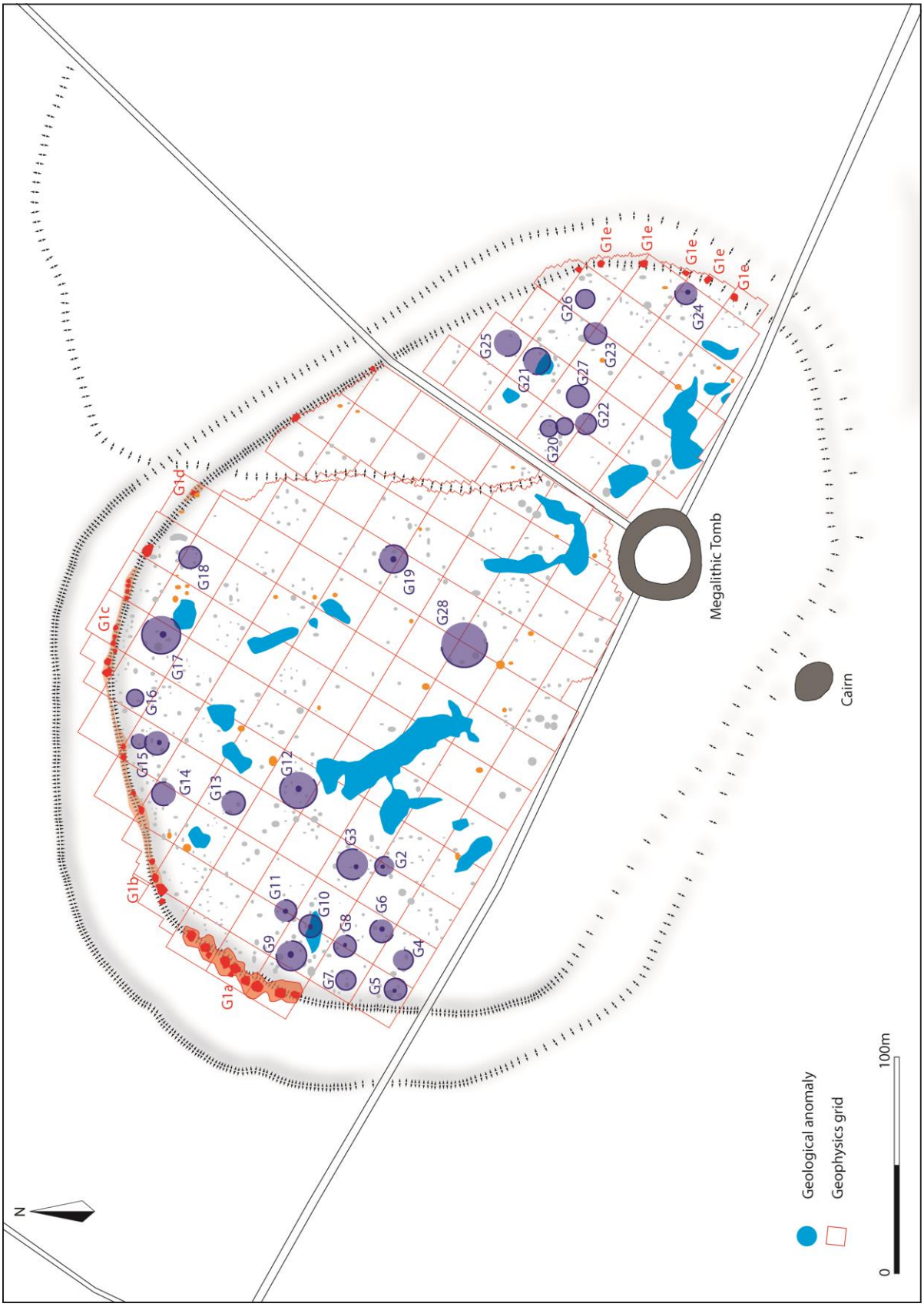

Fig. 5.20: Gradiometry survey interpretation at Rathcoran.

connection between the amount of stone taken from these quarry pits and the building of the hillfort banks, suggesting that both are likely to be contemporary. The partial remains of two largely completed quarry pits are apparent at the north-west, abutting the external face of the inner bank.

Approximately 124 possible hut sites have been identified in the interior of Rathcoran using LiDAR, GPS and geophysical survey (Fig 5.22; Table 5.2). LiDAR survey revealed that the majority of these sites comprise circular terraces cut into the natural slope and are apparent in GIS slope analysis (Fig 5.17). These are often outlined by a circular setting of large stones, and range from 6–14m in diameter. Some structures are visible in the geophysical results as circular/curvilinear sets of pit-like features, which often correspond with the circular platforms on the surface. The imaging of these possible hut-sites using geophysical methods is influenced by the variable depth of blanket peat.

5.3.2 Rathnagree

Rathnagree (No: 94) is a trivallate hillfort positioned on the northern summit of Tuckmill Hill. The site occupies a total area of 5.78ha. The enclosing elements are widely spaced and do not follow the contours of the hill. The inner and outer examples comprise low stone walls and

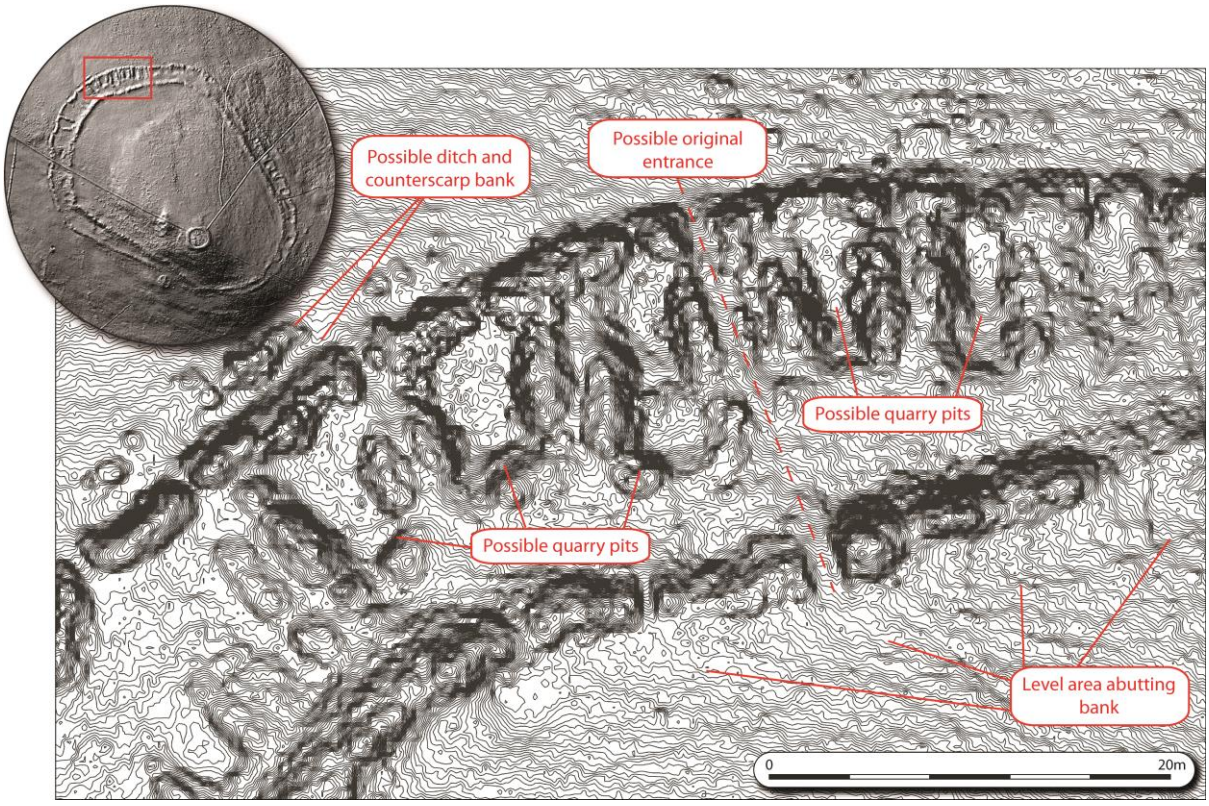

Fig. 5.21: Contour map of enclosing elements at north and associated features.

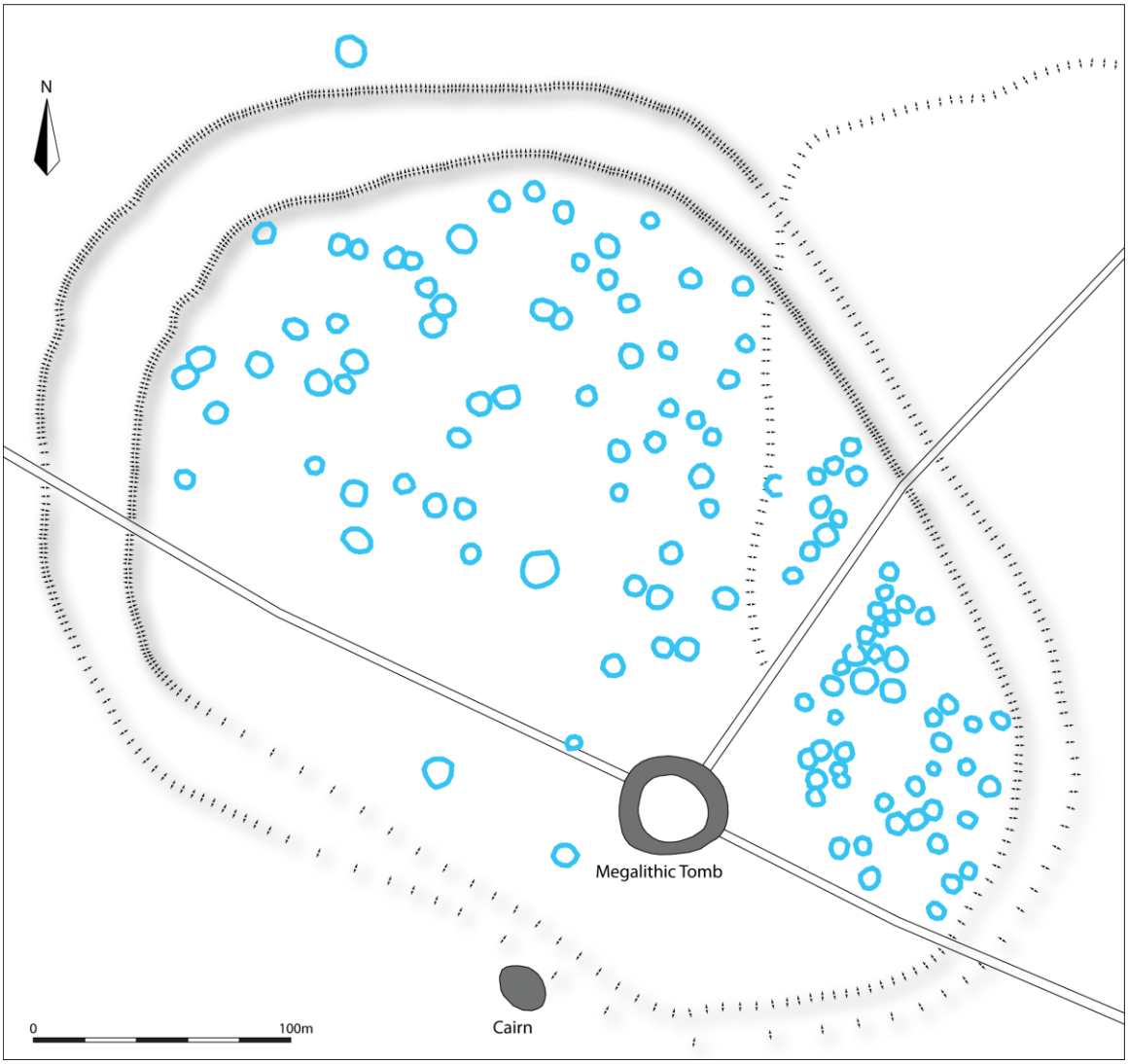

Fig. 5.22: Possible hut structures identified through LiDAR, GPS and geophysical survey at Rathcoran.

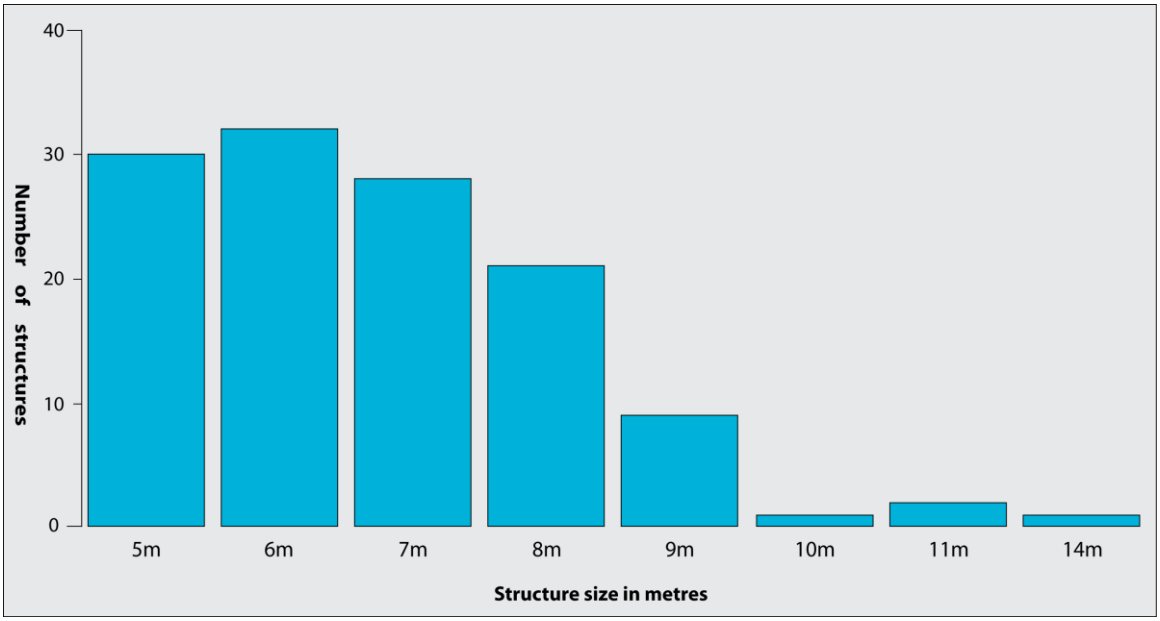

Table 5.2: Rathcoran structures

contrast with the middle enclosure which consists of a more substantial earthen bank with external ditch and counterscarp bank. There are no surface features within the interior indicative of occupation.

The LiDAR survey has allowed for a detailed analysis of the enclosing elements of Rathnagree (Fig 5.23). It was difficult to undertake such a survey using conventional recording techniques or GPS survey due to the dense scrub growth and forestry at the north-western section of the monument. The forestry has impacted on the LiDAR results, the dense plantation preventing the collection of quality data in these areas. Felled forestry encroaching upon the hillfort at the north associated with deep ploughing has severely damaged the outer enclosing element and some of the interior. This may have masked any extra-mural settlement or activity that may have been identifiable on the ground or through analysis of LiDAR data.

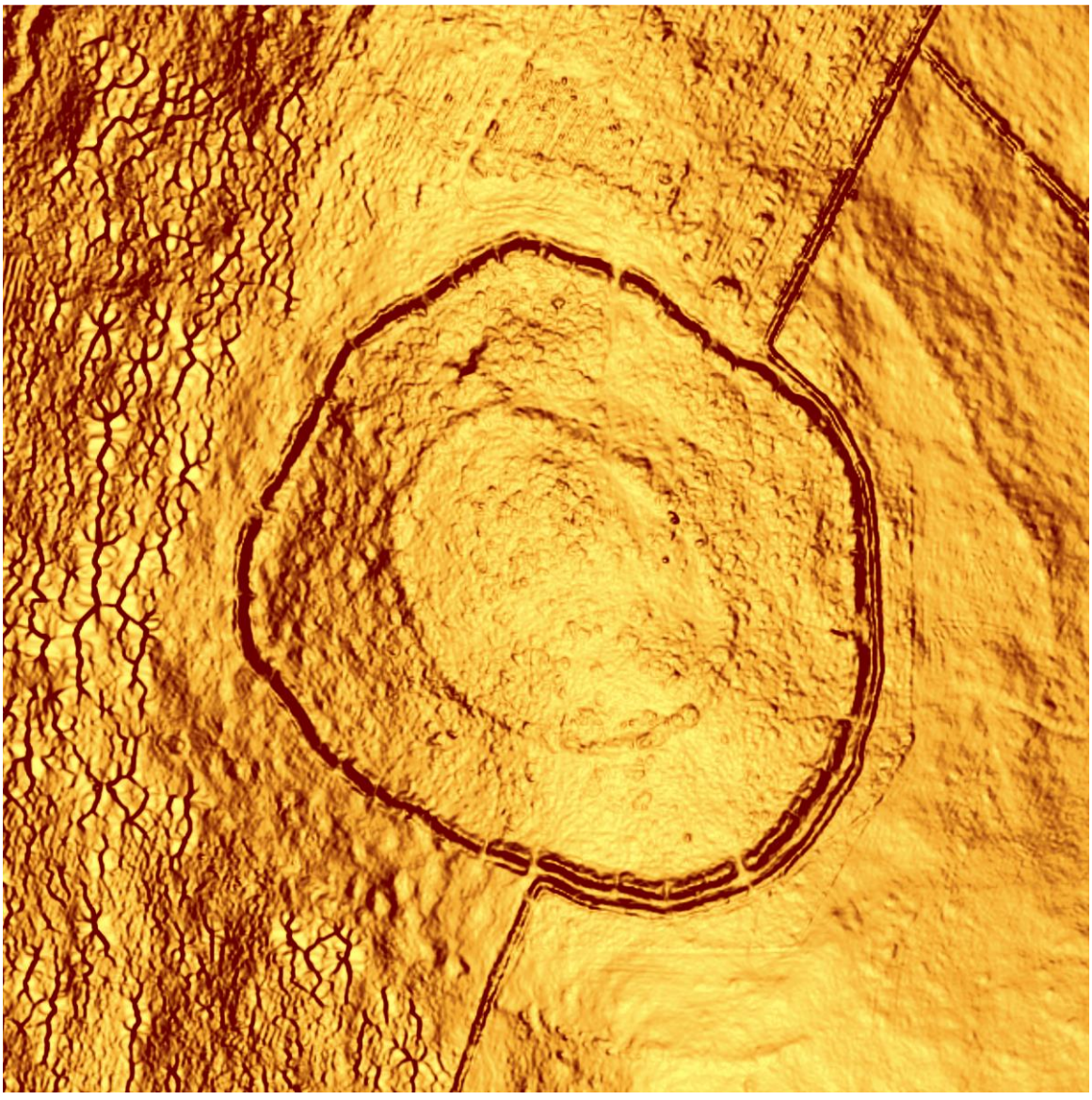

Fig. 5.23: GIS slope analysis of Rathnagree hillfort, highlighting the enclosing elements of the hillfort.

The LIDAR survey has confirmed the presence of three enclosing elements (Fig 5.23). The inner and outer defences comprise low-rise banks and the middle consists of a bank with external ditch and counterscarp bank (Fig 5.24). The inner bank is on average 5.5m wide and up to 0.5m high. The outer example is more denuded and has been largely reduced to a scarp measuring 5m wide and up to 0.2m high. The outer defences are more irregular in shape than the internal examples and this may be a reflection of the local topography.

Geophysical survey (Appendix 4) suggested that the slight inner and outer defences may represent the stone footing for a wooden palisade (Fig. 5.25; Fig. 5.26). Strong magnetic anomalies were recorded over their perimeter. These are unlikely to derive from the type of stone comprising the banks, which mainly consist of non-magnetic sandstones and granite. Similar to the response at the crest of the north-western section of the inner bank at Rathcoran, the magnetic anomalies probably reflect a wooden palisade destroyed by fire. Geophysical and LiDAR survey suggests that the two palisade circuits at Rathnagree probably formed complete enclosures with a composite length of 1.14km. The fact that they are visible in the geophysical

Fig. 5.24: Rathnagree hillfort under excavation.

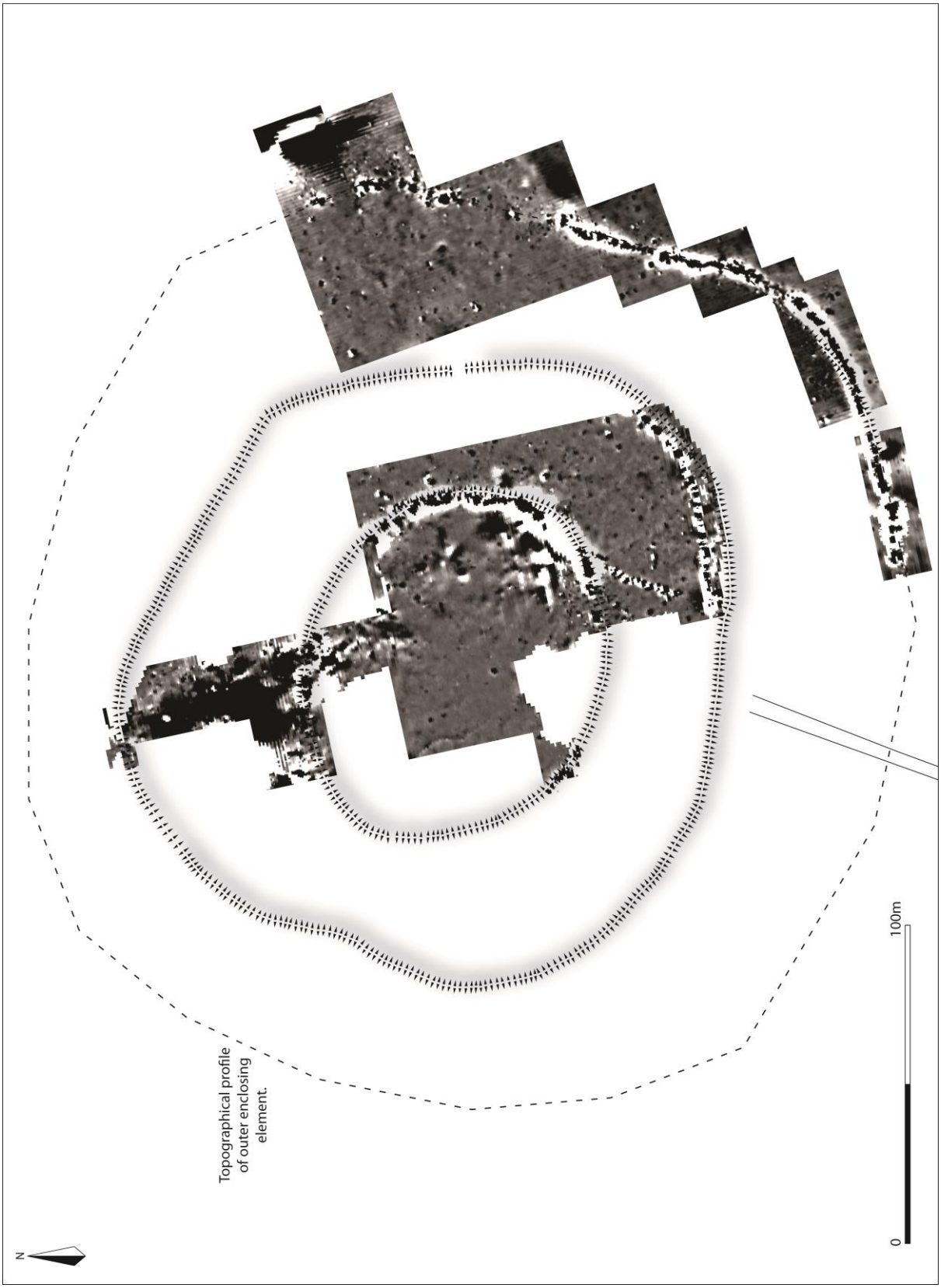

Fig. 5.25: Gradiometry survey results of Rathnagree.

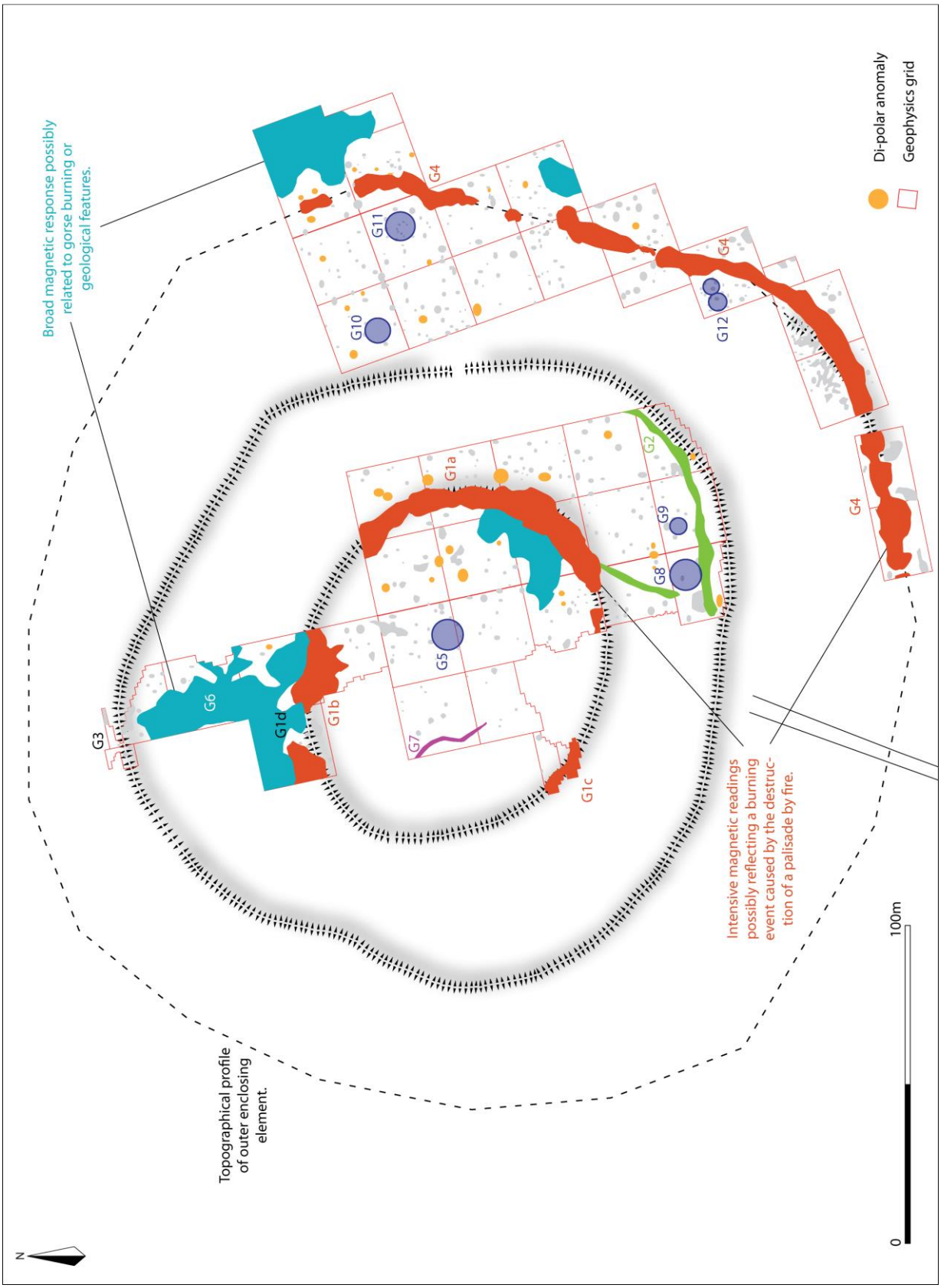

Fig. 5.26: Gradiometry survey Interpretation at Rathnagree.

survey indicates that the entire perimeters were comprehensively destroyed by fire, the strength of the anomalies intimating that this was a sustained process that probably involved the addition of fuel.

This interpretation of the geophysical anomalies is confirmed by recent excavation (see Appendix 5). Trial trenching through the inner enclosing element revealed the surface of the bank comprised heat-shattered stone and it is likely that these are responsible for the strong geophysical anomalies (see Appendix 5 for related images). The sustained heating and subsequent cooling of this material would have significantly increased their magnetic signature, making them visible in the geophysical results. Underneath this layer, a tightly packed arrangement of large stones, some of which were heat affected, were identified along the outer side of the bank. Removal of the bank material exposed a spread of charcoal-rich sediment on the northern side of the bank and the underlying subsoil surface was fire-reddened in places. Two lengths of burnt branch, one of which was sampled and dated to 1414–1135 BC (GrA-60925) were recovered (Table 5.3; Table 5.4). Two post-holes were exposed beneath the stone bank, spaced approximately 0.5m apart. The eastern post-hole measured 0.59m (east–west) by 0.56m (north–south), narrowed to 0.28m (east–west) by 0.25m (north–south) at the base and was approximately 0.71m deep. There was a rim of intense fire-reddening on the northern side. The western example measured 0.58m (east–west) by 0.54m (north–south), narrowing to 0.25m (east–west) by 0.34m (north–south) and was approximately 0.77m deep. A radiocarbon sample from this post-hole returned a date of 1417–1213 BC (GrA-60927). The evidence suggests that the inner enclosing element consisted of a palisade constructed using large roundwood posts, secured with packing stones, with a low stone revetment abutting its exterior. Horizontal round-wood may have been used to complete the palisade and the two burnt branches recovered beneath the bank may be evidence for this, although the latter could also represent brushwood used to ignite the fire. The evidence of intense burning discovered in the bank confirms that the wooden palisade was destroyed by fire, although it is likely that the palisade was partly dismantled before being burned.

Excavation of the outer enclosing element revealed similar evidence. There was no obvious fire-reddening on the stones at the surface of the bank; however, numerous heat-shattered stones were exposed in lower levels. These stones overlay a spread of charcoal-rich sediment which produced a burnt branch. This was radiocarbon dated to 1397–1128 BC (GrA-60931). Two post-holes surrounded by an oxidised surface were identified beneath this layer, spaced 0.7m apart. The eastern post-hole measured 0.38m (east–west) by 0.51m (north–south)

Sample Number	Lab Code	Date	Calibration (2 sigma)
RNG2014-01	(GrA-60925)	3045 ± 40 BP	1414–1135 BC
RNG2014-02	(GrA-60927)	3055 ± 40 BP	1417–1213 BC
RNG2014-03	(GrA-60929)	3050 ± 40 BP	1417–1208 BC
RNG2014-04	(GrA-60930)	3015 ± 40 BP	1395–1126 BC
RNG2014-05	(GrA-60931)	3020 ± 40 BP	1397–1128 BC
RNG2014-06	(GrA-60932)	3035 ± 40 BP	1411–1131 BC
RNG2014-07	(GrA-63007)	3240 ± 35 BP	1535–1450 BC
RNG2014-08	(GrA-63008)	3170 ± 35 BP	1495–1415 BC

Table 5.3: Rathnagree radiocarbon dates.

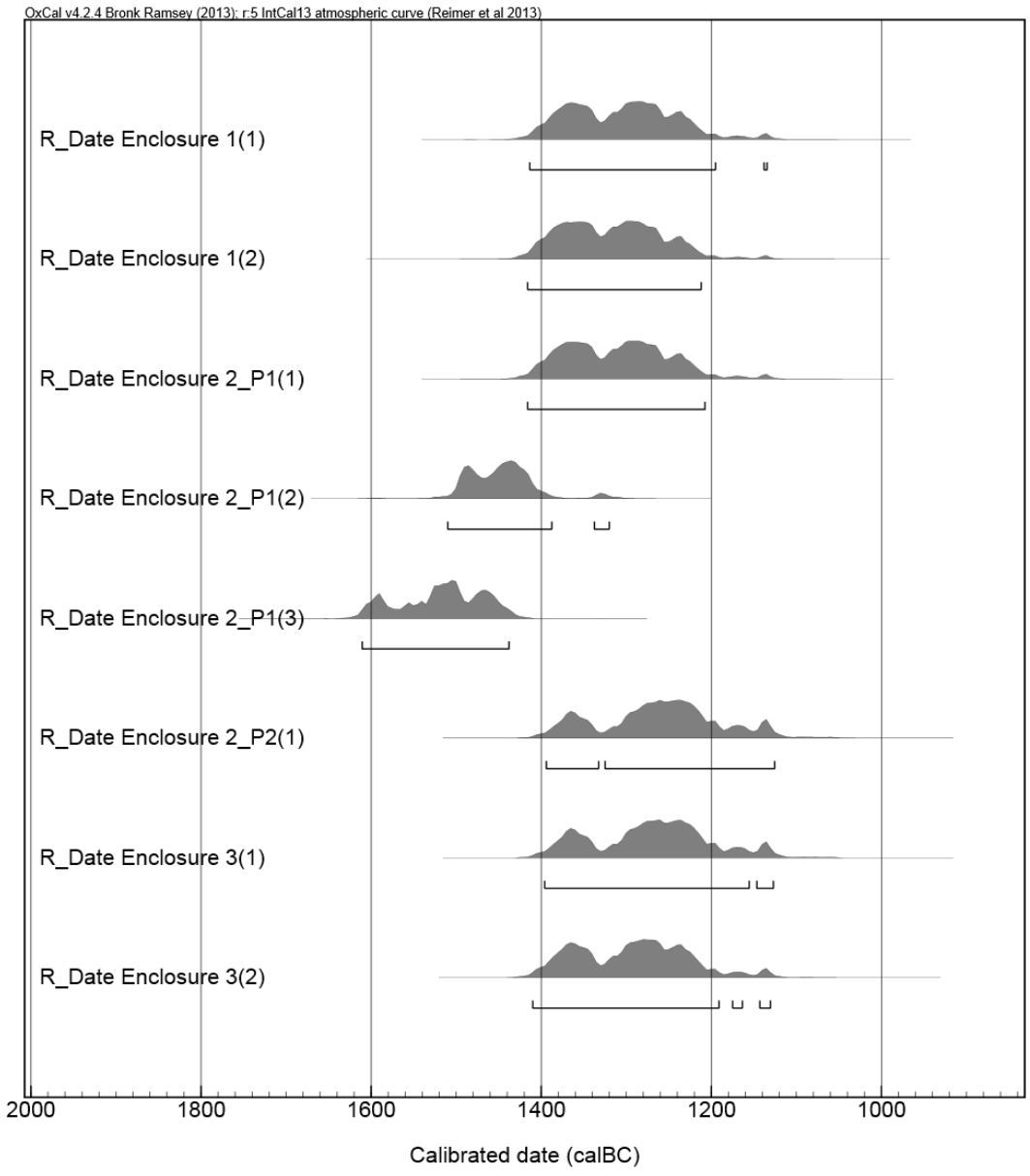

Table 5.4: Rathnagree radiocarbon dates plotted using oxcal.

and had a depth of 0.72m. The western example was approximately 0.66m in diameter, narrowing to 0.34–0.4m at the base, and was 0.48m deep. A radiocarbon sample from the latter returned a date of 1411–1131 BC (GrA-60932). Similar to the inner palisade, there was no indication that the posts were burnt *in-situ*. The stone piled around this palisade probably did not exceed 1m in height and it was probably used to support the wood.

Although there is no obvious geophysical anomaly that might represent palisade features in the middle enclosing element, excavation revealed a number of pre-bank features. Beneath the stone core of the extant bank and a thin orange-black sediment, a thin spread of dark brown/black silt with charcoal was revealed. This was radiocarbon dated to 1417–1208 BC (GrA-60929). A second radiocarbon sample from underneath this bank produced a date of 1535–1450 BC (GrA-63008). This layer extended as far as the outer edge of the overlying bank, where it seems to have been truncated by the external ditch. The underlying surface and some of the surface stones were fire reddened, suggestive of burning. The removal of this exposed the stony fill of a foundation trench extending north-south underneath the overlying bank. Underneath this stone a dark silt layer and some associated packing stones were revealed. This slot trench indicates an earlier attempt at defending the hilltop and may be contemporary with the palisade defences comprising the inner and outer enclosing elements. The composite perimeter of these would have been approximately 1.71km. Excavation reveals that it may have consisted of a series of upright round-wood posts spaced 1.2–1.5m apart set in a slot trench and supported by a low stone wall. This was subsequently dismantled and burnt before the construction of the overlying bank. P to four post- stake-holes were identified in the old ground surface underneath the Phase 2 bank and these may be contemporary with the construction and use of the Phase 1 palisade. Charcoal from the fill of one of these features produced a date of 1395 – 1126 BC (GrA-60930).

Unlike the other enclosing elements, the middle defences were reconstructed soon after the initial phase was destroyed. Excavation revealed that the bank comprised a core of stone overlain by redeposited sub-soil extracted from the digging of the adjacent ditch. This core was made up almost entirely of medium to large sub-rounded stones, probably derived from field clearance and ditch digging. None of these were fire-reddened, and there was no associated charcoal. The external face of the bank was supported by a line of large boulders packed together with small stones. A deposit of large stones within the upper levels of the external ditch indicates that the bank was topped with a stone wall. These stones consist of large, slab- and block-like examples that were probably quarried from the ditch which was cut into bedrock. A

series of silty layers were identified underneath the stone deposit in the ditch and 18 sherds of Late Bronze Age coarse ware pottery were recovered in lower contexts. Residue from this produced a date of 1495–1415 BC (GrA-63007).

Similar to Rathcoran, up to 25 breaks or depression have been identified in the middle bank of Rathnagree (for an example, see Fig. 5.27). The majority of these comprise small gaps measuring less than 2m wide, although they are often not complete breaks and could be described as depressions between more substantial portions of the bank. Although some of these features could relate to gang working (see Chapter 6 for a more detailed discussion), many do not have corresponding causeways and are likely to be caused by farming practices. Four substantial breaks are associated with causeways and these could be original entrances. They are positioned at the north, south, east and west of the perimeter and measure between 2.8–

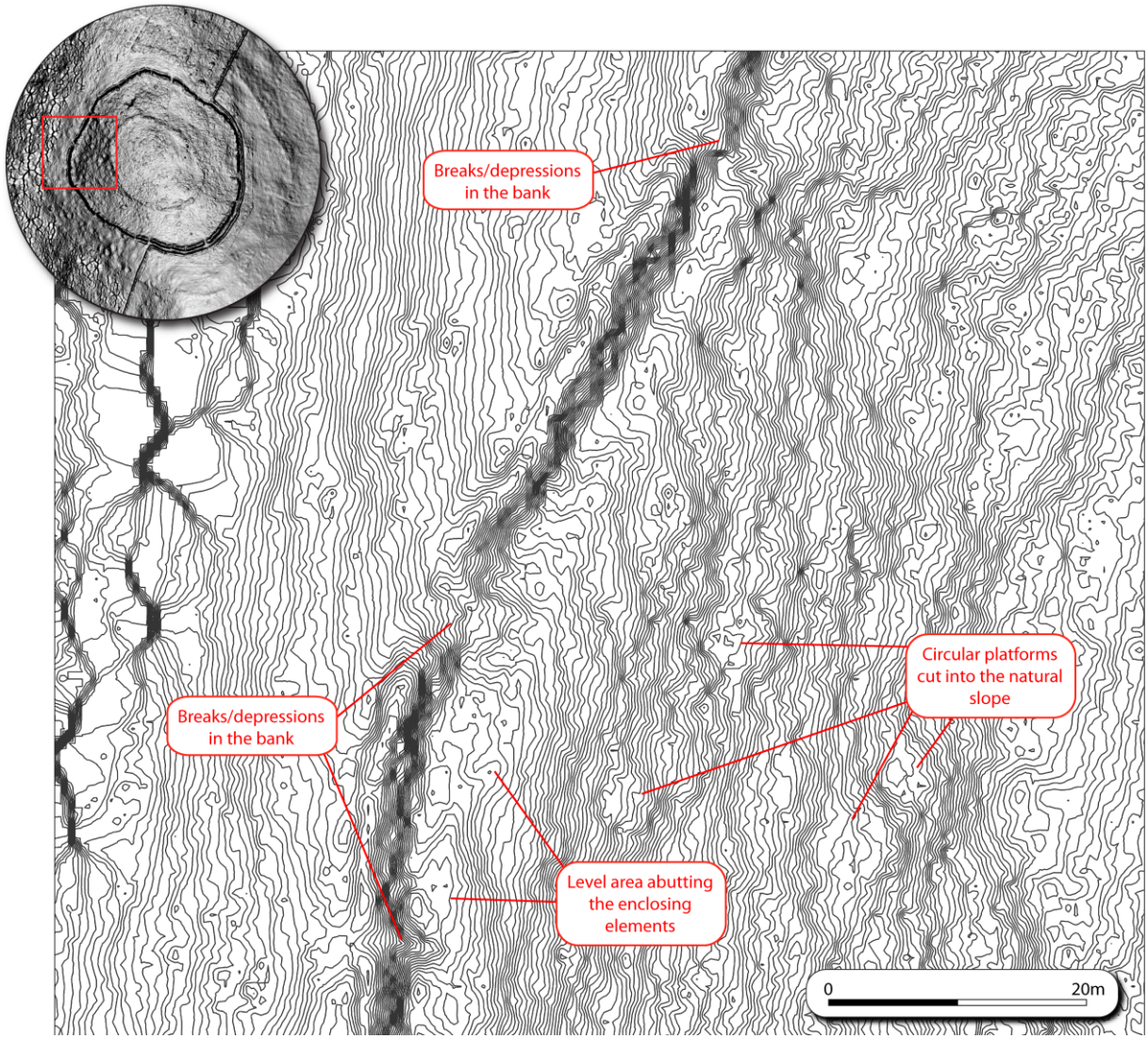

Fig. 5.27: Contour map of western section of the middle enclosing elements at Rathnagree with associated features.

6.1m. The eastern example is the most substantial. GPS survey has identified a small internal avenue of boulders and stones extending from the edge of the bank terminals and this may have formed a formal entrance.

A level platform approximately 4m in width abuts the inside of the middle enclosing element (Fig. 5.27). This is most prevalent at the north-east and west where the steep natural slope of the hilltop emphasises this feature.

The LiDAR and GPS surveys revealed up to 19 possible hut structures in the interior of Rathnagree hillfort (Fig 5.28). These are apparent as circular terraces cut into the natural slope of the hilltop and are concentrated at the west and south-west. The slopes in these areas are much more severe and this has made the terraces more apparent. As such, many more structures may be present within the interior that are not visible in the LiDAR data. This possibility has also been raised by the results of geophysical survey and excavation. Geophysical survey has identified up to seven additional structures between the inner and middle enclosing elements. These range 6–12m in diameter and are apparent as circular or curvilinear arcs of

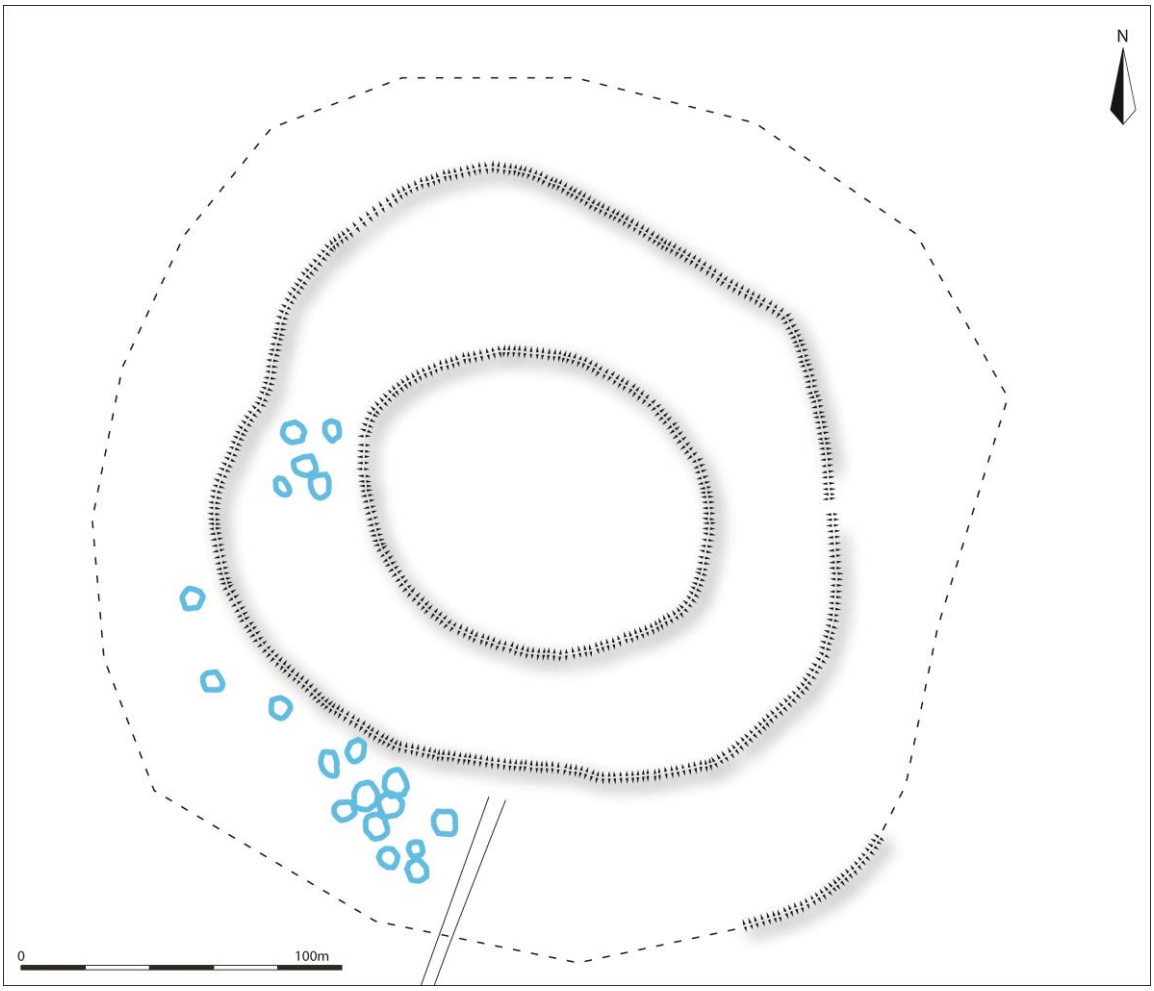

Fig. 5.28: Possible hut structures identified through LiDAR survey at Rathnagree.

pit-like features which probably represent post-holes. A curving arc of four post-holes were excavated beneath the bank of the middle enclosing element and immediately inside the line of the Phase 1 palisade. An associated stake-hole was dated to 1395–1126 BC (GrA-60930). Although this may represent the remains of a structure, it is possible that two of these post-holes were part of the palisade.

5.3.3 Sruhaun

An unrecorded univallate enclosure was discovered by the author in Sruhaun (No: 101) townland on the south-western spur of Tuckmill Hill. This new site was identified by analysis of LiDAR data, as the site is not visible in aerial photographs (Fig. 5.29). Positioned on a level terrace with steep slopes to the south and east, the enclosure comprises as single low-rise bank approximately 4.5m wide and up to 0.2m high, occupying a total area of 1.43ha. The slight nature of the bank makes it difficult to identify at ground level. There is a single 10m wide break in the enclosing elements at the north-east. Here, the defences extend outwards toward the summit of Tuckmill Hill and Rathcoran hillfort, 375m to the north-east. A modern field bank runs through the

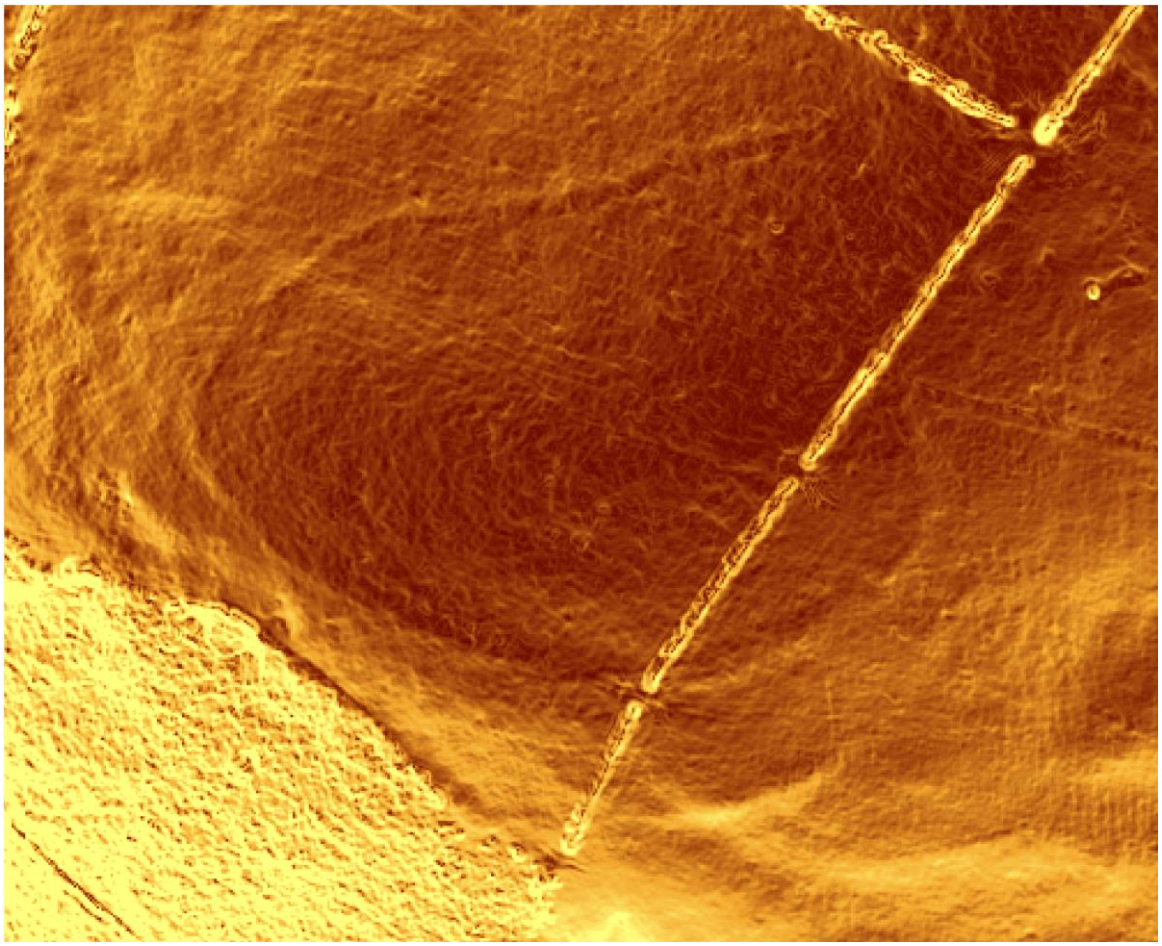

Fig. 5.29: GIS slope analysis at Sruhaun highlights the enclosing elements of the enclosure.

eastern portion of the interior. There are no obvious internal features visible on the surface or in the LiDAR data. Some surface outcrop indicates that the underlying bedrock is close to the surface in some areas of the interior.

The perimeter of the hillfort is apparent in the geophysical survey (Appendix 6) as an intense band of magnetism (Fig. 5.30; Fig. 5.31). This corresponds with the low-rise bank detected in the LiDAR survey. The results are similar to those found at Rathcoran and Rathnagree and may be suggestive of a prolonged burning event. A single 8m by 2m trench was opened across the line of the enclosure at the south (see Appendix 7 for related images). The base of the hillfort bank was revealed as a 2.6m wide spread of loosely arranged medium–large stones. The base of the deposit was more compact and consisted of angular to sub-angular stone that appears to be fire shattered. There are indications of intense burning at the base of this stone deposit. This comprises a layer of compact black silt with heavy charcoal flecking and concentrations of charcoal that extended over most of the bank area.

A narrow slot-trench was revealed directly beneath the bank layers, extending north-west through the centre of the excavated area. The slot was 0.04–0.05m in upper width and varied from 0.02–0.12m in depth. Its fill comprised tightly packed heat-shattered stones that were probably burnt *in-situ*. There were four possible stake-holes along the line of this slot and these had a similar fill. The excavator (William O'Brien) has interpreted these features as a fence structure that pre-dated the enclosing elements of the hillfort. Charcoal possibly associated with the destruction of this fence was sealed directly beneath the enclosing elements and produced a radiocarbon sample dating 1405–1132 BC (GrA-64430) (Table 5.5; Table 5.6). The hillfort enclosure was built soon after the destruction of this feature and therefore provides a *terminus post quem* for the construction of the Sruhaun enclosure.

A V-shaped ditch (C16) is positioned immediately inside the bank on its northern side. It measures 0.58–0.74m deep and is 1.5–1.65m wide. The fill was somewhat uniform, comprising a well-humified peat with slight waterlogging at the base, mixed with a deposit of large angular to sub-angular stones. Many of these stones were fractured and reddened possibly as a result of firing and probably derive from the adjacent bank.

A second ditch (C15) is positioned immediately to the north of C16. It is U-shaped, measuring 0.2–0.8m deep and 1.65–1.6m wide, narrowing to 1.3–1.4m wide at its base. The fill is similar to C16, comprising a peat deposit mixed with large, shattered angular to sub-angular reddened stones. A peat sample from the base of this feature returned a date of 1959–1982 AD

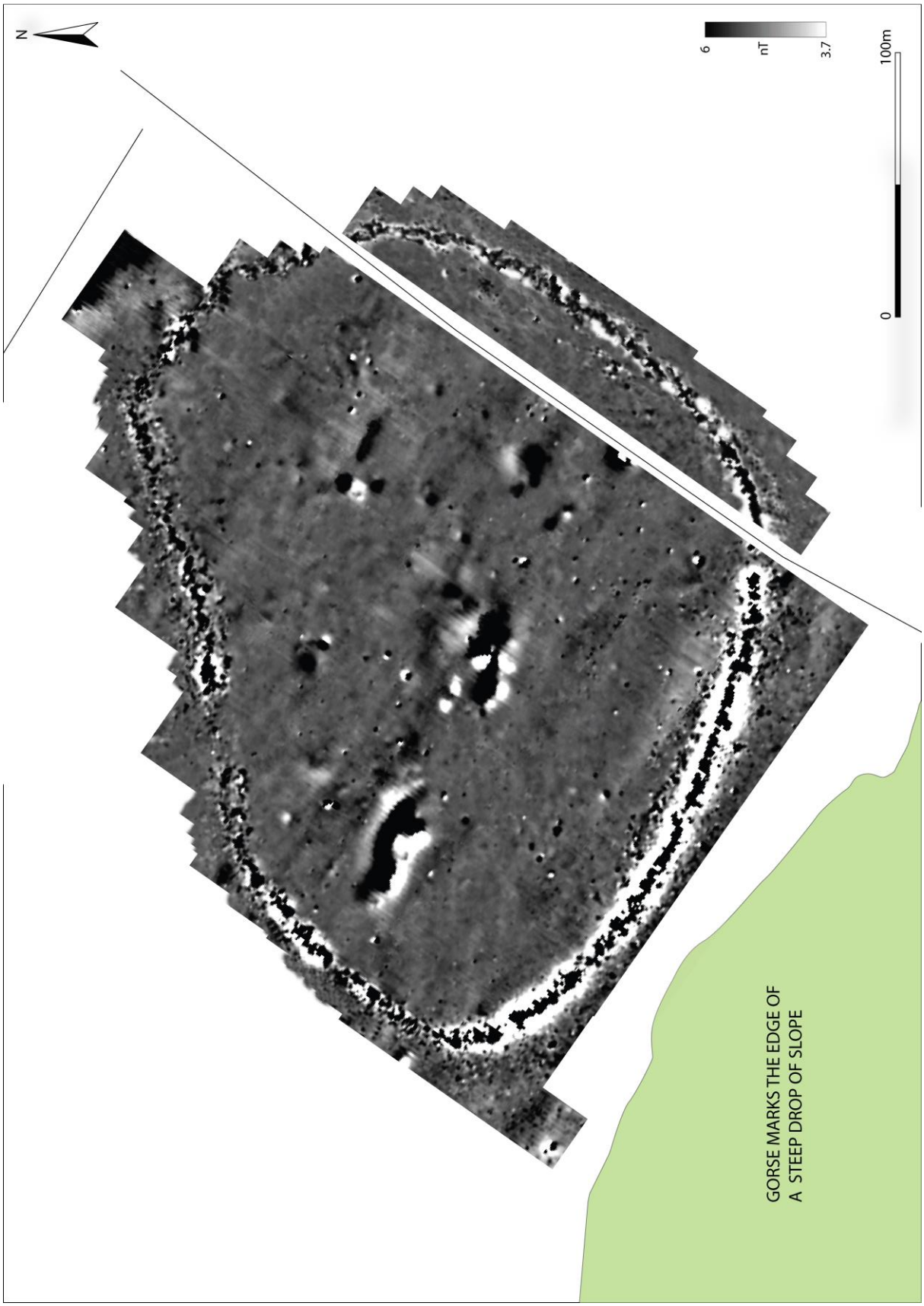

Fig. 5.30: Gradiometry survey results at Sruhaun.

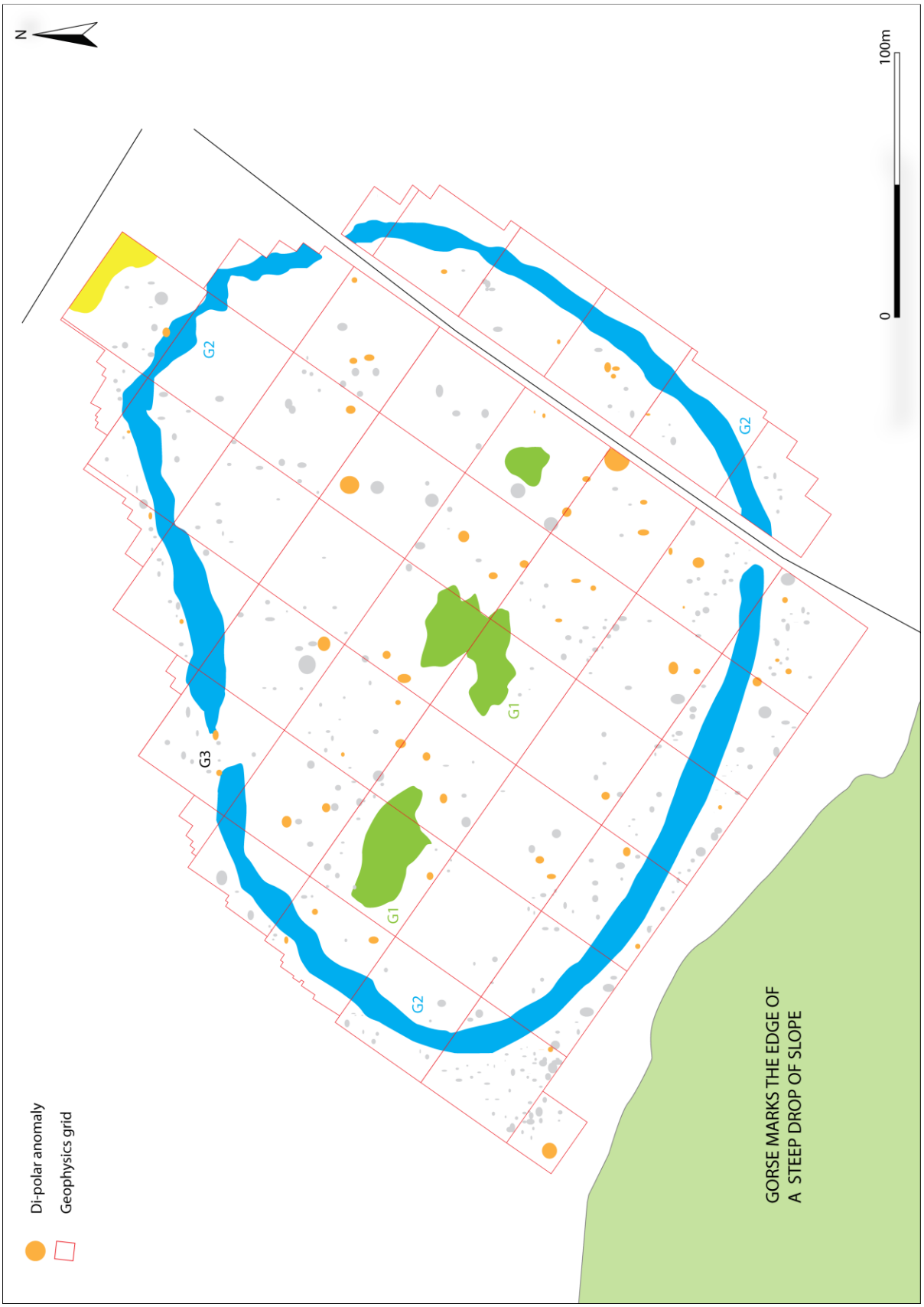

Fig. 5.31: Gradiometry survey interpretation at Sruhaun.

(GrA-64432). Considering the similar fill of C15 and C16, it is probable that both ditches are a modern construction, probably some form of drainage feature. It is possible that C16 truncated the inner edge of the hillfort bank. The bank stones removed in that way could then have been redeposited into the ditches to allow water to drain freely.

Although there is no evidence for wooden features such as post- or stake-holes, the number angular, reddened and possibly heat shattered stone, as well as the intensive geophysical responses from the magnetic survey, could tentatively suggest that the bank was subject to an extensive burning event. Although vitricification of stone wall defences is common in Scottish hillforts, this has not been noted in Irish examples, and the presence of heat-affected stone could tentatively suggest the former presence of a wooden fence or palisade. The stone bank could have formed the footing for a fence or palisade and this might explain the lack of evidence for post- or stake-holes. The absence of such features could also be the result of truncation by the later ditch feature.

Sample Number	Lab Code	Date	Calibration (2 sigma)
SR2015-01	(GrA-64430)	3030 ± 35 BP	1405–1132 BC
SR2015-02	(GrA-64432)	126.73 ± 0.39 BP	1959–1982 AD

Table 5.5: Sruhaun radiocarbon dates.

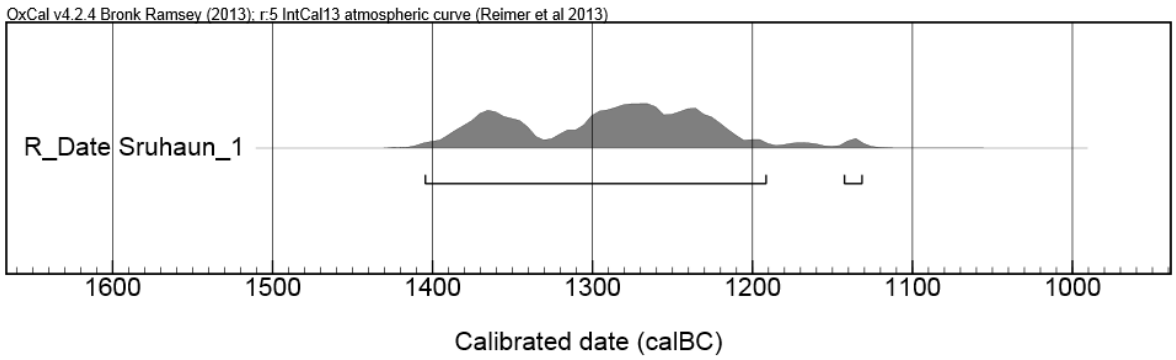

Table 5.6: Sruhaun radiocarbon dates. The modern date has been removed for plotting purposes.

5.4 TINORAN

Tinoran (No: 103) hillfort occupies a total area of 84.03ha and consists of up to five somewhat concentric, sub-circular enclosing elements (Fig. 5.32; Fig. 5.33). A hut site (WI026-004001) is recorded between the inner and outer enclosure, however, considering that the inner example probably dates to the Early Medieval period and may not be contemporary with the construction

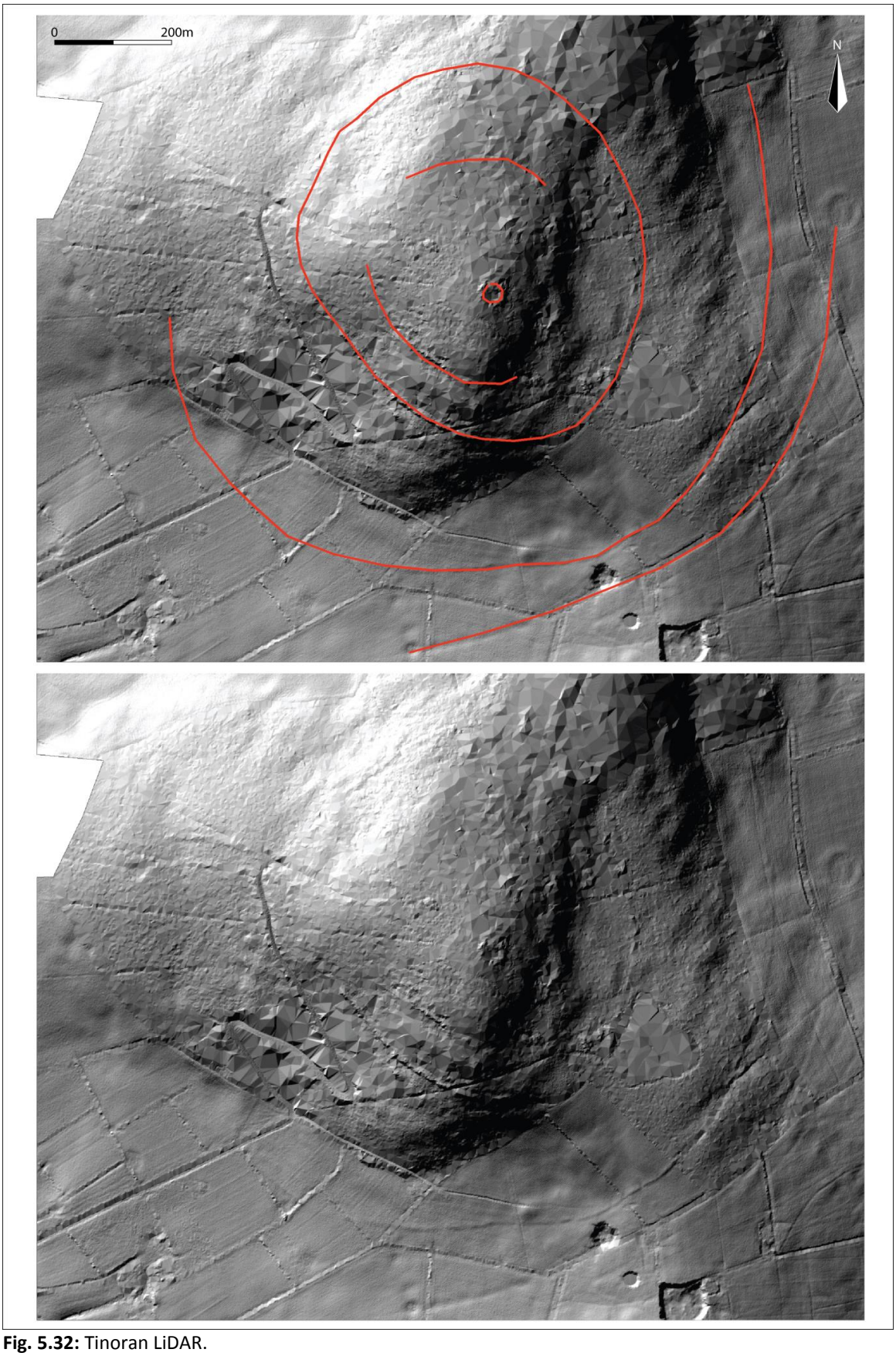

Fig. 5.32: Tinoran LiDAR.

and occupation of the actual hillfort, this structure may be within the interior of the hillfort. Unfortunately, most of the hillfort is under forestry and other occupation features visible on the surface are difficult to identity.

LiDAR survey has identified a considerable number of relict field patterns surrounding the hilltop (Fig. 5.34). The majority of these are contained within upstanding boundaries and were probably constructed at the same time as the former. Most of the levelled examples are not recorded in historic mapping and are therefore likely to pre-date the completion of the first edition Ordnance Survey mapping programme in 1842. They probably date to the early 17th or 18th century.

Due to the extent of forestry, the majority of Tinoran hillfort could not be surveyed with GPS or using geophysical techniques. LiDAR survey was obtained at 0.5m resolution, although dense tree cover has negated the effectiveness of this method. Despite this, the enclosing elements of the hillfort were recorded in some detail. The inner enclosure is under dense forestry and was not recorded in the LiDAR survey in any detail.

Similarly, the second enclosing element is poorly defined apart from a 95m length at the south-west under dense gorse and scrub rather than forestry. Here, the enclosing elements

Fig. 5.33: Aerial photograph of Tinoran hillfort (after Condit 1998).

consist of a 8m wide bank that has an external height of 2m. It is constructed on a relatively steep slope and comprises large boulders and other large stone visible on the surface. There is no surface indication of an associated ditch.

The third enclosing element is visible in some form throughout most of its length. It survives best at the south-west where it is under dense scrub and gorse growth. Similar to the previous bank, it comprises a low-rise stone bank of boulders and large stones and measured approximately 6m wide and 3.2m in external height (Fig. 5.35). There is no surface indication of an associated ditch.

A fourth enclosing element was partly recorded by Condit (1998) at the south. The southern half of this feature is in open farmland and is apparent in the LiDAR data as a low-rise bank approximately 6m wide and up to 0.3m in height. This survives on the south-east side in

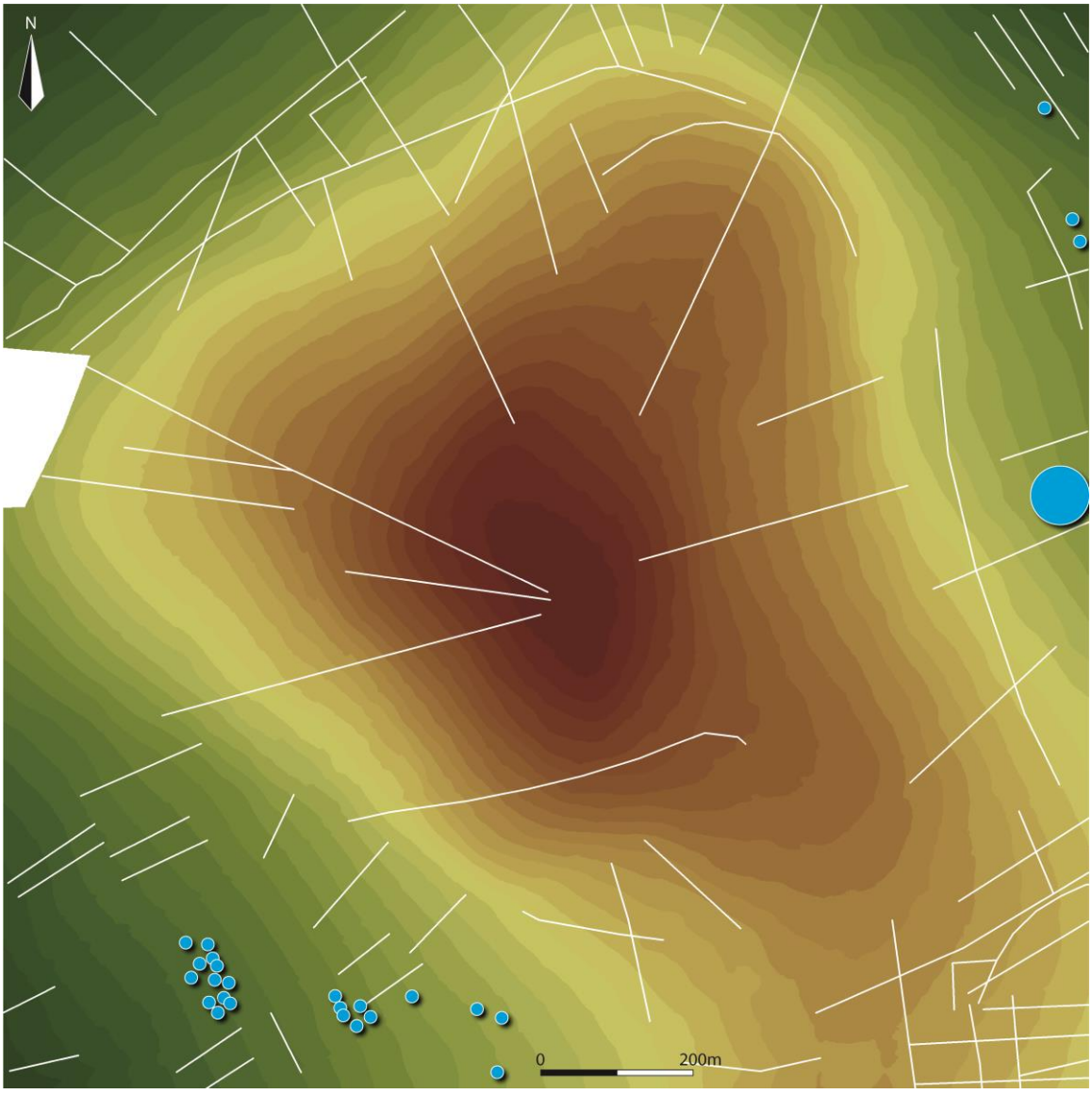

Fig. 5.34: Relict field systems and possible barrows identified through LiDAR at Tinoran.

forestry, where it has been re-built as a 4.5m wide bank, up to 1.3m high (Fig. 5.35). There is a slight indication of an outer ditch. The northern half of this bank is under forestry and is not visible on the ground or in the LiDAR data. At the east, this enclosing element abuts the outer edge of a large ring-barrow (RMP: WI026-005).

The author has identified a possible fifth enclosing element in the LiDAR survey. This is located at the south-east and is 50–97m outside the fourth set of defences. This comprises an

Enclosure 3

Enclosure 4

Fig. 5.35: Excavated enclosures 3 and 4 at Tinoran.

8.2–11.6m wide ditch that is up to 1.2m deep in places. This ditch is incorporated into a field boundary that could preserve a possible internal bank. When projected, this bank may enclose an area of 84.03ha.

A single trench was excavated across the defences of both the third and fourth enclosures of Tinoran (see Appendix 8 and Fig. 5.35). Excavation of the third enclosure consisted of a 4m by 3m trench positioned over the crest and inner half of the hillfort bank, with a 5m by 1m extension cutting across the remaining half, on the south-western side of the hillfort. The enclosing element comprised a bank of large boulders and small stones, positioned at the edge of a slight break of slope (Fig. 5.35). The large boulders formed an internal revetment. Two facings of large stones and some small boulders were positioned at the centre and outer edge of the stone wall, creating two compartments which were then filled with medium to large stones. The wall was probably only 1m high internally, however, the slight natural fall of slope the bank is built on would have made this an imposing feature from the outside. All of the stones were surface drift material probably gathered from the surrounding area. This interpretation corresponds with the absence of an associated ditch, or any soil in the bank itself. Some soil dug from the adjacent slope was deposited underneath and on the inner side of the bank to create a 3–4m wide terrace on which to construct the stone bank. A sample of oak charcoal from sediment directly underneath one of the large internal boulders returned a date of 1188–923 BC (GrA-64439) (Table 5.7; Table 5.8). A concentration of prehistoric pottery was recovered from the occupation surface the hillfort bank was built on, about 0.3m from the inner revetment boulders. This comprises approximately 20% of a single, bucket-shaped flat-rimmed vessel. Substantial amounts of internal residues were identified, which are radiocarbon dated to 1214–1001 BC (GrA-64440).

After a prolonged period of natural slopewash on the inner side of the hillfort bank, a shallow pit was dug. This contained two possible hearth deposits separated by a layer of orange-brown stony sediment. Both deposits contained burnt sediment comprising charcoal and burnt

Sample Number	Lab Code	Date	Calibration (2 sigma)
TN2015-01	(GrA-64438)	2600 ± 30 BP	826–763 BC
TN2015-02	(GrA-64471)	2685 ± 30 BP	899–803 BC
TN2015-03	(GrA-64472)	2640 ± 30 BP	893–786 BC
TN2015-04	(GrA-64439)	2868 ± 35 BP	1188–923 BC
TN2015-05	(GrA-64440)	2905 ± 35 BP	1214–1001 BC

Table 5.7: Tinoran radiocarbon dates.

bone and could be the result of cooking. A radiocarbon sample from the upper deposit produced a date of 899–803 BC (GrA-64571). The lower deposit produced a date of 893–786 BC (GrA-64572).

A 10m by 2m trench and two small extensions were excavated across the line of the levelled fourth enclosing element at the eastern side of the hillfort. The excavation revealed residual bank material approximately 2m in width and an external earth-cut ditch (Fig. 5.34). A small circular pit was identified inside the bank area in the north-west corner of the excavation trench.

The ditch was U-shaped, approximately 3.3m wide, narrowing to 0.4–0.5m at the base, and was up to 0.9m below the modern surface level. Interestingly, there was a ledge identified in the lower part of the inner slope which measured approximately 0.4–0.5m wide and 0.1–0.15m deep. Its precise purpose is unknown. The basal fill of the ditch contained flecks of charcoal that produced a radiocarbon sample of 826–763 BC (GrA-64438), providing a *terminus ante quem* for the construction of the fourth enclosing element.

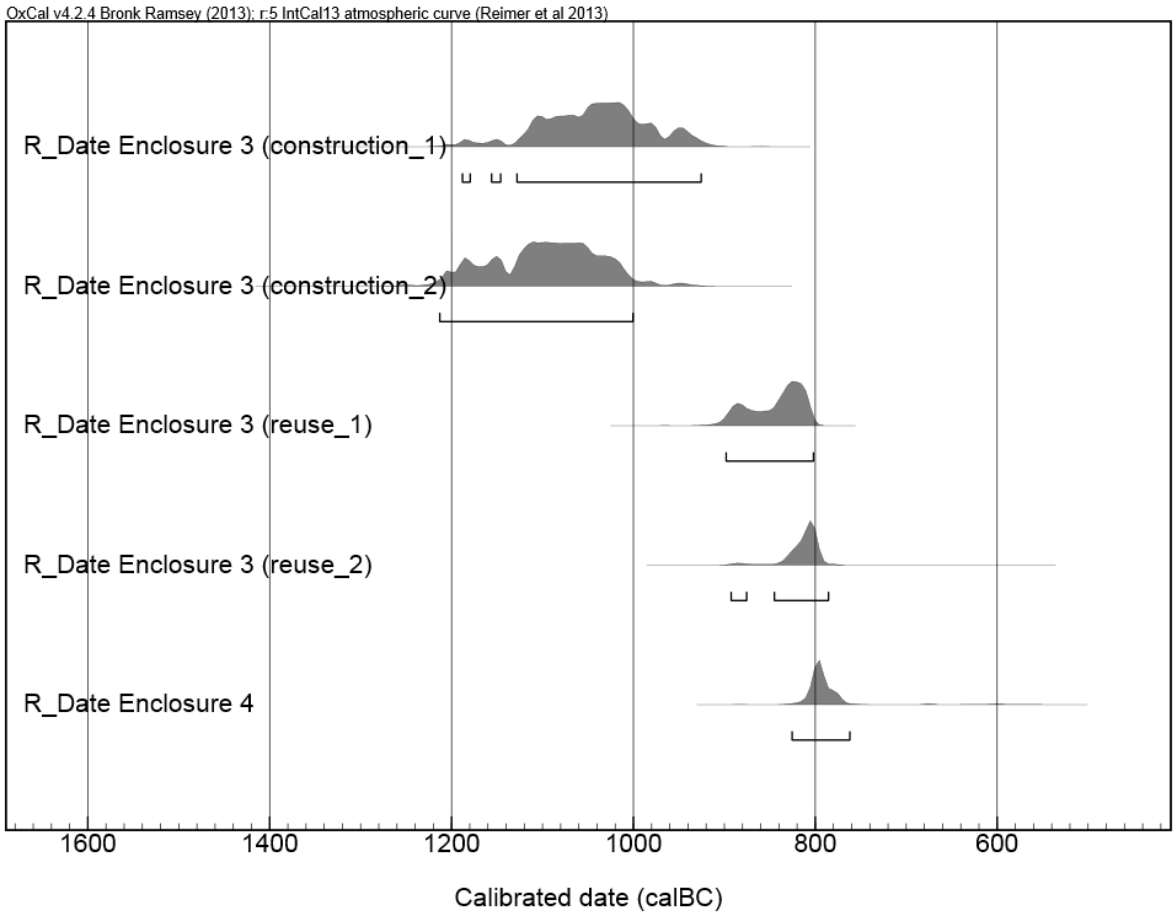

Table 5.8: Tinoran radiocarbon dates plotted using oxcal.

Up to 29 possible ring-barrows were identified in the LiDAR survey (Fig. 5.36). Three of these are positioned at the north-east base of the hilltop. The remainder are clustered at the south/south/east side, between the third and fourth enclosing elements of the hillfort. The majority of these comprise circular terraces, approximately 8–13m in diameter, cut into the natural slope defined by narrow banks with internal low-rise mounds. It must be cautioned that these may represent anomalies created by modern cow-feeders, as one of the fields in question currently has several feeders in the area of the topographic anomalies.

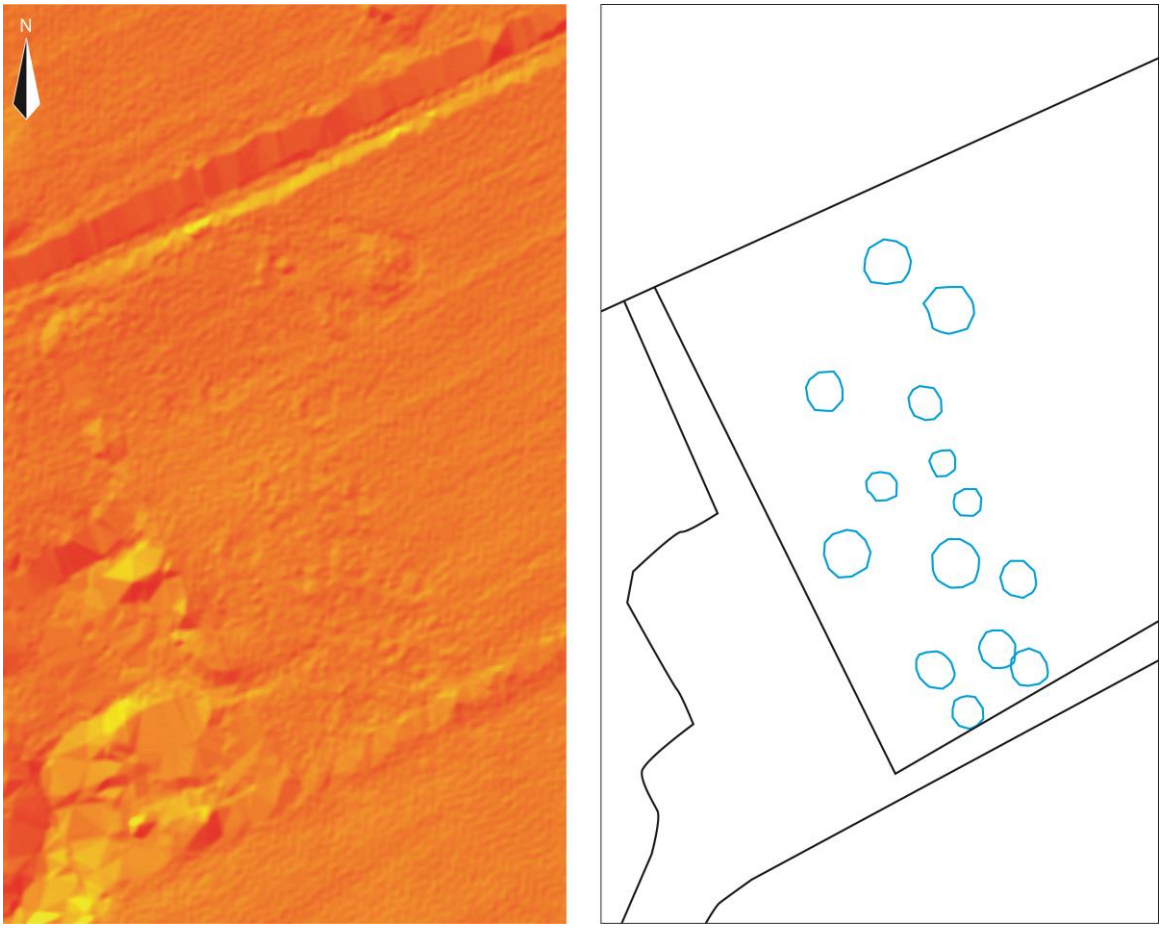

Fig. 5.36: Examples of possible barrows identified through slope analysis at Tinoran.

5.5 HUGHSTOWN

Hughstown (No: 55) is recorded as a bivallate hillfort with a small enclosure of probable later date at its summit. Aerial photography revealed two widely spaced parch-mark that Condit (1998, 16) interpreted as evidence for two rock-cut ditches (Fig. 5.37). Survey by the author has revealed a far more complex series of enclosure consisting of up to four enclosing elements, some of which were constructed as early as the Neolithic period.

The author obtained LiDAR data for a large portion of Hughstown at 0.5m resolution (Fig. 5.38). Unfortunately, this is not complete and cannot be assessed adequately using analytical GIS techniques. The LiDAR is useful in an empirical sense, both in terms of identifying levelled topographic features and assessing the remains of the subtitle enclosing elements.

On the eastern slopes of Hughstown, the LiDAR data reveals a series of unrecorded relict field boundaries (Fig. 5.39). None of these are apparent in historic OS mapping and therefore may be of pre-1840 date. These fields comprise elongated and somewhat closely spaced boundaries, ranging 15–28m apart. On the southwestern edge of Hughstown, in an area of newly planted forestry, a pair of extant banks are separated approximately 26m apart. These banks are larger than most field boundaries and measure 9–12m in width and extend north-east to south-west for approximately 155m. These features were noted in the RMP files as a pair of parallel banks approaching the outer rampart on the southwest side of the hill (RMP: KD038–026). They have been interpreted as a field system or possible cursus. The broad width of the banks and apparent lack of an associated ditch may correspond with the latter interpretation, although this cannot be confirmed without excavation.

Fig. 5.37: Army Air Corp aerial photograph of Hughstown (after Condit 1998).

The enclosing elements of the hillfort are faintly visible in the LiDAR survey. This survey complements the geophysical, photographic and excavation data that highlights a complex system of enclosure. The outer enclosing element was not excavated. It is partially preserved in a section of field boundary at the east comprising large boulders. Geophysical survey (Appendix 9) confirmed that this bank continued along its path at the north and north-west and was approximately 5–7m wide. There is no clear geophysical response indicative of a ditch feature, although the LiDAR data in this area suggests an external in-filled ditch is present. This slight topographical feature continues along its path and is visible in the LiDAR data at the west and south-west. It is particularly evident at the west where it measures up to 8.5m in width. Vegetation marks on Irish Air Corp aerial photographs support the identification of this as a ditch feature (Fig. 5.37).

The extant internal enclosure is well recorded in the LiDAR survey. The second enclosing element is visible in Army Air Corp photographs as a vegetation mark that could be interpreted as a ditch (Fig. 5.37). This feature is defined at the north where there is evidence for up to four concentric features. These four features appear prominently in the geophysical survey as two concentric sets of strong magnetic anomalies, although the features are disrupted throughout their lengths, probably due to agricultural disturbance (Fig. 5.40; Fig 5.41). The strong magnetic

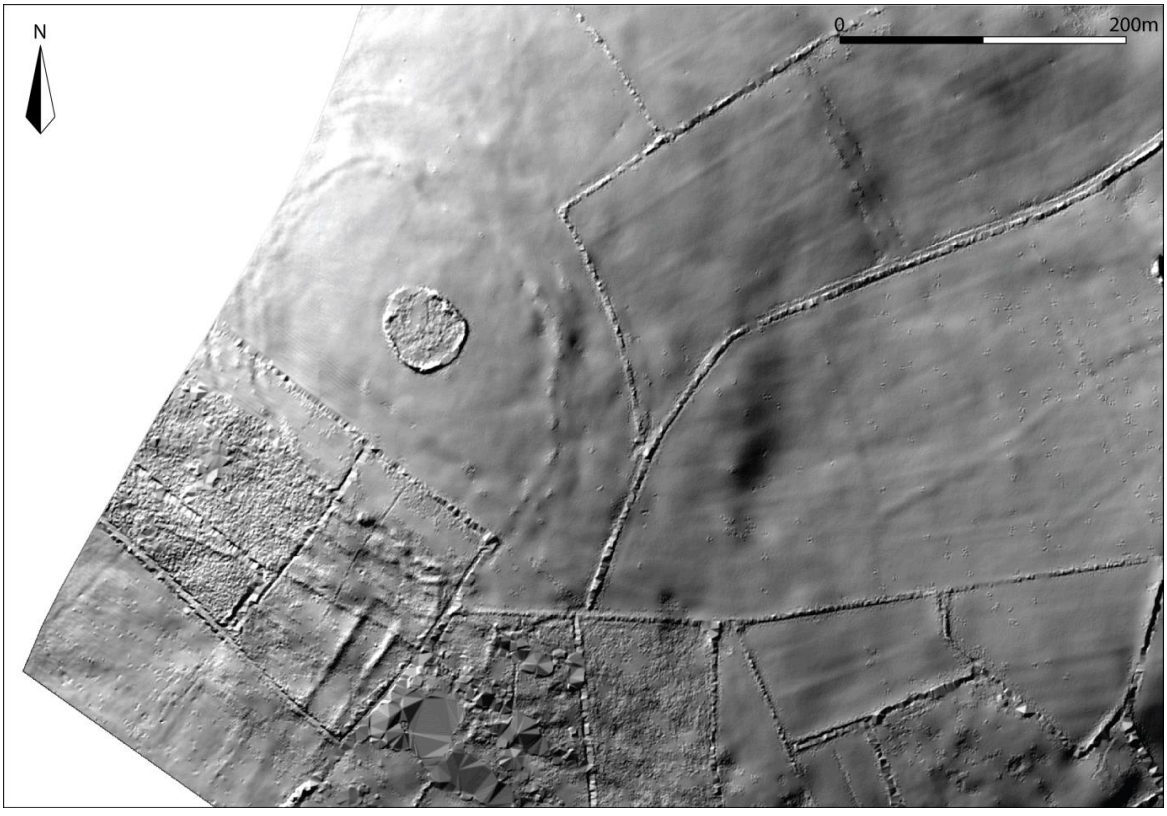

Fig. 5.38: Hill-shade model derived from Hughstown LiDAR data.

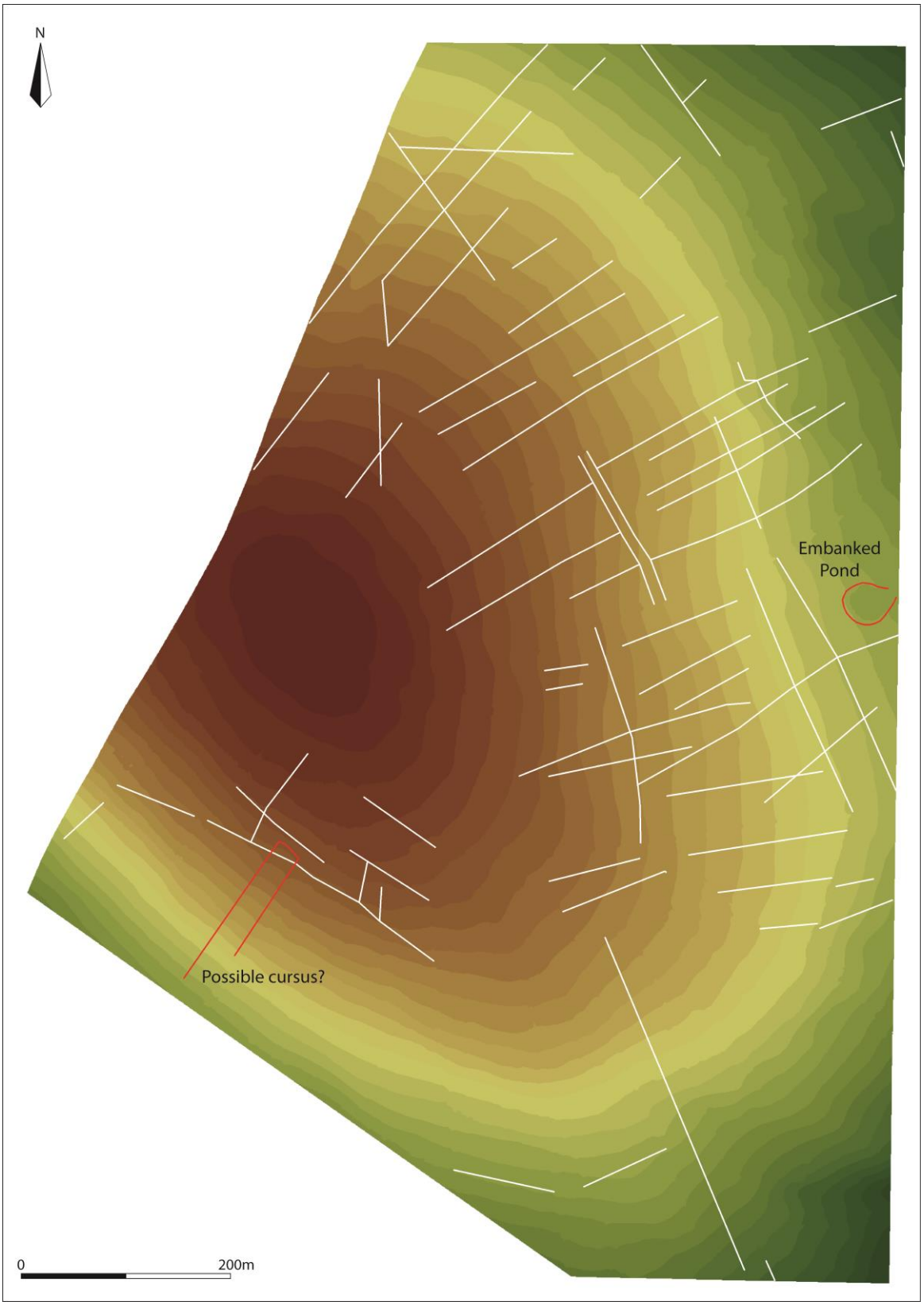

Fig. 5.39: Relict field systems and features of possible archaeological significance identified through LiDAR survey at Hughstown.

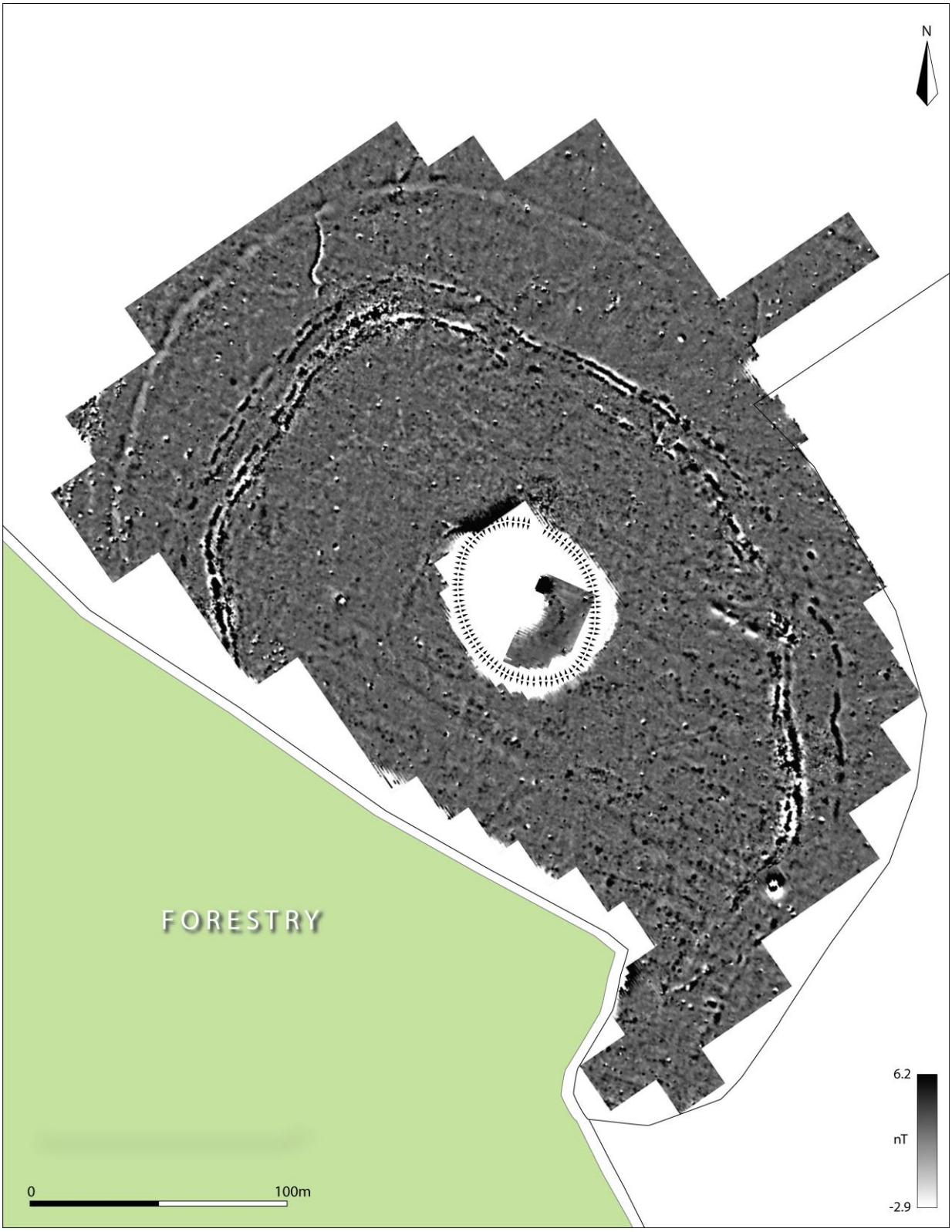

Fig. 5.40: Gradiometry survey results at Hughstown.

Fig. 5.41: Gradiometry survey interpretation at Hughstown.

readings appear to represent areas of burning and could be interpreted as the burnt remains of wooden features. Each set comprises concentric annular features separated approximately 1.8–3.1m apart. A series of pit-like features in a section of the inner set of palisades at the north-east could represent some post-holes comprising the palisade and these were spaced approximately 1.2m apart. Cambridge University aerial photographs reveal a broad parch-mark over the circuit of these features, possibly indicating that stone was incorporated in the complex design of the defences. The four concentric anomalies could represent two moderately spaced enclosing elements, each of which consists of a stone bank and external ditch (see Fig. 5.41). Both banks could have contained wooden elements that were destroyed by fire which created an intense magnetic anomaly. Subsequent erosion of this material into the ditch may then have created the high magnetic anomaly just outside of this.

A single 10m by 2m trench was excavated across the line of the second enclosure on the western side of Hughstown (see Appendix 10 ; Fig. 5.42). Excavation revealed the remains of a bank which incorporated a slot trench and stake settings, as well as a large external earth-cut ditch. The base of the bank measures 1.9–2.5m and is positioned approximately 2m inside the

Fig. 5.42: Excavation of enclosure 2 at Hughstown.

inner cut of the ditch. The surviving bank comprised a layer of broken stones, many of which had a reddened appearance, possibly due to natural iron oxide weathering or a burning event. The latter seems more plausible, as natural oxidation would not cause such intense magnetic readings. Also, if the geophysical responses are related to oxidisation, we should expect other naturally occurring stones in the survey area to produce similar results, however, this is not evident in the survey area. Underneath this layer, an old ground surface was identified as well as a slot trench with four possible stake-holes. This contained frequent angular and reddened stones and small amounts of charcoal. A radiocarbon sample dated this feature to 3694–3523 BC (GrA-64437) (Table 5.9; Table 5.10). The upper fill of one of the stake-settings also produced a single sherd of Neolithic pottery. The excavator (William O'Brien) has suggested this may represent a light wooden fence supported by the bank. Two large stake-holes, one abutting either face of the bank, were revealed both of which contained angular reddened stone. The stake-hole positioned on the outer face of the bank returned a date of 3704–3533 BC (GrA-64436).

Sample Number	Lab Code	Date	Calibration (2 sigma)
HT2015-01	(GrA-64434)	4815 ± 35 BP	3661–3521 BC
HT2015-02	(GrA-64437)	4850 ± 35 BP	3704–3533 BC
HT2015-03	(GrA-64436)	4825 ± 35 BP	3694–3523 BC

Table 5.9: Hughstown radiocarbon dates.

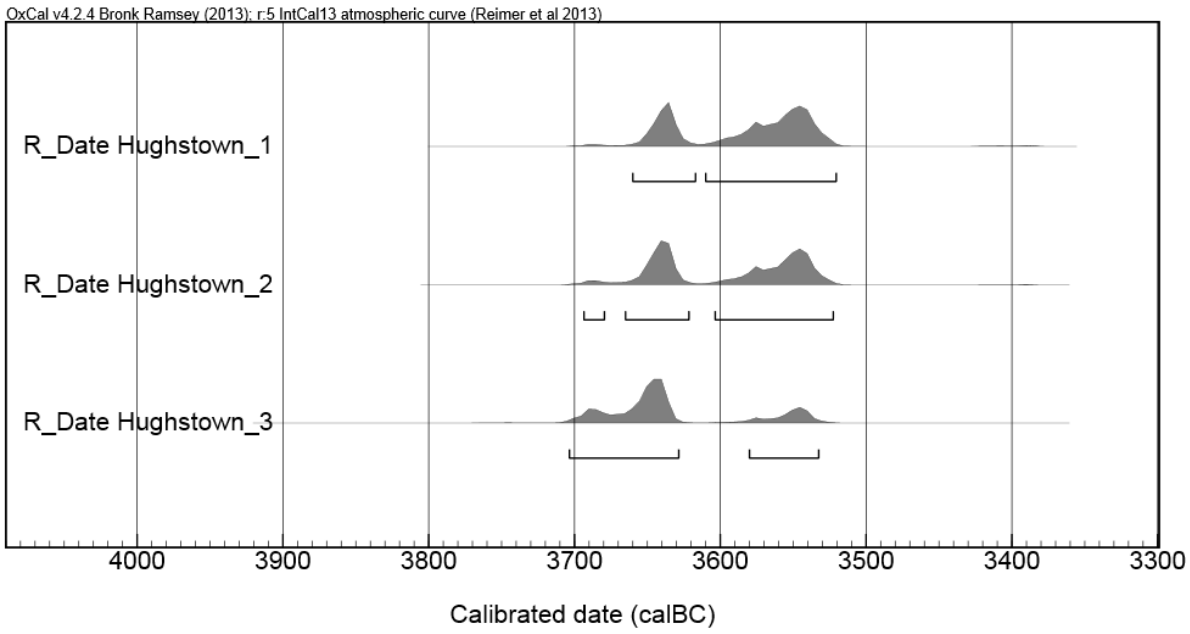

Table 5.10: Hughstown radiocarbon dates plotted using Oxcal, v.4.2.4.

Excavation revealed the external ditch is V-shaped, 2.8m–3m wide and up to 1.5–1.6m deep. Large stone identified throughout the fill may indicate that the internal bank was stone faced. The basal fill of the ditch contained a thin deposit of charcoal dated to 3661–3521 BC (GrA64434). The excavator (William O'Brien) argues that this is not connected to any burning event inside the ditch or adjacent bank, principally because neither the cut or the stones directly overlying the charcoal were fire-reddened. Instead, he links the charcoal with a small fire in the vicinity. It could be argued charcoal from a small, unrelated fire was sealed by large stone slabs deposited in the ditch during a destruction event. The wall may have been partially dismantled with the larger slabs thrown into the ditch. The wooden elements could then have been burnt on top of the remaining bank. This would have created the differential distribution of reddened stones in the ditch fill. It could also explain the presence of reddened stone at the base of the bank and in the fill of the stake-holes features and slot trench, as well as explaining the geophysical anomalies.

The third enclosure at Hughstown has a similar geophysical signature and is concentric to the second enclosure. That that basis, it could be contemporary, although this remains to be clarified by excavation. Interestingly, the fourth outermost enclosing element is compositionally different, being visible on the geophysical survey as a wide bank, with aerial survey indicating it also had an accompanying ditch. The geophysical survey suggests these enclosing elements are not magnetically enhanced. The survey also revealed the outer example is not concentric with the second and third enclosures. It could be argued that these features are not contemporary with the Early Neolithic enclosures and may date to a later period, though this remains to be proven by excavation.

There is no clear evidence for an entrance in any of the identified enclosing elements. A linear arrangement of strong readings indicative of an area of burning is visible at the north (Fig 5.41). This could have marked a formal entrance to the interior, although this does not align with the entrance of the enclosure at the summit of the hilltop. Although the latter is of ringfort proportions, the size and composition of the bank, which is consistent with the surviving section of the outer bank of the hillfort, might indicate a prehistoric date. The entrance to this enclosure faces east and is aligned on an embanked pond and unrecorded barrow at the base of the hill.

The geophysical results identified 41 ephemeral circular anomalies in the interior of Hughstown that could be tentatively interpreted as hut structures (Fig 5.41; Fig 5.42; Table 5.11). These range from 6m to 17m in diameter (see Fig. 5.43 as an example). They appear as faint circular bands of magnetic readings and so it is unlikely that these potential structures were

destroyed by fire. A single structure is positioned inside the enclosure at the summit of the hillfort. This is the largest hut site and is visible on the ground as a circular setting of stones approximately 17m in diameter. The stone setting is approximately 0.6m wide and up to 0.4m high. High magnetic readings in the geophysical results indicate that this was the footing for a wooden wall that was subsequently destroyed by fire. There is no obvious entrance feature visible on the surface or in the magnetic data, although a portion of the structure has been truncated by recent activity within the centre of the enclosure.

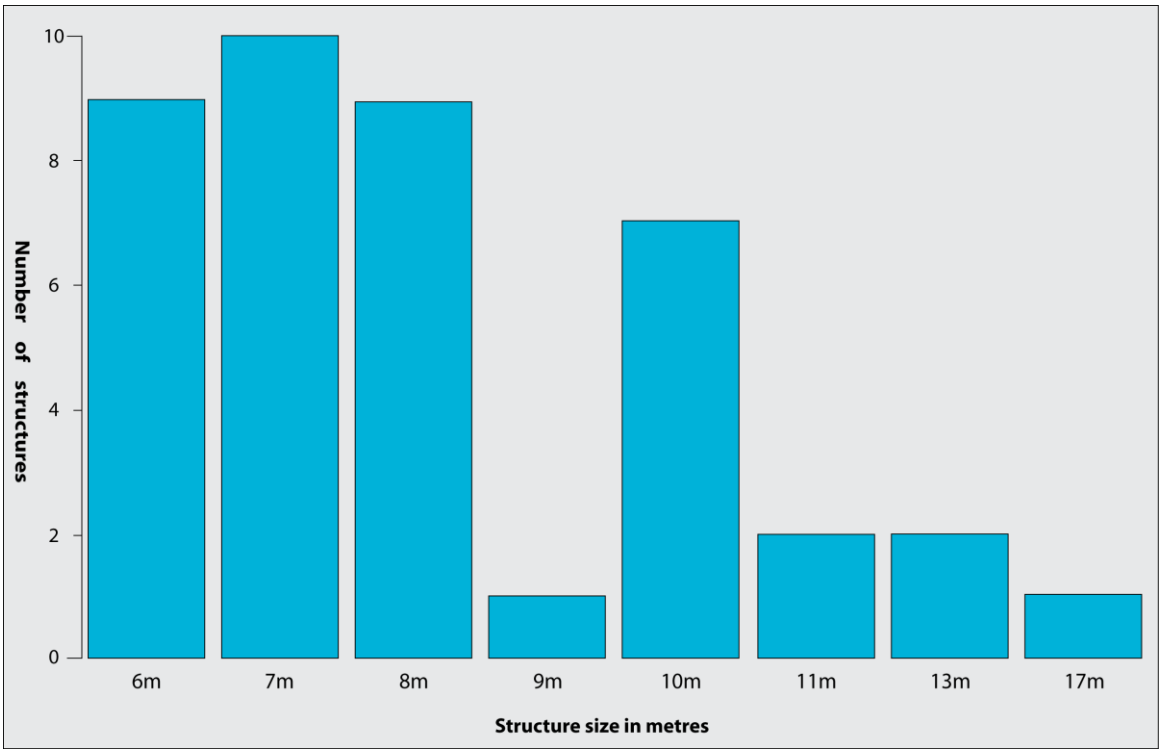

Table 5.11: Hughstown structures.

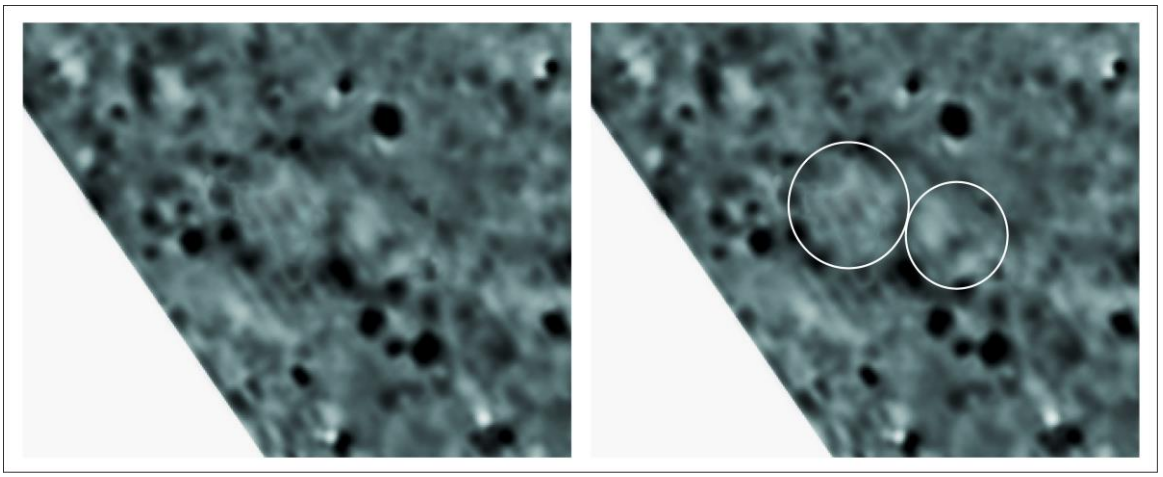

Fig. 5.43: Example of possible structures identified in Hughstown gradiometry survey.

5.6 'HILLS WITHOUT HILLFORTS'

There are a number of prominent hilltops in the Baltinglass area that have no visible features that might suggest the presence of a hillfort. These were included in the survey to assess the potential of these hills as hillfort locations.

5.6.1 Rathmoon

This is a large, now levelled enclosure is located almost centrally between Corballis, Hughstown, Tinoran and Tuckmill Hill. The site is classified by Grogan (2007b, 117) as a hilltop enclosure (RMP: WI026-009), despite its low-lying and inconspicuous location. It forms one of four large enclosures in the Baltinglass area positioned at the base of hilltops in low-lying, inconspicuous positions (Fig. 5.44). The enclosure is depicted in the first and second edition OS maps as a univallate enclosure with a total footprint of approximately 1.14ha. Aerial and satellite imagery reveal a more complex system of up to three somewhat concentric enclosing elements, all of which that been levelled (Fig. 5.45).

The visibility from Rathmoon is more restricted than the hillforts in the area. This is emphasised by the viewshed results which reveal a potential 93km² of terrain visible from the interior, although it is notable that the four hilltops of Corballis, Hughstown, Tinoran and

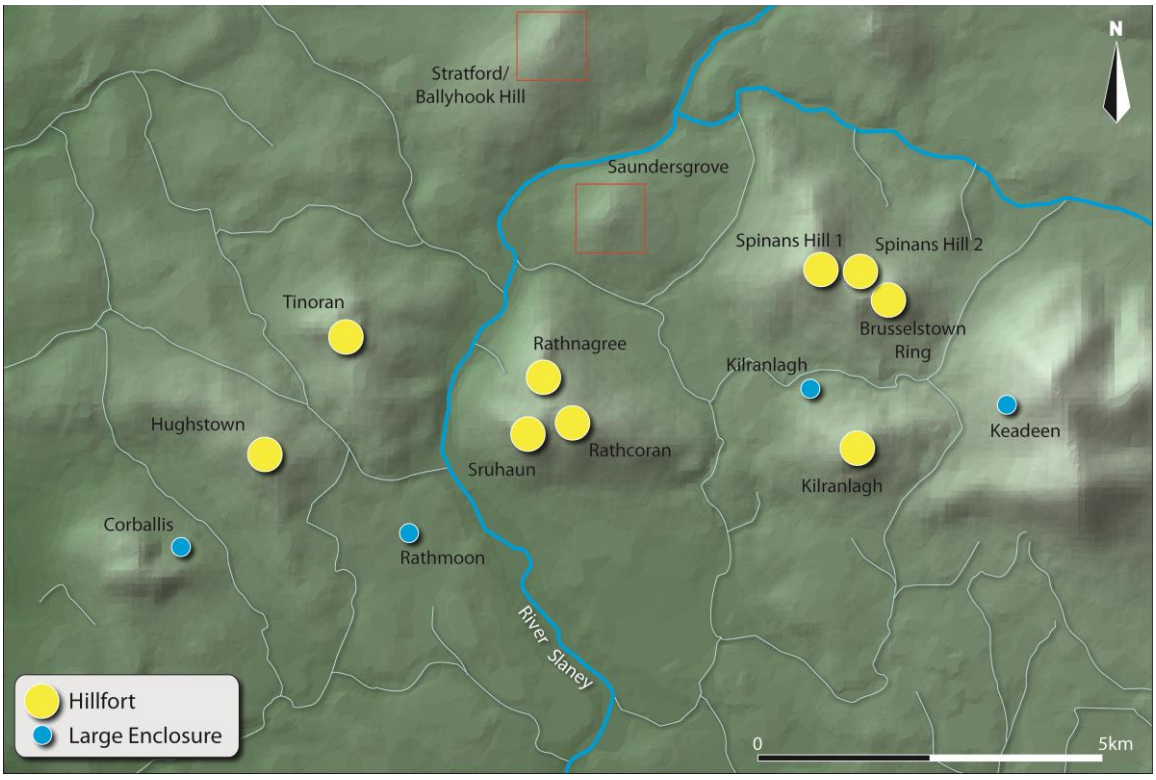

Fig. 5.44: Map of hillforts and large enclosures at base of hillforts in the Baltinglass area.

Tuckmill Hill are visible. This restricted viewshed corresponds with the limited views from other large enclosures at the base of Keadeen mountain, Kilranlagh and Corballis and these clearly contrast with the extensive visibility from the hillforts in the area (Table 5.12).

Geophysical survey (Appendix 11) revealed a complex system of enclosure and internal features that suggests the monument is prehistoric (Fig. 5.46; Fig 5.47). The enclosure is sub-rectangular, comprising a series of widely-spaced enclosing elements measuring 160m (east–west) by 120m (north–south). This has increased the size of the monument to 1.71ha. The enclosing elements are spaced between 15–22m apart. The two outer enclosures do not form complete circuits and are appended to inner enclosures, creating an uneven distribution. The responses from the geophysics suggest that these are ditch features measuring up to 8m wide. These probably had internal banks and geophysical responses suggest that these were up to 9m in width. A series of radial banks between the outer two enclosures were probably created in the

Fig 5.45: Satellite image of Rathmoon, visible as a crop-mark (Google Earth 2015).

Enclosure Name	Kilometres squared
Rathmoon	93.47
Corballis	13.46
Keadeen	528.18
Kilranlagh	247.47

Table 5.12: Viewshed areas for four large lowland enclosures in the Baltinglass area.

Fig. 5.46: Gradiometry survey results at Rathmoon.

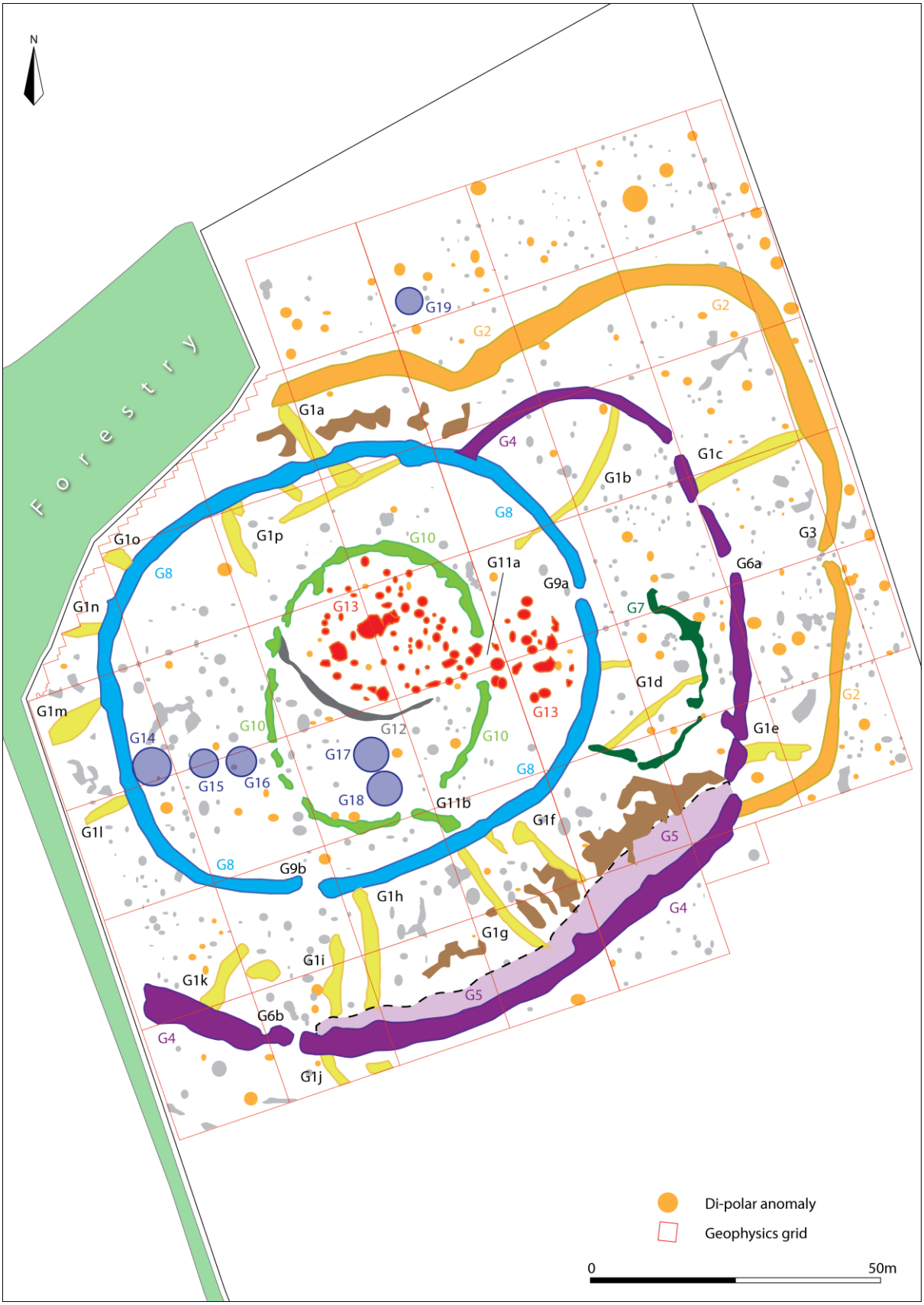

Fig. 5.47: Interpretation of gradiometry survey results at Rathmoon.

early modern era for cultivation and animal grazing. The anomalies that define the two inner enclosures are distinct from the latter examples and comprise a series of high magnetic responses 1.5–4m in width (although not high enough to be regarded as *in-situ* burning). Considering these enclosures are apparent in the aerial and satellite imagery as probable ditch features, it is likely that they form ditches filled in with highly magnetic material. The inner enclosure is sub-divided by an annular band of magnetism, probably a shallow ditch.

At the east, where the enclosures overlap, there is a corresponding entrance in each of the enclosing elements, suggesting that all four enclosures were in use at the same time. These openings range from 6–2.3m in width. They probably formed a formal entrance to the site. It is notable that this is the only side of the enclosure where all four enclosing elements overlap. This may have been a deliberate attempt to monumentalise the entrance area. The entrance of the inner enclosure is slightly staggered and this may have been a purposeful arrangement, concealing visibility of the interior until the last moment. There are two other corresponding entrance breaks at the south.

Two faint circular features were identified within the inner enclosing elements and a further three examples were identified between the inner two enclosures. These range from 8m to 6m in diameter and could represent levelled hut structures. Within the northern part of the inner enclosure and immediately outside the entrance area, there is a concentration of pit-like features, as well as a strong number of magnetic responses at the centre. These are probably archaeological in origin and could be interpreted as burial features. Considering the sparce amount of possible domestic habitation, the composite monument could be regarded as an elaborate burial area.

5.6.2 Corballis

Corballis Hill is positioned 2.2km south-west of Hughstown and forms the westernmost hilltop in the series of prominent hills extending westward from the Wicklow Mountains (Fig. 5.44). The summit of the hilltop is extensively forested, which limits the application of GPS and geophysical techniques, and there is no LiDAR available for the area (Fig. 5.48). The aerial photography reveals no clear features of archaeological interest; however, it is the position and prominence of the hilltop that marks it as important landscape feature. There are a limited number of hilltops that are visible to all of the hillforts in the Baltinglass area and most of these are crowned by hillforts. At the eastern base of Corballis, a large enclosure 1.05ha in size is marked in the first and second edition Ordnance Survey maps. This enclosure comprises a bank and ditch

measuring up to 33m wide (Flood 2009, 97). The size of the enclosure and the enclosing elements, as well as its similarities in layout and position to other large enclosures in the vicinity, would suggest a prehistoric date.

There is a potential 1493km² of terrain visible from the summit of Corballis and this broadly corresponds with viewsheds from the hillforts in the area. Similarly, there are impressive views of the immediate surroundings and hill slopes, with particularly visibility towards the south, west and north-west, where there are no obstructions of the low-lying terrain. The topographical positioning of Corballis, therefore, compares favourably with other hilltops in the area. This is a potentially significant hilltop which could have had another hillfort at its summit. However, without further evidence, this is speculation.

5.6.3 Saundersgrove

Saundersgrove Hill is similar to Corballis in that it is a prominent hilltop visible from all of the Baltinglass hillforts (Fig. 5.44). It is located 1.5km north-east of Tuckmill Hill and 2.2km west of Spinans Hill. There is a cluster of four recorded barrows (RMP: WI021-054-001, WI021-054-002, WI021-054-003, WI021-054-004), two standing stones (RMP: WI021-027, WI021-079) and a

Fig. 5.48: Corballis Hill (Bing Maps).

Linkerdstown burial (RMP: WI021-057) at the north-eastern base of the hilltop. Up to six 'enclosures' have been identified on the south-western slopes (RMP: WI021-048, WI021-049, WI021-050, WI021-052, WI021-053, WI027-013). While these are probably Early Medieval in date, the fact that three of these are under 25m in diameter may suggest they could be prehistoric barrows. Unfortunately, these have been ploughed-out and a more accurate assessment cannot be undertaken.

The western slopes of the hilltop have recently been planted with forestry. Aerial photography has revealed no features of potential archaeological significance (Fig. 5.49). LiDAR data was obtained for the area at 0.5m resolution and this revealed a series of relict field systems that probably date to the 17th or 18th century (Fig. 5.50). While there are no obvious features of archaeological significance, a discrete annular earthwork at the western base of the hilltop was identified. This is apparent as a bank up to 12.2m wide. To the north, the feature is apparent as a broad 14m wide depression. There is no clear indication of an associated ditch. The earthwork is approximately 343m in length and varies between 181–184m OD. It is positioned at the margin of slope where undulating terrain meets a more severe incline. If projected, the earthwork has an approximate diameter of 510m that would enclose an area of 19.63ha. However, the landscape position does not correspond with other hillforts in the area and interpreting this site as a hillfort is unconvincing.

Fig. 5.49: Saundersgrove (Bing Maps).

5.6.4 Stratford/Ballyhook Hill

Stratford or Ballyhook Hill is also a prominent hilltop visible from all of the Baltinglass hillforts. It is approximately 3.6km north-west of Spinans hill and 3.3km north of Tuckmill Hill (Fig 5.44). There are no obvious archaeological features at the site, although there is a circular mound 2.3km south-west of the summit which produced human remains including three skulls during sand extraction around the beginning of the 1900's.

There are no features of potential archaeological significance visible in aerial or satellite imagery (Fig. 5.51). LiDAR data was obtained at 0.5m resolution for the area and this revealed a limited number of relict field boundaries of probable 17th or 18th century date. No other features were recorded and it is unlikely that this hilltop was crowned by a hillfort (Fig. 5.52).

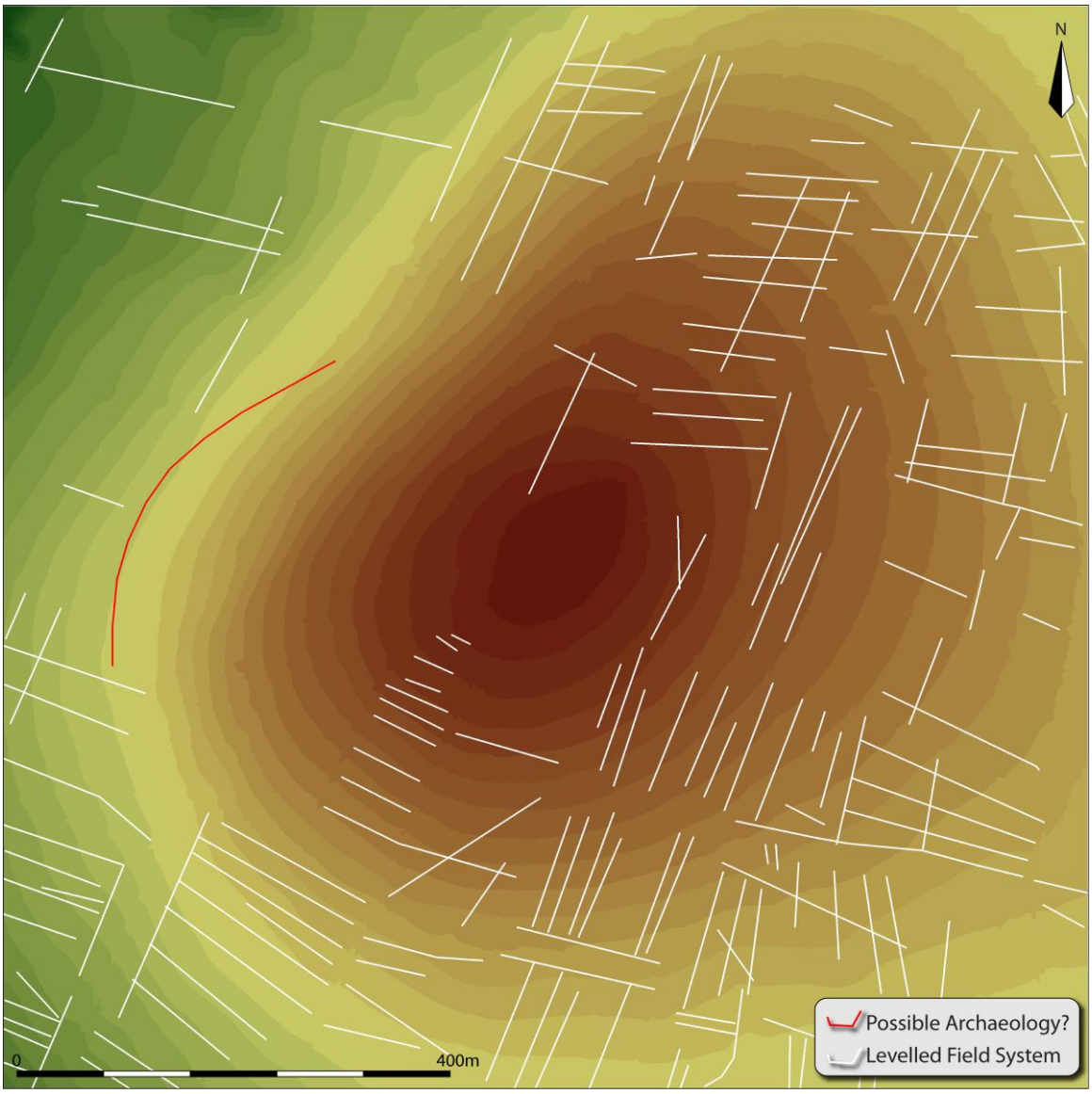

Fig. 5.50: Relict field systems and features of possible archaeological significance identified through LiDAR at Saundersgrove.

5.7 AERIAL AND SATELLITE IMAGERY IN THE BALTINGLASS AREA

All available aerial and satellite imagery was examined to identify unrecorded features of possible archaeological significance in the general Baltinglass area, covering an area approximately 9km north/south by 14km east/west centring on the hillforts. This includes four datasets from Google Earth provided by Digital Globe and NASA, one set of satellite images from Bing Maps and three sets of aerial photography from Ordnance Survey Ireland. In addition, aerial photographs taken by the Cambridge Aerial Photographic Unit and the Irish Army Air Corp in the 1960's and 1970's were consulted. While this provided an excellent dataset to analyse, the images are taken indiscriminately and often in conditions unsuitable for detecting archaeological features. This is supported by the identification of two enclosures at the northwestern base of Hughstown in the Cambridge Aerial Photography Collection, which was flown in advantageous conditions with the intention of identifying archaeological sites. Neither of these enclosures are visible in the available open source imagery. This highlights the incomplete nature of the evidence and the potential for discoveries.

Up to 45 features of possible archaeological significance were identified in the images (Fig. 5.53). These have been sub-divided into two categories; possible barrows and possible

Fig. 5.51: Stratford/Ballyhook Hill (Bing Maps).

enclosures. This does not include relict field systems or other associated agricultural features principally due to the large number present. The two categories were defined by the size of the vegetation mark, with circular features under 20m in diameter tentatively being labelled as possible barrows and features over this limit being termed possible enclosures. This size differentiation was chosen due to the excessive number of Early Medieval ringforts in Ireland, which generally range 25–45m in diameter. Although these larger circular features could be Early Medieval, they could also be classified as large ring-barrows, with the large extant barrow on the eastern slopes of Brewel Hill in Co. Wicklow, measuring approximately 55m in diameter (see below) being an excellent.

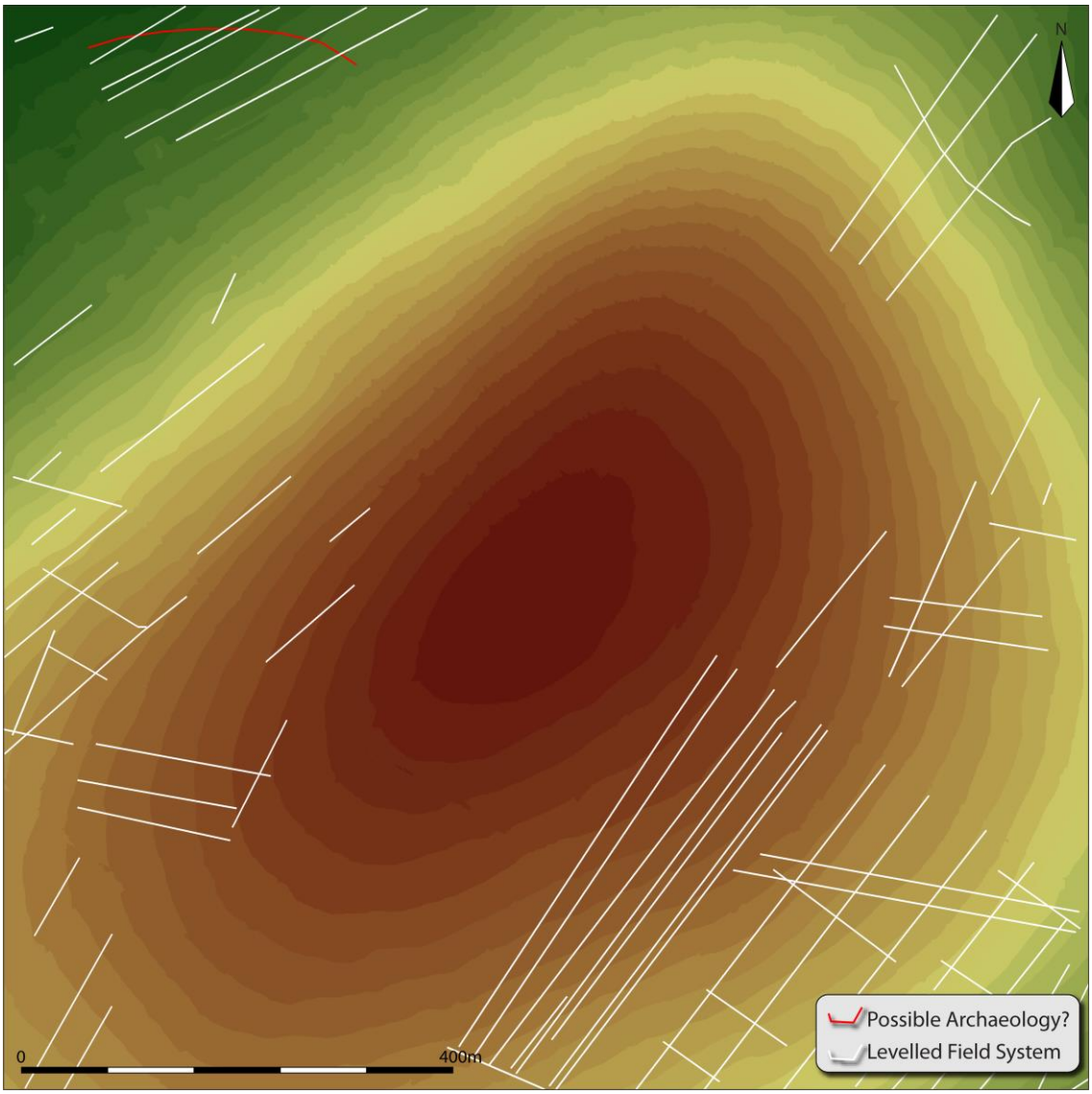

Fig. 5.52: Relict field systems and features of possible archaeological significance identified through LiDAR at Stratford/Ballyhook Hill.

Fig. 5.53: Possible barrow monuments in the Baltinglass area.

5.7.1 Results

The results of the aerial and satellite survey are displayed in Fig. 5.53, with each potential site being given a specific reference number which is referenced in text. None of these sites have been recorded previously. **A1** and **A2** are visible in the 2009 and 2011 satellite images from Google Earth as circular bands approximately 20m and 18m in diameter respectively. **A1** has a potential entrance at the north-east measuring approximately 6m wide. **A3** is visible in are four sets of satellite imagery available from Google Earth and is apparent as a circular area of darkened soil approximately 20m in diameter (Fig. 5.54). The 2011 image is more defined and shows that this circular area is surrounded by an annular band probably representing a ditch feature. These may represent levelled ring-barrows.

Two possible barrows positioned approximately 11m apart are apparent in the 2003 and 2011 satellite images from Google Earth (**A4** and **A5**). These measure 19m (**A4**) and 17m (**A5**) in diameter. **A4** is better defined and is apparent as a circular band of lighter soil in a newly ploughed field (Fig. 5.55).

A6 and **A7** are apparent as circular vegetation marks in Google Earth satellite images from 2003 and 2011. They measure approximately 15m and 13m in diameter and may represent levelled barrows. **A8** represents a larger circular vegetation mark visible in 2011 Google Earth satellite imagery and in aerial photographs from Ordnance Survey Ireland dated 2000. The latter photographs reveal a circular band approximately 9m wide, and 67m in overall diameter, which represents a levelled enclosure of unknown date.

As many as nine circular vegetation marks (**A9**–**A17**) 1.3km west of Tinoran are apparent in various satellite and aerial images (Fig. 5.54). **A13** is much larger than the other examples in the cluster, measuring approximately 64m in diameter. It is defined by an annular 8m wide band of lighter soil surrounding a central area of dark soil. It probably represents an enclosure of unknown date. The remainder of the features range from 9–19m in diameter and are visible as circular bands of lighter soil surrounding central areas of darker soil. The size and number of these small circular features would suggest they are levelled ring barrows.

An unrecorded barrow (**A18**) has been identified at the eastern base of Hughstown and is visible in satellite and aerial images. It is also visible at ground level as a 4m wide stone bank, approximately 18m in diameter, with a low-rise central mound. Google Earth satellite images reveals another possible barrow (**A19**) 150m east of **A18**. **A20** is located 250m south of

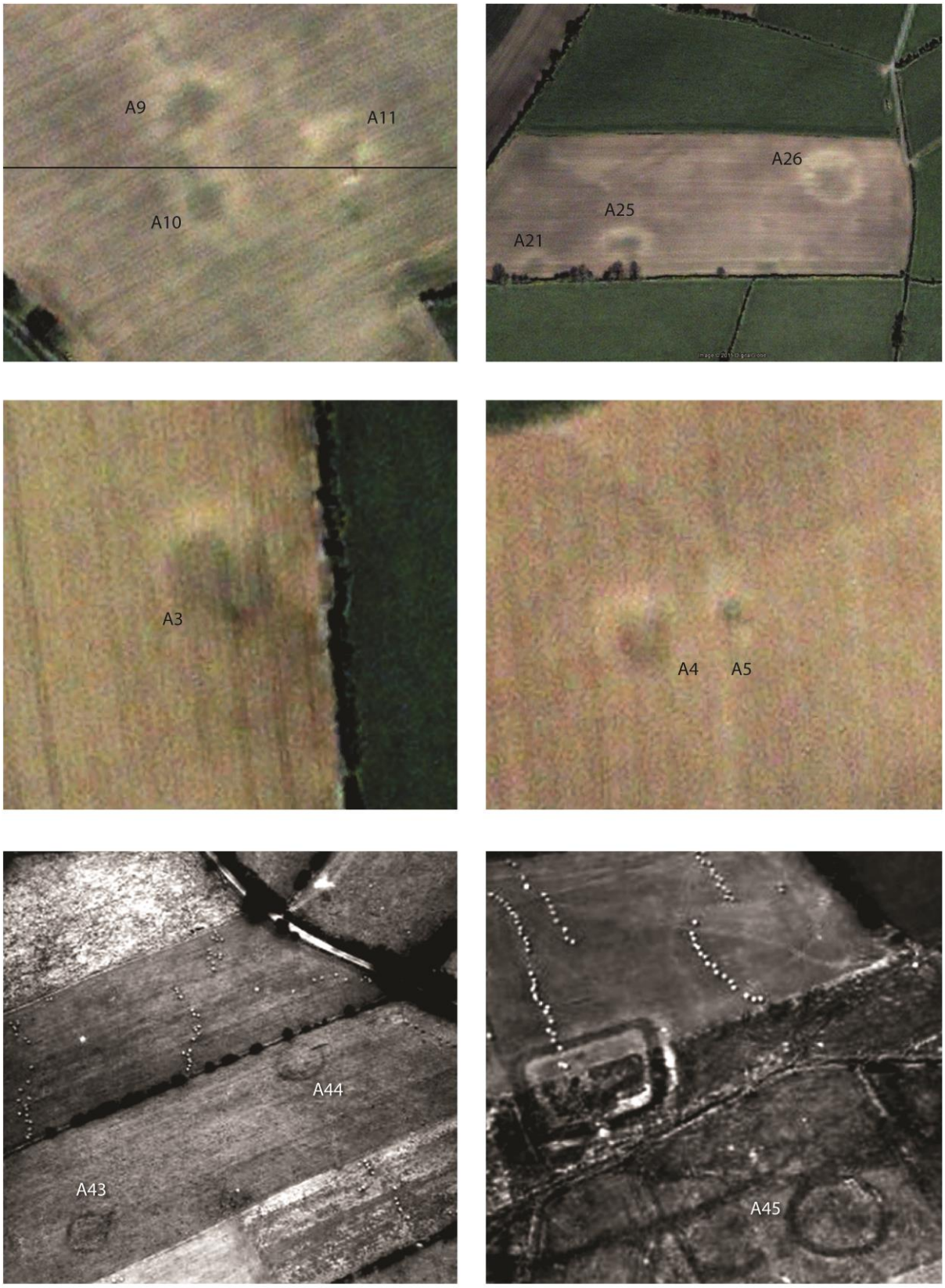

Fig. 5.54: Examples of possible levelled barrows visible in aerial photography.

Rathmoon and comprises an oval vegetation mark measuring 23m (east–west) by 38m (north–south). The feature is marked on the 1910 edition of the Ordnance Survey maps and probably represents an enclosure of unknown date.

A cluster of circular vegetation marks at the northeastern base of Tinoran are visible in various sets of satellite and aerial images. **A21**, **A25** and **A26** probably represent levelled barrows (Fig. 5.55). **A21** comprises circular area of darkened soil, 12m in diameter. **A25** and **A26** are more defined and comprise circular bands of lighter soil surrounding central areas of darker soil. The lighter band of soil probably represents a bank, while the central area of dark soil could represent the levelled remains of an earthen mound. Both features measure around 20m in diameter. Approximately 120m east of **A26**, a large circular vegetation mark (**A27**) is apparent. This measures 56m in diameter and is defined by a band of lighter soil surrounding a central area of darker soil. Although this feature has been termed a possible enclosure, its composition might suggest it is a levelled ring-barrow, although this cannot be determined without further investigation. **A22**, **A23** and **A24** are visible in Google Earth and Ordnance Survey Ireland imagery as circular vegetation marks, measuring 28–35m in diameter, which may represent levelled enclosures.

A28, **A29** and **A30** are located on the eastern side of the River Slaney and probably represent levelled ring-barrows. They range in size from 14.5–20m. **A31** and **A32** may also represent levelled barrows. They are approximately 8m apart and are visible in 2010 and 2011 Google Earth and Bing satellite imagery. **A31** is 12m in diameter and is defined as a circular vegetation mark. **A32** is defined as an oval vegetation mark 14m (east–west) by 22m north–south).

Two possible levelled barrows 12m apart are visible in the 2011 Google Earth satellite imagery (**A33** and **A34**). Both are defined by a circular band of lighter soil that surrounds a central area of dark soil and measure between 19 and 22m in diameter.

A35 is visible in most aerial and satellite imagery and is defined by an extant but slight circular earthwork approximately 34m in diameter. The earthwork comprises a low-rise internal bank and external ditch. There is a possible entrance at the south-west that consists of a simple break approximately 3m wide. There are no obvious internal features.

A36 represents a possible levelled barrow and is apparent on the 2011 Google Earth satellite imagery as a circular vegetation mark approximately 14m in diameter. Near the south-western base of Spinans Hill, a circular vegetation mark 19m in diameter (**A37**) may also

represent a levelled barrow. Similarly, **A38** is defined by a circular vegetation mark approximately 17m in diameter.

A39 is positioned at the north-western base of Spinans Hill and comprises a circular vegetation mark visible on the 2003 and 2011 Google Earth satellite imagery. The feature measures approximately 14m in diameter and might represent a levelled barrow. **A40** is located at the eastern base of Spinans Hill. It comprises a heavily overgrown low-rise bank approximately 10m in diameter. Considering it is located close to a recorded settlement cluster it could be interpreted as a hut structure, however, it could also be a ring-barrow.

Positioned on the northern side of the River Slaney, two circular vegetation marks (**A41** and **A42**) may represent levelled ring-barrows. **A41** is defined by a circular band of darker vegetation possibly representing a ditch feature and this measures 13m in diameter. **A42** measures 16m in diameter and is visible as a circular area of lighter vegetation.

A43 and **A44** comprise two circular bands approximately 13m and 15m in diameter. These features are only visible in the Cambridge Aerial Photograph Collection. Similarly, **A45** is apparent in this collection as a circular vegetation mark measuring 20m in diameter. A rectangular enclosure is also visible 50m to the south-west (Fig. 5.54).

5.8 COMPARANDA

A number of comparative studies were undertaken on archaeological sites in Co. Wicklow that provide parallels for the Baltinglass group. These include Brewel Hill and the pair of hillfort comprising Knockeen and Rathgall.

5.8.1 Brewel Hill

Brewel Hill (RMP: KD032-026001) is another enclosure in Co. Wicklow that has been classified as a hilltop enclosure (Grogan 2007b, 117) Along with Rathmoon, these are the only recorded 'hilltop enclosures' in Wicklow. This monument is in a prominent and highly visible hilltop location (Fig. 5.55). It is positioned approximately 10.5km to the north of the Baltinglass hillfort group and is the furthest northerly point that is visible to all of these hillforts. The hilltop enclosure at Brewel Hill surrounds a possible stone circle (RMP: KD032-026002). A number of prehistoric barrows are located immediately north of the site, the largest of which is approximately 55m in diameter. Other archaeological features have been recently discovered by

aerial photography, such as a rare cursus monument (RMP: KD032-058), a possible figure-of-eight enclosure with three smaller adjacent enclosures (RMP: KD032-057), located at the eastern base of the hill. While these sites may not have any direct relationship to the activity at the summit of the Brewel Hill, they hint at an important prehistoric ritual landscape close to and visible from the Baltinglass group.

The enclosure at the summit of Brewel has a potential 869.37km² of terrain visible from the interior. There are extensive views of the immediate environs, although the flat topped shape of the hill obscures visibility of the immediate base of the hill. A number of hills block wider visibility to the west and a steep north-south running set of hills blocks views to the east. The eastern edge of the Castlecomber Hills are visible to the south-east. The Baltinglass hills and Wicklow Mountains block views of the wider landscape to the south and east.

The enclosure on Brewel comprises a circular ditch approximately 78m in diameter and measures 6–8.2m wide and up to 0.8m deep (Fig. 5.56). There are faint indications on the ground of an internal bank and geophysical survey has supported this (Fig. 5.57; Fig. 5.58). There is a possible original entrance at the north-east. Geophysical survey (Appendix 12) undertaken

Fig. 5.55: Brewel Hill.

by the author revealed up to five possible wooden structures within the interior of the Brewel enclosure. Four of these are less than 10m in diameter and could be interpreted as domestic structures. The evidence for a large circular enclosure, 22m in diameter, could represent ritual activity associated with the enclosure. Although some have ascribed hilltop enclosures a Late Bronze Age date there is no convincing dating evidence to support this and as such, we cannot suggest if the enclosure on Brewel Hill is contemporary with the Baltinglass sites. However, the

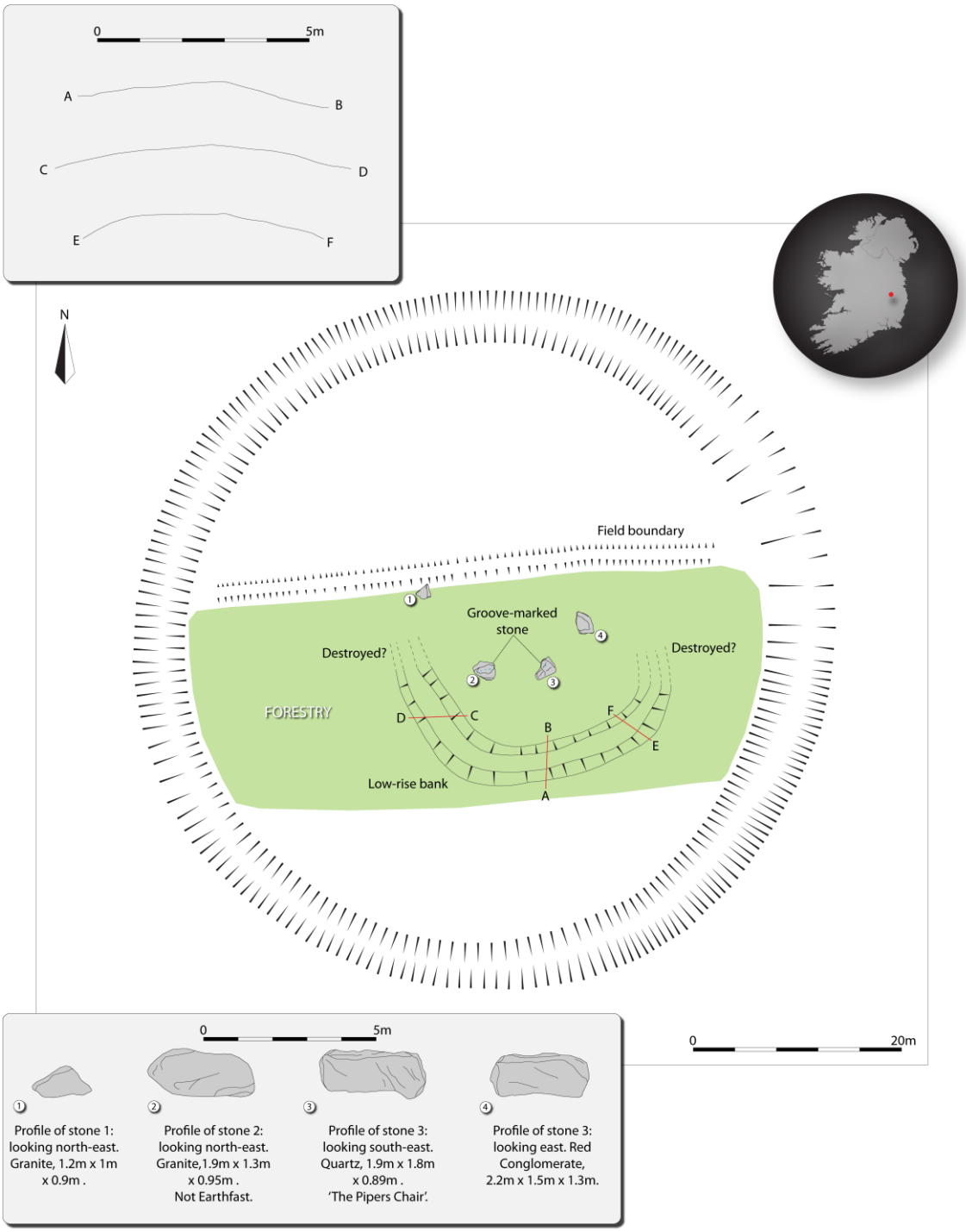

Fig. 5.56: Plan of hilltop enclosure and other features of archaeological significance at Brewel Hill.

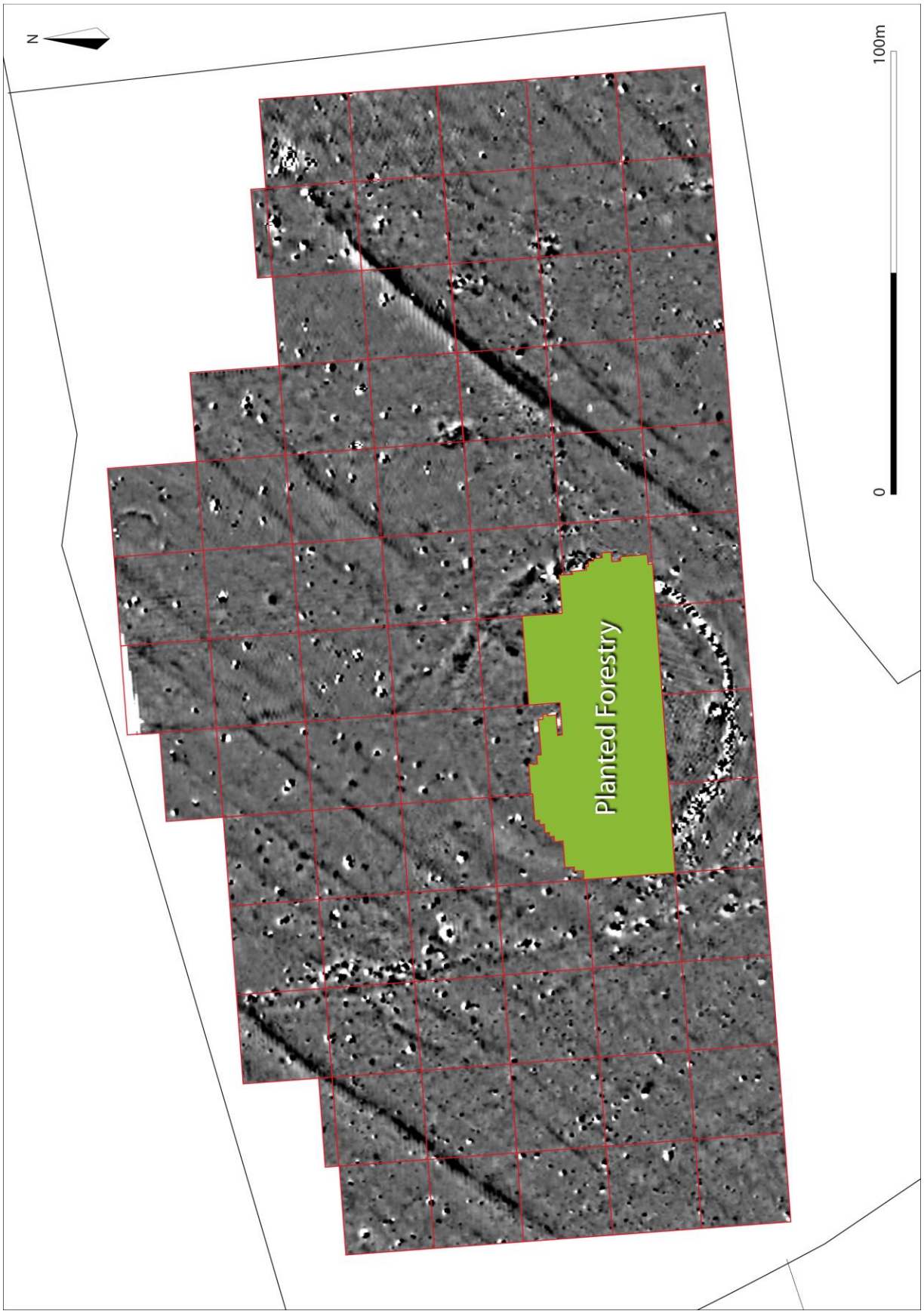

Fig. 5.57: Gradiometry survey results at Brewel Hill.

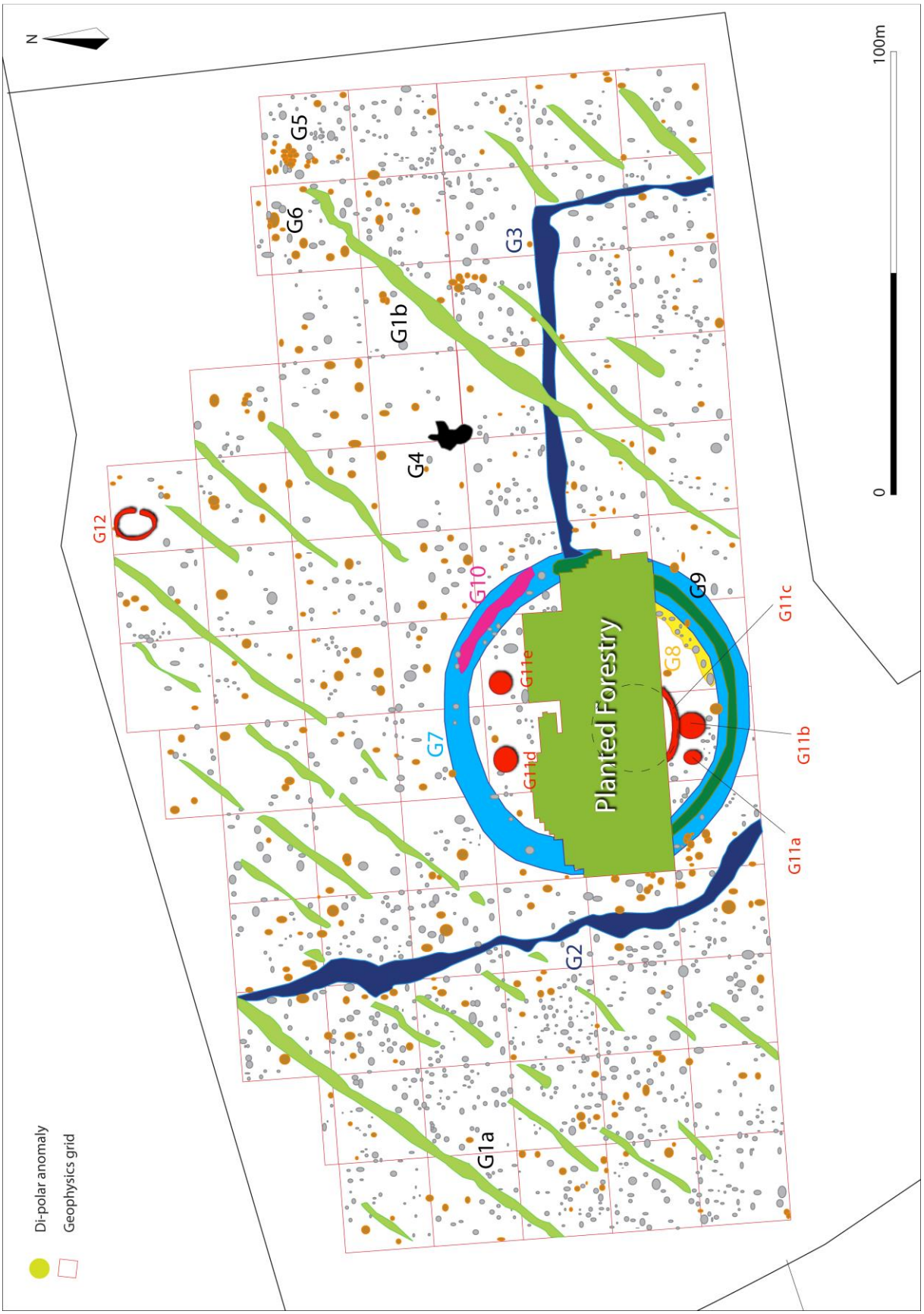

Fig. 5.58: Gradiometry survey interpretation at Brewel Hill.

possible stone circle within the interior certainly infers Late Bronze Age activity at the site. The geophysical survey was extended beyond the extent of the hilltop enclosure to assess if there were larger enclosure features. Except for one possible barrow, no obvious archaeological remains were recorded outside of the extant enclosure at the summit of the hilltop.

5.8.2 Knockeen and Rathgall

Knockeen (No: 70) hillfort is positioned 250m to the south of the well-known hillforts of Rathgall (Fig. 5.59; Fig. 5.60). Rathgall (No: 90) comprises a widely spaced multivallate hillfort that has been dated to the beginning and middle part of the Late Bronze Age. The material culture produced from excavations revealed the occupants were high status. Artefacts indicative of

Fig. 5.59: Rathgall (foreground) and Knockeen (background) hillforts in Co. Wicklow.

long-distance trade and artefact production were also identified at the site (see Chapter 2.2.3 for a more detailed summary). Considering the importance of this hillfort, it is surprising that there has been limited investigations of the nearby Knockeen hillfort. This site comprises a partially extant bank that survives best at the south and west sides. This bank seems to be constructed of a mixture of earth, stone and a yellow clay that is found naturally in the area. The bank encloses an area of approximately 3.14ha and surrounds a large cairn at the highest point of the interior. Aerial photographs suggest a possible second, widely spaced enclosing element may be present 50m from the inner example. There are excellent views of low-lying terrain to the north, east and west. Visibility to the south is obstructed by higher ground, although Rathgall is positioned in this area. Knockeen was studied for comparanda purposes and surveyed using geophysical methods.

Geophysical survey (Appendix 13) did confirm the presence of a second enclosing element at Knockeen (Fig. 5.61; Fig. 5.62). The gradiometry and electrical resistance survey suggest this comprised a bank and ditch feature 55m out from the inner enclosure. The survey also identified a large counterscarp bank associated with the inner enclosing elements and this is

Fig 5.60: Knockeen hillfort.

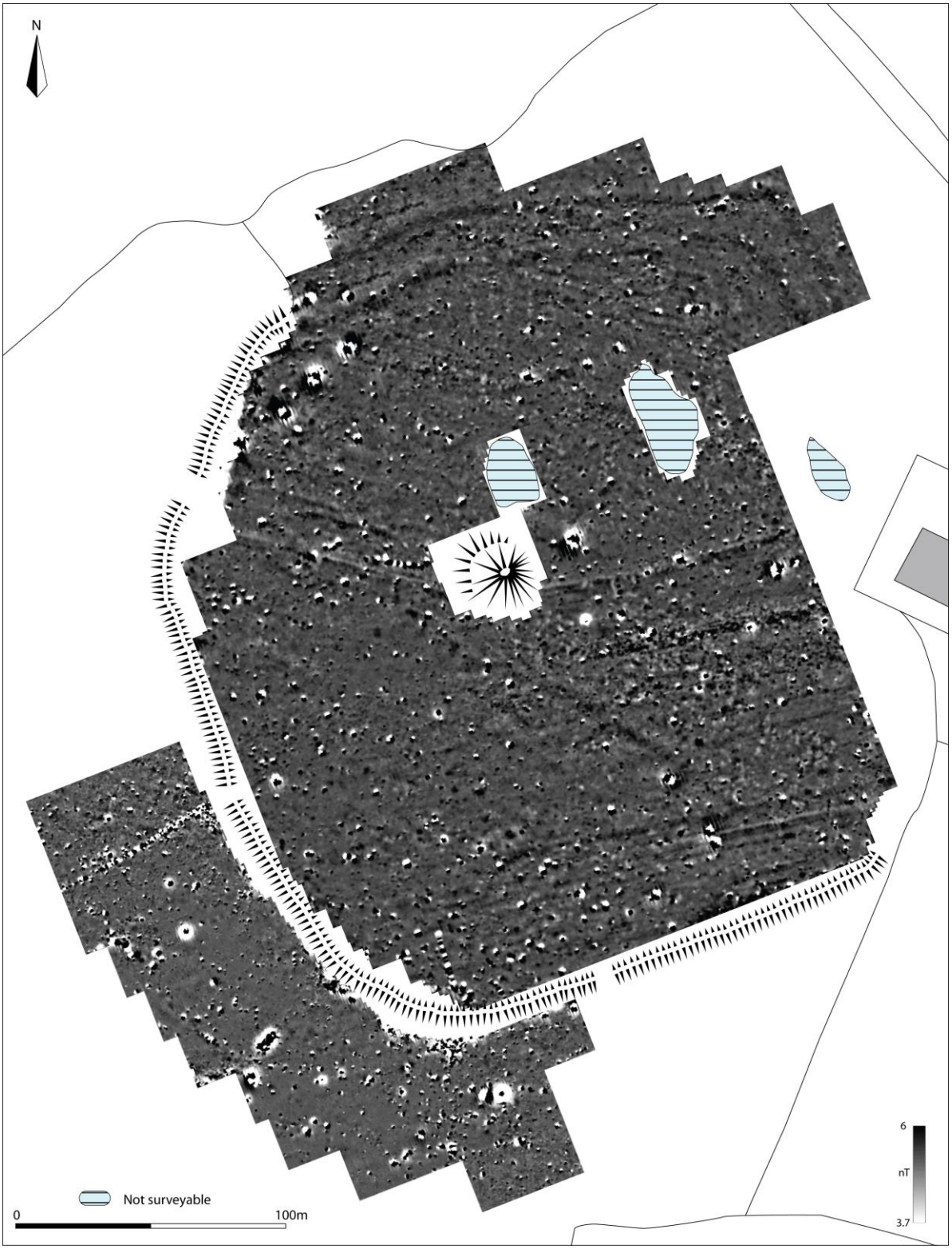

Fig. 5.61: Gradiometry survey results at Knockeen.

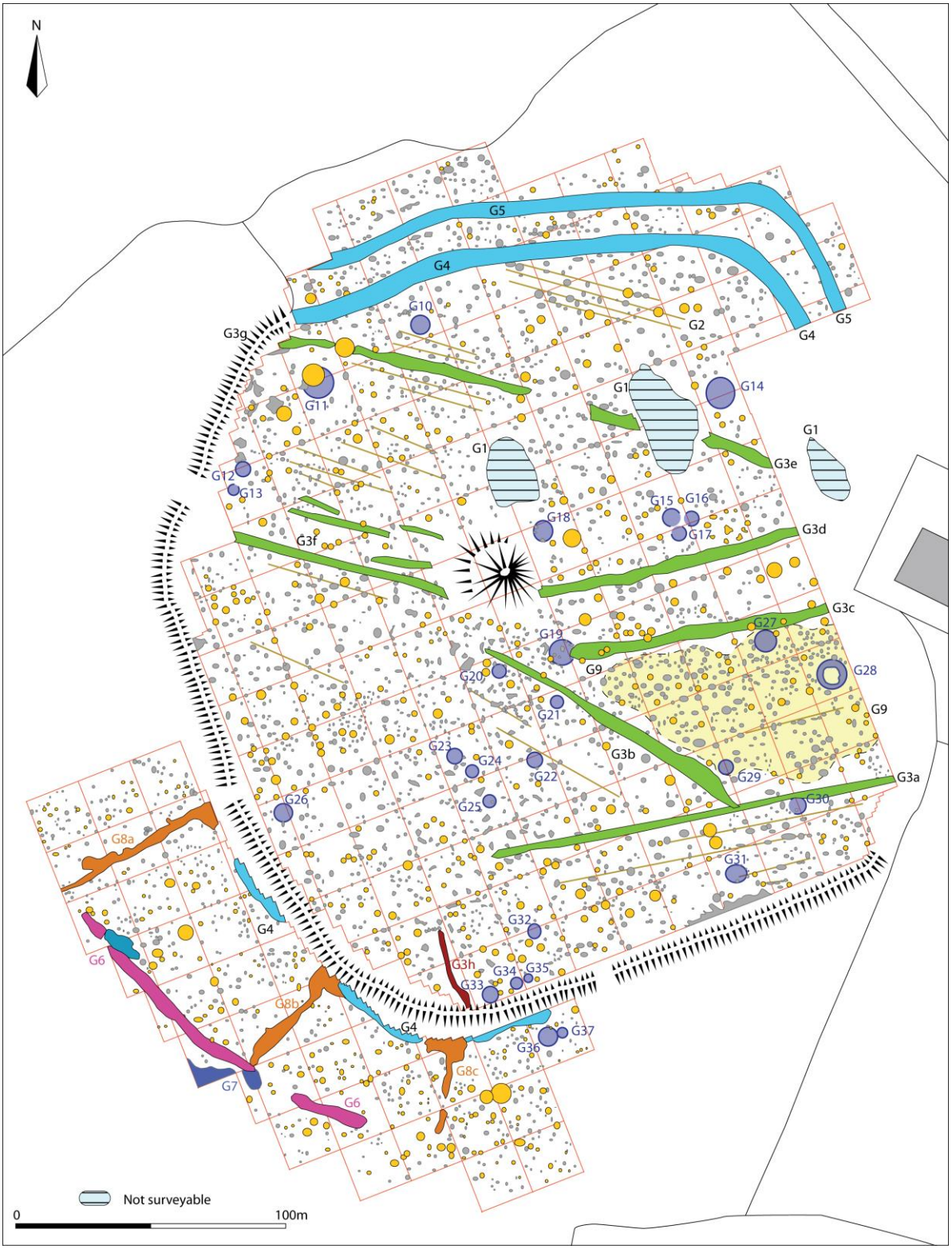

Fig. 5.62: Gradiometry survey interpretation at Knockeen.

particularly apparent in the gradiometry survey at the north. The layout of the defences are similar to Rathgall hillfort.

In the interior of Knockeen, some 28 ephemeral anomalies consisting of circular areas of uniformly ‘quiet’ magnetism, some of which were surrounded by a series of pit-like features that might represent post-holes, could tentatively be interpreted as hut structures. Unfortunately, the geophysical evidence is too ambiguous to confirm this and excavation evidence is needed. An area of increased magnetic disturbance on the eastern side of the interior could represent a metalworking area similar to that found on the eastern portion of Rathgall. Again, it is important to stress that this is speculative and such an interpretation must be confirmed by excavation.

CHAPTER 6

THE BALTINGLASS HILLFORTS: LANDSCAPE MODELS

Mitchell and Ryan (1997, 240) proposed two scenarios to explain the remarkable clustering of hillforts near Baltinglass. The first suggests that the hillforts are not contemporary and that the group is a result of different generations of the same community moving their tribal centre from hilltop to hilltop over time. The second interprets the hillforts as broadly contemporary defensive structures built by opposing polities, the monuments acting as rival work of competition. Without a comprehensive set of radiocarbon samples to date the construction, occupation and abandonment of each site, it is difficult to interpret the clustering of these forts. The radiocarbon dates and excavation information that is available to the author can be used to argue a number of different interpretations. Two broad models will be presented. **Model 1** argues that the hillforts are broadly contemporary and were probably built by a number of competing communities. **Model 2** suggests that some of these sites are not contemporary and the Baltinglass group comprises a palimpsest of monuments dating from the Early Neolithic to the Iron Age.

6.1 MODEL 1: CONTEMPORARY HILLFORTS

The linear arrangement of some British hillforts on escarpments and near river valleys has been highlighted by researchers such as Bell and Lock (2000), Hamilton and Manley (2001), Corney and Payne *et al.* (2006) and Sharples (2007, 64–70). This has often been linked to a the perception that these monuments were built to control routeways. These interpretations often ignore significant morphological and chronological differences (Sharples 2010, 67), an excellent example being the hillforts of the Ridgeway in southern England. The Ridgeway comprises an east–west orientated long-distance routeway at the edge of the Berkshire and Marlborough Downs. A series of hillforts are arranged approximately equidistant in a linear fashion along this ridge. This led Cotton (1962), Bell and Lock (2000) and Lock *et al*. (2005) to suggest that the hillforts are largely contemporary and were used to control the movement of people and animals. Conversely, Sharples (2010, 68) has argued that many escarpments could not have

acted as routeways, stating that topographical barriers such as narrow valleys/large hollows deter movement between these sites.

Sharples' (2010, 68) principle issue is that the existence of structured routes imply regular long-distance movement. In Britain, Early Iron Age societies were mostly autonomous and did not participate in long-distance trading and therefore, did not need to create or use such routes (*ibid.*, 68). Conversely, during the Late Bronze Age in Ireland, there is extensive evidence for long-distance trade (see Chapter 9). The availability of bronze and amber are indicative of this and such material has been found at Rathgall (No: 90) hillfort in Co. Wicklow and Dún Aonghasa (No: 45) in Co. Galway. In Britain too, Late Bronze Age societies were immersed in extensive trade networks (Sharples 1991). The importance of this is manifested in the strategic positioning of both British and Irish Late Bronze Age hillforts along natural routeways.

Despite Sharples' reasonable caution, various researchers have suggested hillforts were used to control the movement of people and goods, regardless of their date. In some instances, the close siting of two or more hillforts has been interpreted as opposing, contemporary hillfort communities, competing to control a single routeway or resource. Brown (2009, 203), for example, suggested that the Iron Age hillforts of Barbury Castle and Liddington Castle in Wiltshire, England, are strategically placed on opposite hills at the northern end of the River Og Valley to control the direct route into Wiltshire from the north (*ibid.*, 203). Corney and Payne (2006, 135) also noted this pairing phenomenon in Britain, where hillforts positioned on opposing hilltops may be competing for control over a particular route or land-block. Similarly, Barker and Driver (2011, 83) highlighted the pairing of some Late Bronze Age/Early Iron Age coastal promontory forts in Wales, arguing that these forts were contemporary and were constructed by rivalling communities. However, without dating evidence is it impossible to interpret these sites with certainty.

Brown (2009, 205) notes a cluster of eight sites between Clywedog and Trannon on the eastern slopes of the Pumlumon massif, west of Caersws in Wales, which he argues were positioned to exploit silver and lead resources. A similar scenario has been identified on the Continent, where Winghart (2000, 152) has revealed a group of Middle/Late Bronze Age hillforts in the Alpine fringe that are probably positioned to control ore deposits and access routes of the Alpine valleys. Della Casa (2013, 714) has identified a concentration of hillfort sites in the Alpine Rhine Valley between Chur and Bregenz in Austria. These sites are usually located in commanding positions on large hillocks, along the edges of a valley that acts as an important natural routeway. Along the border of the eastern and western Alps the broad Alpine Rhine

valley provides natural access to inner areas of the Alps. It also represents a major north-south axis of communication that extends to the southern periphery of the Alps into the plain of eastern upper Italy.

A complex of a dozen or so contemporaneous Bronze Age/Hallstatt hillforts has been identified on the border of Kuyavia and Great Poland (Harding and Raczkowski 2010). Czebreszuk (2013, 782) suggests that each of these hillforts probably functioned as a centre for a particular community within a network of territorial structures. These sites are positioned next to major river systems and may have been used to control access to people and commodities.

In Ireland, Doody (2008, 624) also associated the clustering of hillforts in several parts of the country with a common interest in controlling particular routeways. The area around the Silvermines Mountains in north Tipperary is an excellent example, with two hillforts, Knockadigeen (No: 64) and Ballincurra (No: 4), on opposing hilltops separated approximately 1.4km apart (Fig. 6.1). Neither site has been dated and managed forestry prevents more detailed interpretation. Viewshed analysis reveals the hillforts have a high common field of visibility (Table 6.1) and that both overlook the same regional and local routeways, as well as extensive tracts of low-lying land to the north and south-east (Fig. 6.2; Fig 6.3). More importantly, both sites overlook the northern access point of the only break in the Silvermines Mountains

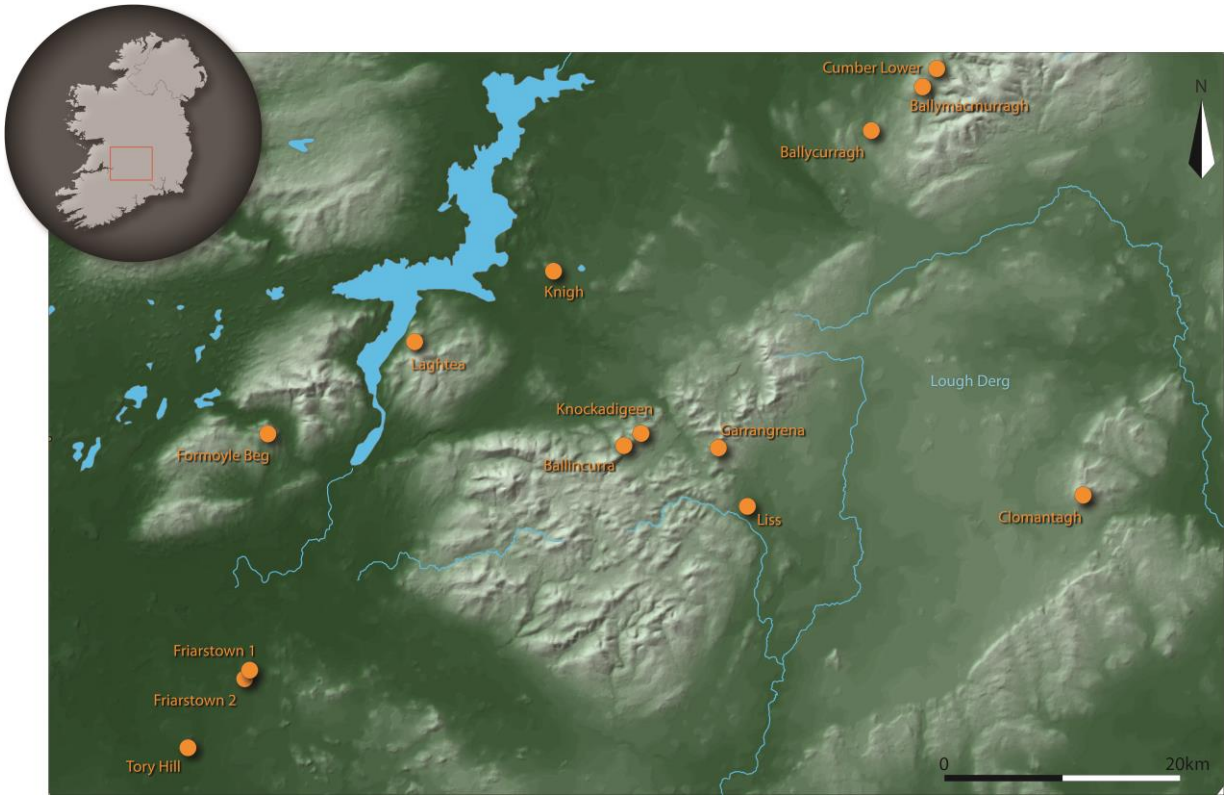

Fig. 6.1: Location of Knockadigeen and Ballincurra hillforts in Co. Tipperary.

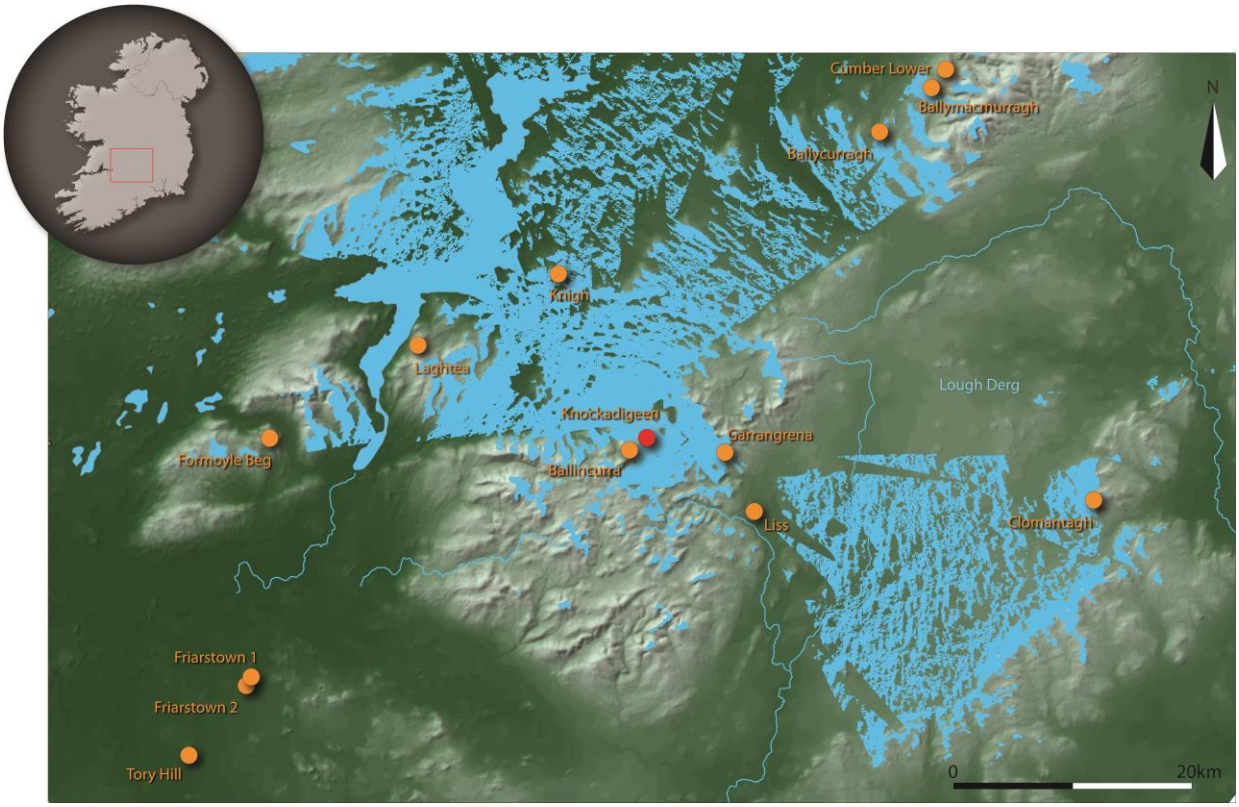

Fig. 6.2: Viewshed analysis of Knockadigeen hillfort.

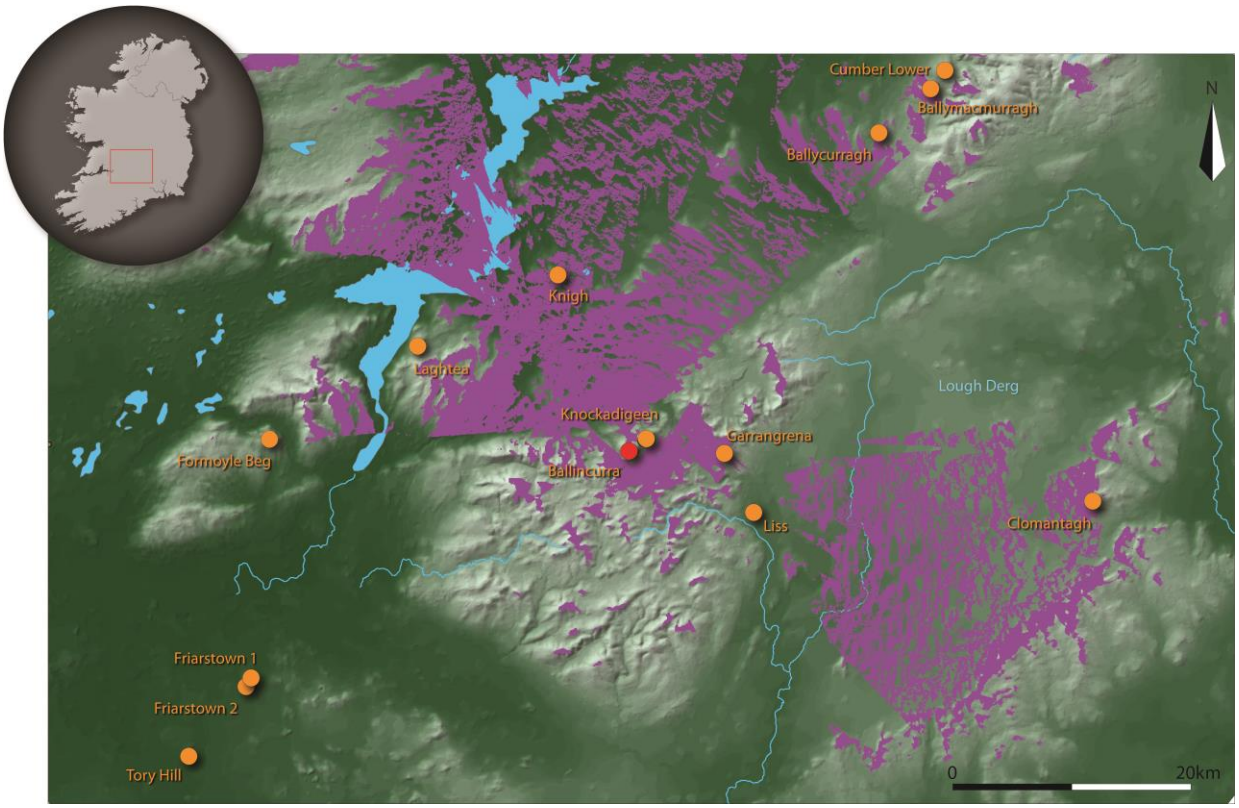

Fig. 6.3: Viewshed analysis of Ballincurra hillfort.

connecting the fertile low-lands in the north with low-lying land in the south-east. Two other hillforts, Liss (No: 80) and Garrangreana Lower (No: 48), command the south-eastern access point. These four hillforts could be seen to represent a number of contemporary political groups competing to control an important north–south route across the Silvermines Mountains.

Similarly, in southeastern Tipperary, Ahenny (No: 2) and Curraghadobbin (No: 34) hillforts are positioned approximately 3.2km apart at the southern edge of the KnocMealdown Mountains (Fig. 6.4). Both are large, strategically sited monuments, overlooking an important natural routeway extending east–west connecting Dungarvan Bay to the central midlands, as well as more discrete north–south river valleys. The forts have strikingly similar viewsheds of the immediate landscape and in particular, the east–west natural routeway (Fig. 6.5; Fig. 6.6; Table 6.2).

Controlling the movement of people and access to goods may have been an important part of an elite maintaining power. Bradley (1990, 135) suggests that changes in access to exotic goods may have undermined the position of the elite, as communities in different areas competed for access to these artefacts. This may have forced elites and hillfort communities to strategically position themselves in areas that had access to exotic goods, to gain this material for themselves and to limit its availability to rival groups. Control of these exchange networks would therefore be a principle cause of conflict and competition (Sharples 1991, 84). If this interpretation is correct, we could expect to see groups of contemporary hillforts in close proximity, potentially vying for strategic control over a single trade network or resource.

Despite their obvious strategic siting, Condit (1998, 19) has argued that there is a ritual element to the juxtaposition of hillforts, where one site incorporates an earlier burial monument. Condit infers that hillforts occurring as pairs were built by the same community, with one site being differentiated by a particular morphological layout and acting as a ritual centre. He cites Knockadigeen (No: 64) and Ballincurra (No: 4) hillforts as an example, noting that the former is a widely spaced bivallate fort and the latter is a univallate example with a

		B	
		Ballincurra	**Knockadigeen**
A	Ballincurra		87%
	Knockadigeen	92%	
_____% of **A**'s views are visible at **B**			

Table 6.1: Comparisons of Ballincurra and Knockadigeen viewsheds.

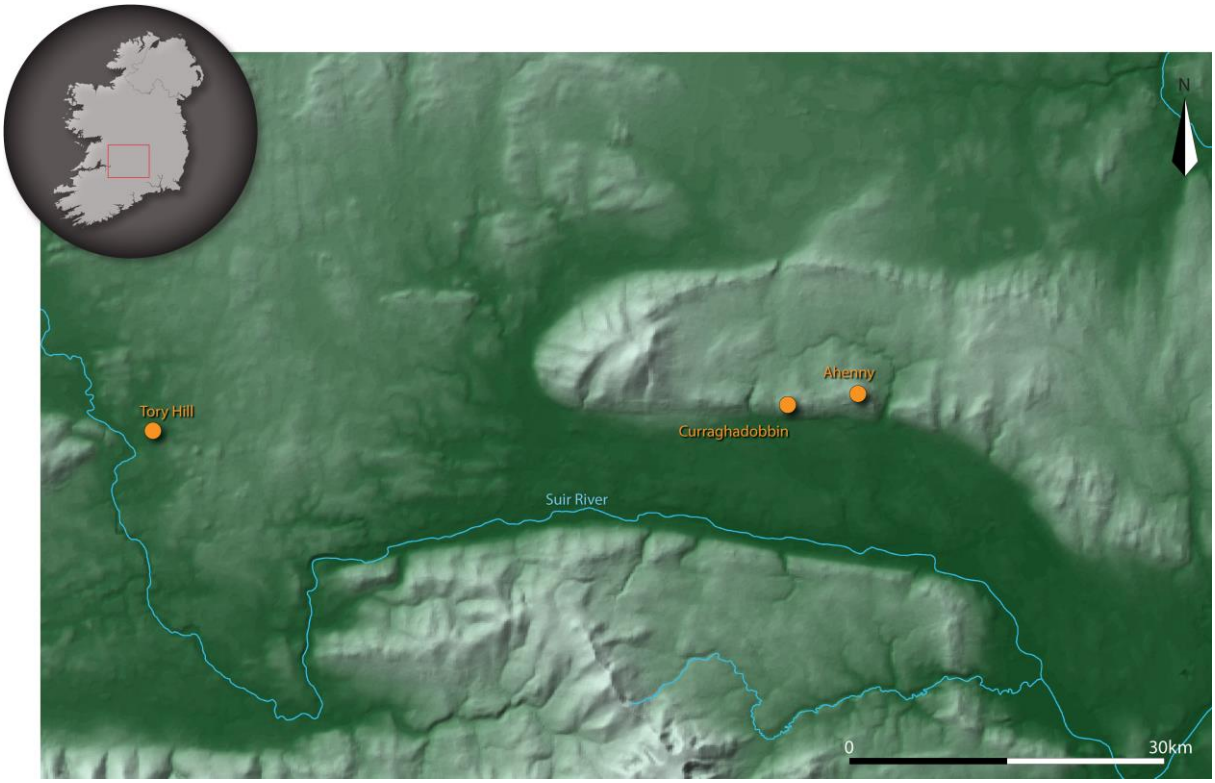

Fig. 6.4: Location of Curraghdobbin and Ahenny hillforts in Co. Tipperary.

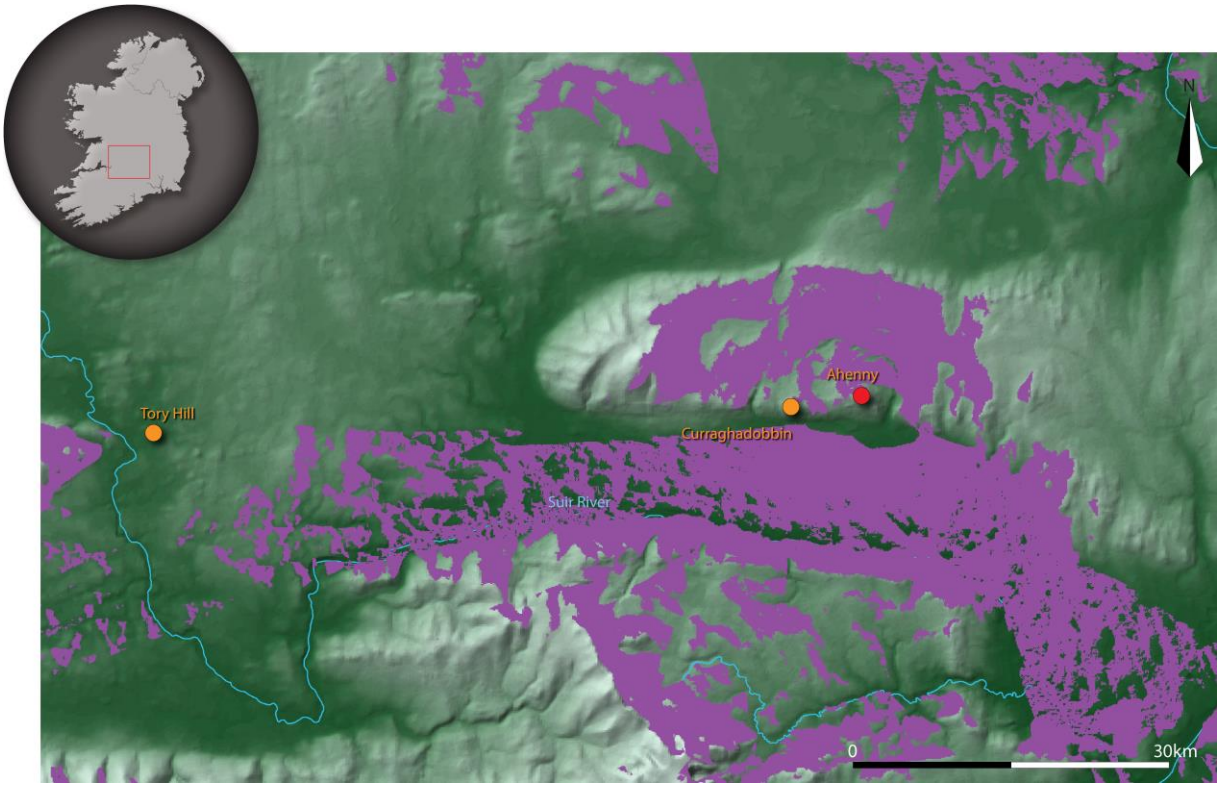

Fig. 6.5: Viewshed of Ahenny hillfort.

central cairn. Ahenny (No: 2) and Curraghadobbin (No: 34) also follow this model, the former is univallate and the latter is bivallate with a central cairn. A pair of hillforts in southern Offaly, Ballymacmurragh (No: 10) and Cumber Lower (No: 33), are positioned 1.9km apart on opposing hilltops. Ballymacmurragh comprises two closely spaced banks and ditches in contrast to Cumber Lower, which consists of two widely spaced enclosing elements and a central cairn. Although there seems to be a pattern emerging, this does not necessarily support Condit's assumptions. The pairing phenomenon could equally be interpreted as two opposing communities competing for access to, or control of, a particular land-block or natural routeway. In an attempt to differentiate themselves and create a unique identity, both communities could have built distinctly different hillforts. This can also be seen at larger groups such as the dense

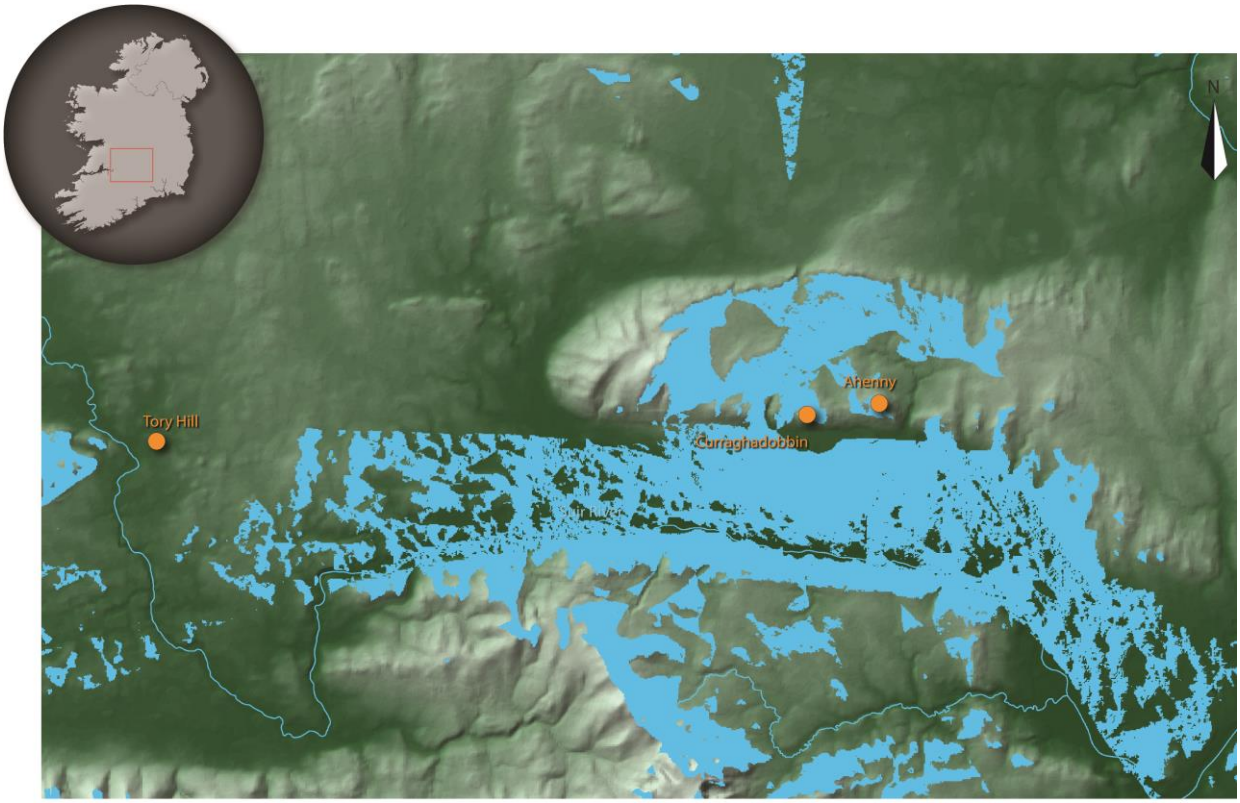

Fig. 6.6: Viewshed of Curraghadobbin hillfort.

		B	
		Ahenny	**Curraghadobbin**
A	Ahenny		86%
	Curraghadobbin	54%	
	_____% of **A's** views are visible at **B**		

Table 6.2: Comparisons of Ahenny and Curraghadobbin viewsheds.

cluster of five hillforts (The Cwn Gwyddyl group) in the hill fringe zone bordering Cors Caron in Wales, which exhibit various morphological features (Driver 2013, 52–53).

There are examples of hillfort pairs that do not support this interpretation, such as the two hillforts on Friarstown Hill (No: 46 and 47) in Co. Limerick, and the adjacent Rathgall (No: 90) and Knockeen (No: 70) hillforts in Co. Wicklow. Rather than being positioned on opposing hilltops, the individual forts comprising the pairs are located in close proximity on the same hill. Rathgall and Knockeen are separated by approximately 300m and the hillforts on Friarstown are less than 40m apart. As Condit (1998, 19) has noted, 'in purely defensive terms, it does not seem to make sense that two independent hillforts should be located so close together', an argument also made by Armit (2007, 35). The Friarstown hillforts are morphologically similar, both comprising a bank-ditch-counterscarp arrangement and are broadly similar in size. Unfortunately, the author was refused access to the site to undertake geophysical survey, and there is no available LiDAR data to analyse these monuments in more detail. However, aerial photographs have revealed a possible earthwork connecting the two enclosures, inferring both may be contemporary and possibly used by a single or two affiliated communities (Fig. 6.7).

A similar morphological parallel is evident between Rathgall and Knockeen hillforts in Co. Wicklow. The Late Bronze Age enclosing elements at Rathgall likely comprise a bank-ditch-

Fig.6.7: Enhanced aerial photograph of Frairstown hillforts highlighting the possible low earthwork connecting the two sites.

counterscarp bank separated from another bank and ditch by approximately 55m. Geophysical survey at Knockeen revealed a similar layout. The upstanding remains consist of a bank and possible external ditch. The gradiometry survey identified a large counterscarp bank immediately outside this ditch. Another concentric enclosing element, consisting of a bank and ditch, was identified approximately 50m outside the internal example.

Rathgall is one of the most intensively investigated hillforts in Ireland. Raftery recovered a substantial assemblage of crucible and clay moulds fragments, as well as various bronze, gold and amber objects that attest to the intensive production of prestige goods and long-distance trading during the Late Bronze Age. Contemporary burials were also recovered in the interior. Notably, there is no clear evidence that the site was extensively settled. In contrast, the geophysical survey at Knockeen revealed a number of ephemeral anomalies consisting of circular areas of uniformly 'quite' magnetism some of which are surrounded by a series of pit-like features that might represent post-holes. It is tempting to suggest that these represent hut structures and that the juxtaposition of Knockeen and Rathgall could represent the residence of an elite with prestige goods craftsmen under his patronage with a larger domestic habitation site. The geophysical evidence is too ambiguous to state this with any intent and excavation is needed to clarify this. Furthermore, an area of increased magnetic disturbance on the eastern side of the interior at Knockeen could represent a metalworking area similar to that found on the eastern portion of the interior at Rathgall. In this respect, Rathgall and Knockeen could also be viewed as wholly identical in terms of the morphological layout of the enclosing elements, their internal layouts and function.

Hillfort groups could also represent areas where several communities interacted in a peaceful but competitive manner. In Arkush's (2011, 156–161) study of Colla hillforts in the Andes, she was able to reconstruct hypothetical networks of alliances by linking sites that were intervisible with regional pottery types. The results revealed that 'alliances' often clustered together in dense settlement patterns. Ralston (2006, 33–34) has also noted some regional hillfort concentrations that are of broadly regular form. Common architectural features in these clusters might suggest these groups formed alliances. The bastioned single-walled enclosures of southern France, where they show signs of being broadly of regular form, are an excellent example (*ibid.*, 33). The form and siting of the *éperons tronqués* forts along the valley of the Viroin near the Franco-Belgian border, also seems to indicate a particular 'fashion' (*ibid.*, 34) and may represent an alliance network in the area. In Ireland, the compelling evidence for long-distance trade could indicate that alliances did occur. There needed to be a series of diplomatic

or political alliances for long-distance trade to occur (Harding 2012, 268; Kristiansen and Larsson 2005, 50), as the uneven distribution of metal ores created a network of dependency previously unseen in the Bronze Age (Bruck and Fontijn 2013, 197–198).

Cunliffe (1991, 537–538) has discussed the pairing of hillforts and suggests this phenomenon may be the archaeological manifestation of the Celtic system of partible inheritance. This system, which was a particular feature of Early Welsh society, split the belongings of a father equally between his sons (Brown 2009, 225–226). Williams and Mytum (1998, 144) originally interpreted groups of closely sited hillforts as evidence for these partible inheritance rules. At a cluster of eight small hillforts in Llawhaden, Pembrokeshire, Wales, between two and four of the sites were occupied at any one time, which led Williams and Mytum (1998, 140; 144) to argue that land and property of an elite had been divided between his sons. Harding (2012, 17) has also interpreted hillforts that occur in very close proximity on the same hilltop as reflecting the possible dual control of land by kin groups of equal status. To support his interpretation, Harding cites two mulltivallate forts at Eye Water in Berwickshire, England that are separated by less than 100m and two hillforts in Newhall Hill, Dumfreishire, Scotland that are located within 10m of each other. The two Friarstown hillforts (No: 46 and 47) in Co. Limerick, are interesting in this regard, as aerial photographs reveal a possible earthwork joining the sites.

Coles and Harding (1979, 11) have suggested that some hillfort groups could have been located in peripheral places marking the limits of adjacent territories. In some cases, these may have been peaceful areas with open social systems where allied communities assembled. Brun (1993, 178) has identified a notable concentration of hillforts and fortified settlements within the buffer zone near the Paris Basin, separating the Late Bronze Age Urnfield and Atlantic cultures. He has convincingly argued that these forts were located to take advantage of both markets. Elites could procure raw material at low costs from multiple sources on both sides of the frontier and supply two economies (Brun 1993, 182). Atlantic type bronze objects and North Alpine style pottery found at some of these sites infers a relatively open social system that supports this interpretation.

Conversely, Keeley (2006, 130–138) and Arksuh (2011, 65), argue that frontiers between different cultural or economic groups were often hostile areas subject to raids, intimidation and violent seizures of land. This assumption is based on ethnographic evidence from Maori cultures in New Zealand, and various central and North American societies. Keeley (1996, 130) explains that frontiers display things that people need or want just beyond the limits of their own social

group and beyond easy acquisition. The temptation to gain these things through warfare could provoke aggressive behaviour. Communities in such areas are more inclined to retaliate to aggressive behaviour (Keeley 1996, 131–132), creating a 'loop' of aggressive acts and encouraging aggressive solutions to disputes (Arkush 2011, 13).

6.1.1 Model 1: The Baltinglass hillfort group

Model 1 proposes that the Baltinglass hillforts were broadly contemporary and were built by a number of communities. These communities may have competed for various natural resources or were positioned in a frontier zone, formed an alliance of communities or relate to partible inheritance. In some instances, the close siting of forts on the same hilltop could reflect the contemporary construction of multiple hillforts by the same community. Radiocarbon dates from Sruhaun (No: 101) and Rathnagree (No: 94) suggest that both of these enclosures were probably contemporary. Positioned within a few hundred metres of both on the same hilltop, the undated Rathcoran (No: 92) hillfort could also be of similar date and the three sites may have been constructed and occupied by the same community.

Cooney (2002, 75) has suggested that Rathcoran is a Neolithic causewayed enclosure, principally because of the numerous breaks in the enclosing elements. Although the fort is undated, Cooney's interpretation is unlikely. There are two cairns at Rathcoran, one positioned at the highest point within the interior of the hillfort, the other abutting the exterior of the outer bank at the south-eastern side. The former was excavated by Walshe (1941) and revealed to be a passage tomb of Middle Neolithic date. The latter is possibly another unexcavated passage tomb. The enclosing elements of Rathcoran clearly turn inwards to avoid this cairn, inferring that the fort is later in date. Walshe (1941, 231–233) has compared the central passage tomb at Baltinglass to those at Newgrange, Dowth and Loughcrew in Co. Meath, citing similar decorative spirals on curb stones, similar pottery and tomb layout, arguing that the Baltinglass passage tomb may have been built at a similar date. Both Schulting *et al.* (2011, 2) and Cooney *et al*. (2011) have proposed that passage tombs began to be constructed around the third quarter of the fourth millennium BC in the Early Neolithic period. This is important because there seems to be a distinct, if tentative, horizon for the construction of causewayed enclosures and large Neolithic enclosures in Ireland that pre-date complex passage tombs. The two identified Irish causewayed enclosures, Donegore in Co. Antrim and Maheraboy in Co. Sligo, were built around 3765–3695 BC (Whittle *et al* 2011; Mallory *et al*. 2011, 221) and 4150–3935 BC (Whittle *et al* 2011; Danaher 2007) respectively, with other large Neolithic enclosures such as Tullahedy in Co.

Tipperary (Cleary and Kellaher 2011) constructed slightly after this, around 3700–3500 BC. No comparable large enclosures have been identified that date to the period spanning the end of the Early Neolithic to the beginning of the Middle Bronze Age in Ireland. The only possible example, Lyles Hill (No: 82), which dates to the Middle/Late Neolithic, has been challenged on the grounds of recent assessment of the radiocarbon samples by Whittle *et al* (2011). Considering that Rathcoran was probably not constructed until after the two passage tombs, it seems more reasonable to prescribe the fort a Bronze Age date, although a more precise dating is impossible to define without excavation. The large number of circular structures found within the interior are also probably later in date than the passage tomb, which again supports the identification of Rathcoran as a Bronze Age hillfort.

The radiocarbon dates from the third enclosing element at Tinoran (No: 103) are probably later than those from Rathnagree (No: 94) or Sruhaun (No: 101) although there is a slight overlap (Tinoran radiocarbon dates: 1188–923 BC, 1214–1001 BC) (Rathnagree and Sruhaun dates range from 1417–1126 BC). Even if these were not contemporary, the Tinoran dates have prompted an interesting scenario. The fourth enclosing element is later then the second example, a charcoal sample from the base of the ditch produced a date of 826–763 BC. The enclosing elements of the hillfort, therefore, seem to have been constructed over a protracted period during the Late Bronze Age, possibly by different generations of the same community (The inner most bank, 'The Round O' probably being an early Medieval addition). If the construction process began at the inner hillfort bank, it could be argued that this enclosing element pre-dates the outer examples and could potentially be contemporary with the construction of Rathnagree and Sruhaun. It is interesting to note that Tinoran is the only Irish hillfort that has produced potential evidence for the continued development of the defences over time, although it is important to note that the dates produced from the fourth enclosing element are *Terminus Anti Quem*. Whenever a multivallate hillfort has been excavated and reliable dates have been obtained for their construction or abandonment, they have shown they were broadly contemporary, the multiple circuits probably being planned and built at broadly the same time.

The dates obtained from the second enclosing element at Hughstown (No: 55) securely date this enclosure to the Early Neolithic. Similar geophysical responses from the third enclosing element might suggest this is of similar date. The fourth, outer enclosure is compositionally different. It is not concentric with the aforementioned features and could be later in date. If visible on the ground, the Early Neolithic enclosures may have been incorporated into the design

of a Late Bronze Age hillfort. Though this remains to be confirmed by excavation, the sequence may represent a symbolic attempt by later hillfort builders to both venerate the past and legitimate power and control of the landscape through visible links with the past. The importance placed in such links in the Late Bronze Age is attested by approximately 25% of Irish hillforts surrounding earlier cairns or megalithic tombs (see Chapter 2.2.5). The possible presence of 41 ephemeral circular anomalies at Hughstown (one definitive large structure within the interior of the inner enclosure is visible in the geophysical survey and on the surface) that might tentatively suggest occupation within the interior are probably later than the Early Neolithic enclosures. Early Neolithic structures in Ireland tend to be rectangular rather than circular, although the latter are found in the Later Neolithic (Smyth 2013, 301). This may further support the interpretation of the external enclosing element being later prehistoric or at least the re-use of the enclosing elements at a later period, possibly during the Late Bronze Age. At Donegore Hill, circular structures inside the causewayed enclosure have been dated to the Late Bronze Age/Iron Age and attest to re-occupation of the interior in this period (Mallory *et al*. 2011, 90).

The enclosing elements on Spinans Hill (Brusselstown Ring, Spinans Hill 1, Spinans Hill 2) and Kilranlagh (No: 60) have not been dated. Widely spaced enclosing elements such as those found at Brusselstown Ring (No: 15) are more frequently found in the later prehistoric period, with large multivallate Early Neolithic enclosures in Ireland mostly comprising closely or moderately spaced enclosures. Brusselstown Ring could therefore be Late Bronze Age in date. Similar to the dated enclosing elements at Tinoran (No: 103), the large Spinans Hill 2 (No: 99) enclosure could have been built after the construction of Brusselstown Ring and Spinans Hill 1 (No: 98) by a new generation of the same community. This interpretation is further supported by the outer enclosing elements of Brusselstown Ring being incorporated into the circuit of Spinans Hill 2. The Spinans Hill 1 enclosure surrounds a small passage tomb cemetery of probable Early/Middle Neolithic date.

The above examples indicate that there are two types of groups; those where hillforts are positioned on opposing hilltops and those located on the same hilltop or in extremely close proximity. The former group can sometimes be differentiated by incorporating distinctly different morphological layouts or conversely, by adopting similar architectural elements. This may distinguish a cluster of communities competing for access or control of resources or routeways with a group of allied communities. The latter group probably represents a cluster of

hillforts that were constructed and occupied by a single community or elites with a common ancestry and claims to the land. Both types of groups are evident in the Baltinglass cluster.

A number of hillforts on the same hilltop (Rathcoran, Rathnagree and Sruhaun are situated on Tuckmill Hill; Spinans Hill 1, Spinans Hill 2 and Brusselstown Ring are located on Spinans Hill) could suggest some communities in the Baltinglass area built more than one fort. Evidence suggests that the hillforts on Tuckmill Hill functioned as a defensive group (see Chapter 6.5) and a similar scenario might be suggested at Spinans Hill. Again, this remains to be clarified through excavation.

6.2 MODEL 2: A DIACHRONIC APPROACH

The majority of researchers have tended to stress the relative contemporaneity of hillfort groups, despite the fact that, in most cases, there is no clear dating evidence. Although it is clear that the juxtaposition is deliberate, their construction and occupation could have been sequential. On the North Island of New Zealand, some Pā sites were abandoned after the burial of a chief and new Pā were constructed close by, sometimes within a few hundred metres of the former (Armit 2007). The ritual nature of the abandonment might explain why the builders of the later fort did not take advantage of the pre-existing defences (*ibid.*, 35). Armit (2007, 35) has proposed a similar scenario for the Iron Age multivallate hillforts on Doon Hill, East Lothian, which lie a few hundred metres from each other. A similar scenario could be proposed for the aforementioned hillfort groups (see Chapter 6.1) in southeastern Tipperary, north Tipperary, the Friarstown (No: 46 and 47) hillforts in Co. Limerick or Rathgall (No: 90) and Knockeen (No: 70) hillforts in Co. Wicklow.

Sharples (2010, 62–64) has highlighted the pairing of hillforts on the same hilltop with particular reference to sites north of Salisbury and on Cranborne Chase in England. He suggests that such sites cannot be considered as autonomous communities as they would need close cooperation between the groups, particularly as they appear to have been farming the same fields. Instead, he argues that the sites may be better explained as not being contemporary.

6.2.1 Model 2: The Baltinglass hillfort group

Model 2 proposes that the Baltinglass hillforts are not all contemporary. This could have been a consequence of ritual abandonment and subsequent construction of new sites, or simply the construction of large enclosures over a protracted period in prehistory, which resulted in a

palimpsest of sites. A speculative model of the evolution of the Baltinglass landscape is presented in Fig. 6.8, Fig. 6.9 and Fig. 6.10. It may be difficult to identity short-term occupation, abandonment and construction of new sites associated with ritual abandonment, principally due to the ranges of radiocarbon determinations. An excellent example of this problem are the dates from Rathnagree (No: 94) which range approximately 1400–1130 BC (see Chapter 5.3.2). The dates from Tinoran (No: 103) have proved that the different enclosing elements were probably built at different times throughout the Late Bronze Age. This could be interpreted as different generations of the same community adding enclosing elements or the seasonal development of the hillfort over a protracted period of time. Regardless, it confirms the continued use of the site over a prolonged period of time. Similarly, the multi-phase construction of Rathnagree might suggest its continued importance to a particular community over a period of time.

The Early Neolithic enclosure at Hughstown (No: 55) provides an excellent example of the difficulties of interpreting this exceptional group of 'hillforts' without sufficient dating evidence. As noted previously (see Chapter 6.1.1) there could be a Late Bronze Age enclosing element surrounding the earlier Neolithic enclosure(s). The site has previously been interpreted as a Late Bronze Age hillfort (see Condit 1992, 1998, Raftery 1994; Waddell 1998). However, the appearance of an Early Neolithic phase of occupation, as well as a number of possible Neolithic monuments in the area is unequivocal, and provides an interesting precedent for re-evaluating the date of other large enclosures in the group.

Neolithic

The Neolithic enclosure at Hughstown (No: 55) encloses an area of 3.58ha and this comprises the largest Early Neolithic enclosure discovered in Ireland to date. The third enclosing element may be contemporary considering its compositional similarities and geophysical response. If so, this would increase the total size of the site to approximately 4.55ha. The next largest example is the causewayed enclosure at Donegore in Co. Antrim which is 3.5ha in size. Although Donegore was probably built before Hughstown, it continued in use after the latter was constructed (Mallory *et al* 2011, 221).

From the survey results and limited excavation undertaken at Hughstown (No: 55), it does not appear to have comprised breaks or other features analogous with causewayed enclosures, although very small breaks in the enclosing elements may not be visible in the geophysical results or picked up in the narrow excavation trench. It is clear, however, that

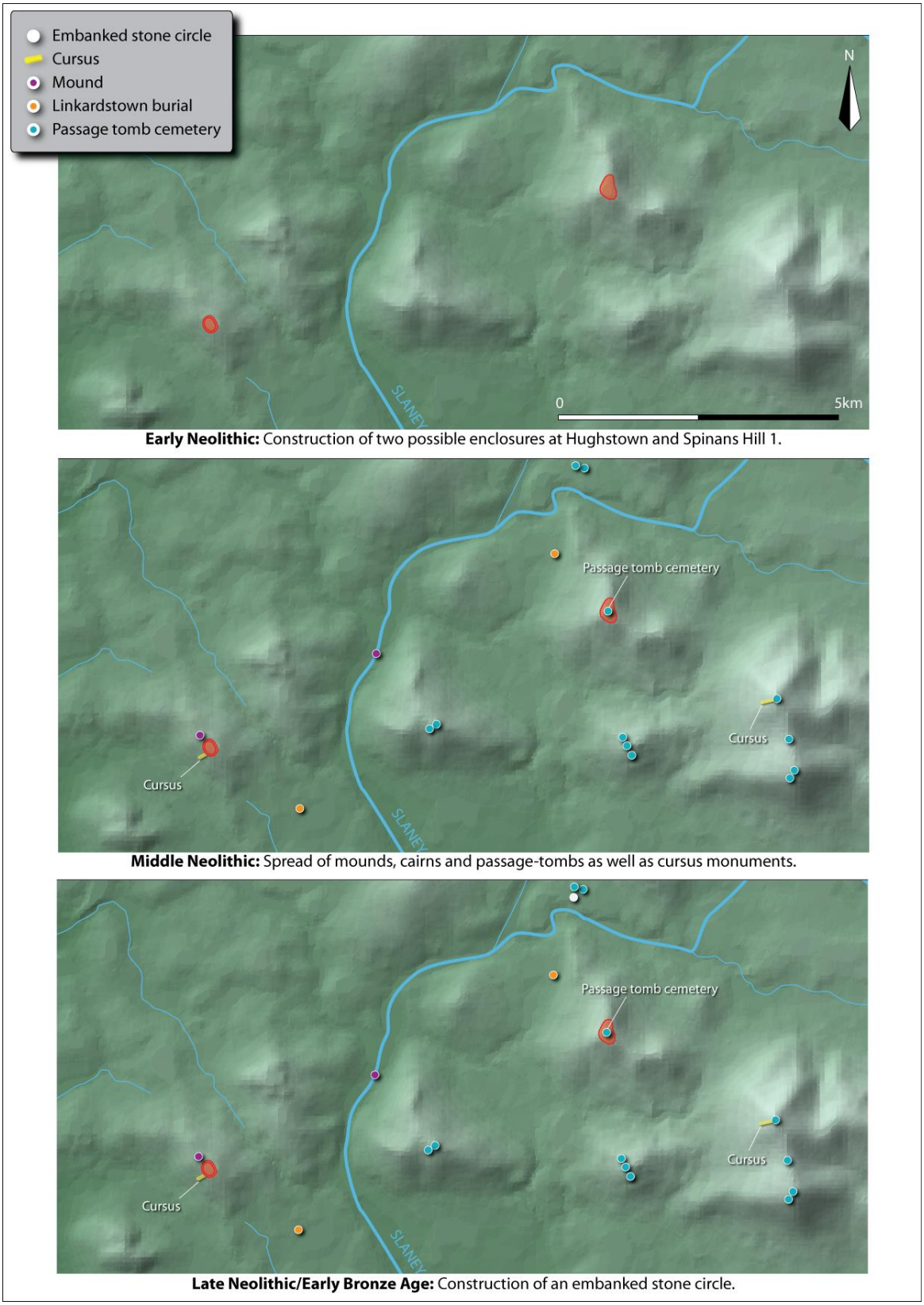

Fig. 6.8: Diachronic model of the Baltinglass landscape ranging from the Early Neolithic to Early Bronze Age.

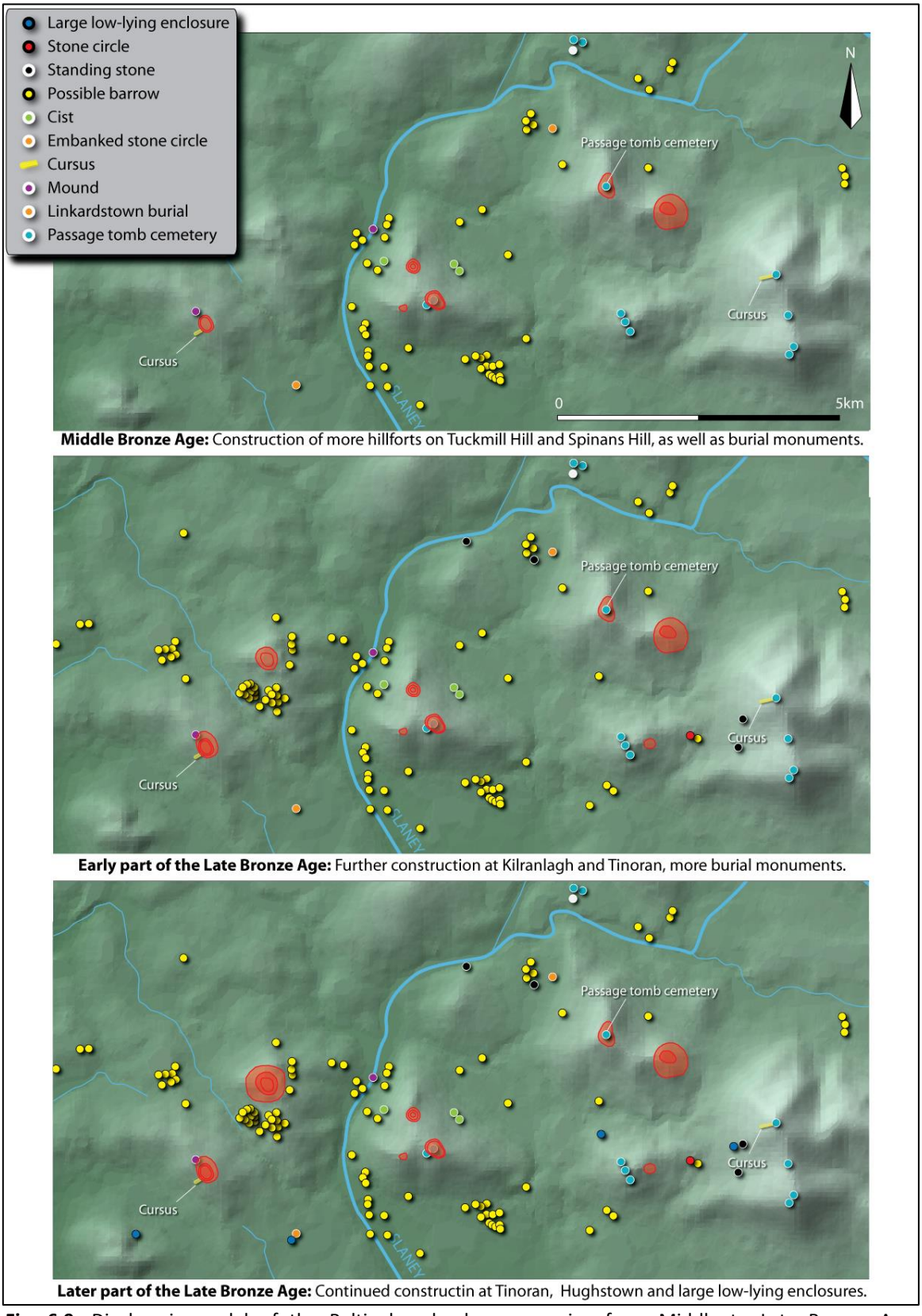

Fig. 6.9: Diachronic model of the Baltinglass landscape ranging from Middle to Late Bronze Age.

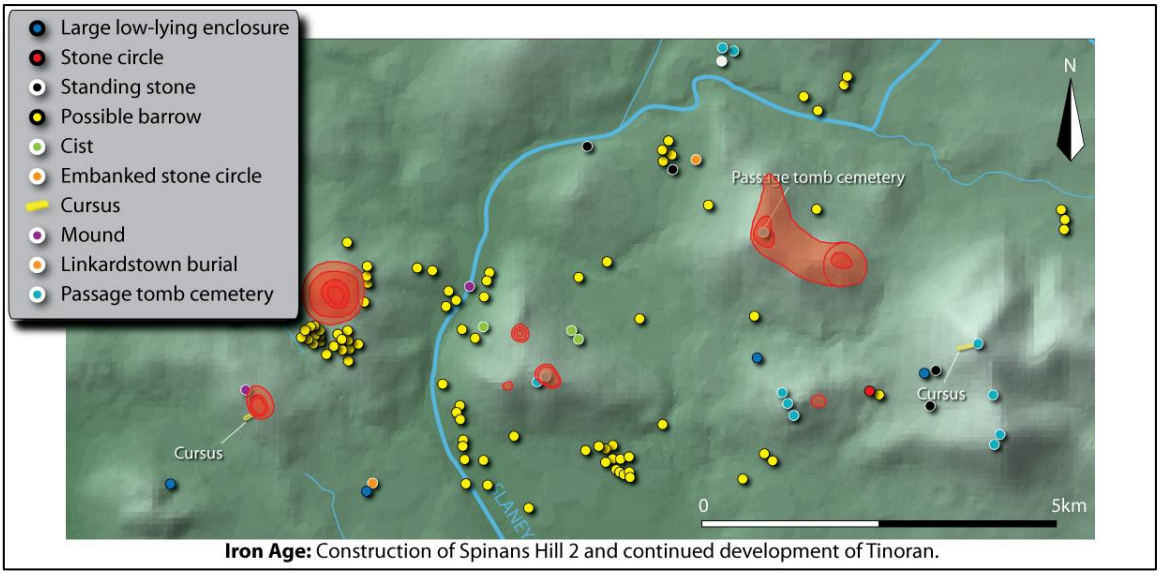

Fig. 6.10: Diachronic model of the Baltinglass landscape in the Iron Age

causewayed enclosures formed part of a broader suite of enclosure throughout Atlantic Europe during the Neolithic. Brophy (2004, 43) suggests causewayed enclosures and less complex single boundary enclosures found in Britain are contemporary. Darvill and Thomas (2001, 10) argue that there are a number of different types of Neolithic enclosures found in Britain, with the most numerous and widespread example actually being these simple 'non-causewayed' enclosures. There is an increasing number of these being identified, such as Carn Brea in Cornwall (Mercer 1981, 63). Bury Hill, West Sussex, and Beckhampton, Wiltshire, highlight that such enclosures existed within well-established groups of causewayed enclosures (Darvill and Thomas 2001, 10) and as such, communities must have made a conscious decision to build one type of enclosures over another. Cleary (2011, 415) commented on the challenge of finding comparisons for the Early Neolithic enclosure at Tullahedy in Co. Tipperary, suggesting that it is possibly a futile exercise to seek precise parallels as 'they may not exist in a Neolithic landscape that itself reflects considerable regionalism'. The variability in morphology and design further highlights the problems in identifying Early Neolithic enclosures without reliable dating evidence.

Large Early Neolithic enclosures have been interpreted in almost as many different ways as later prehistoric hillforts. In many cases, arrowheads and evidence for destruction have inferred these sites were linked with warfaring practices of early farming communities. Some 700 arrowheads were recovered at Carn Brea in Cornwall, many of which were found within the enclosure wall (Mercer 2003). At Crickley Hill in Gloucestershire and Hambledon Hill in Dorset, leaf-shaped arrowheads were recovered and interpreted as evidence for an attack, with the entrance of the former site being destroyed by fire (Dixon 1976; Mercer 1980). In Ireland, these

somewhat contemporary enclosures also provide evidence for attack by archers. At Donegore, a substantial assemblage of projectiles implies some degree of violent activity. A cluster of arrowheads at Donegore, some of which were found along the exterior section of the enclosing elements, points to a possible attack (Mallory *et al*. 2011, 168). Similarly, at Thornhill in Co. Derry, a series of palisades enclosed an area of land were destroyed by fire, and seven arrowheads were recovered from the collapsed material which the excavator views as evidence for an attack (Logue 2003). Although there are no published radiocarbon dates from the site, quantities of carinated bowl pottery found in primary contexts imply a fourth millennium date (Sheridan 2001, 176). A high number of arrowheads recovered at Tullahedy in Co. Tipperary prompted Cleary (2011, 413) to suggest they could be linked with defence or warfare. There is also the presence of strong wooden palisading at the site, the location of which takes advantage of natural terrain.

In many cases, these enclosures have also produced items associated with trade. For example, Mercer (1981, 184) notes that both Carn Brea and Crickley Hill had imported 'Gabbroic ware'. Imported porcellanite axe-heads and one axe-head from Great Langdale led Logue (2003, 154) to interpret Thornhill as an enclosure in a prominent position within an exchange network (*ibid.*, 154). Cooney *et al*. (2011) have similarly suggested that the palisaded enclosure at Thornhill may have played a key role in the distribution of stone resources. At Tullahedy, 105 polished stone axes or fragments that were probably not produced on-site are evidence for inter-regional exchange and implies Tullahedy was an important trading centre (Cleary 2011, 141).

Evidence for trade at these sites corresponds well with Evans *et al*.'s (1988, 82) suggestion that Neolithic enclosures, and in particular causewayed enclosures, had symbolic or religious functions and were often placed on the boundaries of community territory. Environmental data from the Neolithic enclosure at Maiden Castle in Dorset supports this theory (*ibid.*, 82). The data suggests that the site was relatively isolated, positioned in marginal land away from areas of agriculture. This is paralleled at other sites such as Windmill Hill in Wiltshire (Smith 1984). The construction of enclosures in marginal locations could be seen as an attempt to impose a structure on relationships between communities (Evans *et al*. 1988, 82; Bradley 1998, 197). Evans *et al*. (1988, 82) argue that the primary role of such contact was for exchange. They state that 'the peripheral position of these enclosures would be ideal for this role, as outsiders could be kept isolated and conflicts arising from contact could be contained away from

the productive base'. Cleary (2011, 416) has similarly interpreted the 'somewhat' peripheral location of Tullahedy as a suitable contact point between different social groups.

The period 3700–3570 BC is emerging as a very dynamic period in Ireland and Britain, with the initial use of court tombs and a strong peak in mortuary and settlement activity (Schulting *et al.* 2011, 1). Hughstown (No: 55) is one of the earliest dated monuments in the Baltinglass landscape and it probably reflects a broad community base within the environs of the enclosure that were under some form of centralized social organisation. This corresponds with a concentration of other ritual and burial monuments in the area that broadly date to the Neolithic period. A Linkardstown burial was identified at the north-western base of Spinans Hill in Ballintruer More townland (Ryan 1973). Linkardstown burials comprise a group of inhumations in cists, accompanied by highly decorated bowls and are generally found under mounds. A crouched burial in the Spinans Hill grave produced a date of 3338–2910 BC and is therefore later than the Hughstown enclosure. This date complies with Cooney *et al*.'s (2011, 634–637) Bayesian model which tentatively puts this burial tradition in the Middle Neolithic. This contrasts with Brindley *et al.*'s (1983) earlier synopsis which put this tradition in the earlier part of the Neolithic. Other Neolithic burials have been identified in the area, including a mound near the southern base of Hughstown in Rathmoon townland. This comprised a circular mound 26m in diameter and 3.9m high. A rectangular cist at the southern edge produced cremated bone of a least three individuals and a leaf-shaped arrowhead (Lucas 1960, 87). Interestingly, this type of arrowhead dates to the Early/Middle Neolithic (Sharpe *pers. comm.*), therefore, this monument may represent another Linkardstown-type burial.

The seven robbed-out cairns within the interior of Spinans Hill 1 (No: 98), all of which may have cist features, may represent Linkardstown burials. They could also comprise small passage tombs. Cooney *et al*. (2011) suggest both burial traditions are contemporary. Considering this concentration of Neolithic activity (a stone axehead was also recovered on Spinans Hill), it is possible that Spinans Hill 1 could be Early Neolithic and broadly contemporary with Hughstown. However, we could also argue that the cairns and burials are later than the construction period associated with such large Neolithic enclosures (for example, the Linkardstown burial at the base of Spinans Hill dates to 3338–2910 BC and is clearly later). If Spinans Hill 1 is Early Neolithic, it probably predated these burial features.

The paucity of comparanda for these enclosures in Ireland makes it difficult to identity such sites with certainty. Spinans Hill 1 (No: 98) encloses an area of approximately 11.11 ha and would be more than three times larger than the largest confirmed Early Neolithic enclosure in

Ireland. The concentration of cairns in the Baltinglass area certainly implies a dense Neolithic/Early Bronze Age presence. This is further supported by the cluster of stone axeheads in low-lying terrain to the south-east of Baltinglass.

Two possible cursus monuments have been identified in the Baltinglass area. The Keadeen cursus is positioned at the eastern edge of the landscape on the western facing slopes of Keadeen Mountain. It is located just off the summit where a large robbed-out cairn is positioned and it is tempting to suggest this was the focal point of the cursus (Corlett 2014). The second possible cursus is immediately outside Hughstown (No: 55) fort at the south-west. Both Newman (1999, 145) and Condit (1995; 1997) note that cursus monuments are often orientated on other ritual monuments such as passage tombs, pits, stone circles or henges. Nine of the ten recorded cursus monuments in Ireland are aligned on burial monuments such as barrows, cairns or passage graves. Cursus monuments are often built on sloping topography. This may have been deliberate, as Newman (2007, 428) has argued that obscuration and redirection are devices employed at many religious sites. The sloping terrain would have aided this. At Knockendrane, Co. Carlow, and Ballinvally, Co. Meath, the cursus monuments incorporate distinct 'dog-leg' turns, where the avenues suddenly change direction. Again, this was probably a deliberate attempt at obscuration. At Keadeen, the summit cairn was largely obscured from view until one reaches the summit. Similarly, the possible cursus on the southwestern slopes of Hughstown obstruct visibility of the summit of the hilltop and the enclosing elements would have helped to obscure a large part of the interior of the enclosure.

Without radiocarbon evidence it is difficult to ascribe cursus monuments a specific date, and so the example at Hughstown (No: 55) might not be contemporary with the Neolithic enclosure. Based on the British evidence from examples in the Wessex area, these linear earthworks appear to date to the third millennium. Newman's (2007, 422) study of the Tech Midchúarta for example, hints that some of these monuments could be Early Medieval. The elaborate embanked stone circle surrounded by a ditch and a possible palisade at Castleruddery, near the northwestern base of Spinans Hill may also date to the Neolithic period (Fig. 4.31). Recent dating evidence from the embanked stone circle at Lough Gur suggests these types of monuments were constructed at the start of the Late Neolithic and a similar date could be ascribed to Castleruddery.

Bronze and Iron Age

The Bronze Age is strongly represented in the Baltinglass area. Although a number of cist burials have been identified in the area, these could date to any period of later prehistory. The earliest definitive Bronze Age features date to the end of the Middle Bronze Age when the large enclosures at Rathnagree (No: 94) and Sruhaun (No: 101) were constructed. Rathcoran (No: 92) hillfort may also be contemporary with this phase of construction (see above for wider consideration of its dating), however, without dating evidence it is difficult to assess this with certainty. Without more defined radiocarbon ranges it is impossible to interpret the sequence of construction for sites that may be broadly contemporary. Near Tuckmill Hill, a bronze spearhead was recovered from the River Slaney. This comprises a socketed kite-shaped spearhead with side loops and a blunt blade with mid-ridge and blade decoration. This type of spearhead dates to the Killymaddy/Acton Park Phase of the Middle Bronze Age c. 1500–1350 and is probably or Irish origin.

During the Late Bronze Age, around 1150–1000 BC, the third enclosing element at Tinoran (No: 103) hillfort was constructed. This may be the primary phase of the monument, being built at the same time as the inner enclosure. During the latter part of the Late Bronze Age, *c.* 900–800 BC, Tinoran hillfort was enlarged, which indicates a continued presence in the area, possibly a new generation of the same community who constructed the initial hillfort. The fifth, external enclosing element may be older again, being constructed in the Early Iron Age and this may represent the third and final stage of hillfort construction in the area, although this remains to be confirmed by excavation.

Brusselstown Ring (No: 15) and Kilranlagh (No: 60) may also have been built during the Late Bronze Age, although without dating evidence this is speculative. The widely spaced enclosing elements apparent at Brusselstown Ring are commonly found in the Late Bronze Age, therefore, such a date range may be applicable.

It is difficult to fit the large, low-lying enclosures at Rathmoon, Kilranlagh, Corballis and Keadeen into this outline chronology considering there is limited comparative evidence for these sites. However, the widely spaced multivallation at Rathmoon, and the close siting of other possible Late Bronze Age monuments such as standing stones or burials might tentatively suggest a Late Bronze Age date is appropriate.

The number of barrow monuments in the area that may broadly date to later prehistory imply a concentrated settlement base in the region that could have supported these building

projects. The focus for burial may have shifted when a new hillfort was constructed and this may explain the dispersed pattern. The stone circle at Boleycarrigeen and the various standing stones may also be indicative of Late Bronze Age activity. The available evidence suggests that multiple stone circles, in Cork and Kerry at least, and standing stones broadly date to the period 1400–800 BC (O'Brien 2012a, 182).

Considering the enormous Spinans Hill 2 (No: 99) enclosure incorporates the outer enclosing elements of Brusselstown Ring (No: 15), it is likely that this is a later feature. Flood (2009, 83), however, has argued that Knocknarea Mountain in Co. Sligo is the most comparable site to Spinans Hill 2, although there are a number of distinct differences that could imply they are not contemporary. Bergh (2000) discovered a system of discontinuous banks with deliberate breaks on the eastern side of Knocknarea which effectively block off the summit from the lower eastern shoulder. Excavations concluded that the Knocknarea monument dates to the Neolithic period (Bergh 2002), although there are no radiocarbon dates, the early date being assumed because Neolithic material overlies the banks and does not occur within them. There are no obvious breaks in the enclosing elements at Spinans Hill 2 and it is probably later in date than Brusselstown Ring, which, as argued above, is possibly Late Bronze Age.

One possibility is that the enormous Spinans Hill 2 (No: 99) is Iron Age in date. Spinans Hill 2 and sometimes Brusselstown Ring (No: 15) have been linked with the Iron Age fortress of Dún Bolg that features in a number of Early Medieval texts. The best known tale associated with this site is the *Battle of the Pass of Dún Bolg* in AD 596. This describes the battle between the Leinstermen and the Uí Néill, where the latter infiltrated the fort of the Ard Rí (high king), killed him and stopped the southern expansion of the Uí Néill. This tale is linked with a more extensive prose called *The Bórama*. It states Eochaid Doimlén of Ráth Imáil, the first-century King of Leinster, lived near the Glen of Imaal. Interestingly, Brusselstown Ring, Spinans Hill 1 (No: 98) and Spinans Hill 2 are the only large enclosures in the vicinity of the Glen. Spinans Hill 2 may have been built, or at least re-occupied during the Iron Age, however, without dating evidence this is speculative.

Despite a number of Early Medieval ringforts in the area and a church site at Kilranlagh, there seems to be less intensive settlement during this period. The small enclosure at the summit of Tinoran, 'The Round O', may be Early Medieval as its slight banks and modest size are more suggestive of an Early Medieval ringfort than a later prehistoric enclosure. Apart from this example, there is no obvious evidence to suggest that Early Medieval settlers used older hillforts in the Baltinglass area as they did at Rathgall (No: 90). Even at Spinans Hill 2 (No: 99), which

encloses an area of approximately 131 ha, there are no possible ringfort type monuments within the enclosure. Interestingly, there is a ringfort on the lower western slopes of Spinans Hill just outside the large hillfort. It may have been taboo to settle within the ancient forts of the area, unless you were a high status individual, as has been suggested for the Early Medieval settlers at Rathgall (Orpen 1911; 1916).

6.3 SUMMARY

Two broad models have been presented to explain the formation of a cluster of large enclosures or hillforts in the Baltinglass area. It is important to stress, however, that without extensive dating information from all of the enclosing elements of each fort, it is impossible to put forward a comprehensive chronology for the cluster. At present, therefore, either model can be supported, although neither can be verified. **Model 1** proposes that the hillforts are broadly contemporary and were constructed during the Middle/Late Bronze Age transition, with additional elements being added to some sites throughout the Late Bronze Age. **Model 2** considers that not all of the sites are contemporary and the group comprises a palimpsest of large enclosures. These were constructed from the Early Neolithic when Hughstown (No: 55) was built, and after a prolonged temporal break, they continued to be constructed throughout the Bronze Age and Iron Age. During the later prehistoric period, the sequential construction of these hillforts may have been undertaken by new generations of the same community.

It is likely that both models are somewhat correct. For example, the three forts on Tuckmill Hill may comprise a contemporary group of sites built by the same community. Similarly, the Spinans Hill complex may also consist of a group of hillforts built at the same time but not necessarily contemporary with those on Tuckmill Hill. Irrespective of this ambiguity and subjectivity, the following chapters will discuss the information gained from the data collected at the sites in relation to both models.

Despite the ambiguity regarding the chronology of the cluster, the reasons for the convergence or persistent occupation of the landscape remains unclear. There are five principle reasons for hillforts to appear in groups. The clustering of forts in an alliance network and partible inheritance remain possible, however, without larger scale excavation to recover radiocarbon dates and sufficient amounts of material culture to compare these sites it is impossible to conclude. The Baltinglass group could be interpreted as a frontier zone where the borders of a number of communities overlap. However, it seems that the prevailing reason for clustering in other areas of Ireland and Britain relates to the control of natural routeways or

resources, and evidence for this will be discussed in greater detail in Chapter 9.1 and 9.2. The Baltinglass group may have been positioned in a densely settled area with good quality agricultural land, allowing the elites in the area to gather larger groups of people to build and maintain the forts, as well as being able to produce larger quantities of surplus food stock for trade or to support the builders of the hillforts or craft-specialists. The possible presence of placer gold in the Wicklow Mountains (discussed in more detail in Chapter 9.1 and 9.2) could also have been a principal reason for the formation of the cluster; however, without definitive evidence, this remains speculative.

CHAPTER 7

THE BALTINGLASS HILLFORTS

The morphology of the Baltinglass forts will be considered and compared with other Irish hillforts, as well as with examples in Britain and the Continent. The construction of these sites will be analysed and the significance of the possible unfinished hillfort at Rathcoran (No: 92) will be discussed in context of other unfinished sites identified in Britain. This has significant implications for interpreting the function of the Baltinglass hillforts and strongly implies their effectiveness as defensive enclosures and projections of strength, status and power. This does not minimise the ritual and ceremonial aspects of the contemporary landscape. The enclosing elements of the monuments may have been an essential element of displaying group cohesion and identity. The disparate forms of enclosing elements apparent in the Baltinglass cluster may be a reflection of the need to distinguish and separate different contemporary societies (**Model 1**) or different generations of the same group (**Model 2**). The evidence presented in this chapter helps to significantly increase our understanding of the Baltinglass complex, as well as Irish hillforts in general.

7.1 HILLFORT MORPHOLOGY

There is no clear distributional pattern reflecting the different sub-classes of hillforts in Ireland. Multivallate hillforts are evenly distributed with univallate examples, and there does not seem to be a correlation between hillfort size and location. One of the most striking characteristics of the Baltinglass cluster is the different morphological components incorporated into the design of the enclosing elements (Table 7.1). This includes univallate, moderate and widely spaced defences, comprising up to five banks, constructed with combinations of wood, stone and earth. One somewhat common feature is the incorporation of considerable amounts of wood, a trend supported by recent survey and excavation at other Irish hillforts. The diverse forms of the Baltinglass hillforts may have been a response to the various competing communities in the area (**Model 1**) or different generations of the same community (**Model 2**) attempting to separate themselves by creating a unique central monument. This would have been the focal point for competitive display and could also have facilitated the formation of group identity. Scarre (2011,

17) supports this multi-functional interpretation, noting that bursts of monument building generate a sense of identity among those involved, as well as providing icons for elites.

Manning (1999, 21) has pointed out that one of the earliest characteristics of British hillforts was the extensive amounts of wood incorporated into their enclosing elements, usually in the form of a wooden palisade. In Britain, the use of wood is widely regarded as preceding hillforts with large earthen ramparts (Cunliffe 1991, 281; 313; Armit and McKenzie 2013, 12), with examples such as Rams Hill, Berkshire (Bradley and Ellison 1975; Needham and Ambers 1994) and Taplow hillfort in Buckinghamshire (Allen *et al.* 2009) dating to the Late Bronze Age. Whenever adequate excavation has occurred, it has shown that when a palisade and earthen bank are both present, the former preceded the latter (Cunliffe 1991, 313). An excellent example of this was identified at Broxmouth hillfort in East Lothian (Armit *et al*. 2013). Manning (1991, 21) has convincingly argued that the considerable use of wood at early hillfort sites probably originated on the Continent where wooden framing had appeared by the middle 2nd millennium BC (also see Coles and Harding 1979, 78). This type of enclosure was used much earlier at some Tell sites in eastern Bulgaria and south-eastern Romania during the 5th to 4th millennia BC

	Tinoran	Hughstown	Spinans Hill 1	Spinans Hill 2	Brusselstown Ring	Rathcoran	Rathnagree	Sruhaun	Kilranlagh
Earthen bank						●			
Earthen bank and ditch	●	●	●						
Earthen bank, ditch and counterscarp				●			●		
Stone bank	●				●		●	●	
Stone bank and ditch									●
Palisade/timber element		?			?	?	●	?	
Univallate			●	●				●	●
Bivallate					●	●			
Trivallate		○					○		
Quadravallate	●								
Moderately spaced		●				●			
Widely spaced	●	●			●		●		

Table. 7.1: Different prehistoric enclosing elements of the Baltinglass forts.

(Gheorghiu 2002, 94). Both Primas (2002, 50) and Lynch *et al.* (2000, 15) have also noted the proliferation of wood on the Continent, suggesting that many hillforts dating to the Middle and Late Bronze Age transition comprised palisades rather than earthen ramparts. An example is the wooden-framed bank at Nitriansky Hrádok in Slovakia dated to the Early/Middle Bronze Age (Točík 1981). This is a trait that is becoming increasingly apparent in Ireland, where hillforts created at the beginning of the Late Bronze Age incorporated major wooden elements (see below). Wooden palisaded enclosures in Britain and Central Europe, however, can date as early as the Neolithic (Meyer 2002, 59).

Some hillforts in the Baltinglass area incorporate considerable quantities of wood, a feature found at Late Bronze Age hillforts in Britain and the Continent. There is also a wider trend in Ireland, with hillforts such as Clashanimud (No: 26) in Co. Cork and Toor More (No: 36) in Co. Kilkenny using large amounts of wood during creation of the enclosing elements (see Chapter 7.4). The incorporation of wooden elements has been noted at Rathnagree (No: 94) and Hughstown (No: 55), although evidence at the latter can now be associated with an Early Neolithic phase of enclosure, and tentative evidence at Sruhaun (No: 101), Rathcoran (No: 92) and Brusselstown Ring (No: 15). The palisades comprising Phase 1 of Rathnagree have been dated to the Middle Bronze Age and it is interesting to note that this corresponds well with evidence from the Continent. Sruhaun may be comparable with Phase 1 of Rathnagree in that the large amounts of possible heat-shattered stone is suggestive of a significant wooden element, although in the case of Sruhaun, there is no evidence for post-holes or associated charcoal. Instead the low stone wall may have supported a light fence or palisade. Its close proximity to Rathnagree may suggest that both hillforts, as well as Rathcoran, were constructed by the same community and a single radiocarbon estimation from sealed material beneath the bank supports this. This may explain the morphological similarities as well as their close proximity. The widely spaced enclosing elements at Rathnagree, however, contrast with moderately spaced defences at Rathcoran. If Rathcoran is not contemporary, the different layout could be explained as a deliberate attempt by the builders to differentiate themselves from previous generations in order to consolidate their identity in the present.

Both Kristiansen and Larsson (2005, 39), as well as Thomas (1993), have attributed the attainment of knowledge with power. They suggest that power was at least in part vested in access to certain forms of knowledge, the attainment of which was used to legitimate status and authority (Kristiansen and Larsson 2005, 39). The display of esoteric knowledge through hillfort design could be also be viewed as an element of competitive display. The same way that Bruck

(2007, 31) suggests that constant programmes of construction during the Late Bronze Age signalled the success and well-being of a community or elite, the size and elaborate form of these works was a further indication of an accomplished society. This would also have facilitated the creation of group identity which would have been particularly important in a densely settled and highly competitive landscape. People may have needed to express continuity and identity in increasingly visible and public actions (Downes and Richards 2005, 126) and the creation of a hillfort facilitated this. It created an opportunity for creativity, enabling a community to express itself in its own way (Lock *et al*. 2005, 135).

The significance of widely spaced enclosing elements has been discussed by a number of authors, particularly in regard to the multiple enclosure forts of south-west England and Wales (Cunliffe 1991, 254–255). Although these were not built until the fourth or third century BC and are regarded as being designed to accommodate cattle at night, there are particular morphological comparisons with Class 2 hillforts in Ireland. They generally comprise two or three enclosures, although some examples have more, and cover an area up to 8ha (Henderson 2007, 230). An excellent example is the multiple enclosure at Clovelly Dykes in Devon. Moderately and widely spaced enclosing elements are also a feature of earlier societies in Europe and have been discussed by researchers such as Gibson (2002b), Oswald *et al.* (1999), and in a series of papers on aerial photography by Schwarz (2003a; 2003b; 2006; 2008). Some West African villages in the later fifteenth century were surrounded by widely spaced walls, separated by up to 1km. These often incorporated cultivated land, water sources and natural resources such as woodland (Harding 2012, 265). Schwarz has recorded a number of large enclosures (termed *Doppelgrabenwerk*) with moderately spaced enclosing elements that are strikingly similar to the moderately spaced examples found in Ireland. Interestingly, the moderately spaced middle enclosing elements at Hughstown (No: 55) are both probably Early Neolithic. It is possible that Late Bronze Age builders used this form of enclosing element at sites such as Glanbane (No: 55) in Co. Kerry and Haughey's Fort (No: 53) in Co. Armagh as a way of highlighting their links with the past.

In Ireland, there has been little discussion as to the possible function of moderately and widely spaced multivallation. Dowling's paper on the significance of enclosure is the most important (Dowling 2011). He sees the act of multiplication as an intentional device used to intensify the liminal properties of the boundary zone and to further amplify the significance of the site itself. He states that the power of central places can be radically enhanced by making them more clearly demarcated from other places (*ibid.*, 224). Similarly, authors such as Cunliffe

(2012, 261–262), Bowden and McOmish (1987; 1989) and Sharples (2010, 116–117) have argued that multiple lines of enclosure could be interpreted as a mark of status, although in most cases they are discussing closely spaced multivallation. Early Medieval ringforts in Ireland with multiple, closely spaced enclosing elements display the status of the occupants, an interpretation supported by early law sources. Armit (2007), James (2007) and Finney (2006) argue for a more practical use, the spaced enclosing elements keeping defenders out of range of effective sling fire and helping to prevent any possible rush attack. Moderately and widely spaced enclosing elements may have had a number of functions both practical and ritual. The incorporation of moderately and widely spaced multivallation in the Baltinglass area may have served some of these purposes, but were probably used to visually enhance and demarcate the site as distinct from natural landforms.

The individual hillforts in the Baltinglass area are notably different in their design, supporting the interpretation that the layout of these hillforts were used in the creation of group identify, as well as possibly reflecting different traditions/fashions over a long period of time (see Table 7.1). The building of different defensive system would have been a visible display of the esoteric knowledge attained by the community through long-distance contract and could have been used as another element of competitive display.

Tinoran (No: 103) hillfort is unique in the number of possible enclosing elements it incorporates into its design, with up to five more or less concentric enclosures occupying a total area of 84.03ha. The total composite length of the defences is approximately 7.68km, comprising the longest combined length of enclosing works in the Baltinglass group. The construction of the enclosing elements would have been an enormous task requiring a large workforce over an extended period of time. Excavation has revealed some different forms of the enclosing elements. The third enclosure is surrounded by a stone wall, in contrast to the fourth defence which consisted of an earthen bank and ditch. It is interesting to note that excavation of enclosing elements at other multivallate hillfort sites in Ireland has revealed that are broadly contemporary with each other, and were constructed using similar construction techniques and materials. For example, the three enclosing elements at Mooghaun (No: 85) in Co. Clare consist of stone banks, the two circuits at Clashanimud (No: 26) in Co. Cork comprise an earthen bank and external ditch with wooden fence or palisade, and the two enclosing elements at Glanbane (No: 49) in Co. Kerry consist of earthen banks with external rock-cut ditches. In contrast, the two dated enclosing elements at Tinoran are not contemporary and are compositionally different. This implies the hilltop was important throughout the Late Bronze Age and may have been

enlarged with different enclosing elements over a protracted period, possibly by newer generations of the same community. Successive generation may have intentionally used different techniques and materials to differentiate themselves from past generations, although further excavation is needed to clarify the composition of all these enclosing elements. The progressive enlargement could have served a number of purposes. It may have helped to create group identity and solidify social cohesion after the death of a chieftain or community leader as suggested by ethnographic evidence (see Chapter 3.3). It could also have solidified the connection a new generation has with the land and their perceived entitlement to the resources within it. Darvill and Thomas (2001, 16) stress that the construction of enclosures involves the opening up of the earth through the digging of ditches or post-holes and that this may have been an important symbolic interaction with natural materials. This may have been important to every generation and this could explain the continued expansion of Tinoran over a period of time or, on a broader scale, the continued construction and abandonment of hillfort sites in the Baltinglass area.

Kilranlagh (No: 60) hillfort comprises a stone bank with a possible external ditch and is morphologically similar to Brusselstown Ring (No: 15). At both sites, the banks are about 14m in average width. Stone facing has been identified on the lower, outer façades, suggesting this is likely to have been the original thickness of the walls at both sites. These wide stone walls again are a unique form in the Baltinglass area. Brusselstown Ring may also have incorporated a wooden element, differentiating it from Kilranlagh. Unfortunately, due to the type of geology at both sites, geophysical survey could not be undertaken.

The cluster of sites on Tuckmill Hill are distinctly different in form, comprising a univallate enclosure with stone bank and tentative evidence for a palisade or other wooden elements (Sruhaun), moderately spaced bivallate site with earth and stone bank and possible palisade (Rathcoran) and a trivallate site consisting of three widely spaced palisades with stone footings, one of which was later re-built as a univallate earthen bank and ditch (Rathnagree).

The close grouping of three hillforts on Spinans Hill is somewhat analogous with Tuckmill Hill. This close grouping of three hillforts could be broadly contemporary, although the relative chronology of these sites is not known at the present time, as they have not been excavated. Two large hillforts surround the eastern and western summits of Spinans Hill, both of which are enclosed by an extensive earthwork. Somewhat like the hillforts on Tuckmill Hill, each fort on Spinans Hill incorporates specific construction details. Brusselstown Ring (No: 15) comprises two widely spaced stone banks. The western summit of Spinans Hill is surrounded by Spinans Hill 1

(No: 98), a large univallate earthen bank and external ditch. Both sites are surrounded by a larger earthwork; Spinans hill 2 (No: 99). Where the later earthwork survives best, it is a massive construction that would have been imposing to outsiders. This impressive enclosing element would have been an excellent way of communicating the power and prestige of the community as well as the resources and workforce they could generate. It would have effectively created a strong sense of community for the people both building and living within the hillforts and strengthened their sense of communal identity.

Although the second enclosing element at Hughstown (No: 55) has been securely dated to the Early Neolithic, the remaining defences have not been sampled and could be of later date. In particular, the outer defences are compositionally different and not concentric with the Early Neolithic enclosing element and could be Late Bronze Age, although further excavation is needed to clarify this.

Knowledge of different forms of hillfort architecture, of how and why to build certain elements, would have been an important element of competitive building and could have facilitated the creation of community and group identity. The size and elaboration of these hillforts would have been a visible proclamation of the vitality of the communities who built them (see Bruck 2007, 31) and the use of considerable resources and large workforces would have been a visible sign of a community's strength. The different forms of the enclosing elements could be interpreted as new generations of the same community differentiating themselves from past groups by creating unique hillforts and enclosing elements. The unique designs of the individual hillforts in the Baltinglass area therefore, was an important part in the creation of group identity.

7.2 HILLFORT CONSTRUCTION

The identification of possible gang working at Rathcoran (No: 92) and Rathnagree (No: 94) brings into question how the building of the circuit was organised. Corney (2006, 135) has suggested two scenarios; that discrete groups from a hillforts' hinterland contributed to the construction of the monument; or that a unified group built a hillfort over a number of seasons. Environmental analysis of Irish hillforts suggests that there was intensive use of the immediate surroundings, suggesting a large population connected to these sites. This population could have been augmented by people in a wider hinterland who identified with the hillfort community. The building project could have helped to consolidate social ties in an egalitarian community, as

suggested by Lock (2011) and Sharples (2007, 2011), or could have been obligated labour serving an elite.

Lock *et al.* (2005, 143) have provided labour estimates for Segsbury Camp in Oxfordshire, England. The hillfort was multi-phase and enclosed an area of approximately 11 ha. It was calculated that nearly 19,800 cubic metres of chalk was quarried and piled to create the enclosing elements, representing 9,359 person days, or 212 people working for 44 days. This does not include the time it would take the hillfort builders to acquire, prepare and move wood included in the construction, which would have considerably increased the time and effort of labour (Sharples 2010, 116–117). The enclosing elements at Segsbury are much larger than at Rathcoran (No: 92), although the latter site has two banks and possibly a wide intervening ditch. Approximately 8.4% of the area between the hillfort banks comprises pits, with an estimated 1384.76 cubic metres of material being extracted from these. This is a conservative estimate, as it does not account for the material that has partially infilled these features. If these estimates are extrapolated, the hillfort builders may have extracted 16485.19 cubic metres of material by the completion of the hillfort. Considering that loose stones and erratics from the interior would probably have been used to construct a portion of the wall, and an imposing wooden palisade was beginning to be constructed on the inner bank, a labour force and time-scale proportionate to that at Segsbury may be an appropriate estimate. Approximately 124 circular hut sites have been identified through LiDAR and geophysical survey, and it is likely that more exist within the interior. If these are contemporary with the hillfort, even a conservative estimate of two people for every identified hut structure would accommodate the work-force needed to build the hillfort in the aforementioned timescale. A larger workforce, which could easily have been accommodated by the hut sites as well as people from extra-mural settlements.

The incorporation of a wooden element necessitated considerable forethought on the part of the hillfort builders. Rathnagree (No: 94) hillfort, and possibly the hillforts at Rathcoran (No: 92), Brusselstown Ring (No: 15) and Sruhaun (No: 101), may have incorporated wooden elements, Rathnagree using closely spaced wooden posts over a perimeter distance of 1.7km. Excavation revealed that these posts were positioned approximately 0.5m apart with a total estimate of 3406 posts needed for construction. Wattle was probably used to form a surface to attach daub, further increasing labour and resource costs. Considerable amounts of wood was also have been used in construction of associated hut structures.

The intensive use of wood required careful management of local woodlands, which would also have been an important resource for hunting. Manning (1999) has calculated the

approximate resources consumed by wooden-faced hillfort defences. For example, Pen Dinas hillfort in Aberystwyth, Wales, which is approximately 4ha in size, would have required 4680 trees equating to 76ha of woodland to provide sufficient wood for the palisade and tie beams. Wainwright (1979, 237) suggests that 1600 posts standing 10–12m high (although this seems unlikely) would have been needed to construct the Neolithic palisaded enclosure at Mount Pleasant in Dorset, England, involving the exploitation of approximately 350ha of woodland, assuming fewer than five suitable trees per hectare. Wainwright's estimations were based on the assumption that posts set 2.5–3m deep could have stood 6m above ground. Gibson (2002b, 14) suggests this is conservative, stating the footing may have been stable enough to support a post standing 10–12m above ground. Excavations at the Neolithic palisaded enclosures at West Kennet revealed post-holes 2–2.7m in depth, which Whittle (1997) estimates could have held a post standing 6–8m high above ground. An estimated 4400 posts were needed to construct the two enclosures. In contrast to Wainwright's estimations, Whittle suggests that only 15ha of forestry was needed, assuming 100–200 suitable trees per hectare. Gibson (2002b, 14) agrees that the latter estimations are more accurate but stresses that the size of the forestry required will depend on the type of available woodland.

The ratio of 1:3.5 has become widely accepted in the archaeological literature as the most accurate way of predicting the height of wood posts (*ibid.*, 8). This assumes that for every unit below ground, at least three and a half units *could* have stood above ground, i.e. a 1m post hole could have supported a post standing 3.5m above ground, the total length of the post itself being 4.5m. This calculation was developed by Mercer (1981, 149–150) who used posthole ramps at Neolithic sites to estimate the length of the post.

The post-holes at Rathnagree (No: 94) are approximately 70cm deep, however, with the additional support of the stone footing at the base of the palisades, the true depth could have been over 1m. Using Mercer's estimates, this would equate to an above ground height of 3.5–4m. Gibson (2002b, 14) has suggested that a 6m long, 40cm wide post would weight about a tonne. The shorter but stockier posts at Rathnagree (the excavated post-holes are approximately 50–60cm wide) may be an equivalent weight. The estimated 3406 posts required to complete Phase 1 may represent approximately 3400 tonnes of wood that needed to be felled, worked and transported to site before suitable post-holes were dug and the posts erected.

There are quite distinct differences between a bank and ditch, and a palisade (Lock *et al*. 2005, 142). The construction of a palisade requires a greater initial investment in labour and resources, however, once constructed, it requires less maintenance than a bank and ditch, which

involves considerable initial investment in labour and continued maintenance, but less natural resources. Obviously, wooden structures are not permanent, with Wainwright and Longworth (1971, 224–225) estimating that the rate of decay of an oak post is approximately 15 years for each 2.5cm of radius. Using this estimate, the palisades at Rathnagree (No: 94) may have lasted several generations if they had not been destroyed by fire. Palisades also required skilled labours to source, fell and work the wood, as well as unskilled workers and draught animals to transport the materials and erect the posts. This workforce would have been divided over a larger area. An earthen bank and ditch, however, requires fewer skilled workers, consolidating the workforce in a small area. In some cases the two situations were brought together where a palisade was constructed within a bank, as at Clashanimud (No: 26), Co. Cork.

The extensive use of wood may have been another aspect of competitive display. The increased scarcity of this resource, through felling, use and eventual destruction by fire, might have depleted forestry in the area, forcing communities or different generations of the same community to construct monuments with earth and stone. The construction of an earthen bank and ditch comprising Phase 2 at Rathnagree (No: 94), which replaced the burnt wooden palisade, may have been necessitated due to a lack of suitable wood. Manning (1999) has made a similar argument for the adoption of the *glacis* type defences in Britain. He suggests that a major catalyst for the change from wooden to earthen defences was the growing shortage of suitable wood within reasonable distance of the fort (*ibid.*, 28). This rarity would have invested trees and wood with importance, and the display of wooden elements would therefore have been a projection of status and power. Manning (1999, 24) has argued that the construction of wooden-framed hillforts and palisaded enclosures in Britain would have put considerable demands on woodland, and has pointed out that communities would have assumed some rights of ownership over these areas. Presumably, as these woodlands began to be depleted, they became more important to the communities in the area. The control of wood resources would have been vital to sustaining a community, as wood was the primary raw material on which a community depended (Mitchell and Ryan 1997, 232–233). The availability of this resource sets obvious limitations on the range of defensive architecture (Ralston 1981, 80–81), and as such, any excessive use might have been a visible display of resources, labour and power.

7.2.1 Evidence from Britain

Feachem (1971, 19) argues that there are many unfinished hillforts in Britain, with Ladle Hill (Fig. 7.1) in North Hampshire the classic example (Piggott 1931). Excavation by Piggott helped to

identify a possible sequence of construction at Ladle Hill. This began with the digging of a small bank and ditch, interpreted as a 'marker ditch'. This was completed in full, with gaps left in the east and west probably intended to be developed as entrances. Sections of the ditch proper were excavated to bedrock on the outer side of the marker ditch at a number of points around

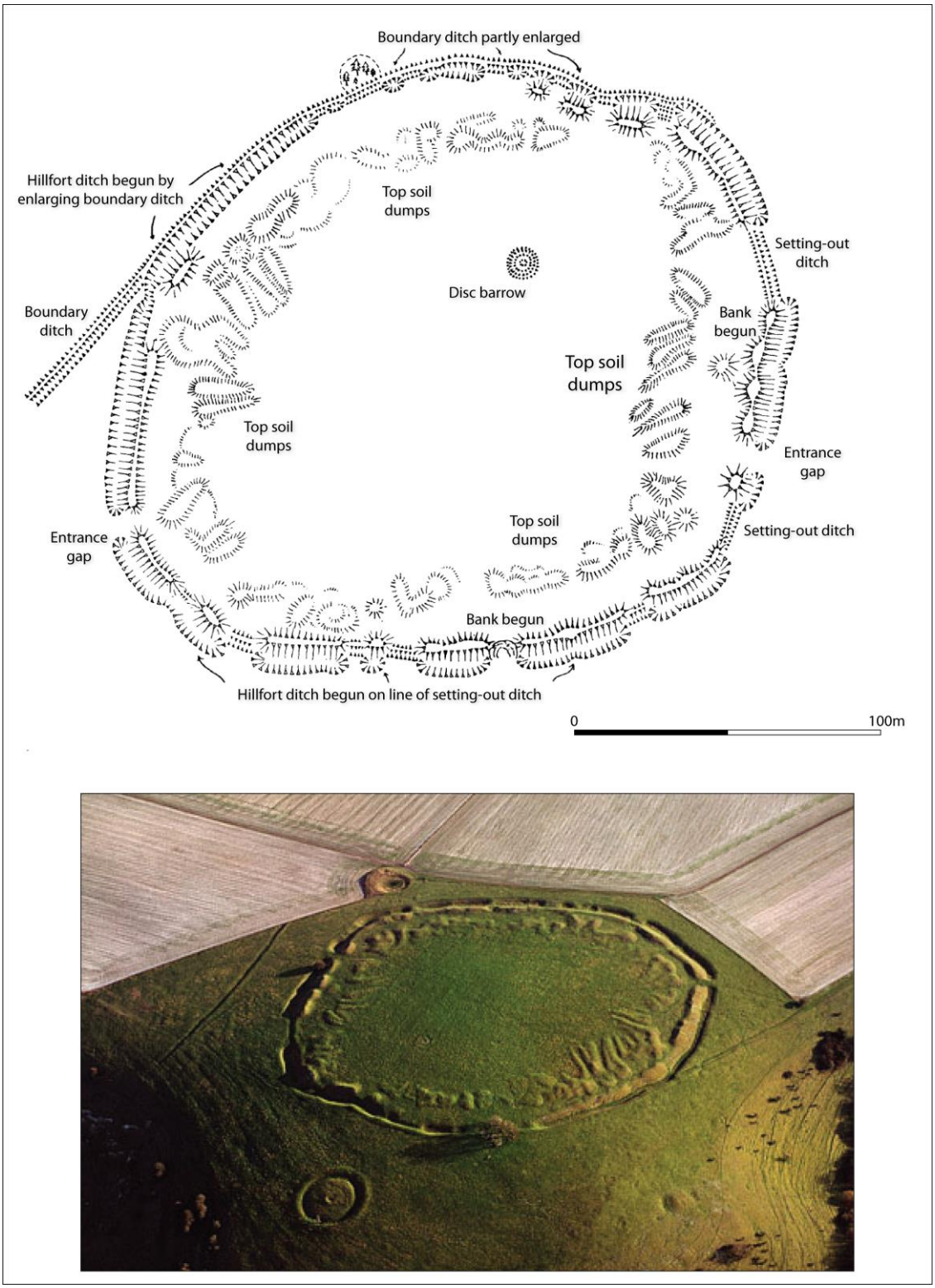

Fig. 7.1: Unfinished hillfort at Ladle Hill. Plan after Piggott 1931 Fig. 2. Photograph after Warren (www.lastrefuge.co.uk).

the circuit. This soil and loose chalk was then carried up to 12m inside the circuit of the hillfort and deposited haphazardly in irregular mounds still visible today. The material was placed far enough away to leave the site of the proposed rampart clear. The harder chalk bedrock was then extracted in blocks and used to form the core of the wall, being placed immediately inside the inner edge of the ditch. It could be suggested that once the wall had been completed, the soil extracted from the upper levels of the ditch could then be used to cap or back the wall. Harding (2012, 87–88) has noted that although this 'doubling handling' process is labour intensive, it is not unique, and is apparent at other unfinished hillforts, as is gang working. The enclosing elements at Ladle Hill were constructed in sections which indicate gang working. Piggot suggested that up to 12 groups may have been involved at one time.

The unfinished hillfort at Elsworthy Barrows in Somerset has similar evidence for 'double handling' of soil and gang working. At the southern section of the enclosing elements, the segmented quarry ditches are separated from an irregular bank of soil, leaving space for the rampart (Feachem 1971, 25–26). No markers are apparent in the spaces between the segmented works. In Feachem's (1971) summary of unfinished hillforts, he notes that gang working is apparent in all unfinished examples where construction of full-scale defences has actually started. Feachem has been able to suggest a construction model that hillfort builders may have followed. This began with the creation of a marker following the line of the proposed defences. This may have comprised a low-rise bank, a shallow ditch or a combination of the two. Less permanent markers could also have been used, such as branches or stakes. For example, at Bredon Hill in Worcestershire, Hencken (1938, 8) recorded a row of stakes on the inner face of the bank and interpreted these as a possible marker. The need for a formal marker may have depended on the size and speed of the labour force (1971, 20–21). In many cases, these are unlikely to survive if the work is completed (Feachem 1971, 19). Following this, construction of the enclosing elements proper began, with the upper layers of loose soil and rock extracted from pits that would eventually become the ditch, being deposited around the pits or at a distance from the bank. This left the line of the proposed bank free from material, allowing for stone blocks quarried from the adjacent ditch to form the base, core and faces of the bank. Finally, the loose soil was used to cap the bank or form a ramp abutting the inner face.

This model highlights features that might be present if a hillfort is unfinished, such as circuit markers or the occurrence of irregular heaps of building material. Ralston (2006, 95), however, has stressed that in instances where hillforts were almost complete, it can be difficult to distinguish them as unfinished. Similarly, it can be difficult to identify where hillfort builders

have intentionally focused their labour force, building elaborate façades in certain sections of the enclosing elements. An excellent example is Bury Ditches in Shropshire, England. Positioned on the summit of Sunnyhill, the hillfort comprises an elaborate series of earthworks. On the south and south-eastern side of the hill, the enclosing elements are formed by two closely spaced earthen banks. At the most accessible side of the monument to the north and north-west, the defences consist of up to five closely spaced banks with intervening ditches.

Driver's (2013) study of the hillforts of North Ceredigion in mid-Wales argues that many examples that were previously understood to be unfinished can be reinterpreted as finished. He suggests their primary purpose was to display status through particular façade schemes, terming this 'monumental display' (Driver 2013, 84), with certain areas of the hillfort defences being intentionally larger and more elaborate. There is evidence for this at Bury Ditches and Old Oswestry and a number of other sites.

At Old Oswestry in the Welsh Marshes, Shropshire, up to eleven large rectangular pits outlined with low banks are positioned at either side of the eastern entrance (Hughes 1996) (Fig. 7.2). These are morphologically similar to the examples found at Rathcoran (No: 92). Various

Fig. 7.2: Old Oswestry hillfort. (Google Earth 2015).

theories have been considered regarding their function, with more recent scholars suggesting they relate to the elaboration of the entrance and monumental display. The pits are positioned on sloping, eastern facing terrain and are highly visible from this approach. In contrast, viewshed analysis highlights that the pits at Rathcoran are obscured from the immediate environs. Particularly at the most accessible point of the hilltop at the north-west and at the possible entrance in this area, the pits are not visually dominant like at Old Oswestry and are obscured by the moderately spaced enclosing elements. It is therefore unlikely that they functioned as an element of monumental display. It has also been suggested that the pits at Old Oswestry functioned as wells. It is interesting to note that Pit 10 at Rathcoran is rock-cut and holds water throughout the year. The remainder of the pits obviously act as water traps and could have been used in a similar fashion. However, considering the evidence for the completed quarry pits at the north-west, these features may have been intended to be finished by being joined together and the baulks removed.

Pits or hollows found at hillfort sites in England are not unusual. When discovered, they are often interpreted as evidence for settlement structures. In some cases, such as at Carthamartha, Cornwall (Walford and Quinnell 1997), they have been identified as evidence for unfinished earthworks. At Carthamartha, only a portion of the hillfort banks have been completed and a series of pits mark the intended course of the unfinished sections. Similar evidence has been identified at Yarnbury Castle, Wiltshire, where marked hollows at the bottom of the ditch are often reflected by larger 'dumps' on the crest of the adjacent hillfort bank (Cunnington 1933). Interestingly, similar evidence has been identified at Rathcoran (No: 92) and Rathnagree (No: 94). These hollows may suggest that the enclosing elements of the hillfort were being constructed by groups or 'gangs' of people or were being constructed seasonally. Each gang (or every season) would construct a section of the defences that would later be joined together.

Usually, evidence of gang working is destroyed upon completion of the earthworks or when the hillfort ditch has been partially infilled. This interpretation is supported by Dixon's excavations at the hillfort on Crickley Hill in Cloucestershire, England (Dixon 1994, 134–139). This identified a low bank with intermittent pits abutting its external face. These pits were only partially completed and were interpreted as an unfinished external ditch. The excavator suggested that the diggers had begun working in separate pits with the intention of joining the features later. This assumption was confirmed by excavation, which revealed two such pits were subsequently joined. Rybury Camp hillfort in Wiltshire is partially unfinished, with breaks in the

enclosing elements and pits at its east and south-east (Brown *et al*. 2005). These pits are morphologically comparable to those found at Rathcoran (No: 92) and have low banks outlining the pits, presumably with material dug from the later.

Evidence for gang working is apparent at a number of hillforts in Britain. Although Feachem (1971) noted this as a feature of unfinished hillforts, Corney (2006, 135) rightly points out that such features are also visible on many complete examples. At Perborough Castle, in Wessex, the hillfort banks appear to have been created from a series of straight sections with angular changes in alignment, which has been interpreted as evidence for gang-working, although this could be influenced by a pre-hillfort field system (Corney *et al.* 2006, 41). Similar evidence is found at Cherbury Camp, Oxfordshire (Bradford 1940), Chiselbury in Wiltshire (Pugh and Crittall 1957) and Mere Hill, Herefordshire (Ray and Hoverd 2000). There are often well-defined angles where the individual sections join, an excellent example being the hillfort of Castell Bwa-drain Camp in Wales (Murphy *et al*. 2006). These sections of bank would have been worked by a group or gang of people. These gangs may have been further divided into smaller groups who extracted material from a series of closely set pits. Evidence for such pits is discussed above. Yarnbury Castle in Wiltshire is an excellent example, where hollows at the bottom of the ditch are likely to represent individual pits which have subsequently been joined together (Cunnington 1933).

Grogan's study of Mooghaun (No: 85) hillfort in Co. Clare has revealed features that could be related to gang working. Topographical survey identified a series of slight angular joints in all three of the enclosing elements, which led Grogan to conclude that the hillfort is polygonal (Grogan 2005a, 129). He observed that the enclosing elements are made up of 35–90m long straight sections in the inner and middle banks and 60–135m in the outer example. Differences in structural detail was noted in adjoining bank sections, which Grogan has interpreted as evidence for gang working. He suggests that each gang worked from a 'general structural blueprint', but provided individual solutions to problems encountered.

Smaller sections of possible gang working have been identified at other sites, such as at Breiddin hillfort in Powys, Wales (Musson 1991, 176). Musson suggests that the 'meandering' line of the bank could be divided into 8m sections that could reflect different gangs. Even smaller sections were identified by Mytum (2013, 220) at Castell Henllys in Pembrokeshire, Wales. Section of up to 2.2 and 2.4m were revealed by variations in the rear facing, suggesting small gang groups. These smaller sections reflect the individual pits at Rathcoran (No: 92), and could suggest that a large work-gang may have been sub-divided into smaller groups. Mytum (2013,

221) has suggested an alternative view that sees the gang being divided by their skill. One group of unskilled workers collected or extracted material which they left in piles. This could explain the stockpiling of material at Rathcoran if the quarry pits are not rock cut. Another group of skilled workers created the banks of the hillfort with this material. It is interesting to note that hoards of specialised wood-working tools deposited during the Late Bronze Age indicate that specialist wood-workers existed (Eogan 2000, 8). Specialists may have been employed during construction of a hillfort when wooden elements were incorporated into their design.

7.2.2 Construction of the Baltinglass Hillforts

GIS slope analysis has revealed a 4–7.2m wide area of level ground on the inside of the both the inner and outer bank at Rathcoran (No: 92) hillfort (Fig. 7.3). This flat terrace is also apparent on the outside of less substantial sections of the external bank and is particularly evident at the east. A similar platform is apparent at Rathnagree (No: 94), where a 4m wide flat area abuts the inside of the middle enclosing element. This is most prevalent at the north-east and western section of the hillfort. Excavation at Rathnagree revealed no internal ditch, suggesting the platform is unlikely to represent a ditch. Excavation of the third enclosing element at Tinoran (No: 103) suggests that material was deliberately deposited along the perimeter to level the surface prior to constructing the stone bank. A similar 4–6m wide level platform was identified

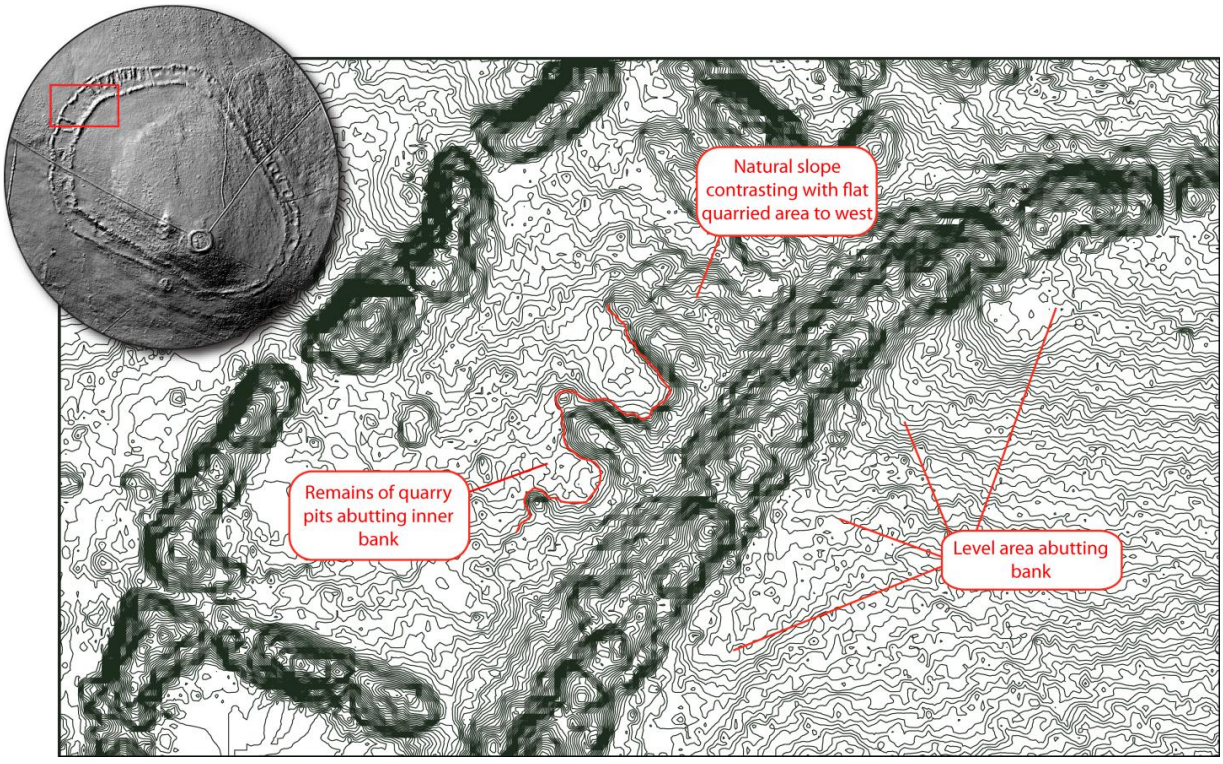

Fig. 7.3: Rathcoran 0.1m contours highlighting finished quarry pits and level area inside inner bank.

along the inner edge of the middle rampart at Mooghaun (No: 85) hillfort in Co. Clare (2005a, 164). These platforms may have been utilised during the construction of the hillfort, providing a level area to begin construction and could also have been used to mark the intended circuit of the defences, essentially serving as Feachem's 'marker line'. The platform could also be interpreted as levelled ground for habitation purposes, although no structures have been identified in the areas immediately abutting the bank at Rathcoran (see Chapter 8.3).

The eastern, southern and western circuits of the enclosing elements at Rathcoran (No: 92) comprise low stone banks covered in heather. There are few examples of quarry pits in these areas and the banks probably derive from field clearance. There are considerable amounts of large stone and erratic boulders within and surrounding the hillfort, although the area to the north and north-west, where the hillfort banks are more substantial, has been almost entirely cleared. At Rathnagree (No: 94), excavation of the middle enclosing element revealed that none of the stone comprising the bank had the angular profile of quarried rock, with the prevalence of sub-rounded forms indicating the use of gathered stone. Similarly, Grogan (2005a, 226) noted that loose surface stone was gathered and possibly used to form the core or 'marker line' at Mooghaun (No: 85). Flat platforms identified at Rathcoran, Rathnagree, Tinoran (No: 103) and Mooghaun could also have provided a firm footing for a stone core. The extraction of stone from quarry pits could have added to the size of the banks before being capped with material stockpiled at the edge of these pits. Excavation revealed that the bank of the middle enclosing element at Rathnagree was capped with re-deposited sub-soil from the digging of the adjacent ditch and a stone wall, probably comprising blocks cut from the rock-cut ditch (the bedrock was high and therefore the ditch was shallow) was placed at its crest. This would correspond with Feachem's second building phase.

The partial construction of a palisade before the completion of the bank may have taken place at the north-western section of the inner bank at Rathcoran (No: 92). The palisade may have been built at this phase to add height to the feature. There may also have been a practical element to this. The builders would not have to dig the considerable number of postholes necessary for a partially free-standing palisade such as at Rathnagree (No: 94) and would not have to work around such features during the construction of the bank. Instead, material may have been piled around the posts when correctly positioned.

Feachem's last phase of hillfort construction is reflected in the north-western section at Rathcoran (No: 92), where the material surrounding the pits was used to cap the bank of the hillfort, erasing most of the evidence for the pits themselves. Similar to Ladle Hill and other

unfinished hillforts in Britain, the enclosing elements are in various stages of completion, some being almost finished while others have not yet started.

Comparative evidence for the pits at Rathcoran (No: 92) can be found at some unfinished site in Britain. Rybury Camp in Wiltshire is an excellent example, the low banks surrounding pits in close proximity almost a direct comparison with Rathcoran. Similarly, the angular joints in certain areas of the banks at Rathcoran can be compared with sites in Britain, and this could be interpreted as evidence for gang working or seasonal construction.

The intended creation of a wide, shallow ditch between the banks at Rathcoran (No: 92) can be paralleled at another Irish hillfort. Warner's excavations at Clogher (No: 104) in Co. Tyrone revealed a U-sectioned ditch approximately 2m wide and 1m deep (Warner 2009, 510). Profiles of the hillfort revealed the possibility that this ditch was only an inner part of a much wider and shallower feature measuring 20m wide and 2m beneath the old ground surface. Warner suggests that the labour involved in the digging of this ditch is the equivalent of a 9m wide by 4m deep V-shaped ditch. The site is poorly dated, however, Late Bronze Age coarseware pottery may be associated with its construction (Warner 1971 *et seq.*). More recently, at the Hill of Ward in Co. Meath, at least three wide ditches were uncovered (some up to 15m in width), and dated to the Late Bronze Age (Davis *pers. comm*).

Wide, flat bottomed ditches have been identified throughout Europe, one of the earliest examples being found at the fortified settlement of Bruszczewo in Poland. Here, a 4m deep ditch up to 21m wide was dated to around 1800–1700 BC (Czebreszuk and Müller 2004; Müller and Czebreszuk 2010). An 11m wide and 4.7m deep ditch comprising part of the inner enclosing element was discovered at Corneşti-Iarcuri, a site dated to the beginning of the Late Bronze Age (Szentmiklosi *et al.* 2011, 824). The Early Iron Age hillfort of Heumeburg in southern Germany incorporated a V-shaped ditch that was up to 14m wide and 6m deep (Fernández-Götz and Krausse 2012, 30). A similar type of defensive arrangement, known as the Fécamp type, comprises a wide, shallow, flat-bottomed ditch with a large dump rampart. These sites are found in France and possibly southern Britain and date to around the first century BC (Cunliffe 1991, 366). It is clear that wide hillfort ditches are not tied to a single chronological horizon and were constructed at various times and locations across prehistoric Europe.

The intended construction of a comparable feature at Rathcoran (No: 92) is unlikely to reflect a wide-spread style. Rather, it may have been the intention of the builders to create an impressive and unique structure unlike those found in the other Baltinglass hillforts. The

creation of such a unique form would have been an impressive display of apparent esoteric knowledge and as such, a reflection of power and status (Kristiansen and Larsson 2005, 39; Thomas 1993; Lock *et al*. 2005, 135). It must also be noted that the distance between the two banks at Rathcoran changes dramatically over the course of its perimeter. At the north and north-west, the banks are separated by a maximum distance of 37.5m and this contrasts with the southwestern section where the banks are as little as 5m apart. This could be a result of the practicalities of the severe slopes at the south-west and east and could also be interpreted as evidence for competitive display in at the entrance area.

7.3 RATHCORAN: AN UNFINISHED HILLFORT?

Waddell (1998), Condit (1992; 1998) and Raftery (1994, 42) have interpreted Rathcoran (No: 92) hillfort as an unfinished monument, primarily due to the apparent incomplete nature of the enclosing elements and the identification of possible quarry pits. Rathcoran remains the only potential example of an unfinished hillfort in Ireland and is therefore a particularly important monument. Feachem's (1971) excellent study of some unfinished hillforts in Britain has highlighted the amount of information that can be extracted from analysing these sites. It can help us to assess how they were constructed and help to address theories relating to the social importance of 'community building' for example.

7.3.1 Survey Evidence

Sub-rectangular pits are positioned abutting the inner edge of the outer bank at the north-west, north and south-east of Rathcoran (No: 92) hillfort (Fig. 5.18; Fig. 7.4). These range in size from 22m by 14m to 12m by 8m. Lining the edge of these pits are low banks probably comprising quarried material. Condit (1992; 1998) has suggested that this material was used in building the hillfort banks. The loose soil overlying bedrock may have been stockpiled for later use. Blocks of bedrock, as well as stones from field clearance, may have been quarried to build the core of the bank and then capped with the remaining loose material. Quarry pit 10 is rock cut although it is the only example, with loose material piled around its edge and a collection of large stone separated at the north. It is possible that other pits are rock-cut but this is not visible today. This interpretation is supported by the varying composition of the banks (Fig. 5.18).

At the north, where the banks are largest, they are covered with soil, contrasting with the composition of the defences at the north-east to south-east, and from south-west to north-

west, where the banks primarily consist of large stones covered in heather and gorse (this was also noticed by Raftery 1994, 44; Grogan and Kilfeather 1997; Grogan and Hillery 1993, fig. 11) (Fig. 5.18). This may suggest that the enclosing elements at the north-west were completed with the remaining sections of the hillfort left unfinished. This is supported by the LiDAR survey which has identified the partial remains of two quarry pits abutting the outer face of the internal bank (Fig. 7.3). The most extant example comprises a U-shaped bank 8m long and 12m wide, the banks being 5–6m wide and 0.6m high. This suggests a similar form of bank construction where pits were excavated for material to form the defences in this area. It also suggests that these

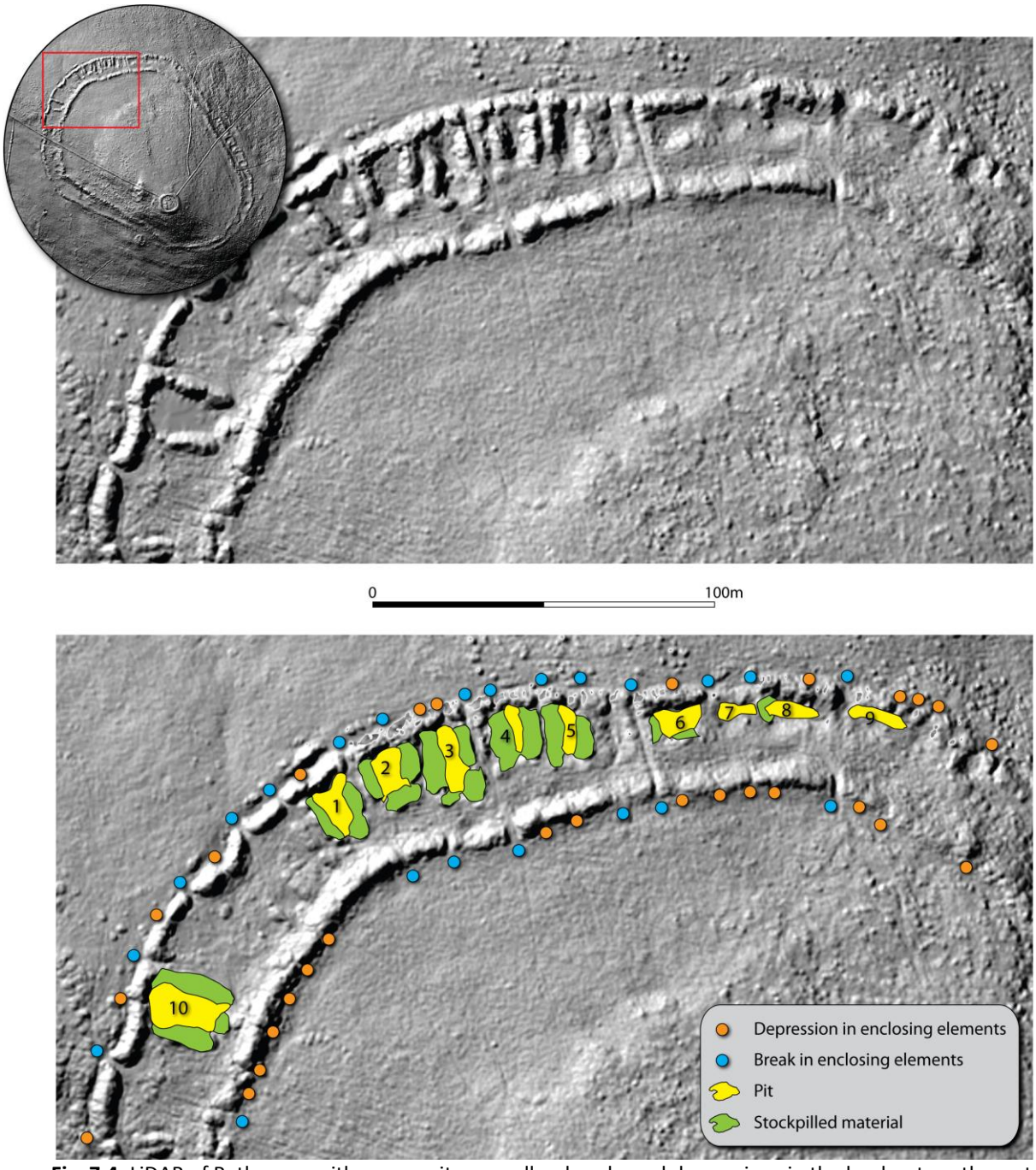

Fig. 7.4: LiDAR of Rathcoran with quarry pits, as well as breaks and depressions in the banks at north-west.

pits, which mainly occur abutting the inside of the outer bank, were intended to be extended to the outer face of the inner bank, with the baulks between the pits eventually being excavated.

Slope analysis indicates that this area is generally level, with slopes usually less than 3.5^{o}, constituting the flattest area within the hillfort. This levelling may have been a result of the completion of quarrying. The quarried area between the two defences may not have formed a deep ditch, as evidenced from the shallow area between the enclosing elements in the completed section, and may have been principally used to help form the banks, rather than to form a defensive element itself. The deepest pit is 0.9m below the modern ground surface, therefore, the majority of these may not have been rock-cut and were quite shallow. It must also be noted that numerous rock outcrops evident within the hillfort may indicate that bedrock is relatively high and as such, could be quarried without creating deep quarry pits.

There are approximately 39 breaks and many more depressions in the inner and outer bank of Rathcoran (No: 92). The former are often aligned with walkways between pits, possibly indicating that they are ancient and associated with the construction process. Groups of builders may have left walkways between quarry pits for both access and space to stockpile quarried material. The breaks may also have acted as a division marker for work gangs. However, they could equally be of relatively modern origin, created to provide access to the interior for cattle. Most of the breaks are concentrated at the north-west, in areas with visible quarry pits. If these are modern openings created for the movement of animals the clustering is unnecessary.

Cooney (2002, 75) has tentatively suggested that Rathcoran (No: 92) is a Neolithic causewayed enclosure, citing the presence of the aforementioned gaps as evidence. There is a paucity of evidence for causewayed enclosures in Ireland with only two recorded examples; Donegore in Co. Antrim (Mallory *et al*. 2011) and Magheraboy in Co. Sligo. This interpretation seems unlikely principally because the quarry pits are very different than those found at typical causewayed enclosures in Britain. Furthermore, the enclosing elements visibly avoid a possible passage tomb at the south-west. For that reason, Rathcoran is probably later in date. This would correspond with Cooney *et al*.'s (2011) revision of passage tomb chronology, which suggests such sites date to the Middle Neolithic. Considering the revised dating of this monument type to the Middle Neolithic (see Cooney *et al*. 2011), Rathcoran is probably later in date. This would place the construction of fort into the late prehistoric period, as large Neolithic enclosures in Ireland date to the Early Neolithic, and large enclosures are not built again until the Middle/Late Bronze Age. However, this interpretation cannot be discounted without radiocarbon evidence,

particularly in view of the recent dating evidence for the second enclosing element at Hughstown (No: 55).

The results of volumetric analysis of the pits are highlighted in Table 7.2. The estimated amount of stockpiled material infers that it is unlikely any material excavated from the Pits 1–5 has been used to create the hillfort banks. This could suggest that the stone core of the banks primarily comprise stone cleared from the surrounding terrain. Immediately outside the hillfort there are still considerable amounts of glacial erratics that could have been used. The low stone bank supporting the palisades at Rathnagree (No: 94) hillfort may also have derived from such material, as no obvious quarry ditch was revealed by geophysical survey or excavation. The volume of the banks and holding capacity of Pits 6–9 suggest some material has been deposited elsewhere while the remaining pits in the east and west have no obvious material stockpiled. Interestingly, Pit 3 may have been partially extended as a clear step divides the hollow into two sections. The deepest section of Pit 3 abuts the external bank and has similar measurements to examples surrounding it. The remainder of the feature is shallower and extends towards the inner bank (Fig. 7.4).

It could be argued that the pits and stockpiled material at Rathcoran (No: 92) are defensive, helping to funnel attackers into narrow walkways. This has ethnographic analogies, as some *Pukaras* in the Andean highlands used moderately spaced enclosing elements, separated 15 to 30m apart, as 'killing alleys' (Arkush 2011, 84). However, there are a number of difficulties with this interpretation. The pits are not continuous and appear in groups at the north and

Pit Number	Stockpiled Material	Pit Area
Pit 1	179.63m^3	115.16m^3
Pit 2	111.02m^3	84.41m^3
Pit 3	158.92m^3	124.23m^3
Pit 4	72.15m^3	61.23m^3
Pit 5	110.4m^3	97.54m^3
Pit 6	73.16m^3	92.42m^3
Pit 7	13.6m^3	20.17m^3
Pit 8	28.66m^3	25.76m^3
Pit 9	8.42m^3	27.34m^3

Table 7.2: Volumetric analysis of a selection of quarry pits and associated stockpiled material estimated using LiDAR data. The discrepancy between the stockpiled material and size of the pits is likely due to waterlogging and accelerated bog growth in the pits.

south-east, and are completely absent at the south-west and west. They have a total surface area of approximately 1676.19 m³, occupying 8.4% of the area between the two enclosing elements. They do not seem to be strategically located and there are no comparable features at the most accessible approaches at the north-west and south-east. They could have been used by attackers to hide from defenders and projectiles. The largest concentration of these features surrounds the possible entrance at the north (Fig. 7.4). The breaks throughout the circuits of the inner and outer banks would have negated the need to protect a formal entrance, as access could be gained at other points (although these might be modern; see above). Entrances at Irish hillforts usually comprise simple entrance gaps with no additional defensive or monumental features, a possible exception being Carn Tighernagh (No: 19), Co. Cork (Doody 2008). The labour invested in the pits could have been used to create a third bank and ditch, with the composite size of the pits equating to an additional ditch 3m wide and approximately 1m deep, 15m inside the inner bank, with a total length of 857m.

Least-Cost-Path analysis supports this non-defensive argument (Fig. 7.5). Ninety six evenly distributed points were positioned at an average distance of 20m, 50m and 100m from the outer enclosing elements. The destination point was positioned near the highest point of the interior, outside the passage tomb, as the walls protecting the tomb affected the generation of the cost-path. The extensive number of points is used to offset the potential affect later field boundaries might have on the results, as well as alleviate discrepancies that generated if points are positioned too close to breaks in the enclosing elements. The results show that a large number of paths traverse the area to the north-west, where the enclosing elements are largest and where there are no pit features. The basic assumption is that areas where paths converge and accumulate can be considered the most accessible and therefore, may be regarded as a natural routeway (Murrieta-Flores 2012, 108–109). The pits are ineffective as a defensive feature and largely fail to funnel paths, with some examples traversing through and alongside shallow pits. The failure of the pits to funnel paths is evident as a maximum of two paths converge at the north where the pits are most prominent. This is in contrast to a break in the outer bank at the north-west where there are no pits and six paths converge. Even when the palisade identified through geophysics is incorporated as a barrier, the paths converge at the same break and access the interior of the hillfort through a gap in the inner bank 30m to the north. This analysis also indicates the ineffectiveness of the northern entrance, where only two paths converge, with the numerous breaks in the hillfort banks acting as access points.

Least-Cost-Path analysis on a wider region surrounding Tuckmill Hill reveals that the area at the north-west was the most accessible point of access to the hillfort (Fig. 7.6). Twenty arbitrary source points were generated surrounding the base of Tuckmill Hill and a destination point was positioned near the highest point of the interior. The results reveal four distinct routes to the centre of Rathcoran (No: 92). Importantly, three of these converge outside the north-western section of the outer bank, the fourth accessing the interior through a break in the enclosing elements at the south-east. This strongly suggests that the most accessible point of Rathcoran hillfort was at the north-west.

Viewshed analysis supports this assumption, revealing that areas to the north and north-west are the only sections of Rathcoran's (No: 92) enclosing elements visible to all of the Baltinglass hillforts (Fig. 7.7). Importantly, the section where the inner bank is at its largest is highly visible. This could suggest that the most accessible and visible area of Rathcoran was the

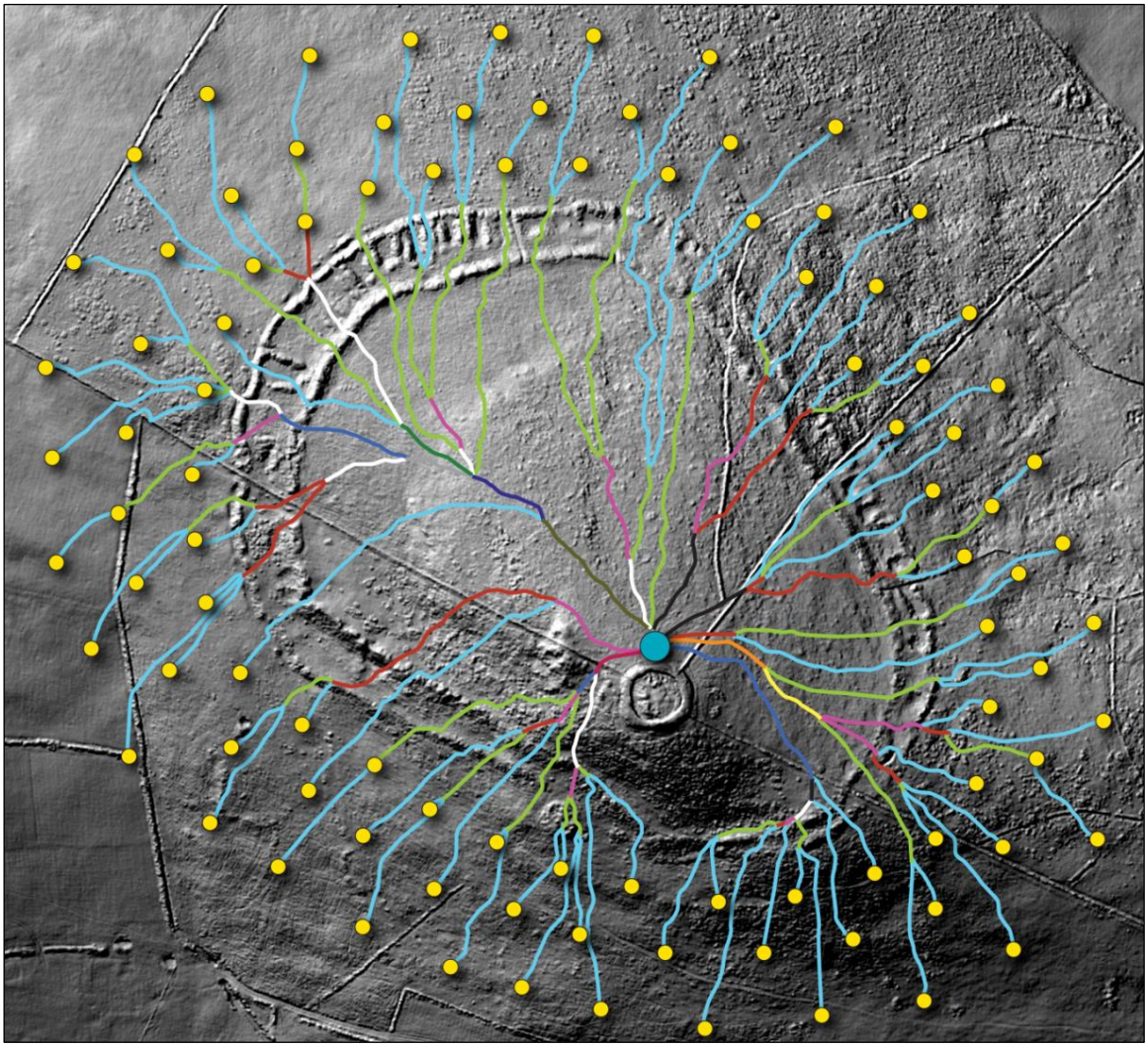

Fig. 7.5: Least-Cost-Path analysis of Rathcoran highlighting the ineffectiveness of quarry pits as defensive features.

focus of construction at the beginning of the project. Conversely, it could also be argued that Rathcoran was completed, and that the most visible sections of the enclosing elements were the most impressive. This would effectively focus labour and resources to monumentalise the sections of the banks that are most visible to outsiders, helping to communicate greater strengthand power than the hillfort community actually possessed. The banks in this section would embody the perceived threat of strength of the hillfort community (Driver 2013, 135–136). While this concept might explain the variable size of the enclosing elements, particularly the slight banks at the south, it assumes that the main hillfort façade would be defensive or imposing looking, if not actually defensive. This is confirmed by Driver (2013, 138) who argues that the main façade of a hillfort would have been 'above and beyond purely tactical requirements'. However, if the breaks in the enclosing elements at Rathcoran are contemporary and possibly associated with the construction process, the defences could not be viewed as

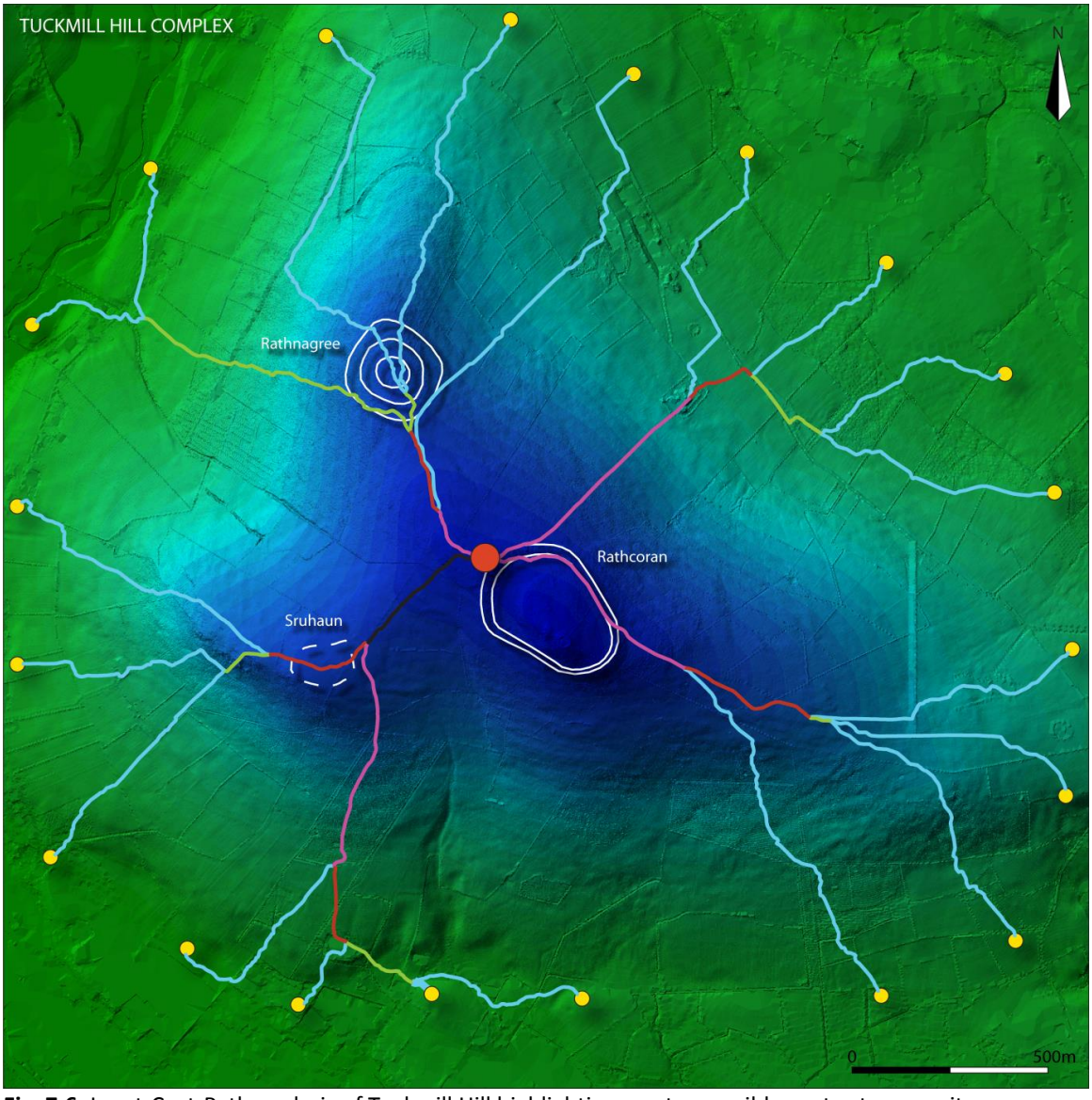

Fig. 7.6: Least-Cost-Path analysis of Tuckmill Hill highlighting most accessible routes to summit.

'defensive looking'. The differential size of the enclosing elements could also be explained if Rathcoran was a multiphase monument like Rathnagree (No: 94). The original phase may have consisted of two low stone banks. Phase 2 could have been associated with the quarry pits and comprised a re-establishment and extension of these banks that was not completed. However, this all remains to be clarified by excavation.

The irregular spacing of the pits at Rathcoran (No: 92) could be associated with gang working (Fig. 7.8). Gang working is a problematic term principally because the same structural features used to identify this phenomenon could also be interpreted as evidence for seasonal construction by the same group over a prolonged period. Regardless of these issues, this evidence can still reveal some information about how a hillfort was created. For example, it is clear that many hillforts were built in sections and whether this is by one or more groups, the same amount of effort was needed to undertake the project.

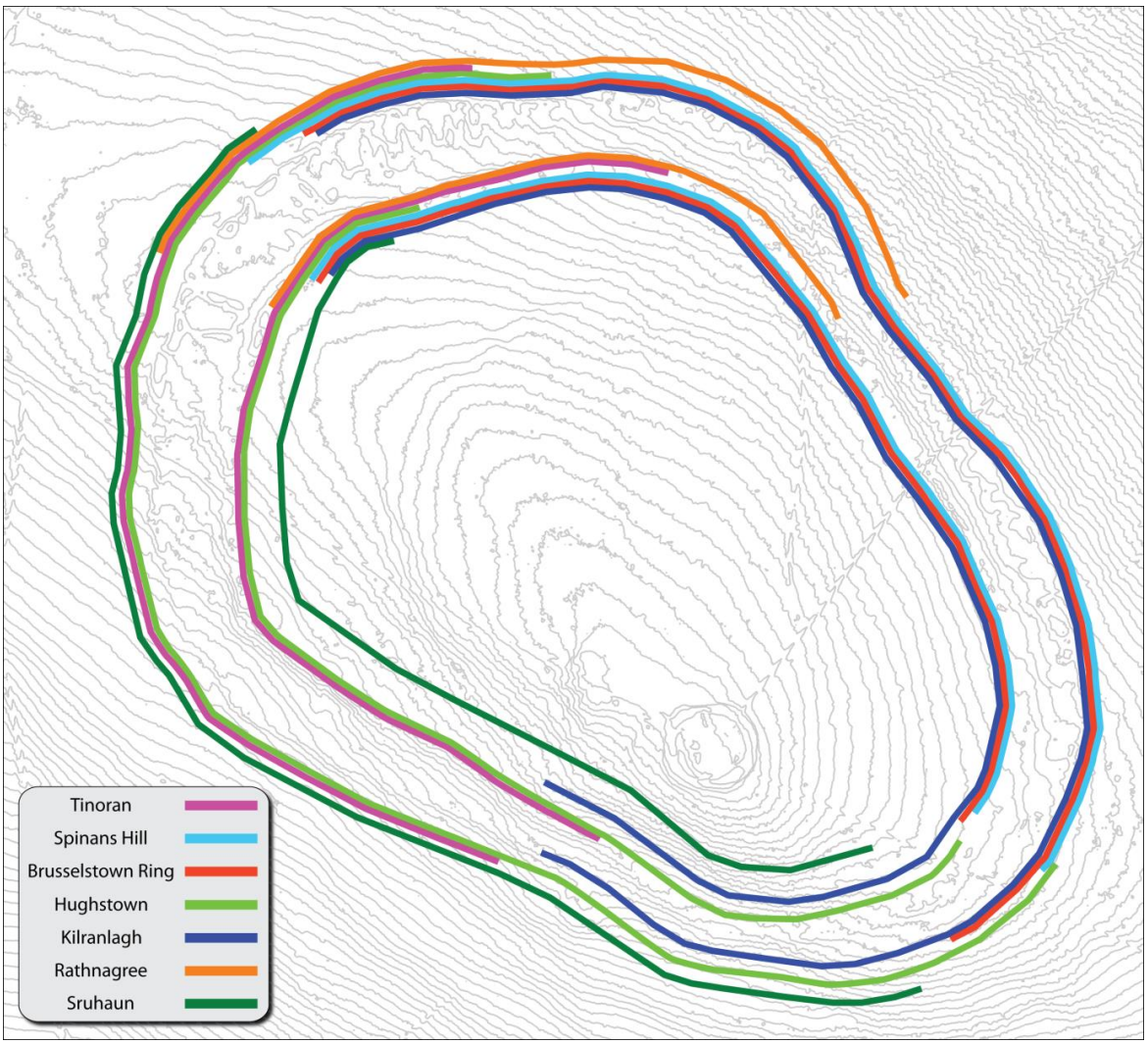

Fig. 7.7: Results of viewshed analysis showing those parts of Rathcoran's defences visible to other hillforts.

At the north and north-west, where the banks are more substantial, sections of the enclosing elements are not well aligned, although the outer and inner banks correspond, in a manner that suggests they were constructed simultaneously. At the northern section where the enclosing elements begin to curve southwards, the hillfort banks are separated by 27.5m (Fig. 7.8). Immediately to the west, there is a clear overlap between two sections of the outer bank and the separation between the hillfort defences narrows to 23.4m, a drop of 4.1m over 7m. After this overlap, the banks are notably much straighter on the western side. This section continues for approximately 33m at a uniform separation of around 27.5m and corresponds with a series of pits abutting the outer hillfort bank that are wider and shallower than examples

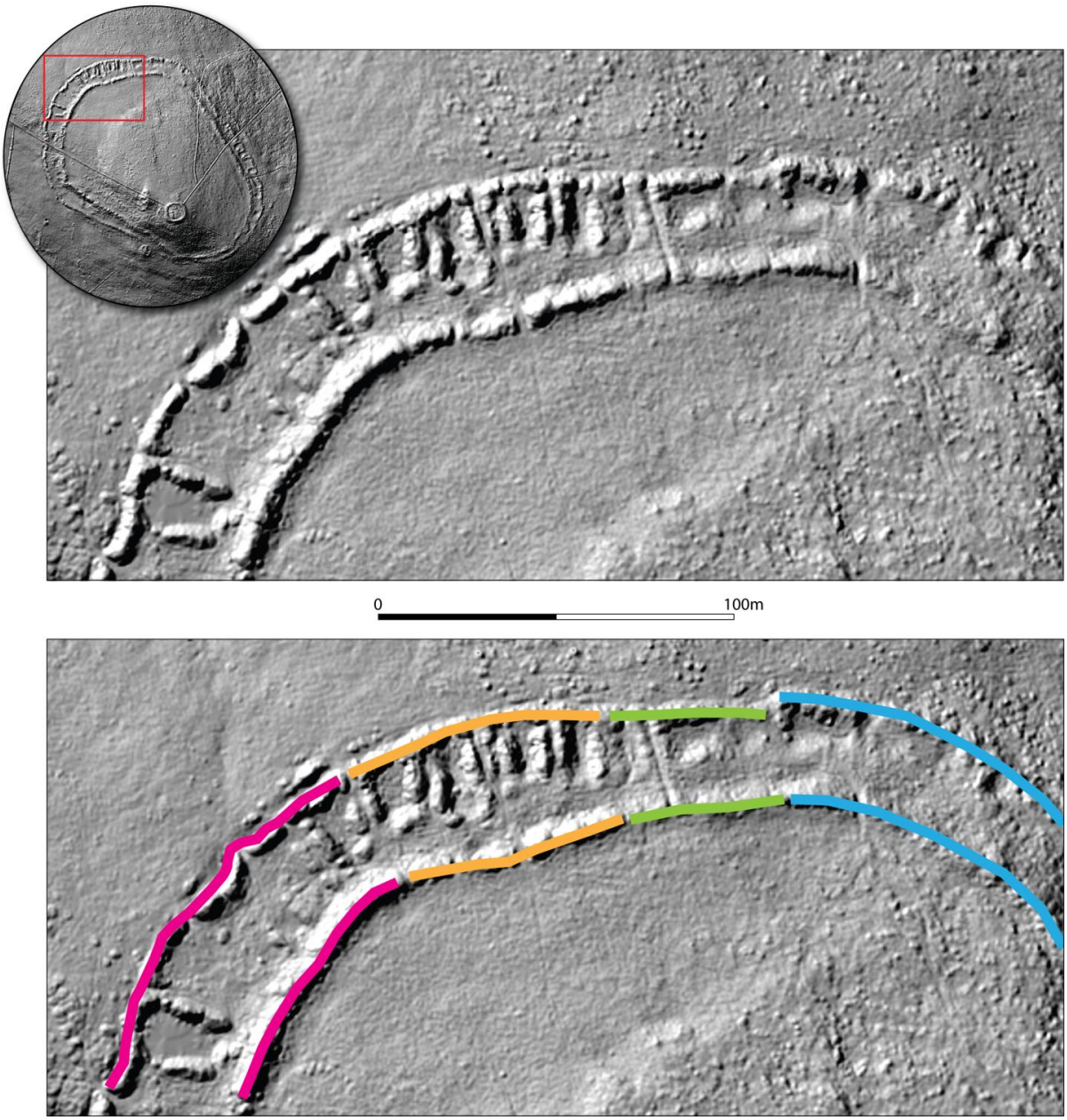

Fig. 7.8: LiDAR highlighting the different sections of enclosing elements at the north-west of Rathcoran, possibly indicating gang-working or phased construction, possibly over several seasons.

further to the west.

A clear difference in alignment and separation is again visible to the west of the latter section (Fig. 7.8). There, a length of approximately 70m is distinguished from the eastern section by more substantial banks, particularly the inner example which increases from 0.3m in internal height to 0.8m. This section is further distinguished by deeper, narrower and longer pits abutting the outer bank. There, the hillfort banks are slightly curved and a possible original entrance is positioned at the centre. The separation between the hillfort banks at this point is 37.5m. This was probably a deliberate attempt to make the space between the banks appear wider to visitors.

Abutting this section to the west is another clearly defined 71m length of banks (Fig. 7.8). The inner bank is straighter than the aforementioned section and there is a clear step in internal height of the bank from an average of 0.8m to 1.2m. This section is also distinguished by the apparent lack of pits between enclosing elements, although the LiDAR has revealed slight remains of such features (Fig 7.4). The geophysical anomalies at the crest of the bank have been interpreted as evidence of a large wooden palisade. This series of anomalies extends along the bank at the north-west, but is confined to this 71m long stretch of bank. There are isolated anomalies along the length of the inner bank, suggesting that individual posts were positioned in certain areas, possibly to mark out the line of the uncompleted defences. It could be argued that this 71m section of the enclosing elements comprises the most completed part of the hillfort, consisting of a wooden palisade within large banks capped with soil possibly obtained from the initial digging of the quarry pits which were completed in that area between the inner and outer defences.

To the south of this, a straight 50m section of the enclosing elements is differentiated from the former by a slight change in direction, and a reduction in the internal height of the inner bank from an average of 1.2m to 0.6m (Fig. 7.8). Where the two sections of the inner bank join there is a clear angular joint. A similar connection is apparent in another 50m section of the outer bank to the south.

The remainder of the hillfort comprises straight lengths of banks which follow the contours of the hilltop at the south-west, south and east and (Fig. 7.8). It is difficult to identify further evidence for phased construction or gang working in these areas. The evidence suggests that gangs of workers, or a small number of groups working seasonally, built sections of the two enclosing elements and were responsible for separate lengths of up to 70m, which presumably

reflects the various sizes of those construction groups. These gangs would have been further divided and given individual sections to extract material for the banks. This would have led to the creation of the closely spaced pits, which would subsequently have been joined together, erasing most evidence of their presence.

Evidence for gang or seasonal working is also apparent in the middle enclosing elements of Rathnagree (No: 94) hillfort (Fig. 5.23). Straight sections of the defences ranging 20–50m in length are identifiable. An excellent example in the north-east consists of two straight lengths of the defences joining together, creating a distinctly angular connection point. Regular depressions at the crest of the bank may also relate to the irregular dumping of material by gang workers.

The evidence presented here supports three interpretations; that Rathcoran (No: 92) hillfort is unfinished, that it was completed, with the variable size and composition of the defences connected to competitive display; or that the site was partially rebuilt following an initial destruction and the disparity in the size of the enclosing elements is linked to different phasing. Pits and stockpiled material abutting some sections of the banks are probably not defensive and the poor visibility of these features suggests they were not associated with competitive display or monumentality. Numerous gaps in the enclosing elements, particularly at the most accessible part of the hillfort, are unlikely to serve a defensive or ceremonial purpose, although these may be relatively modern features. The GIS analysis indicates that the pit features at the north are unlikely to be defensive and could be more appropriately interpreted as quarry pits dug for material to construct the hillfort banks. This explanation corresponds with Feachem's model of hillfort construction (see Chapter 7.2.1). The evidence seems to correspond with other unfinished hillforts in Britain and Feachem's model of hillfort construction. The possible presence of a partially constructed wooden palisade at the most substantial section of the enclosing elements may hint at why this hillfort was abandoned. The palisade could have been destroyed by fire, suggesting that the hillfort may have been attacked by rivals before the monument could be completed. In this respect, the evidence from Rathcoran is particularly significant in that it suggests that hillforts may have been destroyed in acts of aggression and not as part of ritual and ceremonial deconstruction (see Chapter 7.4).

7.4 THE DEFENSIVE ELEMENTS OF THE BALTINGLASS HILLFORTS

The purpose of enclosing elements has been a long-standing issue in regard to the function of hillforts. Three primary interpretations have been proposed; the enclosing elements formed a defensive barrier against a real or perceived threat; they were used to demarcate ritual or ceremonial areas; or they formed a physical representation of a community's strength, effectively acting as elements of monumental display. The evidence identified at the Baltinglass forts has highlighted the strategic and apparently defensive characteristics of the monuments and the extensive use of fire in apparently aggressive acts of calculated destruction. Against this, there are the practical considerations of defending enclosures with such long perimeters.

Smith and Cochrane's (2011, 80) study of chiefdom-level warfare in prehistoric Fiji and the Cauca Valley suggests that views of the immediate environs of defensive sites are the most important, allowing an approaching enemy to be seen and for adjacent agricultural lands to be overlooked. Rua *et al*. (2013, 2113) have argued that the ability to visually cover the surrounding landscape was an important factor for locating defensive structures since ancient times, stating that some of the key aspects for siting may have been the presence of comprehensive viewsheds, prominent look-out points and the surveillance of paths or approaches. The importance the farmscape environment surrounding hillforts in Ireland was examined in Chapter 2.2.5. Where evidence exists, it suggests that the immediate environs of Irish hillforts were heavily deforested and used intensively as agricultural land. This would also have aided visibility of approaching enemies. There has been no quantitative analysis of the defensive capabilities of hillforts in Ireland and in this regard GIS analysis has the potential to aid in the statistic investigation of visibility and optimal route selection. This is particularly applicable to Tuckmill Hill, where high resolution LiDAR data was attained for this project.

Hillfort	Size in Kilometres Squared
Tinoran	1435km^2
Brusselstown Ring	1192km^2
Rathcoran	2082km^2
Rathnagree	1134km^2
Spinans Hill 1	2091km^2
Hughstown	1364km^2
Sruhaun	1434km^2

Table 7.3: Area visible to individual hillforts in the Baltinglass area.

The area visible to individual hillforts in the Baltinglass area is presented in Table 7.3. These viewsheds are analysed further in Table 7.4, where common areas of visibility have been overlain and clipped. These are displayed in percentage format, where the common viewshed of one hillfort is given as a percentage in relation to the total viewshed of another. In relation to the hillforts on Tuckmill Hill, this analysis reveals the extensive visibility from Rathcoran, where up to 2082km² of land is visible from the interior. This contrasts with the more limited visibility from both Rathnagree (No: 94) hillfort (1134km²) and Sruhaun (No: 101) hillfort (1434km²). Significantly, 99% of the views from the hillforts at Rathnagree and Sruhaun are also visible from Rathcoran (No: 92). It is only when we consider the immediate environs of these hillforts that there are clear distinctions in viewsheds.

The northern spur of Tuckmill Hill obscures the visibility of Rathcoran (No: 92), blocking views of the north-west and eastern base of the hill. Rathnagree (No: 94) hillfort is strategically positioned to oversee views to the north-west, the 1% of unique views being visible from the fort (Fig. 7.9). Similarly, Sruhaun (No: 101) is located at the break of a steep drop off to the south, allowing excellent views of the southern and eastern base of Tuckmill Hill. Again, it is these views that comprise the 1% of Sruhaun's viewshed that cannot be seen from Rathcoran. A similar situation occurs on Spinans Hill, where Brusselstown Ring (No: 15) has largely the same views as Spinans Hill 1 (No: 98). The contrasting views reflect differences in visibility of the immediate environs and suggest that the hillforts on Spinans Hill were strategically positioned to overlook the base and slopes of the hilltop as well as access routes to the summit.

Aspect analysis confirms the tripartite nature of Tuckmill Hill (Fig. 7.10). The three enclosures are positioned at the intersection of these aspects, allowing for maximum visibility of the hillslopes and immediate surroundings. The strategic setting of these forts is further

		B						
		Tinoran	Brusselstown Ring	Rathcoran	Rathangree	Spinans Hill 1	Hughstown	Sruhaun
A	Tinoran		44%	89%	56%	78%	75%	73%
	Brusselstown Ring	60%		81%	46%	93%	54%	64%
	Rathcoran	72%	47%		55%	80%	62%	72%
	Rathnagree	81%	48%	99%		85%	68%	69%
	Spinans Hill 1	62%	54%	79%	48%		53%	59%
	Hughstown	80%	43%	83%	51%	71%		70%
	Sruhaun	82%	52%	99%	54%	83%	73%	
	_____% of **A**'s views are visible at **B**							

Table 7.4: Individual viewsheds of the Baltinglass hillforts in relation to one another.

emphasised by the Least-Cost-Path analysis (Fig. 7.6). Twenty points were randomly generated surrounding the base of Tuckmill Hill and these form the starting points. The destination point is positioned near the northeastern entrance of Rathcoran (No: 92), near the summit of Tuckmill Hill. The limited area being considered means that we do not have to consider the effect river systems or bogs would have on the resultant data, principally because there are none recorded in the area. Tree cover is also not considered, as where environmental evidence exists, it shows that the land immediately surrounding Irish hillforts was intensively cleared of forestry. Problems created by the high resolution of the LiDAR data are ironically the major factor affecting this analysis. Modern field boundaries create resistance while roads and other modern tracks funnel any generated paths. Fortunately, this only affected the data on the lower slopes of the hill. Field boundaries are somewhat evenly spaced and can therefore be seen to affect the

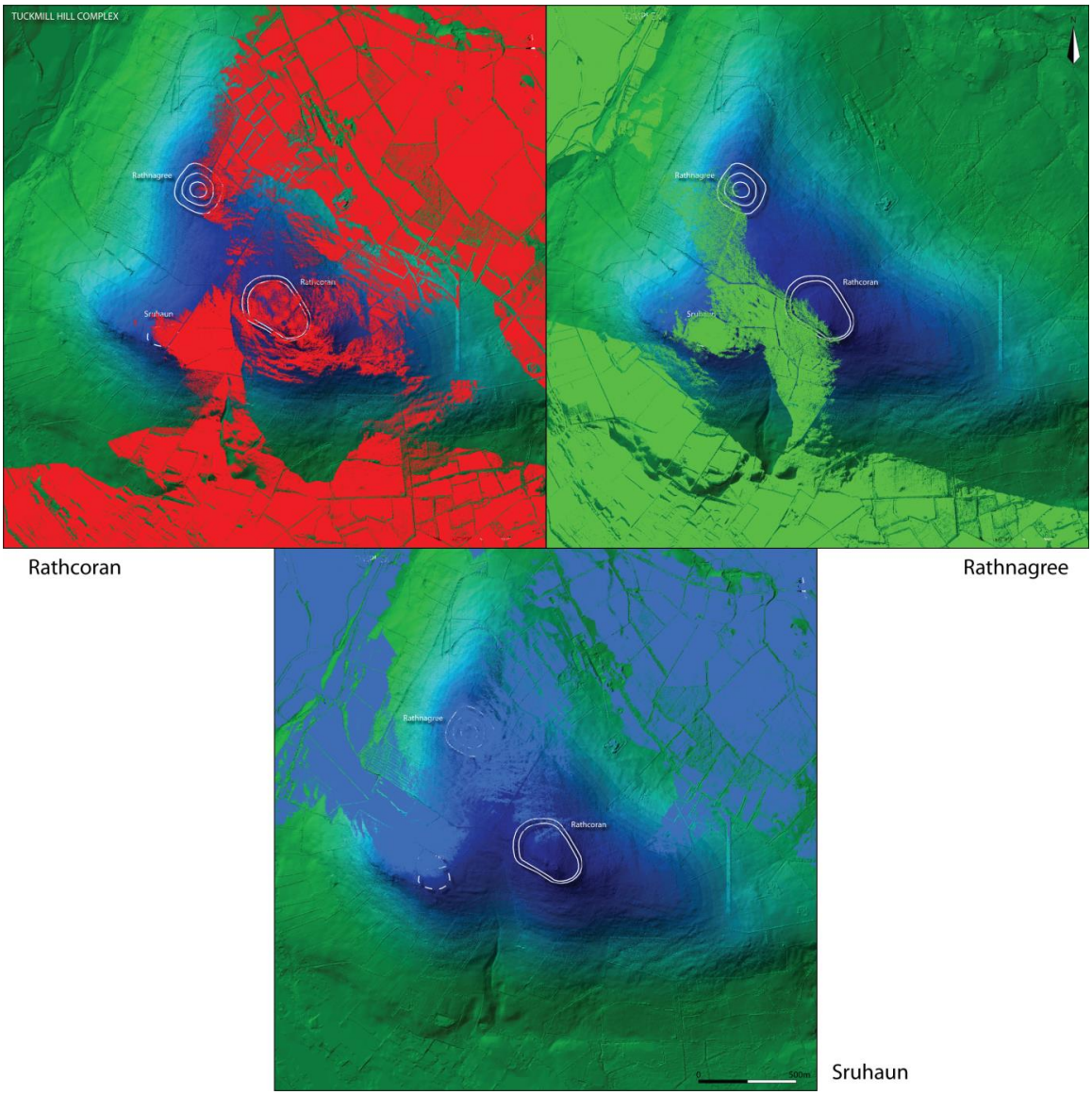

Fig. 7.9: Viewshed analysis of hillforts on Tuckmill Hill showing unique views of the immediate environs.

generated paths equally, largely negating there effect. The twenty generated paths converge at four distinct points in the landscape, creating four routes ascending the hill. Two of these paths traverse areas that are not visible to Rathcoran, but are visible to Rathnagree (No: 94) or Sruahun (No: 101) respectively. The GIS analysis implies that comprehensive views of the lands surrounding the base of the hill and control of the major routes to the summit were important contributing factors in the placement of these monuments. This could be viewed as an expression of defensibility and may also indicate that there was a significant threat (or perceived threat) to the community near the hilltop. It may also hint at the possibility that all three forts on Tuckmill Hill were contemporary (we know Rathnagree and Sruhaun probably were) and were built by the same community or alliance of communities. It is important to state, however, that this does not mean the remainder of the forts in the Baltinglass group are contemporary. These results may also imply that Sruhaun could have functioned in a similar way to Rathnagree and

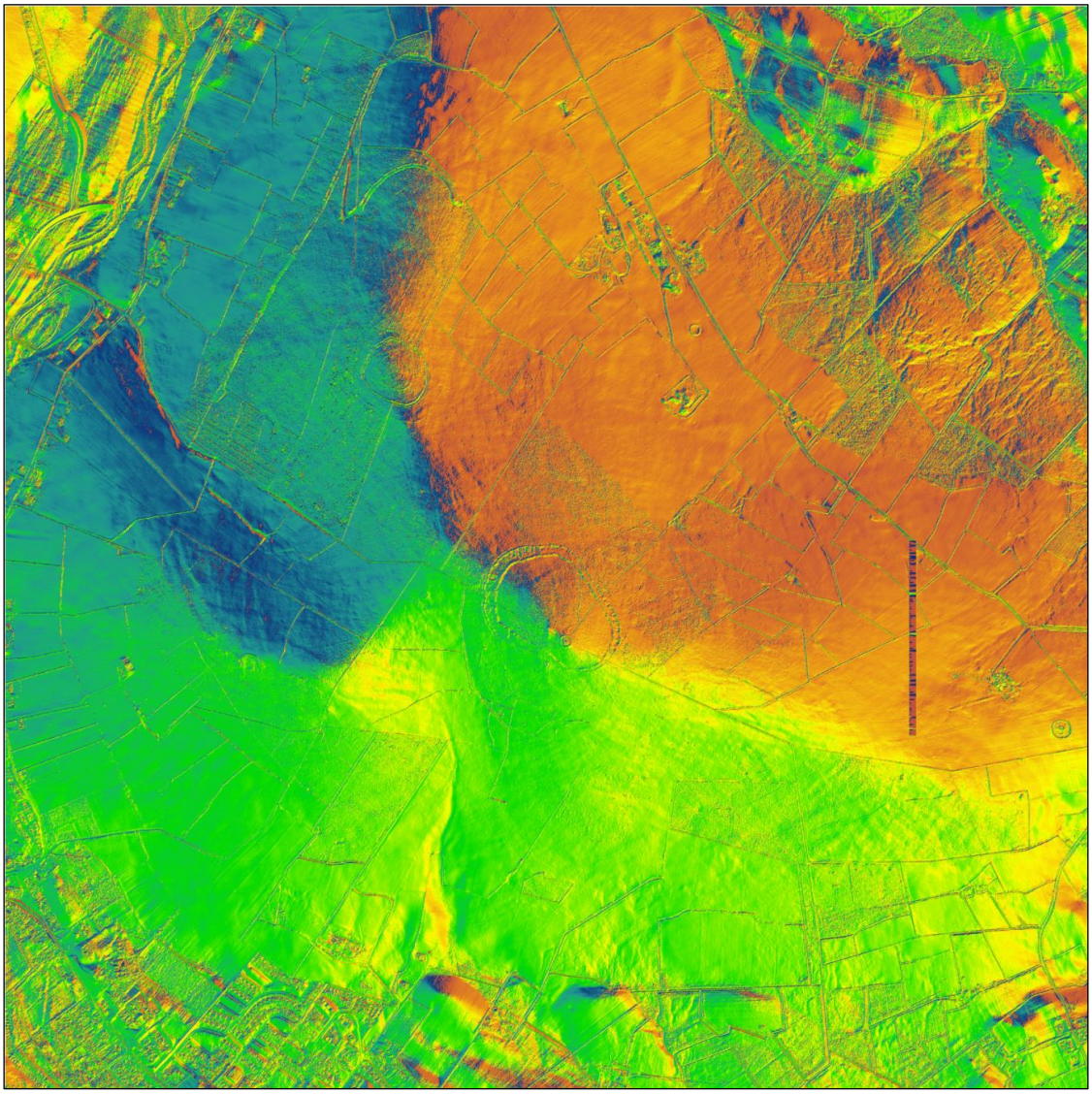

Fig. 7.10: Aspect analysis of Tuckmill Hill highlighting the tripartite nature of the hilltop.

Rathcoran, being located in a defensive manner on a prominent route to the summit of Tuckmill Hill and overlooking areas not visible to the other forts. Although Sruhaun may not have been used as a defensive enclosure, its strategic positioning could suggest it was meant to be viewed as such from a distance. It may have had more practical functions, such as being used for cattle management.

Unfortunately, the LiDAR data for Hughstown (No: 55) is too fragmented, and that for Tinoran (No: 103) severely affected by the extensive forestry covering to allow detailed GIS analysis to be undertaken on these sites. Wider viewshed analysis does indicate a similar scenario on Spinans Hill, where two forts were positioned on the eastern and western summits to attain comprehensive views surrounding the immediate base of the hill and to facilitate control of the access routes to the summit.

7.5 THE RITUAL BURNING OF THE BALTINGLASS HILLFORTS?

The possible unfinished hillfort at Rathcoran (No: 92) has been discussed in detail above and it can be suggested that this site was attacked before it was completed. Excavation at Rathnagree (No: 94) has confirmed that it was destroyed by fire before being partially reconstructed in an earthen form. Geophysical survey and excavation has hinted at the possibility that Sruhaun (No: 101) was also destroyed by fire, although this is a more tenuous link. It is interesting to note that the three sites overlook the town of Baltinglass, at the southern base of Tuckmill Hill. In Lewis' *Topographical Dictionary of Ireland*, it is noted that, 'according to most antiquaries, [Baltinglass] derives its name from *Baal-Tin-Glas*, signifying, according to common acceptation, 'The Pure Fire of Baal' and is thence supposed to have been one of the principal seats of druidical worship'. Although the *Logainm* database of townland names provides a more reliable derivation, Baltinglass coming from *Bealach Conglais*, meaning the 'way' or 'pass', the tentative connection with fire is supported by the evidence at Hughstown (No: 55) that tentatively indicates the Early Neolithic enclosure was destroyed by fire. In Britain, hillfort defences with wooden elements were replaced by the *glacis* type defences comprising large earthen banks and ditches set at a 30–45^{o} angle, primarily to negate the onset of rotting wood and the use of fire as an offensive weapon (Cunliffe 1991, 320). In this regard, the rebuilding of Rathnagree in an earthen form might have been precipitated by the destruction of the earlier enclosing elements by fire.

The extensive firing of hillfort defences has been identified at other Irish sites such as Clashanimud (No: 26) in Co. Cork and Toor More (No: 36)in Co. Kilkenny (Fig. 7.11; Fig 7.12). At

Fig. 7.11: Gradiometry survey results at Toor More Co. Kilkenny.

Fig. 7.12: Gradiometry survey interpretation at Toor More, Co. Kilkenny.

the widely spaced bivallate hillfort of Toor More, the inner and outer enclosing elements have a composite perimeter of approximately 1.53km. Geophysical survey revealed that both circuits were comprehensively destroyed by fire, a process that substantially altered the magnetic susceptibility of the soil, making it visible in the geophysical results. The intensive readings are indicative of consistent and sustained firing and are unlikely to have been a result accidental damage. The survey revealed three possible structures and a concentration of possible pit features inside the inner defences, none of which show signs of destruction by fire.

Targeted excavation of both enclosing elements confirmed the geophysical results and established the presence of external ditches. Burnt wood probably associated with the destruction of the site were recovered in the inner defences and a line of shallow post-holes were revealed just inside the bank. A slot trench was identified inside the outer hillfort bank.

Excavation at the widely spaced bivallate hillfort of Clashanimud (No: 26) recovered similar evidence for destruction by fire. A number of sections through the inner enclosing elements revealed a burnt palisade of oak posts at the crest of the bank. A light wooden fence on top of the outer bank of the hillfort does not seem to have been burnt. At both Toor More (No: 36) and Clashanimud, substantial amounts of wood were incorporated into the enclosing elements and it has been suggested that this represents an attack on the hillfort and its subsequent destruction by fire.

Noble (2006, 56) states the difficulty in burning down wooden structures should not be underestimated. Stevanović's (1997) study of Neolithic houses in southeast Europe indicates that all excavated examples were deliberately destroyed by fire, as the temperatures implied by the heat- affected clay and stone suggest that some fuel must have been introduced. The complete burning of these structures would not have occurred without this addition. Stevanović (1997, 376) has also highlighted that fire burns upwards and without the addition of fuel and tinder around the perimeter of larger palisaded enclosures, these monuments could not have been completely destroyed (Noble 2006, 56). At such sites, large amounts of people were needed to gather, place and maintain the fire to ensure the complete destruction of the site (*ibid.*, 57). As such, this must have been a considered and planned act of destruction by a large group. These events may have lasted for some time, given the extensive evidence for burning at some sites (*ibid.*, 57).

The act of destroying a rival community's central monument that embodied the well-being and identity of that group would have been a strong declaration of dominance. Arkush

(2011, 67) has argued that the political centre of a chiefdom, being a symbol and source of legitimacy for a ruler, would have been a primary 'target' for attack. The use of fire would have been a very visible way of communicating the subordination of a rival group, while the large amount of resources and workforce required to start and maintain a fire would have been another act of competitive display by the aggressors who were effectively displaying the resources and manpower at their disposal. Ralston (2006, 163) has noted that the intense glow emanating from a burning hillfort would have been a distinctly unnatural sight and a spectacular display of calculated destruction. Harding (2012, 189) suggests that burning a hillfort after capture would have symbolized the destruction of a communities ancestral homeland. In Britain, where evidence for burning or slighting exists, it has taken place after defeat in battle (Harding 2012, 198).

In Europe, the destruction of Late Bronze Age hillforts by fire is common (Härke 1979, 33; Primas 2002, 50). In fact, Harding (2001, 334) and Bogucki (2004, 88-89) both suggest that 'almost all' of Late Bronze Age hillforts in Central Europe were rapidly destroyed, with artefact assemblages often indicating a single phase of occupation that rarely exceeded one hundred years. This has generally been considered to demonstrate the connection between warfare and hillforts (O'Brien 2012a, 221; Heath 2009, 121; Hill 1995, 55; Thorpe 2013, 240). While this clearly indicates intense competition, it could also suggest that there was a common and well known method of destroying a hillfort. This may have eventually led to the evolution in design, where later hillforts such as Mooghaun (No: 85), Co. Clare or Rahally (No: 88), Co. Galway, were constructed using stone or earth.

The use of fire at some of the Baltinglass forts corresponds with contemporary sites on the Continent and could be viewed as a deliberate act of destruction by a rival community. O'Sullivan (1997, 118) suggests that the emergence of hillfort communities coincided with a strengthening of regional identities and a subsequent increase in warfare as a means of defining a communities sense of self-worth and identity. Although this does not necessarily suggest that the function of the enclosing elements is only defensive, it does infer that hillfort communities were highly competitive and were involved in inter-personal and inter-regional warfare. The highly visible destruction of the hillforts by fire would have been a deliberate act of aggression and an excellent way of subordinating a rival community. The GIS analysis of the hillforts on Tuckmill Hill suggest that extensive views of the wider landscape and the control of pathways ascending the hillfort were vital and may have affected the initial siting of the monuments. This

does indicate a consideration of the defensive properties of the terrain and may suggest the sites themselves were defensive, although this does not restrict other functions from co-existing.

A number of researchers have argued that the destruction or 'slighting' of hillfort defences is often associated with ritual deposits, suggesting intentional destruction by the inhabitants (Hill 1995, 52; Bowden and McOmish 1987, 78–79). Hence, this deliberate act of destruction could be linked with the creation of memory and with cycles of death and rebirth. The deliberate destruction of large enclosures and structures has particular analogies with earlier sites dating to the Neolithic. Noble (2006) and Thomas (2007) have highlighted the importance of burning at Neolithic wooden built structures in England and Scotland. Svensson (2002) has discussed some examples on the Continent in areas such as Denmark, Sweden and Northern Germany and Stevanović (1997) has analysed this phenomenon in southeast Europe. Similarly, burning of rectangular houses in Ireland was common practice during the Neolithic (O Drisceoil 2003). Large palisaded enclosures were also being constructed, at sites such as Tullahedy, Co. Tipperary (Cleary and Kellaher 2011), Donegore, Co. Antrim (Mallory *et al*. 2011), and Knowth, Co. Meath (Eogan 1984), although there is limited evidence indicating their destruction by fire. In the past, the destruction of such structures has been interpreted as accidental firings or destruction by competing communities. However, more recent interpretations have stressed a more symbolic interpretation (Stevanović 1997; Noble 2006; Thomas 2007) that may be applicable to hillforts with burnt defences.

The burning of Neolithic house sites in Ireland, Britain and the Continent, as well as some Neolithic palisaded enclosures, have more recently been considered as deliberate acts of ritualised destruction by researchers such as Stevanović (1997), Noble (2006) and Thomas (2007). This ritual would have resulted in the creation of memories of a place or event, with the ultimate goal of establishing group harmony and identity. As Noble (2006, 58) suggests, the physical structure of the wooden enclosures would not in themselves prolong memory, as they merely acted as a backdrop to ritual actions. However, the deliberate burning of these structures would have formed an intense experience aiding the retention of memories associated with the event. This would have been a dramatic visual occasion heightened by the element of danger (*ibid.*, 57) and even more spectacular if performed at night (Bradley 2005; Svensson 2002).

Noble (2006, 58) speculates that the amount of time and labour involved in the process suggests that the event formed an important part of the history of the community. The creation of memory was likely supported by 'flashbulb memory', a phenomenon linked with clear and vivid memory retention associated with dramatic events. These memories are subject to less

memory distortion and often form part of collective memory (*ibid.*, 58). Similarly, Thomas (2007, 262) notes that the destruction of an object or structure could also be a means of securing its memory. Noble (2006, 58) conceives the deliberate burning of wooden structures as being specifically designed to be memorable and spectacular. It may have been linked with the lifecycles of the communities who constructed them, perhaps occurring after a death. Challis (1978, 23) has suggested the abandonment of some large Pā enclosures in New Zealand were linked with the burial of a chief. Similarly, Brugge (1978) and Heizer (1978) highlight the Native American practice of burning a house to purify it after the death of a resident and this has led Stevanović (1997) and Tringham (2005, 105) to interpret Neolithic house burning as a ritual performance marking the end of a house in social memory and coinciding with the death of a significant person. Tringham (2005, 105) sees fire as a source of rebirth and renewal, a purifying agent that cleanses, heals and revitalises.

A large number of Scottish hillforts show signs of vitrification (Bowden and McOmish 1987, 79; Ralston 2006), a phenomenon found throughout Atlantic Europe (Ralston 2006, 143–144). The distinctive characteristic of these forts is the substantial alterations of the enclosing elements (generally composed of stone) attributed to the application of heat often in excess of 1,000 degrees Celsius, fusing stone and other material together (*ibid.*, 146). This was originally seen to represent the destruction of the enclosure. Other interpretations suggest that this was a deliberate act by the builders to solidify the enclosing structure in an attempt to negate the use of fire during an attack. Conversely, Bowden and McOmish (1987, 78) suggest that the vitrification processes has been shown by excavation to occur at the end of occupation sequences and may have been the result of deliberate destruction to mark the ritualised abandonment of the site. Bowden and McOmish (1987, 78) cite the vitrified hillfort at Moel Hirradug, in Flintshire, Wales, as a good example. Material recovered from the burnt enclosure includes a highly decorated bronze shield and some other bronzes interpreted as closing deposits. Cleary (2007, 255–282) has discussed the potential of closing deposits in the context of Bronze Age structures and settlements and has suggested their importance as symbols and/or metaphors to explain the cultural and social universe of Bronze Age people.

At Rathnagree (No: 94), the total perimeter of the three hillfort enclosures extends to 1.7km with approximately 3406 posts being needed for construction. Possible evidence for palisade burning is apparent in the geophysical survey at Rathcoran (No: 92). The presence of possible heat-shattered stone at Sruhaun (No: 101) as well as at the Early Neolithic enclosure at Hughstown (No: 55) both correspond with intense magnetic anomalies along the circuit of the

enclosing elements and could tentatively be regarded as evidence for destruction by fire, although further excavation is needed to clarify this. There is also tentative evidence for a palisade at Brusselstown Ring (No: 15). The complete destruction and comprehensive burning of the enclosing elements at these sites is comparable with burnt Neolithic wooden structures throughout Europe and finds particular analogies with Neolithic palisaded enclosures. Noble (2006, 56) has noted the burning of a wooden palisade was unlikely to be an accidental incident and was probably a thought out process of deliberate destruction. It is conceivable that the destruction of these monuments was a deliberate ritual act involving the communities that constructed them. Fire was often used in Bronze Age funerary rites, both in the Late Bronze Age when cremation became the dominant form of funerary treatment across Europe and during earlier periods (Bruck 2011, 396). Bruck (2007, 307; 2011, 398) suggests that the deliberate destruction of artefacts at this time could have acted not only as a means of transformation, but as a means of regeneration of life in the face of death and one could apply a similar logic to structures. Sharples (2007, 262) suggests that the through fragmentation or burning of objects is an important feature of Late Bronze Age societies in southern England and can be strongly associated with fertility.

The excavation at Rathnagree (No: 94) indicates that the Phase 2 earthen bank and ditch was constructed soon after the destruction of the site by fire. This act may have facilitated the ending of a cycle for the monument and community, helping to create collective memories while celebrating the past use of the monument and the people associated with it (such as a chief). This may have been linked to the creation of a new, more permanent expression of status and social cohesion, possibly commissioned by a new chief or the next generation in that community.

The archaeological evidence, however, may correspond better with the interpretation that hillforts were destroyed in acts of warfare by rival communities (see Chapter 7.4). Evidence from the Continent is particularly important in this context, where bronze weapons and armour or human remains with *peri-mortem* trauma have been found in contexts associated with burning. Such evidence is indicative of hostile attacks and has been found at the hillfort at Velim, Bohemia, Czech Republic (Harding *et al.* 2007, 154) and Heunischenburg hillfort near Kronach, Bavaria, Germany (Thorpe 2013, 240) for example. Although many of the hillforts that were destroyed during this period were not re-built, where there is evidence for rebuilding, wooden elements were often replaced by stone or earth. This could be seen as an attempt to prevent future attacks by fire. Comparable evidence is found at Rathnagree (No: 94), where excavation has revealed that the Phase 1 hillfort comprising three widely spaced palisades were destroyed

by fire. Shortly afterwards, an earthen bank and ditch were constructed over the middle palisade. Interestingly, in Ireland, dated hillforts with evidence for palisades such as Rathnagree (No: 94), Co. Wicklow; Clashanimud (No: 26), Co. Cork; Knockdhu (No: 69), Co. Antrim; Toor More (No: 36), Co. Kilkenny; and possibly Haughey's Fort (No: 53), Co. Armagh and Lyles Hill (No: 82) in Co. Antrim, come relatively early in the sequence, with later hillforts such Glanbane (No: 49), Co. Kerry; Mooghaun (No: 85), Co. Clare; Rahally (No: 88), Co. Galway, and Rathgall (No: 90), Co. Wicklow, being constructed exclusively of stone or earth.

Despite the lack of evidence to support ritualistic destruction, there are a number of key points we can take from these explanations. Most importantly is the creation of communal memory and identity through acts of destruction. The creation of memory does not necessarily have to be related to the builders of the site and through deliberate destruction by the people inhabiting the fort. Considering the extent of destruction at these hillforts and the amount of resources needed, there must have been a considerable number of people involved in starting and maintaining the fires. This destruction could have been a ritual performance undertaken by a victorious community after battle, where they comprehensively destroyed a rivals hillfort (Fig 7.13). The act of destruction would have been particularly important for an elite. It would have created vivid memories of subjugation for the community associated with the hillfort, helping to maintain control of both territories and the people contained within it. The destruction would have signalled to the surrounding community that significant social renegotiation was about to

Fig. 7.13: Artist's impression of the burning of Dun Deardail hillfort, Glen Nevis, Scotland (http://scotland.forestry.gov.uk/news/1359-exploring-the-archaeology-of-dun-deardail).

take place. More importantly, it would have reinforced the communal identity of the hostile group, solidifying social cohesiveness and creating social memory. A successful attack may have consolidated and legitimated an elite's position as head of the community and increased their status in both his community and the now subordinate group. Social memory can be a powerful tool in the motivation of groups of people to invest in a territory or social landscape (Hoaen and

Loney 2013, 125) and a successful attack may have influenced people to devote themselves to a community, territory or elite. It may also have had a practical element, with the successful elite removing a rival from competing in exotic goods and long-distance trade networks.

7.6 SUMMARY

The examples in the Baltinglass area form a unique clustering of hillforts that is unparalleled in Ireland. The extensive size and elaborate nature of the monuments may have been used as platforms for competitive display, and was probably also central to the way individual hillfort communities or different generations of the same community created and maintained identity. This segregation is particularly evident in the forms and layout of the hillforts themselves. They show a diverse use of resources and labour and could have been used to visibly display esoteric knowledge in an act of competitive display or in an attempt to display their unique identity. The incorporation of wood into the enclosing elements in many sites could be perceived as the conspicuous consumption of this resource. In a similar way to the deposition of prestige goods, this could relate to the display of power, prestige and competitive display. The depletion of this resource or the placement of woodland on or near territorial boundaries may have been a considerable source of conflict in the Late Bronze Age. The destruction of a hillfort by fire is also a feature of some of the Baltinglass sites. Although this could be interpreted as ritual deconstruction, the evidence at Baltinglass, and in particular Tuckmill Hill, suggests the hillforts were destroyed in aggressive acts by rival communities. The destruction of a community's symbol of status and authority would have been an impressive visual display of dominance and would have facilitated the creation of group identity and maintained social cohesion in the aggressor's community. Conversely, it would have the opposite effect on the defending community, dismantling their social order, status, power and identity.

CHAPTER 8

THE BALTINGLASS HILLFORT LANDSCAPE

This chapter will discuss the various surveys of the Baltinglass hillforts undertaken by the author and contextualise this information with respect to the wider landscape. It will attempt to reconstruct catchment areas and territorial land-blocks using GIS methods as well as considering physical landscape features as possible boundaries. The analysis will also consider whether the 105 possible barrow monuments identified in the Baltinglass area may have been deliberately positioned at various points in the landscape to help define such boundaries, constituting visible claims to the land and links to the ancestors. Ritual was an significant element of everyday life in prehistory and was probably important in maintaining social order on both an intra- and extra-communal level. Settlement evidence identified at some of the Baltinglass hillforts and this will also be discussed.

8.1 HILLFORT SITING: A GIS APPROACH

Bradley (1990, 137) has argued that during the Late Bronze Age a concern with the definition of territory may be reflected in the siting of hillforts. In Grogan's discussion of the Late Bronze Age of the North Munster region, he argues that the distributional pattern of hillforts suggests a strong element of territoriality, especially at a regional or sub-regional scale, and that this could be expanded to include the whole of Ireland (Grogan 2005a, 98). These territories would range from 225km² to 325km² and were divided into smaller territorial zones up to 21km² (Grogan 2005a, 87–99; Grogan 2014, 63) (Table 8.1). Natural features defined these boundaries, with contemporary burial monuments often found in close vicinity.

The application of this model to the Baltinglass area is problematic due to the close proximity of as many as nine hillforts. If it is assumed these hillforts are contemporary and were built by rivalling communities as presented in **Model 1**, than the size of their respective territories and the boundaries defining these would have been significantly different to other examples. Conversely, if the monuments are not contemporary as suggested by **Model 2**, the resultant territories or catchment zones would be broadly comparable with Grogan's analysis.

In the late 1970's, there were attempts to statistically define hillfort territories using Thiessen Polygons (Cunliffe 1971; Hogg 1971; Clarke 1972; Collis 1977). This statistical technique generates polygons around a single point, located so that any point inside this area is closer to that point than other sample points. There were a number of problems with this technique, primarily, the assumption that the hillforts in question were contemporary, that the dataset is complete and the variables introduced by natural topography. Despite these limitations, Thiessen-generated territories for second–first century BC hillforts in the Wiltshire chalklands hinted at the potential of statistical modelling. Cunliffe noted that the probable spheres of influence highlighted by the model usually bordered river valleys, comparing favourably with the clearly defined territories of contemporary hillforts on the Sussux Downs (Cunliffe 1971, 59–60). Cunliffe concluded that somewhat evenly spaced territories averaging 90km² were the normal socio-economic unit for a single large hillfort on the southern chalkland (see Cunliffe 1971, fig. 14) (Table 8.1).

Collens (1988) argues that Iron Age hillforts and enclosures of the Upper Severn Valley had a similar network of regularly spaced sites 6.5–9.2km apart, although with much smaller territories averaging 16–25km² (Table 8.1). Driver (2013, 145) argues for a similar territory size for Pen Dinas hillfort in Wales, although he has noted that smaller hillforts north of the Rheidol River in the North Ceredigion district have more limited territories (*ibid.*, 142–143) (Table 8.1). In Cunliffe's (2000) analysis of Danebury hillfort, the author reconstructs its territorial landscape at various periods in time. At the height of the hillfort phenomenon in Britain, around 300 BC, Danebury's territory was probably extended to a diameter of 20km (approximately 314.16km²), with hillforts of comparable size and status positioned just outside these limits (Table 8.1). Conversely, in Baden-Württemberg, Germany, regularly spaced contemporary hillforts along river valleys, especially along the Danube and its tributaries, infer territories of only a few square

Author	Period	Size in Kilometres Squared
Grogan (2005a 87–99)	Late Bronze Age	225km^2 to 325km^2
Cunliffe (1971)	1st–2nd Century BC	90km^2
Collens (1988)	Iron Age	16km^2 to 25km^2
Driver (2013, 142–143)	300 BC	314km^2
Cunliffe (2000)	Iron Age	16km^2 to 25km^2
Harding (2000, 303)	Late Bronze Age	2km^2 to 4km^2

Table 8.1: Proposed size of hillfort territories (various authors).

kilometres in size (Harding 2000, 303) (Table 8.1). Clearly, hillfort territories varied both regionally and chronologically. Only the approaches to defining these territories can be used to help recreate the possible territories of the hillforts in the Baltinglass cluster.

Using a basic Thiessen approach, the size of the hillfort territories in the Baltinglass cluster are presented in Table 8.2 (Fig. 8.1). This has been done for **Model 1** and **Model 2**. With regards to **Model 1**, calculating the territorial boundaries based on distance from a single point is probably inappropriate considering their close setting. The cost factor should not be derived from distance, but should be weighted by cultural factors such as visibility, closeness to other hillfort sites and natural features such as rivers, streams and other topographical features (see Chapter 6.2). Unfortunately, as Driver (2013, 141) notes, such a 'flat' statistical calculation does not consider these factors, even though they probably exerted considerable influence on territorial layout.

Some of these problems can be overcome using modern GIS techniques. The continued development of Path-Distance Catchment models is particularly important in this context (see Chapter 1.3.2). This analysis can generate more robust models that can quantitatively define accessibility and ease of movement. Importantly, anisotropic movement can be calculated using Tobler's hiking function, which assumes that the average person can walk 4km an hour in a flat landscape with no impediments (Tobler 1993). This determines the hiking speed with regard to the angle of slope in the terrain and can be used to determine walking time. An excellent review of this technique and other cost surface analysis has recently been published by Herzog (2014). This technique is important because it can incorporate terrain and other potential 'cost' features such as rivers and streams, bogs or even cultural attributes such as visibility.

Hillfort	Size in Kilometres Squared
Model 1	
Spinans Hill Complex	158.9km^2
Tuckmill Hill Complex	47.9km^2
Hughstown	202.4km^2
Tinoran	148.3km^2
Kilranlagh	59.8km^2
Model 2	
Individual fort	442.6km^2

Table 8.2: Size of hillfort territories estimated using Thiessen Polygons.

A general Path-Distance Catchment model was generated for all of the Baltinglass hillforts, to help define their territory and the area accessible to the hillfort communities. This is applicable to both **Model 1** and **Model 2** (Fig. 8.2 and Fig. 8.3). This identified five major zones of influence, each surrounding the hillforts. The three hillforts on Spinans Hill and the three hillforts on Tuckmill Hill each comprise a single zone. The zones are defined by topographical features, with rivers and streams comprising the principal boundaries. When this data is organised using quantile classification (a data classification method that distributes a set of values into groups that contain an equal number of values), major topographical impediments become more pronounced, allowing us to better define the potential catchment of the hillforts in the Baltinglass cluster (Fig. 8.3). This classification reveals the possible outer zone of accessibility to the hillforts, which measures approximately 20km north-south by 25km east–west (500km²). Interestingly, this is similar in size to the Thiessen Polygon generated for **Model 2** and hints at the potential of this type of analysis. This catchment is delineated to the east by the Wicklow

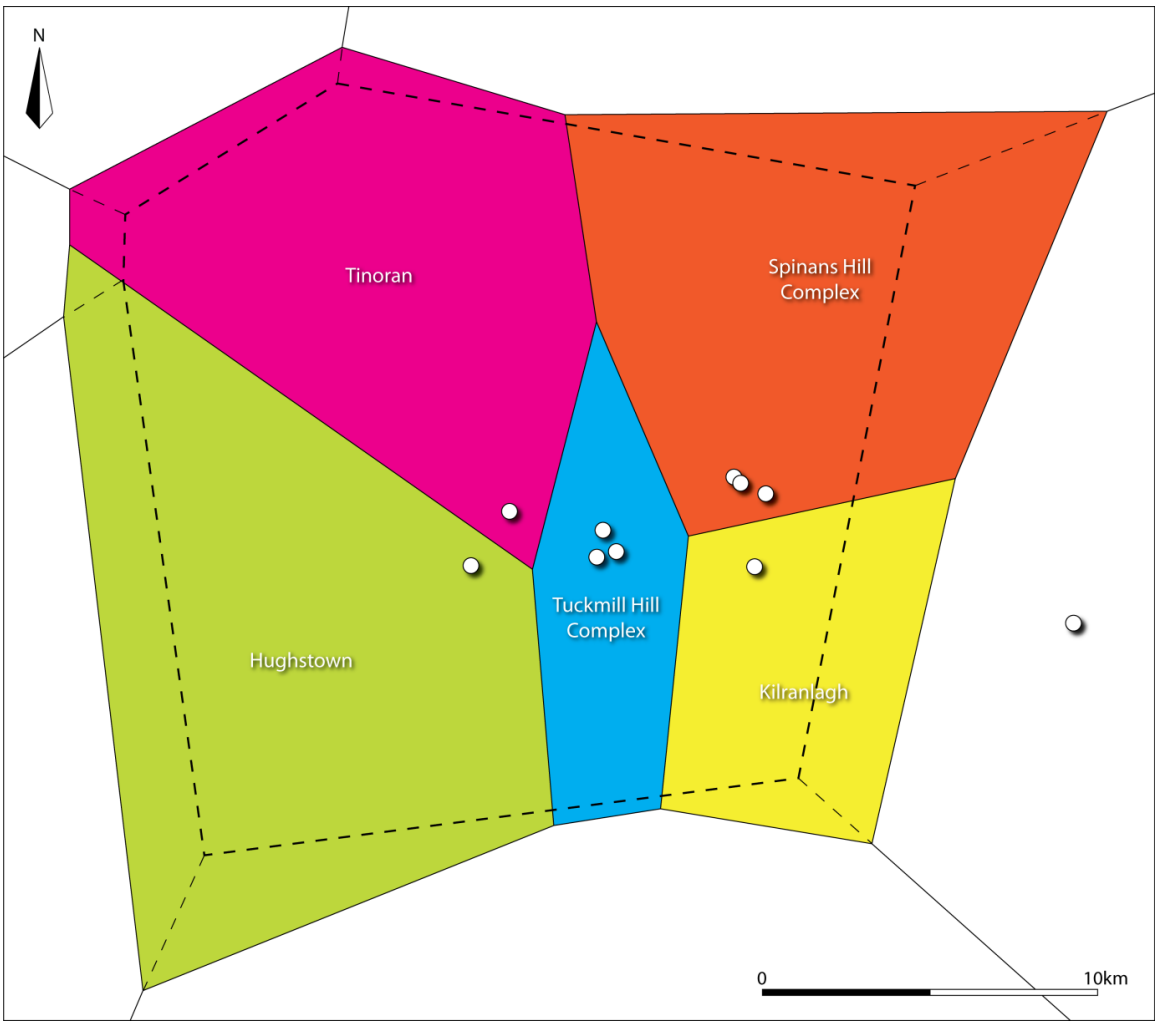

Fig. 8.1: Thiessen Polygons reflecting potential territorial boundaries in the Baltinglass area. **Model 1** is represented by the coloured segments. **Model 2** is represented by the dashed-line. If the hillforts are not contemporary, the dashed line postulates an approximate territory for a single isolated fort.

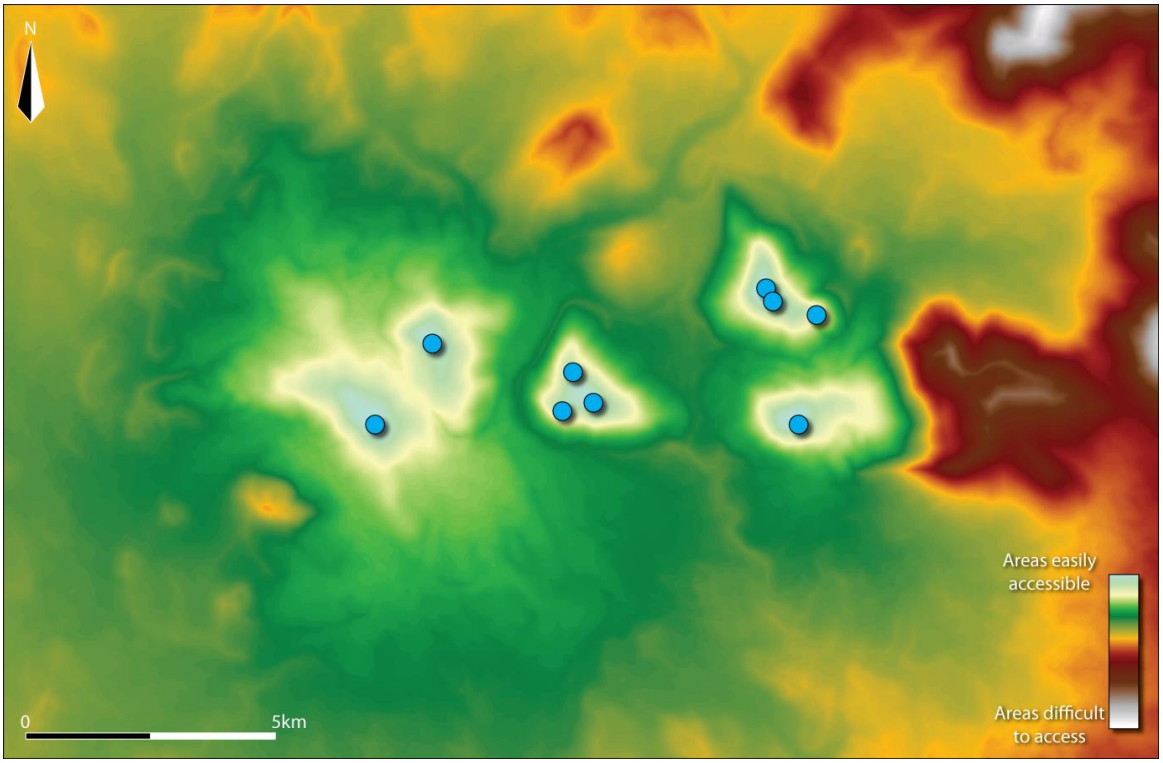

Fig. 8.2: Path-Distance Catchment model for all of the Baltinglass hillforts (**Model 1**). Individual sites applicable to **Model 2** are presented below.

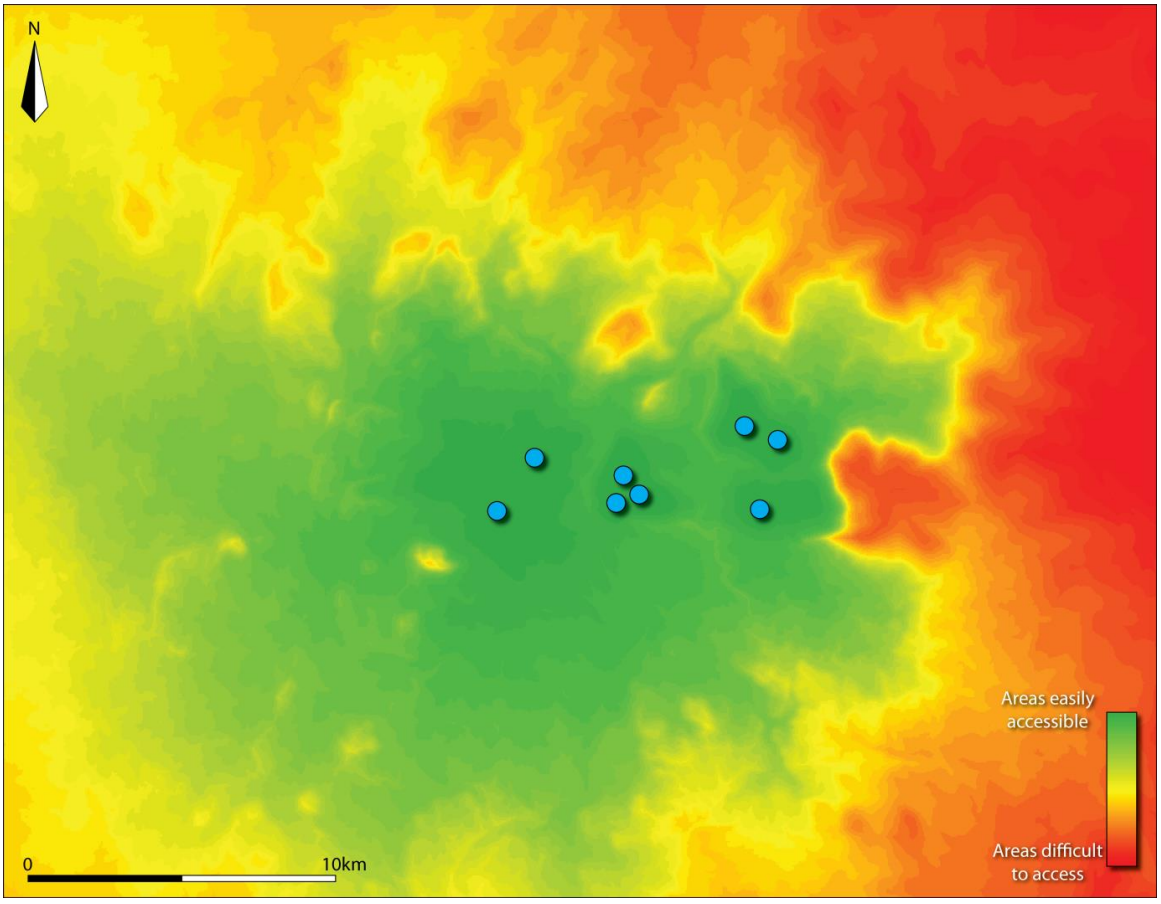

Fig. 8.3: Path-Distance Catchment model with data organised using quantile classification.

Mountains, while to the north, undulating hilly terrain appears to be a significant cost factor for movement. Conversely, the comparatively flat terrain to the west and south would have been less costly for travel, with distance and travel time comprising the major 'barriers' or limits in this respect. A number of possible contemporary unenclosed settlements have been identified at the edge of this catchment area, including Mullamast, Burtown Little and Prumplestown Lower in Co. Kildare. This, however, may reflect more intensive investigation associated with the M8 motorway, contrasting with a lack of excavation in the environs of Baltinglass. More importantly, the paired hillforts at Rathgall (No: 90) and Knockeen (No: 70) are positioned approximately 3km outside this potential catchment zone, possibly indicating a zone of influence within which the construction of other hillforts was subject to a level of control, a scenario similar to what Driver (2013, 145) has described for Pen Dinas hillfort in Wales.

This interpretation is supported by visibility analysis of Rathgall (No: 90) and Knockeen (No: 70) hillforts. Although Rathgall is positioned near the edge of this catchment, visibility to and from the site is primarily focused to the south and south-west, overlooking the River Slaney and its tributaries. The adjacent hillfort at Knockeen is seemingly better positioned to overlook this catchment, however, its views of this area are also limited. The primary viewsheds are to the south-west and the north-west to north-east, though the area of visibility restricted to within a diameter of approximately 3km. It seems that visibility of the River Slaney to the west was important for the builders of Rathgall and Knockeen, as well as the landscape immediately surrounding those hillforts.

Applying this Path-Distance Catchment approach to the individual hillforts at Baltinglass, we can begin to differentiate potential territories, catchments zones and areas of influence. The model generated for Hughstown (No: 55) reveals a catchment area approximately 20km by 20km (400km^2), delineated in the east by the Wicklow Mountains and the north and north-east by undulating terrain (Fig. 8.4). The southern and western portion of the potential catchment is more expansive because the land is flat and the boundary is determined by travel time rather than topographical impediments. Spinans Hill is positioned at the edge of this zone, the quickest route between the sites taking just over six hours to walk, although this does not take into account woodland or cultural barriers (Fig. 8.4 and Fig. 8.5). Major topographical barriers include the hilltops of Spinans, Tuckmill and Kilranlagh. Tinoran Hill does not act as a major landscape impediment and the hillfort is easily accessible from Hughstown, taking just under two hours to travel between the sites. The analysis suggests that Hughstown is more accessible from the north/north-west, where a more gradual incline ascends the hilltop (Fig. 8.2 and Fig. 8.4). A

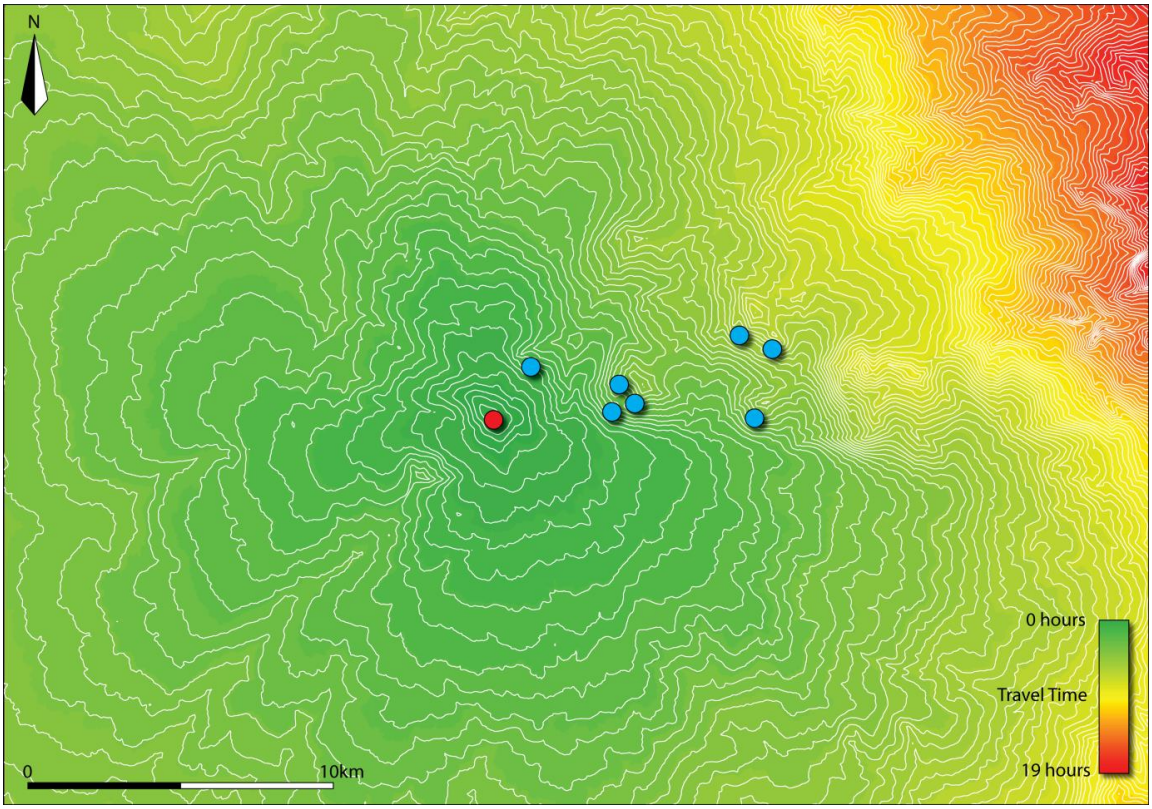

Fig. 8.4: Path-Distance Catchment model of Hughstown with 15-minute contours.

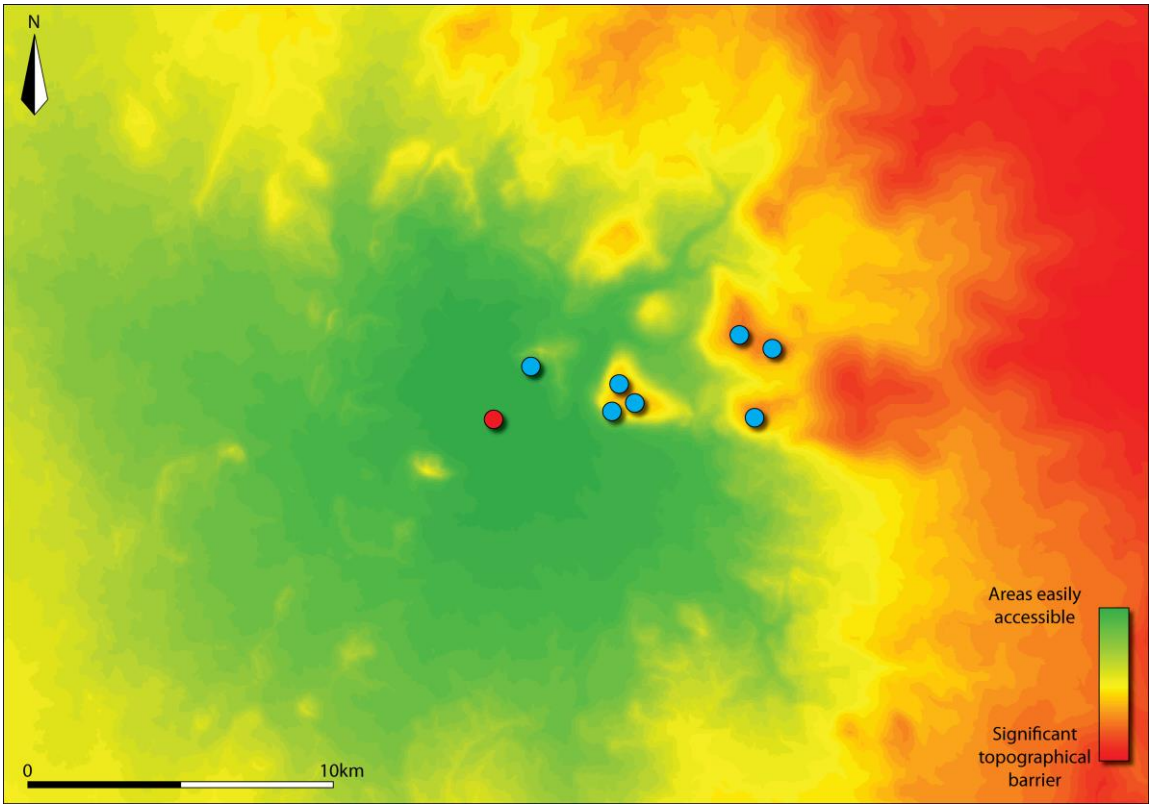

Fig. 8.5: Path-Distance Catchment model of Hughstown with data organised using quantile classification. Note that travel time still affects the catchment area in the same way as the raw data in Fig. 6.4, while major topographical features become more prominent.

second approach point is apparent at the east/south-east. This route corresponds with the entrance to the small internal enclosure on the summit of Hughstown, and is near two unrecorded ring-barrows and an embanked pond on the lower eastern side of the hill.

Viewshed analysis (Fig. 8.6) corresponds with the Path-Distance Catchment model. The site dominates the eastern, southern and western surroundings of the hilltop and has particularly impressive views of the flat landscape to the south and south-east. There is direct line-of-sight visibility of the Castlecomber Hills, which are 23km south-west of Hughstown (No: 55). This comprises a potential 1364km² of terrain visible from its interior. A ridge that extends towards the north-west of Hughstown blocks visibility beyond this area and prevents comprehensive visibility of the slopes surrounding Hughstown. Tinoran Hill prevents visibility of the hills (upland) to the north-east, while Tuckmill Hill and Spinans Hill obscures field of vision towards the west.

Tinoran (No: 103) is located to the north-east of Hughstown (No: 55). Brusselstown Ring (No: 15), the furthest site from Tinoran, can be reached in just under four and a half hours (Fig. 8.7 and Fig. 8.8). The Path-Distance Catchment model for Tinoran reveals easily accessible land to the immediate north and south, with major landscape impediments including Spinans Hill, Tuckmill Hill and Kilranlagh (Fig. 8.7 and Fig. 8.8). The possible catchment area is defined by the Wicklow Mountains in the west, undulating terrain in the north and by travel time in the south and west. It measures approximately 21km east-west by 24km north-south (504km²). The easiest access point for the site is to the south, where the gradual, elongated slope of the hill rises to the summit (Fig. 8.2 and Fig. 8.7). The partial remains of a possible fifth defensive element extending across this side of the hilltop has been identified by LiDAR. It is likely that the remainder of this feature has been destroyed by agricultural activity, although it could also be suggested that the accessible portion of the hilltop was further protected by an additional bank and ditch that did not form a complete circuit.

Viewshed analysis broadly supports the accessibility model. Tinoran (No: 103) hillfort has a potential 1435km² of terrain visible from its interior. There are extensive views of the immediate hill slopes and more expansive visibility of the flat terrain to the west and south (Fig. 8.9). An elongated ridge to the south-east blocks visibility in that direction. Hughstown (No: 55) hillfort sits on the southern summit of a north-west/south-east running ridge 1.4km south-west of Tinoran and impedes visibility in this direction, although Corballis Hill is visible beyond Hughstown. Tuckmill Hill and Spinans Hill impede visibility to the east.

The Path-Distance Catchment model for hillforts on Tuckmill Hill reveals a catchment area of approximately 20km east–west by 28km north–south (560km²) (Fig. 8.10). The possible catchment zone is defined by the Wicklow Mountains to the east, and to a lesser extent the north-east. The northwestern limit is delineated by undulating terrain, while the southern and western extent is defined by travel time. The three enclosures on Tuckmill Hill are positioned at the centre of the cluster and therefore are easily accessible to the other hillforts. From a travel

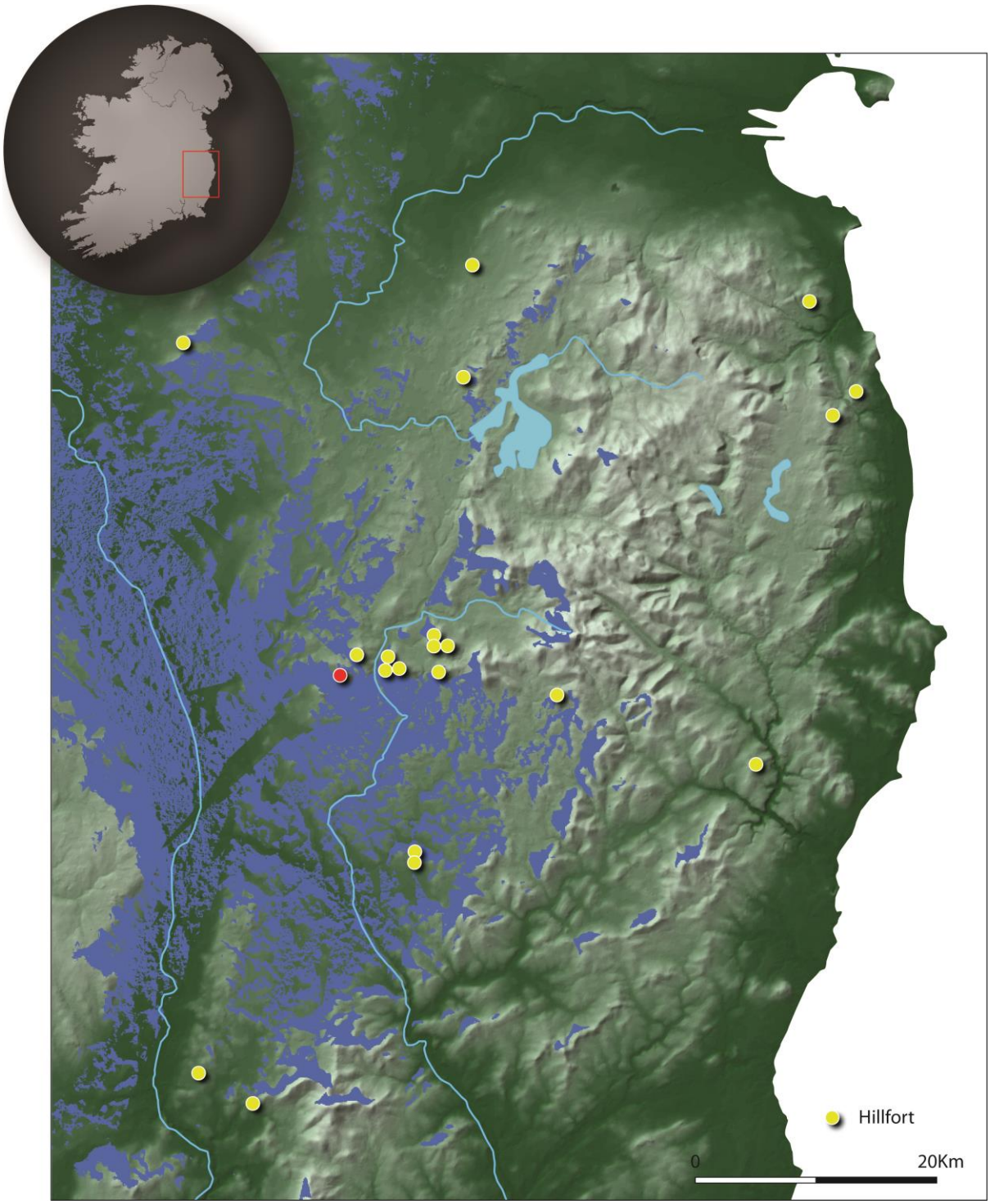

Fig. 8.6: Viewshed of Hughstown. Blue indicates areas visible from Hughstown hillfort.

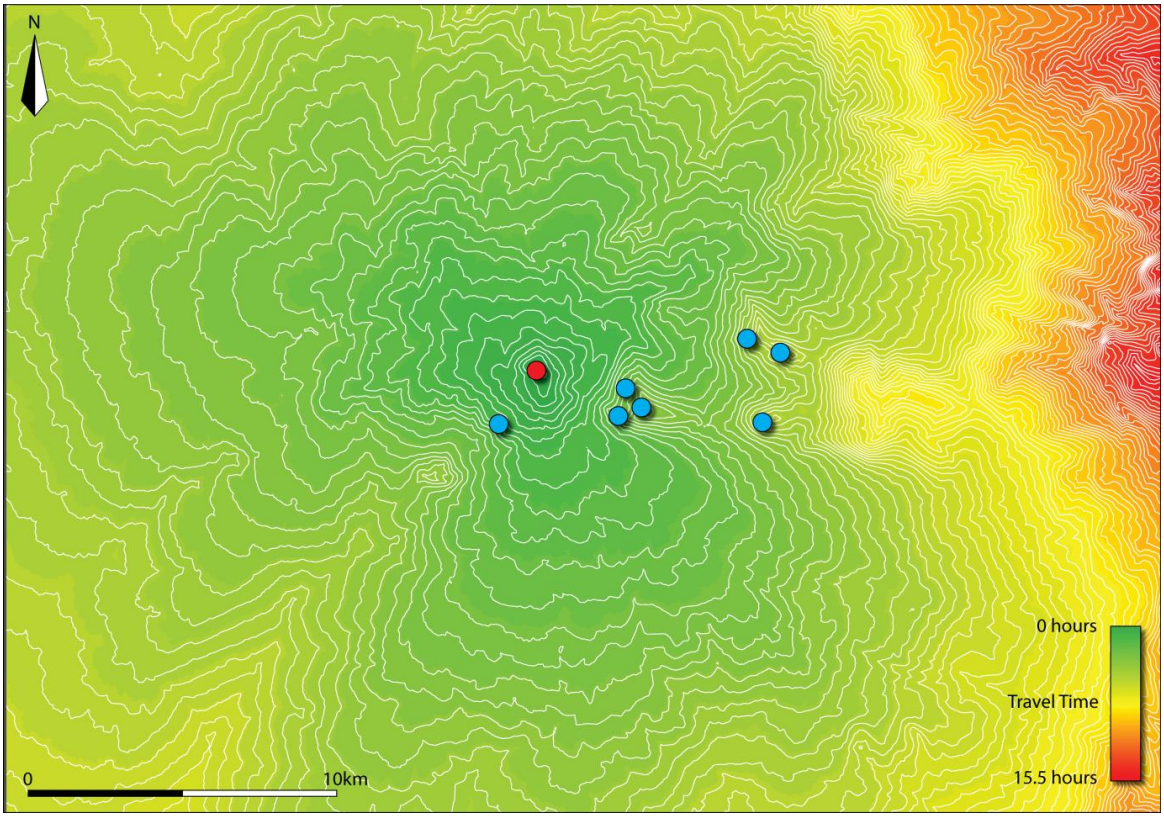

Fig. 8.7: Path-Distance Catchment model of Tinoran with 15-minute contours.

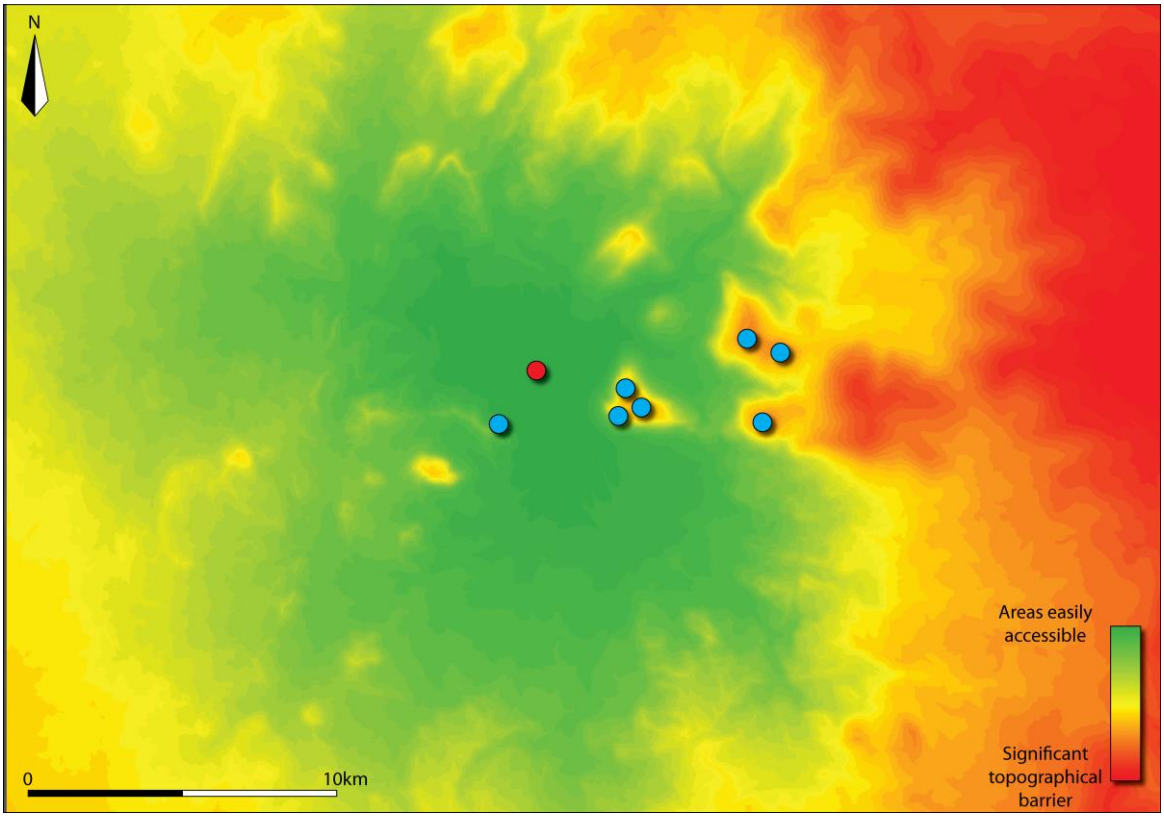

Fig. 8.8: Path-Distance Catchment model of Tinoran with data organised using quantile classification.

time perspective, the other hillforts are roughly equidistant, taking approximately four hours or less to travel between (Fig. 8.10). There are no major topographical impediments preventing access to the other hillforts in the group (Fig. 8.11). The three enclosures on Tuckmill Hill are within 15 minutes walking distance. The easiest access routes to the summit are to the north-east, overlooked by Rathnagree (No: 94), the south-east, overlooked by Rathcoran (No: 92), and to the west, overlooked by Sruhaun (No: 101) hillfort (Fig. 8.2 and Fig. 8.11). The

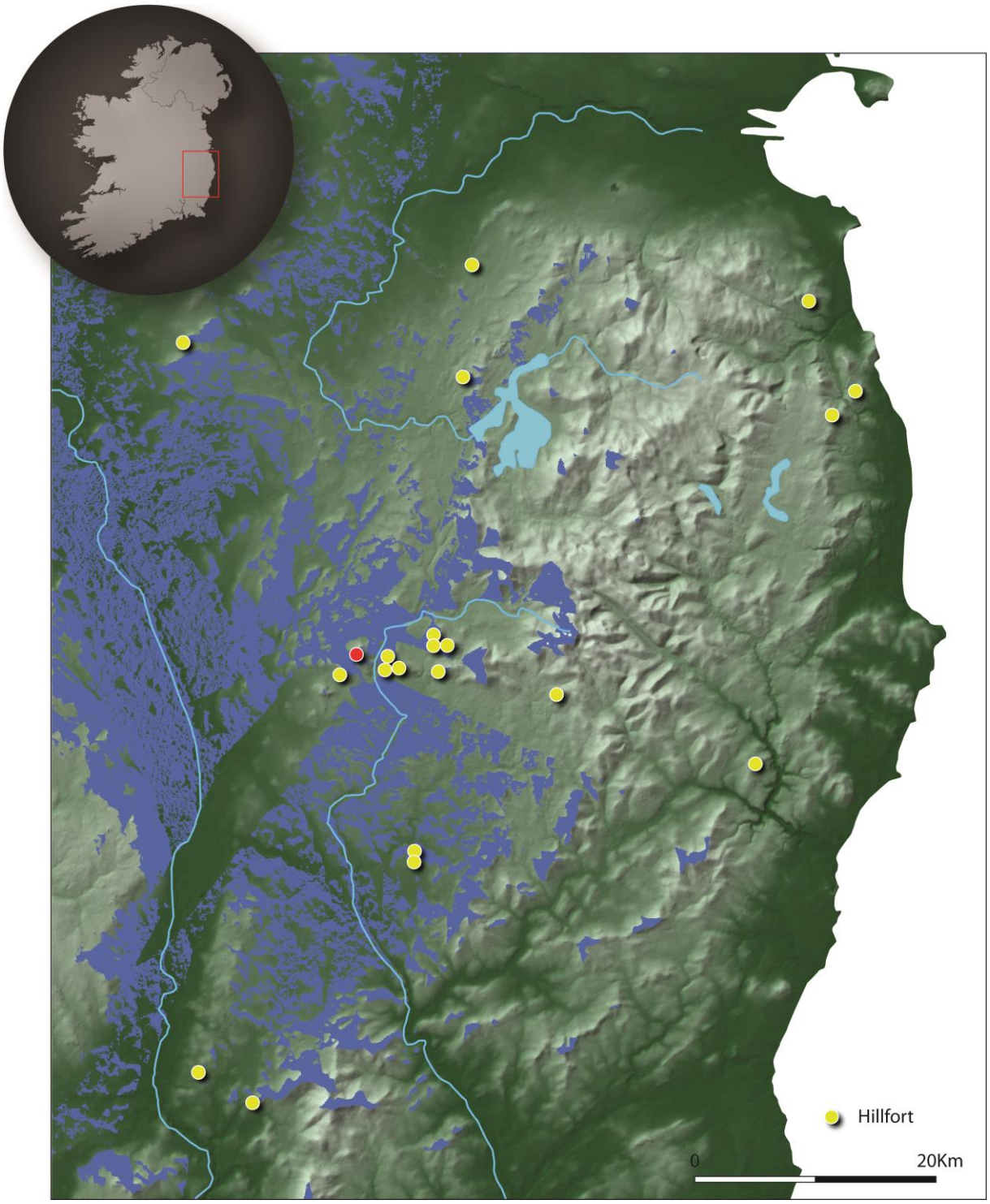

Fig. 8.9: Viewshed of Tinoran.

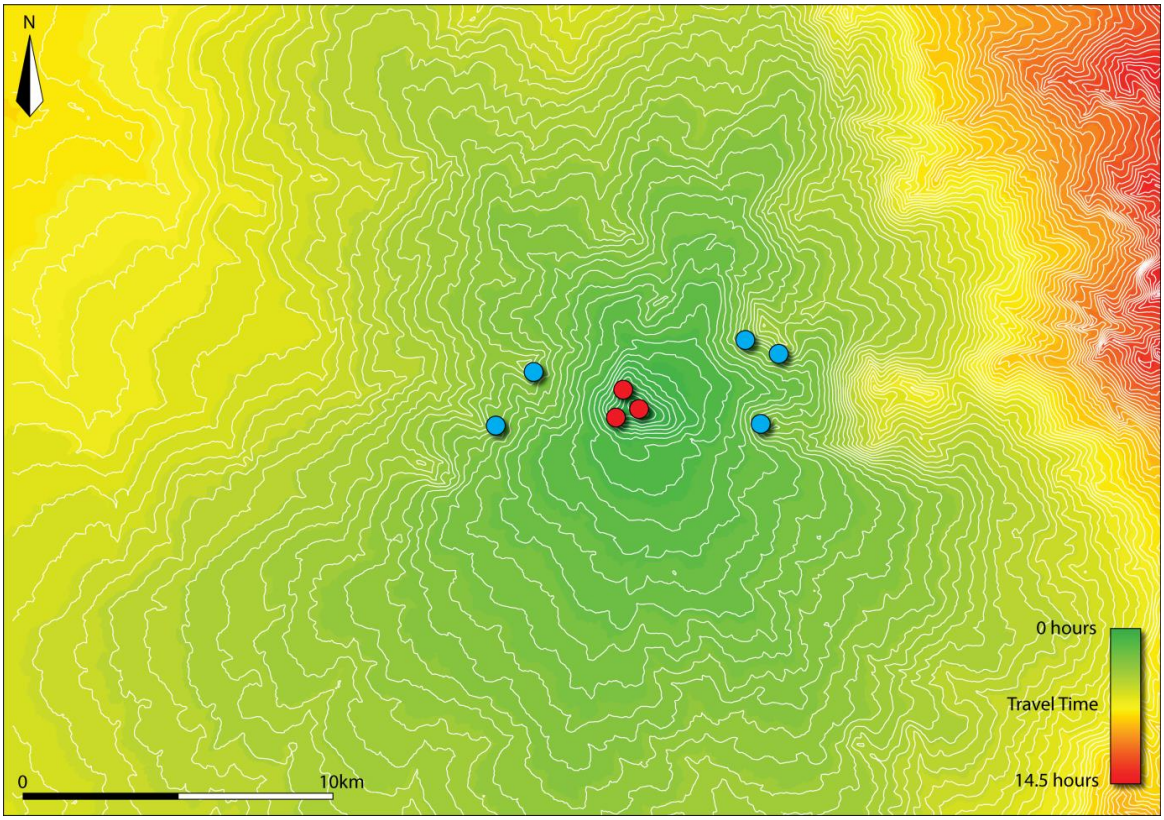

Fig. 8.10: Path-Distance Catchment model of Tuckmill Hill with 15-minute contours.

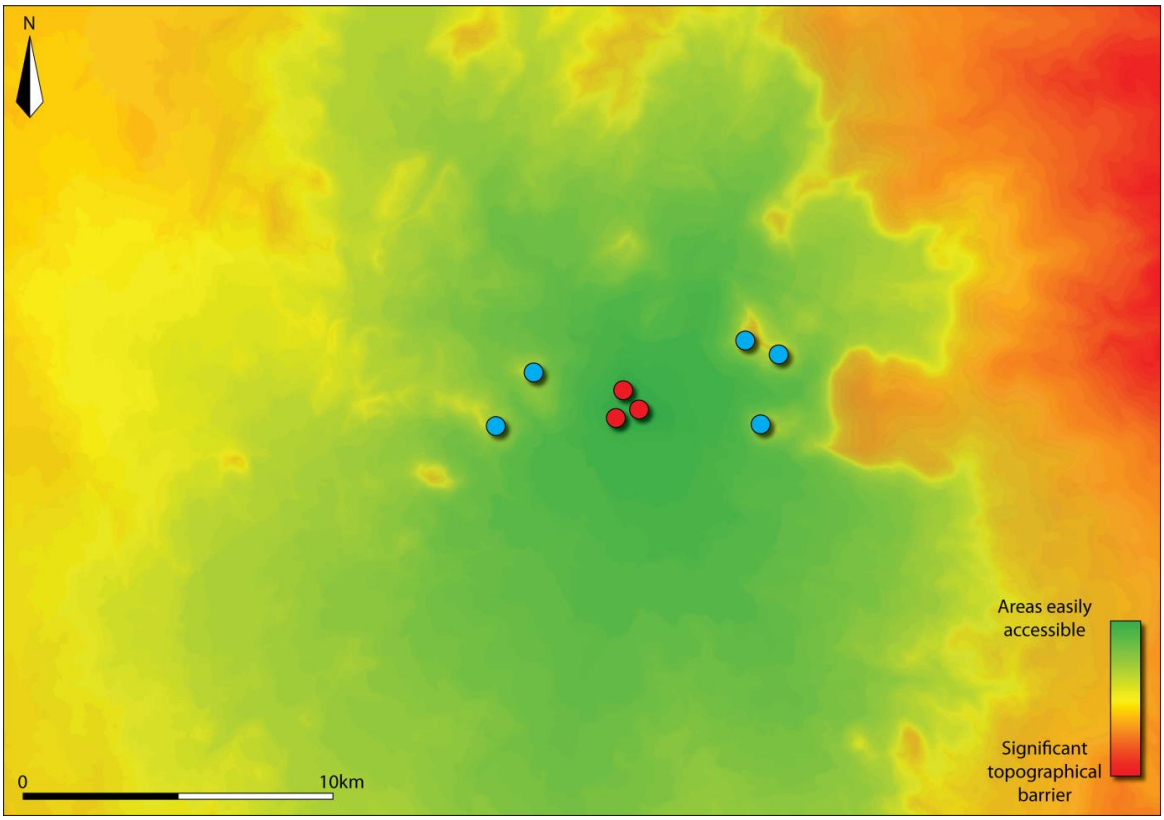

Fig. 8.11: Path-Distance Catchment model of Tuckmill Hill with data organised using quantile classification.

hillforts dominate the slopes of the hilltop and land immediately surrounding it, with impressive views of terrain in the south. Viewsheds of the three hillforts suggest that land to the south was of primary importance (Fig. 8.12; Fig. 8.13; Fig. 8.14). This land, as well as low-lying areas to the north, is easily accessible from Tuckmill Hill.

Rathcoran (No: 92) has a potential 2082km² of terrain viewable from the interior (Fig. 8.12). The northern and western summits of Tuckmill Hill block immediate views of the slopes of the hilltop and its immediate environs, while other hilltops such as Spinans Hill, Hughstown and Tinoran impede visibility to the east and west. A series of hilltops and upland terrain obscure visibility to the north. There is an unobstructed view of an extensive tract of land to the south, south-east and south-west. Visibility from Rathcoran is delimited by the southern extension of the Wicklow Mountains to the south-east, Mount Leinster and the Blackstair Mountains to the south and the Castlecomber Hills to the west.

The views from Rathnagree (No: 94) are excellent, but are more restricted than those from Rathcoran (No: 92), with a potential 1134km² of terrain visible from the interior (Fig. 8.13). Visibility to the south-east is largely restricted by the southern summit of Tuckmill Hill where Rathcoran is located. Visibility to the north, east and west is impeded by Spinans Hill, Tinoran and Hughstown. Notably, there are excellent views of the northern, eastern and western hillslopes and base of Tuckmill Hill.

Sruhaun (No: 101) is positioned on a commanding position overlooking Baltinglass town at the western base of Tuckmill Hill, with up to 1434km² of terrain visible from the interior (Fig. 8.14). There are excellent views of the north-western, western and southern base of the hill and hillslopes as well as unrestricted views of low-lying land to the south, south-east and south-west. Visibility in this area is limited by the southern extension of the Wicklow Mountains to the south-east, Mt. Leinster and the Blackstair Mountains to the south and the Castlecomber Hills to the west. Visibility to the east is blocked by the northern and southern summits of Tuckmill Hill and the ridge of higher ground that links the summits. The hilltops of Tinoran and Hughstown largely impede views of the land to the north-west and west. The significance of visibility from these three sites has been discussed in more detail in Chapter 7.4.

Kilranlagh (No: 60) hillfort is located on the eastern edge of the group. The Path-Distance Catchment model suggests that it had a catchment of 644km² over an area of approximately 23km (east–west) by 28km (north–south) (Fig. 8.15; Fig. 8.16). Easy accessibility of flat terrain to the south means the catchment zone is much more expansive in that area, defined by travel

time rather than topographical impediments (Fig. 8.15). Viewshed analysis reveals extensive visibility from this area (Fig. 5.17). The hillfort is in a topographically dominant landscape position overlooking extensive tracts of lowland to the south and south-west. It has a potential 2044km² of terrain visible from the interior. The unrestricted visibility to the south affords exceptional views of the low-lying terrain in this area, as well as the Barrow river valley and Castlecomber Hills to the west. Visibility to the west is largely restricted by Tuckmill Hill,

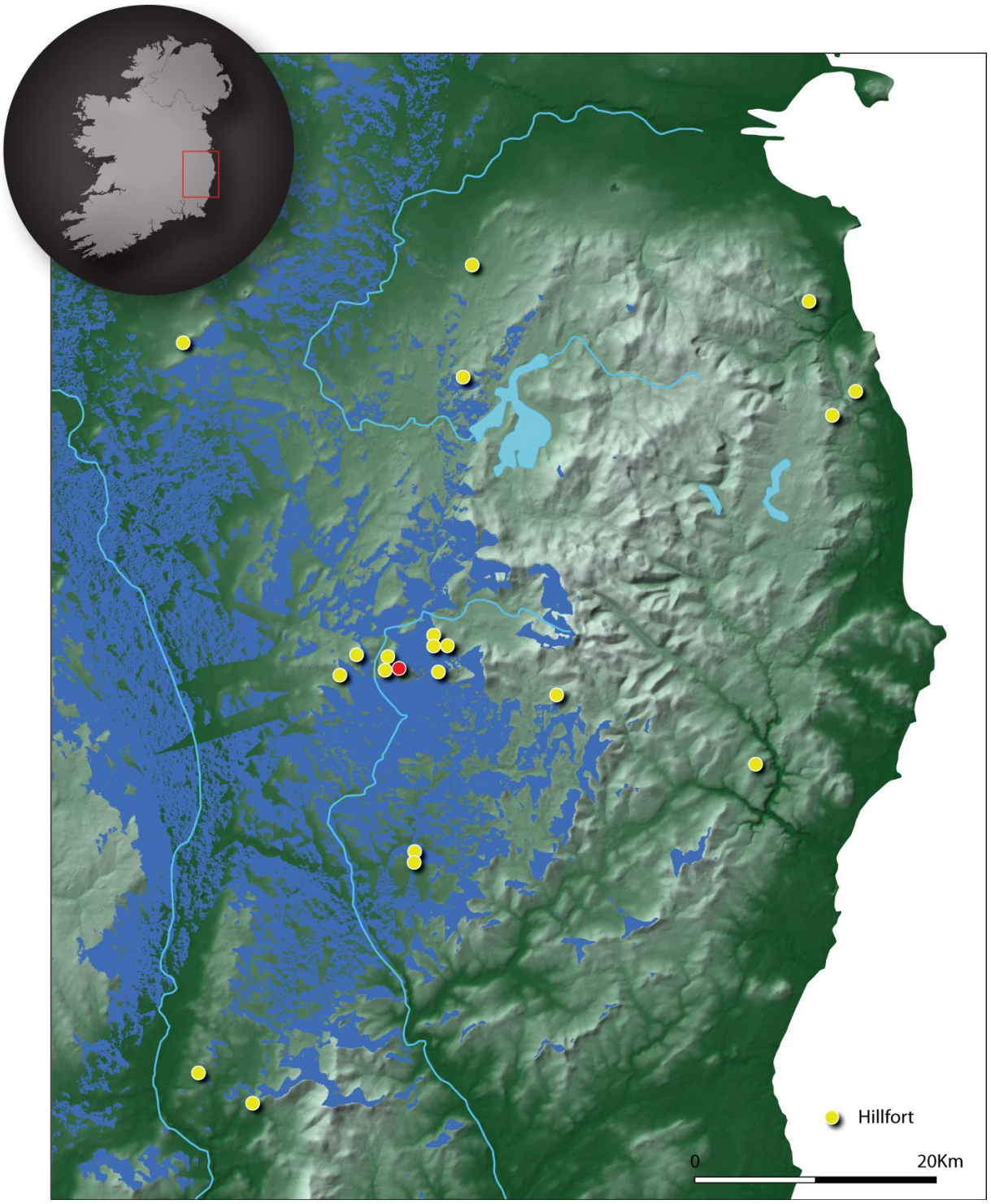

Fig. 8.12: Viewshed of Rathcoran

Tinoran and Hughstown, while Spinans Hill and Keadeen Mountain block visibility to the north and east. The Wicklow Mountains define this possible catchment to the west and north-west, while undulating terrain delimits the zone in the north. Again, travel time defines the boundary to the west and south-west. There are no major topographical impediments obstructing access to other hillforts in the group (Fig. 8.16). The closest hillfort to Kilranlagh is Brusselstown Ring (No: 15), which takes approximately 2.75 hours to travel too (Fig. 8.16). With respect to

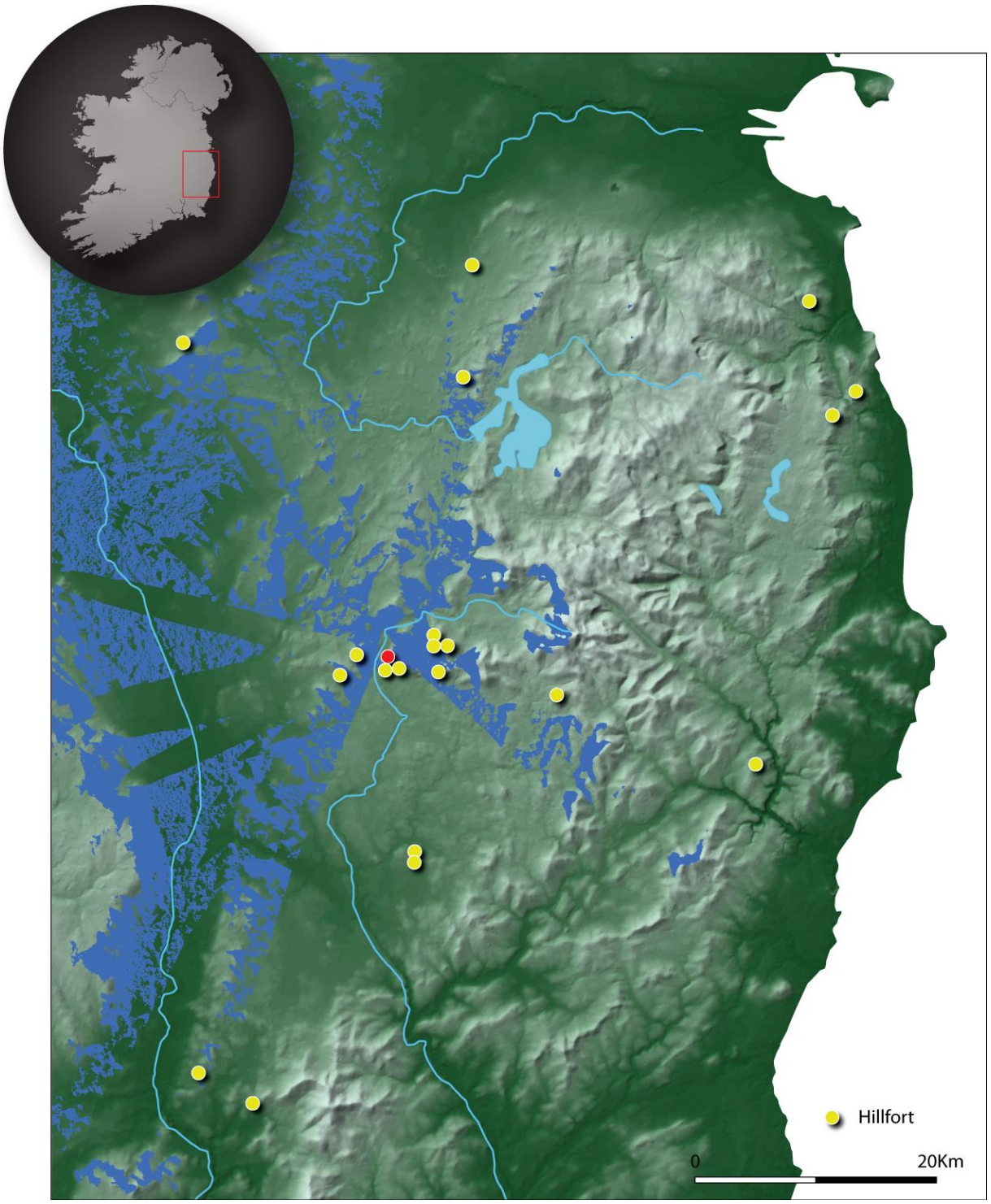

Fig. 8.13: Viewshed of Rathnagree.

travel time, Tinoran (No: 103) is the furthest away, taking a total of 7.75 hours to travel to. The easiest approach to Kilranlagh is from the east, where the slopes are less severe (Fig. 8.2; Fig. 8.15). It is notable that Boleycarrigeen stone circle and a ring-barrow are positioned on this path. Three large prehistoric cairns on the western slopes could imply that this was the main approach to the summit. There are no identified entrances in the enclosing elements of Kilranlagh to indicate a possible orientation for approaching the site.

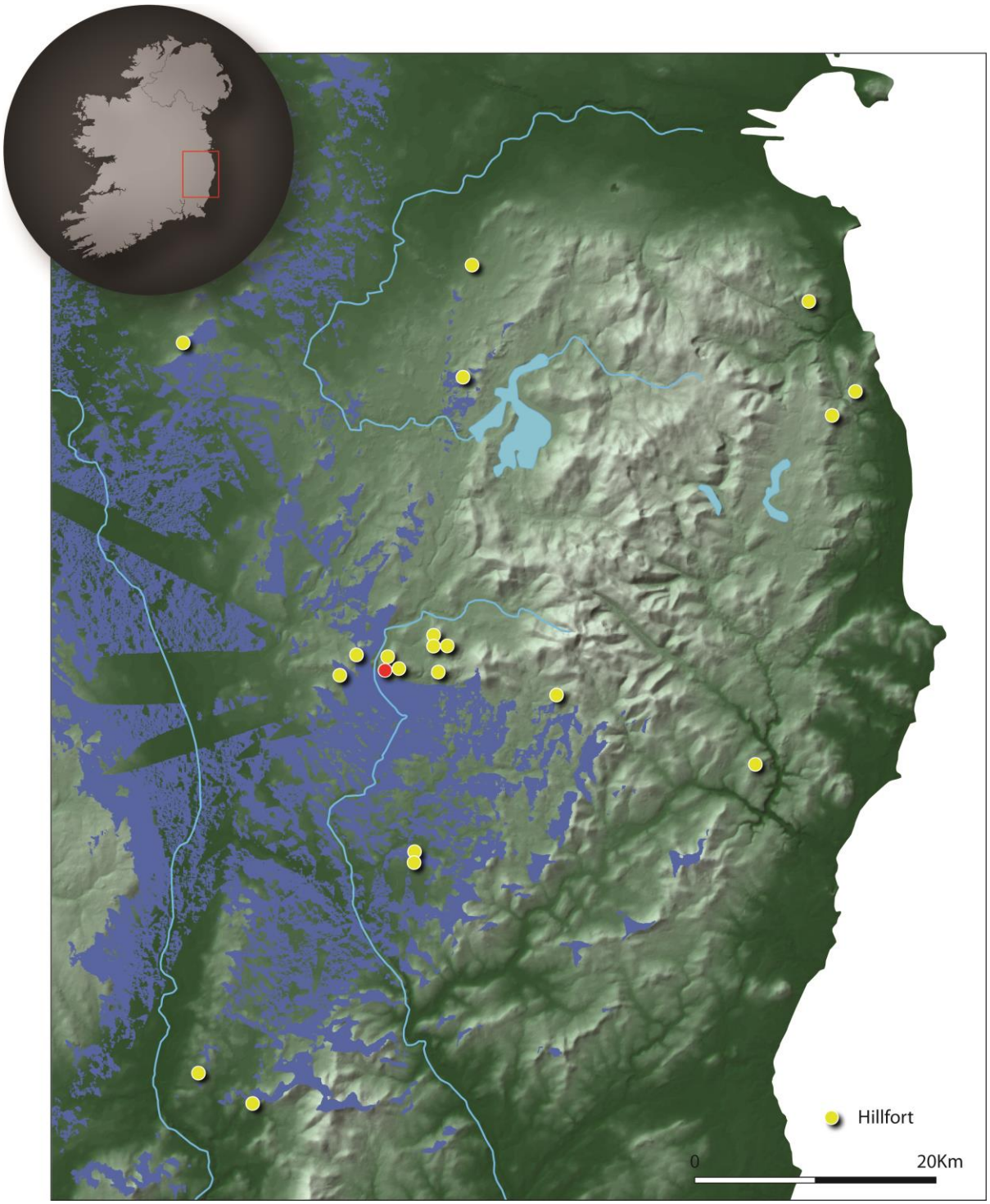

Fig. 8.14: Viewshed of Sruhaun.

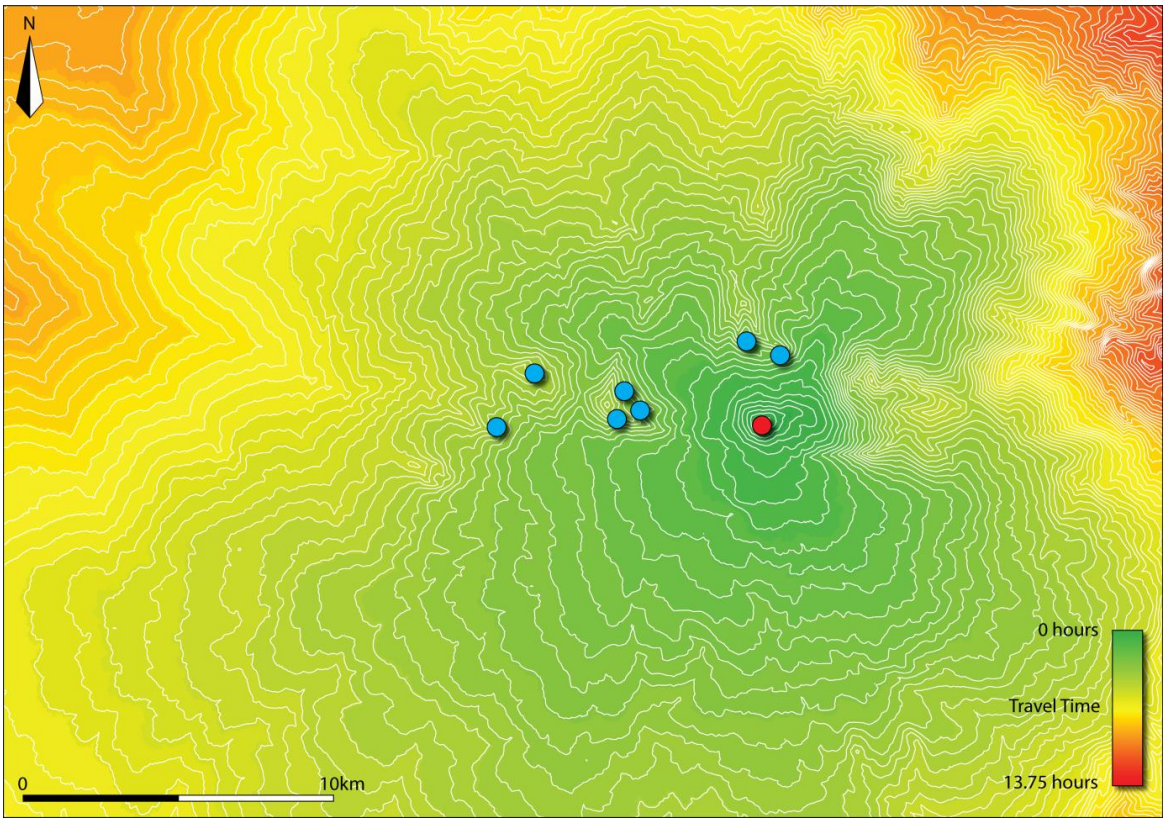

Fig. 8.15: Path-Distance Catchment model of Kilranlagh with 15-minute contours.

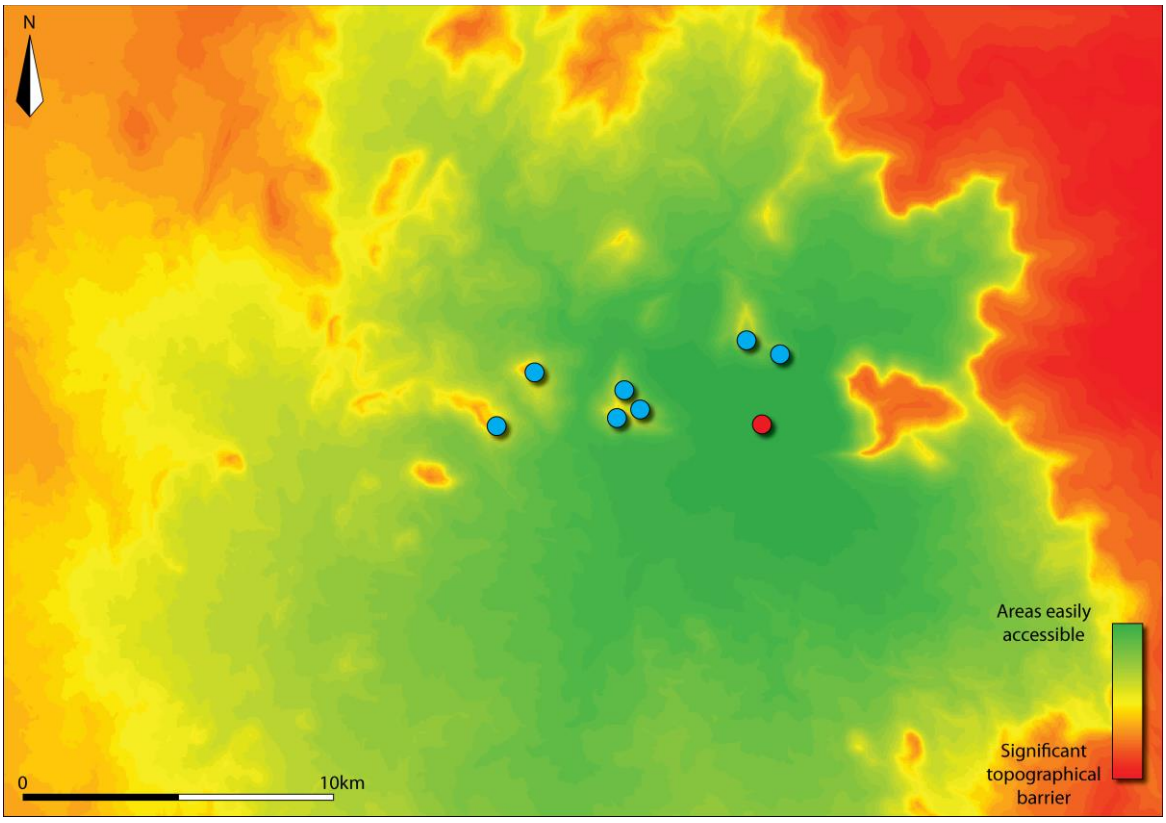

Fig. 8.16: Path-Distance Catchment model of Kilranlagh with data organised using quantile classification.

The Path-Distance Catchment model for the hillforts on Spinans Hill suggest that Spinans Hill 1 (No: 98) and Brusselstown Ring (No: 15) are easily accessible to one another, taking less than 30 minutes to travel between sites (Fig. 8.18; Fig 8.19). The perimeter of the large contour fort comprising Spinans Hill 2 (No: 99) is also easily accessible from both sites, always being, at most, 20 minutes walking distance from either hillfort. Kilranlagh is the most easily accessible hillfort from Brusselstown Ring, taking 2.75 hours to travel between sites.

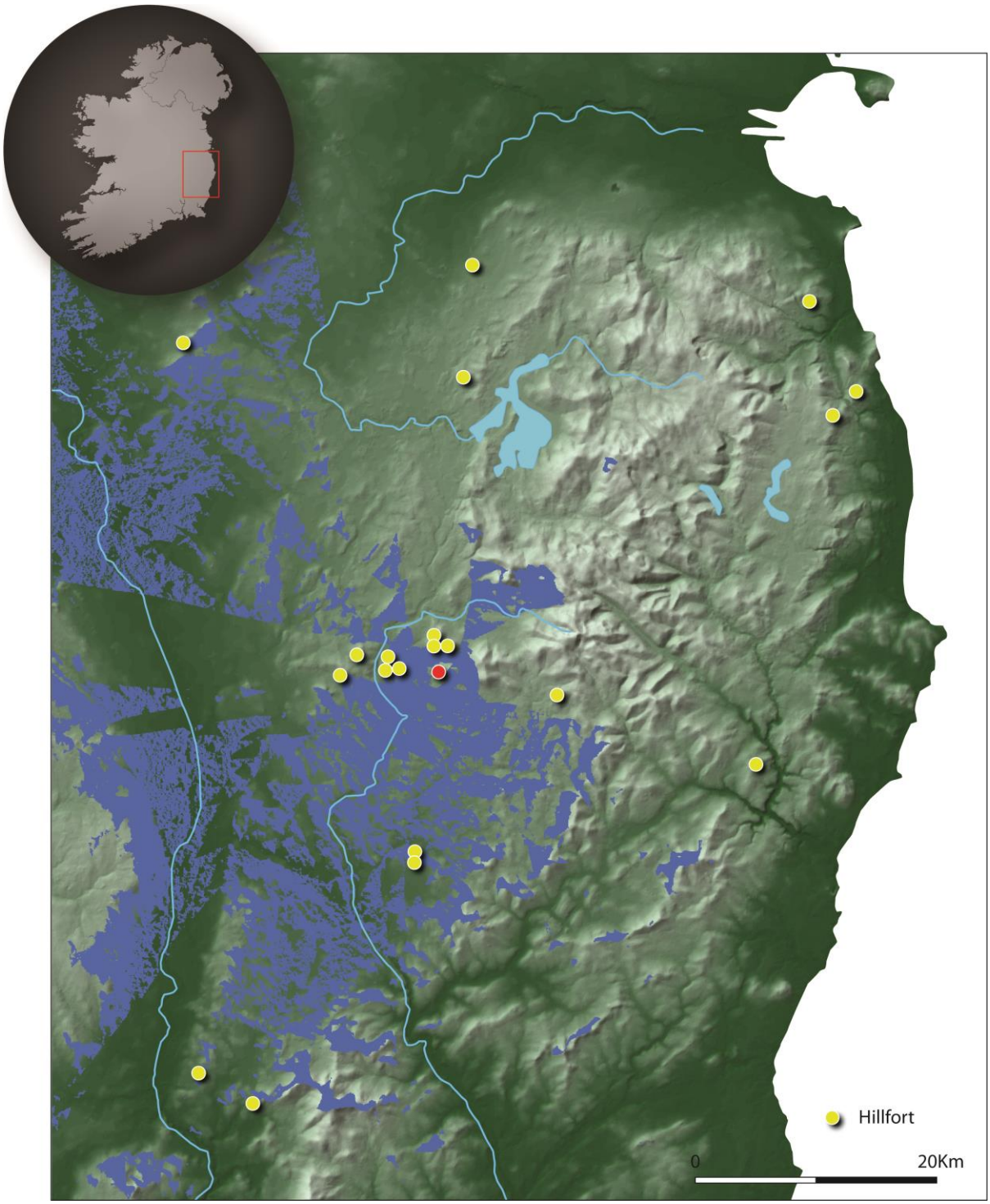

Fig. 8.17: Viewshed of Kilranlagh.

Hughstown (No: 55) is the furthest away, taking approximately 6 hours walking time. In general, the accessibility to land immediately surrounding Spinans Hill is excellent.

Unlike the other hillforts in the cluster, there is easier accessibility to land north and north-east of the hilltop, particularly the Glen of Imaal, a valley surrounded to the north, east and south by Lugnaquilla Mountain and its foothills. Viewshed analysis reveals extensive views of this area from all of the hillforts on Spinans Hill, but also indicates visibility of the lowland to the south was also important (Fig. 8.20; Fig. 8.21). The significance of the Glen of Imaal may be inferred by the presence of the embanked stone circle at Castleruddery, 2km north of Spinans Hill, on the western fringes of the Glen.

Easy access to the south is partially blocked by landscape impediments such as Kilranlagh and Tuckmill Hill, and so may have been controlled by the hillfort communities on these hilltops (Fig. 8.19). Assess to the Spinans 1 (No: 98) hillfort is easiest to the north. This site has a potential 2091km² of terrain visible from its interior (Fig. 8.20). There are comprehensive views of the base of the hilltop; however, the slopes of the hill itself are largely obscured by the topography. There is a notable concentration of visibility towards the Glen of Imaal in the east and north-east. There are excellent views to the lowland in the south, although this is partially obscured by Kilranlagh. Tuckmill Hill, Hughstown and Tinoran restrict visibility to the west and south-west, while a series of hills and upland terrain obscure views to the north and north-west. There are comprehensive views of the base of the Spinans Hill 1 at the north, east and west.

Brusselstown Ring (No: 15) is equally accessible from the east, south and west, and possible multiple entrances in the inner enclosing elements could infer multiple routes to the interior (these could be later openings). There are no significant topographical barriers blocking access to other hillfort, although there is increased difficulty in accessing Tinoran (No: 103), Hughstown (No: 55) and Tuckmill Hill. Viewshed analysis reveals that there is a potential 1192km² of terrain visible from the interior (Fig. 8.21). Visibility is concentrated on areas immediately surrounding the base of the hilltop and on the Glen of Imaal in the north-east. There are also excellent views of the low-lying terrain to the south-west. Kilranlagh Hill does obscure visibility to the south and south-east. Spinans Hill 1 (No: 98) blocks visibility of land to the north-west, while Tuckmill Hill, Tinoran and Hughstown restrict broader views to the west.

Interestingly, Thiessen Polygon analysis broadly corresponds with the data presented above. For example, the polygons suggest that the territory of the Spinans Hill complex may

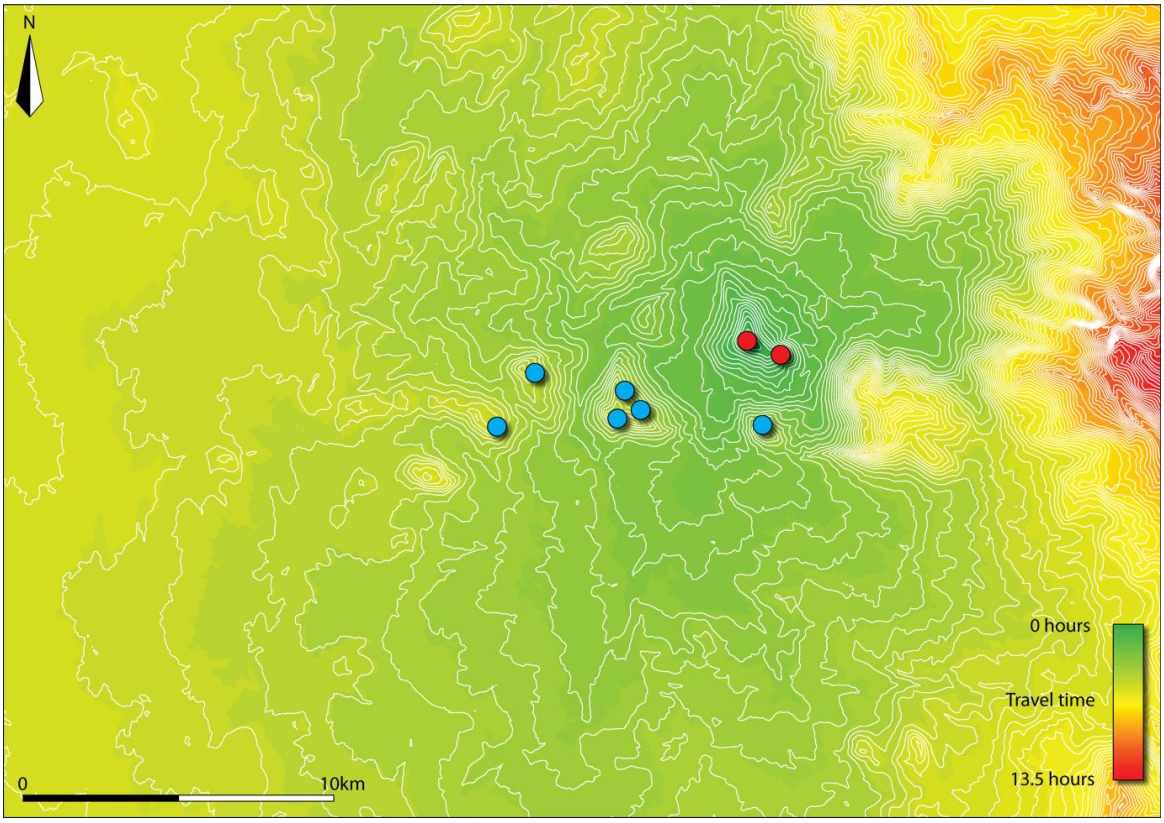

Fig. 8.18: Path-Distance Catchment model of Spinans Hill complex with 15-minute contours.

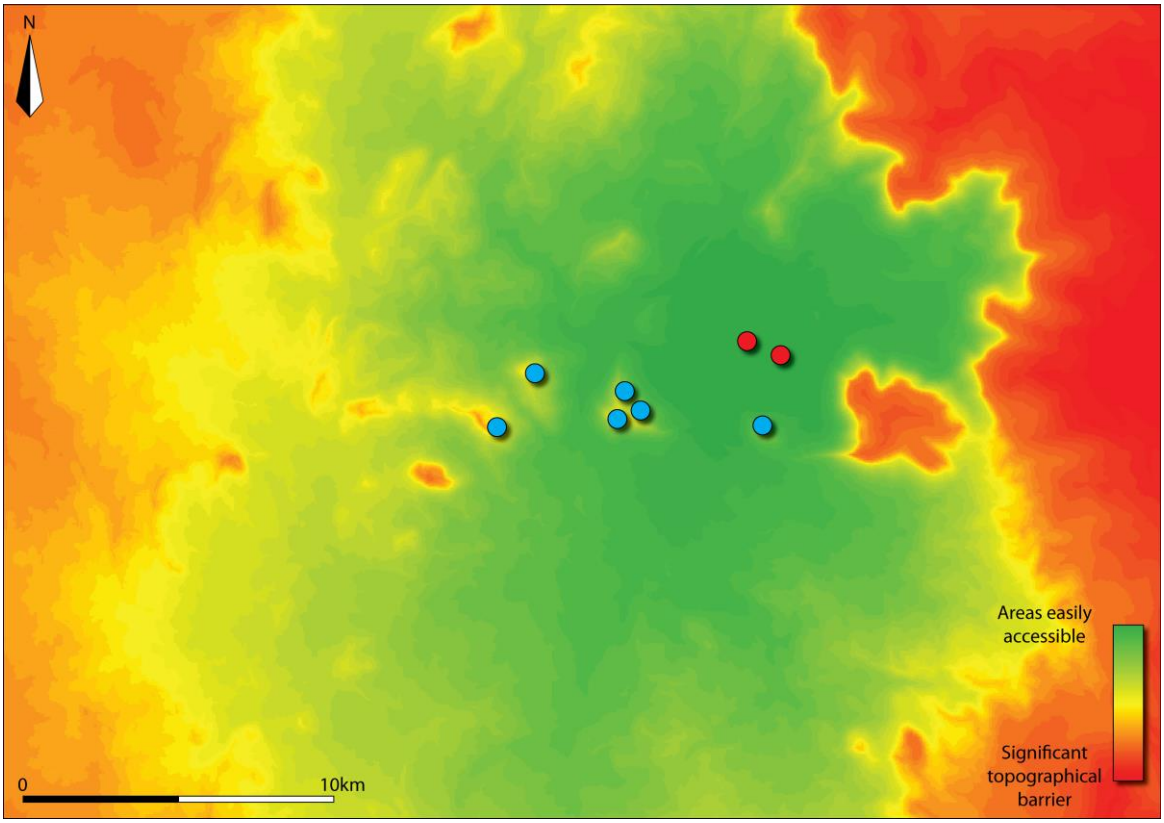

Fig. 8.19: Path-Distance Catchment model of Spinans Hill with data organised using quantile classification.

have been primarily focused to the north and north-east in the Glen of Imaal. Kilranlagh (No: 60) hillfort dominates the southern flat lands and the hillfort community's territory may have been primarily in this area (Fig. 8.1). The hillforts at Hughstown (No: 55) and Tinoran (No: 103) may have had territories extending to the south and north respectively. The Tuckmill Hill complex is particularly interesting because of its location, positioned in the middle of the Baltinglass hillfort cluster. Tuckmill Hill is bounded by the other hillforts and this produces

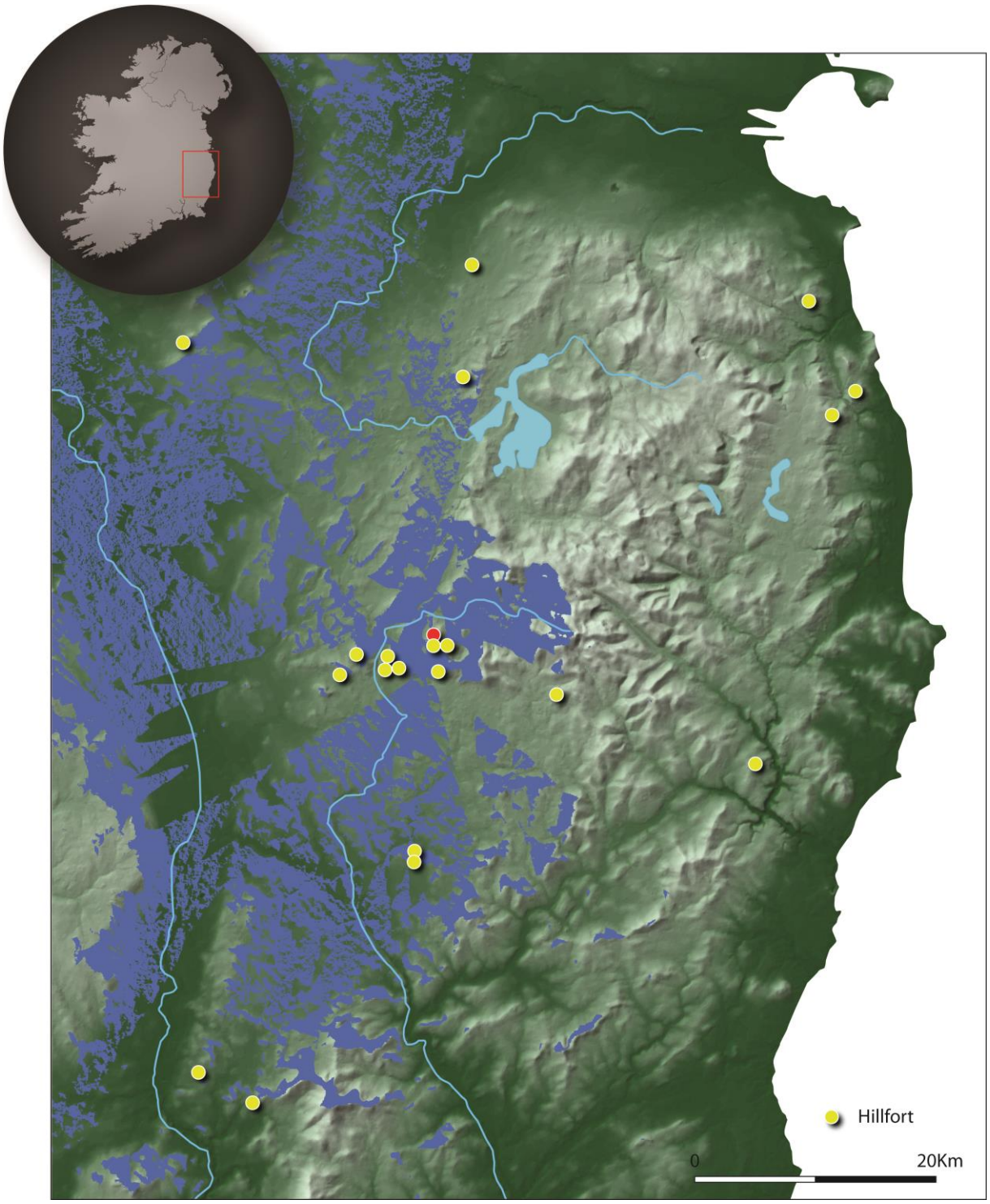

Fig. 8.20: Viewshed of Spinans Hill 1.

a Thiessen Polygon that is much smaller than the aforementioned examples. This analysis may indicate the importance of controlling the land on and immediately around Tuckmill, with the territory and influence of the hillforts extending into the flat landscape to the south. It could also support **Model 2** which proposes the hillforts in the group are not contemporary, and as such the confined Thiessen model is not as applicable as the distance-catchment model that supports a much larger territory. The size of the Path-Distance Catchment models broadly correspond with the large catchment zones proposed for other hillforts (Grogan 2005a; Cunliffe 2000).

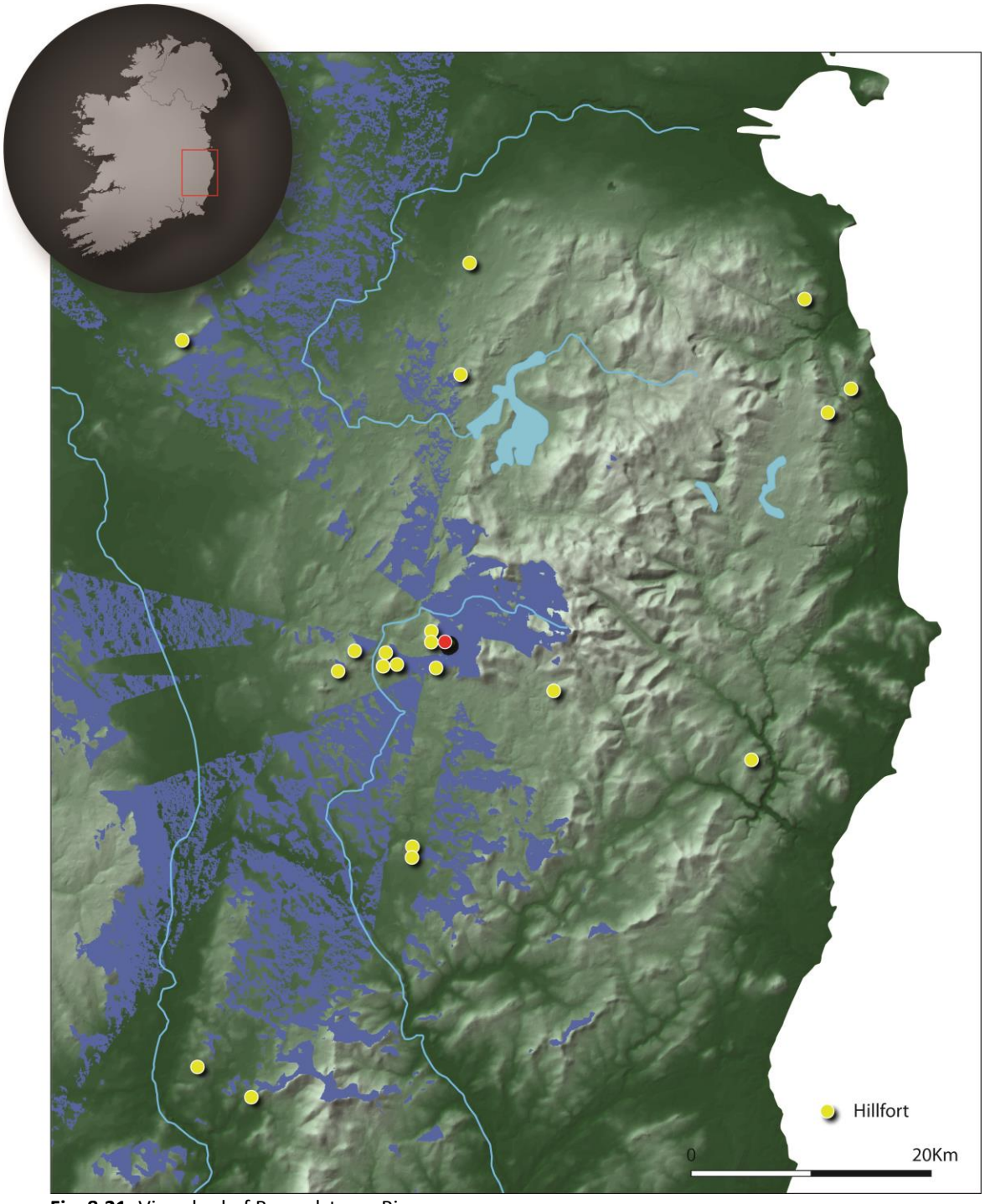

Fig. 8.21: Viewshed of Brusselstown Ring.

Conversely, these distance-catchment models and visibility analysis may also support **Model 1**. The individual sites each have a different focus in the landscape, Spinans Hill with the Glen of Imaal to the north-east, Tuckmill Hill with the low-lying land to the south and Tinoran/Hughstown with the narrow valley between them. If the hillforts represent different generations of the same community moving from hilltop to hilltop over time, we might expect that community to have a relatively stable focus in the landscape with the hillfort being visible to those who built it. Instead, each hillfort (or group i.e. Spinans Hill or Tuckmill Hill) has a unique focus on different areas of the landscape.

Regardless of which model fits best with these results, the environmental and archaeological evidence suggests that the landscape immediately around most hillforts in Ireland were important areas of settlement. In some instances, such as at Haughey's Fort (No: 53), the limits of these zones were demarcated by physical archaeological remains (see below). Topography is also a major consideration in the demarcation of hillfort territories, as will now be discussed.

8.2 HILLFORT TERRITORIES

Stanford (1972, 313), and more recently Driver (2013, 141), have argued that rivers and other water courses may have formed 'ready-made' boundaries defining prehistoric territories. Murphy *et al.* (2007) and Driver (2013, 141–142) argue that these natural boundaries defined the territories of some hillforts in Wales. An example would be the spatial distribution of hillforts and smaller defended enclosures on either side of the Teifi River in Wales (Murphy *et al.* 2007). The importance of rivers in later prehistory is also emphasised by the significant number of prestige objects deposited within them. Rivers and other wetland locations are often interpreted as liminal places, where rituals of various types may have been conducted. Bradley (1990) suggests that the deposition of prestige goods in such locations supports the argument that rivers acted as 'tribal frontiers'. This is supported by the strong occurrence of Late bronze Age swords in rivers in Ireland (Eogan 1965).

There are numerous streams and rivers cutting through the Baltinglass landscape, many of which are tributaries of the Slaney River located at the centre of the hillfort cluster (Fig. 8.22). The larger examples have created subtle valleys that have deeply affected the terrain and are distinct in the GIS slope analysis (Fig. 8.23). The more prominent nature of these valleys can be seen in the Path-Distance Catchment model for the general Baltinglass area (Fig. 8.2). This reveals that these topographical features affect accessibility and often delimit areas immediately

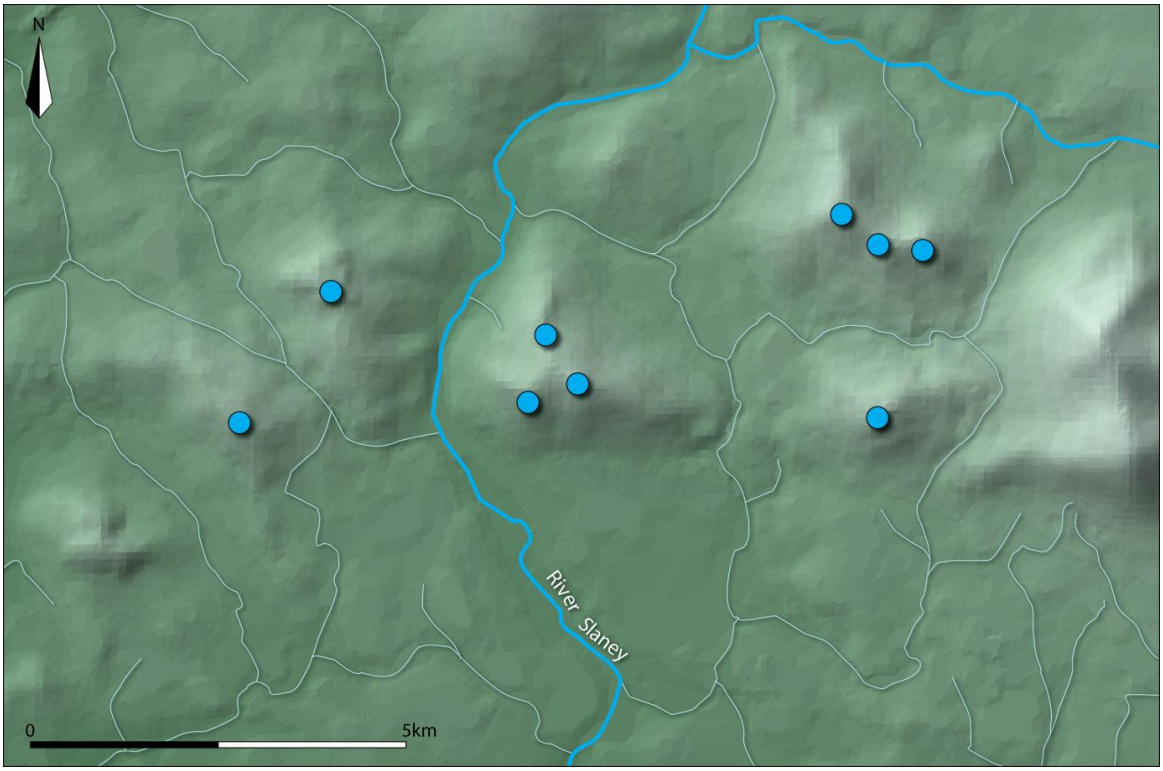

Fig. 8.22: Slaney River with tributaries and other streams in the locality.

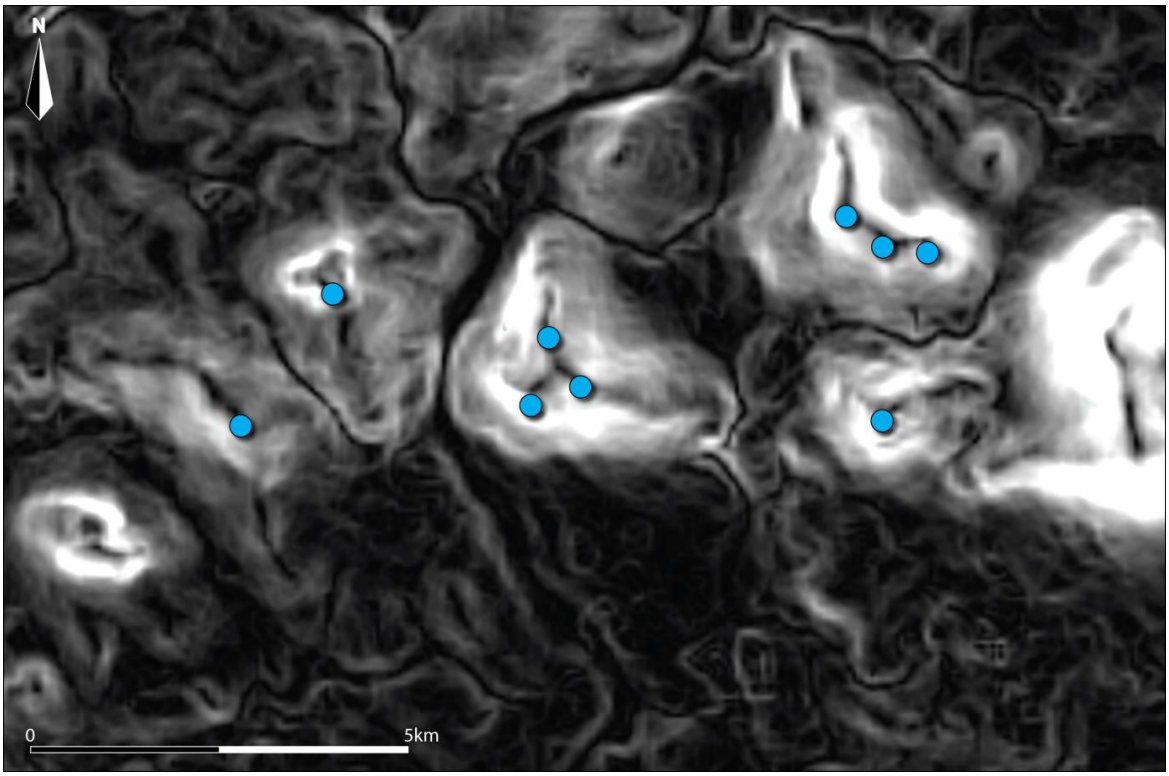

Fig. 8.23: Slope analysis highlighting the subtle valleys created by the river systems.

surrounding the hilltops. These naturally liminal areas may have been used to define the limit of the inner territorial boundaries of each individual hillfort (Table 8.3). Interestingly, the potential territories broadly correspond with Thiessen Polygon and Path-Distance Catchment models with regard to the direction in which the potential territories extended, although the size of the potential inner catchment area is much smaller.

It is interesting to note that the potential inner territories of each hillfort are broadly the same size (Table 8.3). The larger inner catchment zone for the Spinans Hill complex and the Tuckmill Hill complex may reflect larger populations. At Haughey's Fort (No: 53), Co. Armagh, Conway (2006, 37) has proposed that the Late Bronze Age linear earthworks 400m to the south-east of Haughey's Fort functioned as a territorial division and formed a key component of the Haughey's Fort landscape. He argues that linear earthworks often have a marked relationship with ring-barrows and may have formed part of a territorial system with a less formal mode of definition. The earthworks essentially formed part of a boundary defining the core area dominated by Haughey's Fort (*ibid.*, 38). The linear earthworks abut the find-spot of a Late Bronze Age neck-ring of Iberian origin (Warner 2006). This may have been deposited immediately outside the earthworks to enhance the ritual potency of the boundary. The Tamlaght hoard is located 600m to the south-west of Haughey's Fort and was deposited in a north–south river valley. This find comprised some bronze bowls of Central European origin, as well as a sword (Warner 2006), and may have defined the south-western territorial boundary of the hillfort. The potential composite boundary would measure approximately 1.3km east–west by 1.6km north–south (2.08 km²). The idea of a core boundary may be supported by environmental studies, which highlight the intensive clearance and exploitation of land immediately surrounding Irish hillforts (see Chapter 2.2.5).

Major clearance episodes in the environs of Haughey's Fort seem to be contemporary with the construction and occupation of this hillfort (Weir 1987a; 1987b; 1993; 1994). Therefore,

Hillfort	Size in Kilometres Squared
Spinans Hill Complex	13.17km^2
Tuckmill Hill Complex	18.25km^2
Hughstown	9.96km^2
Tinoran	9.34km^2
Kilranlagh	9.28km^2

Table 8.3: Size of hillfort territories estimated using natural landscape features, mostly rivers.

the idea of 'core boundaries' at the Baltinglass sites is applicable to both **Model 1** and **Model 2** and may have been particularly important in the case of the former.

While linear ditches are generally ascribed an Iron Age date in Ireland, these monuments in Britain tend to date to the Late Bronze Age/Earliest Iron Age or the Late Iron Age/Romano-British periods (Yates 2007, 108; Cunliffe 1990, 333; Barrett 2012). In some instances, Late Bronze Age hillforts occur alongside the establishment of extensive linear boundary earthworks incorporated into the hillfort (Bradley 1971; Bradley 1980, 68; Cunliffe 1971; Hamilton and Manley 2001, 25; Needham and Ambers 1994, 241–242). Cunliffe (2007, 333) suggests that linear boundaries may represent a physical attempt to define, enhance, own and protect an increasingly important commodity by a central authority. Osgood (2006, 338–339) has noted territorial boundaries such as linear earthworks were embedded into a competitive Late Bronze Age society. The possible linear earthwork at Tormarton, England is a particularly good example. The remains of at least five individuals were recovered from the boundary ditch. They were violently killed by spears, in a conflict that was possibly connected to a territorial dispute (*ibid.*, 338–339).

Cunliffe (1991, 510) views natural locations such as springs, streams or woodlands as religious and ritual locations. Fleming's (1978, 112) study of the Dartmoor reaves land boundary systems has highlighted the importance of rivers as practical territorial markers. Similarly, Grogan (2005b, 140) has argued that rivers and streams were used to define territories in the Late Bronze Age. These boundaries may have been augmented by linear earthworks or other ritual monuments such as ring-barrows (Conway 2006, 38). This has been pointed out by Gosden and Lock (1998, 8) who argue that funerary monuments may have loosely delineated later prehistoric territories. Approximately 105 possible ring-barrows and ring-ditches have been identified within the immediate environs of the Baltinglass hillforts (Fig. 5.54). Sixty of these were identified through examination of available LiDAR data which is not complete for the area, therefore, more examples may to be present.

8.2.1 Barrows

Woodward (2000) and Cooney (2009, 376) have argued that funerary barrows also functioned as 'landscape monuments'. Cooney (2009, 376) elaborates this point by suggesting that barrow cemeteries were themselves a monument. The deliberate positioning of barrows in relation to each other demonstrates a marked concern with the past and the creation of ancestral history and lineage (*ibid.*, 378). It also facilitated the creation of group identity and social cohesion, as

collective mourning and the sharing of funerary space are powerful bonding mechanisms (Grogan 2014, 61). Thomas (2007, 261) comments that in many traditional societies the knowledge of descent, genealogy, alliance and inheritance is an important form of power. Barrow cemeteries were significant as they could be used to visibly express legitimate rights to land or resources through patterns of actual or imagined lineage, which may have been particularly important at territorial margins.

This may be evident in the Baltinglass area, where all of the identified barrows are located in low-lying areas, either at the base of hills with hillforts or adjacent to streams and rivers (Fig. 5.54). Interestingly, there is a visible pattern in the placement of these burial monuments. Clusters of barrows appear at the base of Tuckmill Hill and Tinoran (the only two sites which have LiDAR surrounding the entire hilltops), whereas individual barrows or small groups of up to four are positioned near rivers and streams, or in other marginal locations.

In southeastern Slovenia, the appearance of hillforts in the Early Iron Age coincided with the emergence of large barrow cemeteries that cluster in groups approximately 1km from contemporary hillfort sites. Mason (2013, 264–268) has demonstrated that these clusters were deliberately positioned on the main approach to a hillfort. This forced outsiders to progress past the tombs of the ancestors, 'ritually cleansing them' and allowing access to the interior. This procession would have been a powerful reminder of the legitimacy and legacy of the community and its leader. A similar interpretation could be applied to the Early Iron Age hillfort of Bel'sk in Eastern Ukraine, where a number of large barrow cemeteries surround the monument. Similarly, more than 50 burial mounds surround Heuneburg hillfort in southern Germany. These comprise two groups located 500m to the north-west and 3.5km to the west and include the Hohmichele mound, one of the largest of its type in Central Europe (Fernández-Götz and Krausse 2012, 29). The development of large barrow cemeteries in Central Europe at this time is not paralleled in Britain, although barrow groups have been identified near hillforts such as Maiden Castle in Dorset (Sharples 1991, 21). Interestingly, Newman (2007, 431) noted the taboos relating to the kingship of Tara, which refer to the 'correct' direction one should enter and exit the complex, and suggests this to be a 'universal tradition of correct orientation towards the sacred, one not restricted solely to Tara'. The importance of accessing a site in the 'correct' way is therefore attested in many places throughout Europe in prehistory and the early historic period. In some cases, this may also have applied to Irish hillforts.

The large group of barrows at the southeastern base of Tuckmill Hill occur at an excellent access point to the summit, where the gradient of slope is least severe (Fig. 8.24).

Other access routes outlined by Least-Cost-Path analysis (see Chapter…) to the west and north/north-west are close to smaller barrow groups. Tuckmill Hill is also surrounded by a number of individual barrows and cist burials to the east and north-west. It seems that the base of the hill was surrounded by a dense number of burial monuments, with clusters of visible barrows in areas that allowed access to the summit (Fig. 8.24). The latter could easily be viewed as an attempt to force visitors to progress past burial monuments that highlighted the legitimacy of the community and leader, while the former could be a reserved effort to placate local hilltop deities, ensuring the fertility of the land and its people. A similar scenario could be argued at Tinoran (No: 103), where a large cluster of possible barrows are positioned near the base of the hill at the easiest approach to the summit and individual barrows are located near the base of the hill in the east and north-east. At Hughstown (No: 55), two unrecorded barrows and an embanked pond are positioned at an approach point near the base of the hill at the east/south-east. This could have formed a significant route to the summit. Barrows have also been identified surrounding the base of Spinans Hill and Kilranlagh, although in much lesser numbers. This may reflect the lack of available LiDAR data.

There is also a notable concentration of barrows near rivers and streams in the Baltinglass area. These monuments to the dead could have been placed near territorial boundaries to both physically and ritually demarcate a community's tribal ground. A number of researchers have suggested that barrows could have acted as significant territorial markers. Grogan (2005b, 140) infers that barrows and barrow cemeteries may have been positioned deliberately to emphasise natural boundaries such as rivers and streams. Mason, (2013, 273) argues that some barrows in south-eastern Slovenia were constructed on or near important routeways as demonstrations of ownership. Similarly, Tilley (2010, 221) has proposed that barrow groups along the Wessex Ridgeway are invariably located with reference to transition points in the landscape, possibly indicating territorial division. For the same area Woodward (1991, 143) has argued that three separate 'territories' existed, each being defined by Bronze Age barrow cemeteries. At the Iron Age royal site of Rathcroghan in Co. Roscommon, Waddell *et al.* (2009, 198) have suggested that the burial monuments within the complex signify an important ancient burial place. They argue that the largest and most prominent ring-barrows, the Corrauneen and Dath-í's Mound, lie furthest from Rathcroghan Mound, the focal point of the complex, more or less at the northern and southern limits of the complex (*bid*. 205).

Barrows could have been used to define territories, acting as physical references to the past, visibly demonstrating a community's links with ancestral owners of the land, thus

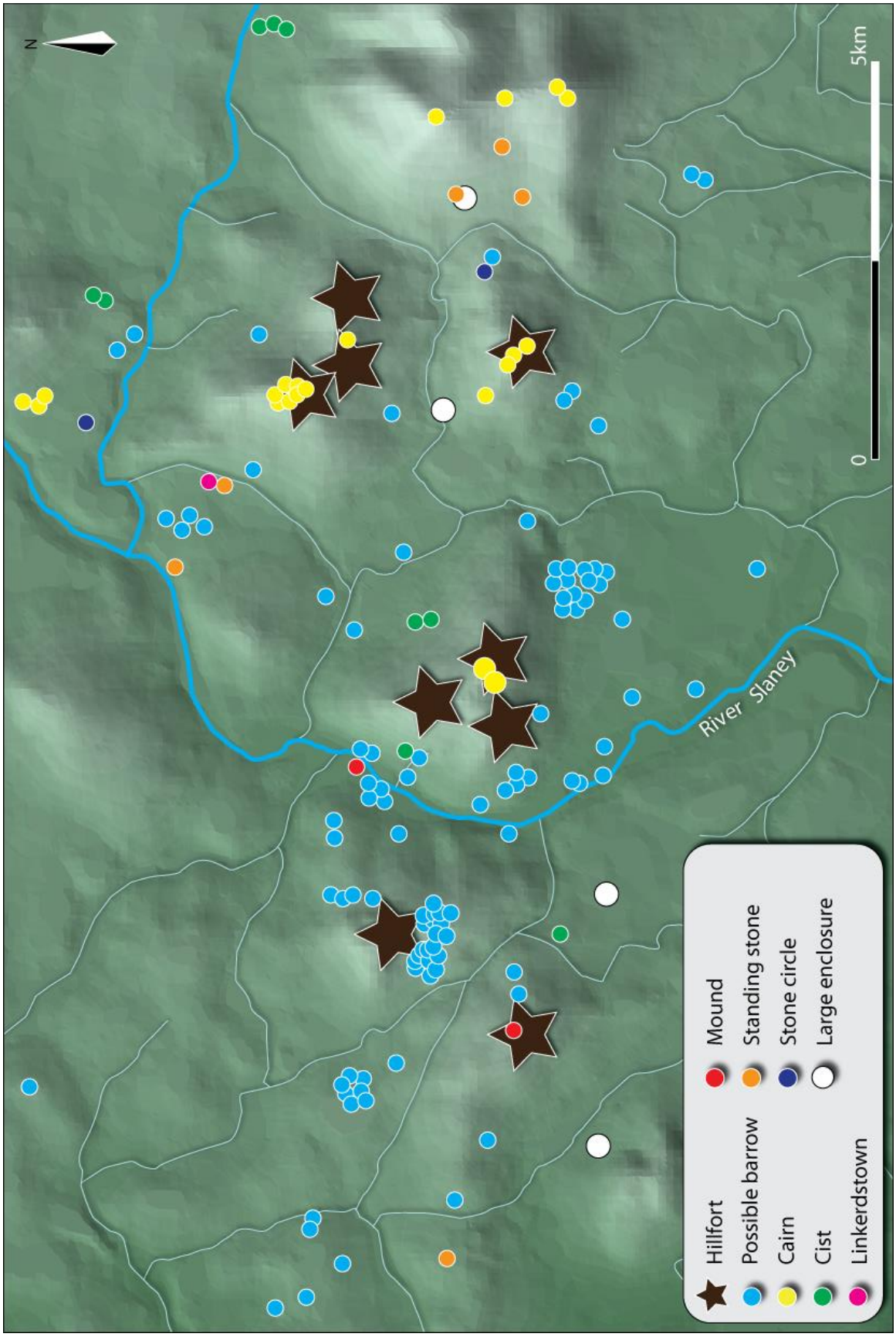

Fig. 8.24: Ritual and burial monuments possibly constructed or visible in the Late Bronze Age.

strengthening a claim to the territory. This act was an affirmation of identity and sense of place on the part of the living (Harding 2012, 143). Certainly there seems to be a need to define the individual hilltops in the Baltinglass area and set them apart in order to create separate identities, an idea that is applicable to both **Model 1** and **Model 2** (see Chapter …..). This may also have consolidated the 'them versus us' paradigm that is particularly applicable to **Model 1**. The idea of boundaries between inner and outer space, nature and culture, civilised and barbarians, them and us, is rooted in every society (Kristiansen and Larsson 2005, 43).

The small number of possible barrows identified in the Baltinglass area suggests that this monument type was used for individuals that were seen as 'special' by their community. In this respect, Cunliffe (1991, 499) has pointed out an interesting difference between the recovery contexts of seventh and sixth century BC Hallstatt swords. On the Continent these are recovered from burial contexts in contrast to Britain, where all except one have been recovered from rivers. Cunliffe explains this phenomenon as a result of different burial rites, whereas in Britain, the dead were cremated and disposed of with their equipment in rivers. Similarly, in the southern Netherlands, Belgium and western Germany, swords were deposited in rivers during the Middle Bronze Age (Brück and Fontijn 2013, 119), with relatively few found in contemporary burial mounds. Kristiansen links the deposition of these artefacts in water contexts with the Celtic–Germanic–Greek ritual of sacrificing weapons after a victorious fight and argues that the deposition of a warriors most valued weapon should be regarded as a symbolic representation of the war party (*ibid*., 329).

The deposition context of Irish Late Bronze Age swords, spearheads and axeheads in liminal areas such as rivers, streams and bogs could also be viewed in this way. In Ireland, as in many parts of north-west Europe during the Middle and Late Bronze Age, swords and other 'warrior' items were being deposited in rivers and streams (Harding 2007b, 125–127). Bradley (1990, 102; 107) has pointed out that the deposition of such items may also have been linked to funerary ritual and a new way of disposing of the dead. If such places were used to define territorial boundaries, the deposition of both prestige artefacts and the dead would have reinforced a community's sense of place and ownership of the land and solidified the ritual potency of territorial boundaries. It could be viewed that the dead were being placed at these boundaries with their weapons to defend the living from external threats, both living and dead, while visible burial monument such as barrows, positioned near these locations, could have acted as a physical means of defining and reinforcing territorial claims. This may explain why, in Ireland, such weapons have never been found in association with human remains.

In the Republic of Ireland approximately 73% of hillforts have at least one type of recorded barrow within 5km, with 50% have examples within 3km. Some hillforts have dense numbers of barrows in their environs, with seven examples having more than ten barrows within a 5km buffer zone. These include Knockainy (No: 65), Co. Limerick, Grannagh (No: 51), Co. Galway, Killeenadeema (No: 59), Co. Roscommon, Sroove (No: 100), Co. Roscommon, Mountfortesque (No: 86), Co. Meath, Drumnagranshy (No: 39), Co. Sligo and Knocknashee (No: 72), Co. Sligo. Knockainy hillfort is positioned at the centre of an extensive group of barrows in the east Limerick plains, and as such, this cluster may not be related to the hillfort itself. A more interesting example is the group of barrows near Grannagh hillfort in Co. Galway. Up to 30 barrows have been recorded with a 7km distance, most of these to the north of the hillfort. Outside of this buffer zone, there is a notable absence of barrow monuments, with only four additional examples within a 17km radius. A group of 31 barrows are located within 9km of Killeenadeema hillfort. These are mainly clustered in the east and south-east. A lesser number of barrows are scattered on the hilltops to the south. Again, there is a clear restriction of other barrow monuments outside of this group. In Co. Roscommon, two hillforts approximately 13km apart sit on the eastern and western edge of upland terrain. Positioned between these hillforts are up to 116 barrows. These are distributed in an almost linear fashion, roughly orientated north-south. They may have been used to define the tribal territories of both hillforts.

The 'power' of the ancestors played a significant role in the social and cosmological order of tribal societies (Waddell *et al.* 2009, 205). We could consider the positioning of barrows and barrow cemeteries as deliberate, helping to define territories and acting as physical and visible links to the past used to reinforce ancestral rights to land, resources and the people which inhabited these territories. However, we must also consider the chronology of this type of burial monument. Barrows were being constructed as early as the Neolithic, and continued in use into the Iron Age as noted by Waddell (1998). Even within a barrow group there can be a considerable chronological range. For example, both Raftery (1941) and Cooney (2009, 381) have pointed out an extensive sequence of activity at the barrow cemetery of Carrowjames II, Co. Mayo, which extended over 1500 years. This type of monument is, therefore, not necessarily contemporary with hillforts; however, their presence in numbers does indicate an area of exceptional importance.

This is further emphasised in the Baltinglass area by the numerous cairns and other ritual monuments such as Linkardstown burials and the embanked stone circle at Castleruddery which are earlier in date. Of particular note is the possible passage tomb cemetery near the

summit of Spinans Hill 1. Rathcoran (No: 92) hillfort also encloses an earlier passage tomb, with a second cairn incorporated into the outer enclosing elements on the south-west side. Four cairns are positioned near the enclosing elements at Kilranlagh (No: 60) to the west. Thomas (2007, 261) argues that funerary structures that actually contained the remains of the dead would have been an important element of ritual and a means of securing legitimacy and power. This interpretation is supported by Kristiansen and Larsson (2005, 45), who suggest that a chief's 'access to origins', and the control of 'media' believed to be closely related ancestry, were crucial to legitimate rule. The control of such 'media' could have been an area of contention for rivalling groups. Bradley (2002, 47) argues that the past in contemporary society was particularly important during periods when new regions were settled and new relationships were formed between people and the land. A physical link to the past in the form of an earlier burial cairn would have been a highly visible way to legitimate a community's real or perceived link to past generations and the land. Approximately 25% of Irish hillforts have recorded cairns or mounds and three hillforts surround recorded megalithic tombs. This indicates the perceived importance of this earlier monument to the Late Bronze Age hillfort builders. The presence of the Neolithic enclosure at Hughstown (No: 55), which was probably at least partially visible in prehistory, may have been a particularly significant link to the past.

8.2.2 Prestige Goods

The deposition of prestige goods in rivers acting as territorial boundaries could also have been significant as an act of conspicuous consumption (Bradley 1990, 136). This could occur where the community and chieftain displayed the resources they possessed in front of neighbouring communities, while simultaneously worshiping and placating deities. O'Sullivan (1997, 118) and Grogan (2005b, 141) suggest that ritual deposition of Late Bronze Age metalwork would have been witnessed by significant amounts of people. Bradley (1990, 39) argues that 'gifts to the gods' provided an excellent method of building prestige and an unparalleled 'theatre' for competitive consumption through the simple fact that the valuables offered were taken out of circulation and could not be attained by rivalling communities. The conspicuous consumption of prestige objects, therefore, provided the mechanism for competitive display, whereby, the amount, size or significance of the object(s) deposited provided status to the owner. In his study of Bronze Age metalwork finds from the Severn River and other western British rivers, Mullin (2012, 53) convincingly argues that river deposits represent acts undertaken at social boundaries as a method of display to other groups and a way of maintaining such boundaries. Bog deposits of religious intent may also have been a way of maintaining social cohesion within groups. A

single basal-looped spearhead, provenanced to Baltinglass, hints at such acts (considering there are no extensive bogs in the area it was probably a river find). This type of spearhead dates to the end of the Middle Bronze Age and it therefore likely to be contemporary with the hillforts in the area (Ramsey 1989, 50). A Class 3 and Class 4 sword (both likely constructed in Ireland) are positioned approximately 7km and 9.5km to the west and south-west of the cluster (Eogan 1965, 11–12). The aforementioned Tamlaght hoard is also located in a north-south river valley approximately 600m to the south-west of Haugheys Fort (No: 53), while an unclassified Late Bronze Age sword was discovered in a river 350m to the east of Granard (No: 52) hillfort in Co. Longford.

It is clear that the catchment zones and potential areas of influence of each hillfort in the Baltinglass area overlap due to their close setting. If the hillforts were broadly contemporary (**Model 1**), this may have been a significant point of conflict, particularly with respect to ownership of agricultural land, natural resources such as woodland. The overlapping zones of influence are more easily explained if we consider that most of these hillforts are not contemporary, as suggested in **Model 2**. Sharples (2007, 180) suggests that hillfort communities were in competition to attract increasingly larger numbers of people to help in the construction of their hillfort. This, coupled with continued agricultural intensification may have brought about an increased sense of ownership of the land. The wider territorial units of the Baltinglass hillforts could have extended into areas of easily accessible land indicated by the Path-Distance Catchment models. The construction and/or recognition of more constricted core zones has been noted at other hillforts, such as Haughey's Fort (No: 53) in Co. Armagh. This may reflect a more common approach to defining core areas rather than a need to demarcate boundaries in a densely settled area. These zones were probably defined by natural features such as rivers and streams and were augmented and ritually reinforced by placing visible burial monument close by. These acted as physical claims to the land and legitimised a community's right to the territory.

8.3 THE LOCAL SETTLEMENT LANDSCAPE

The evidence for settlement at hillfort sites in Ireland is diverse. At one extreme, there are those that show no signs of occupation or indeed any type of internal activity, such as Rahally (No: 88) hillfort in Co. Galway (Mullins 2008) and Clashanimud (No: 26) in Co. Cork (O'Brien 2012a). Conversely, some sites have revealed internal structures and evidence of habitation, such as Mooghaun (No: 85) in Co. Clare (Grogan 2005a; 2005b), Dún Aonghasa (No: 40) in Co. Galway

(Cotter 2013a; 2013b), Knockdhu (No: 69) in Co. Antrim (Macdonald 2012) and most notably Rathgall (No: 90) hillfort, Co. Wicklow (Raftery 1976). A similar situation is evident in Britain and the Continent (Jockenhövel 2013, 741; Härke, 1979, 30). Mytum (2013, 741, 10) and Harding (2012, 206) argue that this diversity could reflect different functions; however, it could equally be a consequence of the small sample of hillforts excavated on a sufficiently large scale (Payne 2006, 5).

Ginn (2013) suggests that where settlement structures do exist, there is little to support the hierarchical model of Bronze Age society that is widely presented in the literature. What is apparent, however, is the clear divide between occupation evidence at hillfort sites and other settlements. This is supported by her study that shows two distinct social and economic classes: comfortable, independent farmers and a minority, elite group, although she does not specifically link hillforts to the latter. In contrast to Ginn, Grogan (2005a, 87; 2014) has argued for a landscape organised in a hierarchical fashion, with a social ranking system comprising three primary classes: community, territory and chiefdom.

Most commentators would agree on a division between elites and non-elites which is important in the present context. The material culture from some hillfort sites, such as Rathgall (No: 88), Co. Wicklow or Haughey's Fort (No: 53) in Co. Armagh, clearly indicates an elite presence separate from the majority of domestic sites where there has been a paucity of artefactual wealth (Ginn 2013, 53; Grogan 2014, 65). Evidence for high-status occupation has also been identified at crannog settlements such as Moynagh Lough, Co. Meath; Rathtinaun, Co. Sligo; Knocknalappa, Co. Clare and Ballinderry 2 Co Meath. Contrasting with this, current evidence infers that habitation at such sites was not differentiated at least in terms of their functional architecture. This absence of demonstrably high status settlement led Ginn (2013, 53–54) to suggest that hillforts are not the homes of hierarchical groups. She argued that 'elites' may not exist in the perceived sense of the word. Rather, important people may have been regular members of society who were only differentiated for special occasions, although she does concede that in certain areas and in particular community's 'hierarchical systems' may have existed. The excavations of the large Middle/Late Bronze Age village at Corrstown in Co. Derry support Ginn's arguments. Here, approximately 73 structures of somewhat equal size are closely and uniformly spaced around a large metalled roadway and smaller tributary tracks (Ginn and Rathbone 2011) (Fig. 8.25). There is no obvious evidence for hierarchical settlement, though of course there may have been differences in status in that community.

Contrasting with this interpretation, the settlement evidence revealed on Tuckmill Hill and Spinans Hill points to a stratified social structure. At Brusselstown Ring (No: 15), survey has identified up to 288 hut structures, 25 hut sites inside the inner enclosing elements, with 263 between the inner and outer defences (Fig. 8.26). The majority of the structures range 5–8m in diameter. This supports Cleary's examination of Irish Bronze Age structures which highlights the clear dominance of structures of comparable size (2007, 139). Additionally, there are a substantial number of structures ranging 3–5m at Brusselstown Ring. Cleary (2007, 139) suggests that these are commonly found associated with larger hut sites and could have formed ancillary structures. Fourteen structures, comprising approximately 4.5% of the total Brusselstown Ring

Fig. 8.25: Bronze Age village at Corrstown, Co. Derry (after Ginn and Rathbone 2011).

settlement, are 9–12m in diameter and only two structures were recorded over 12m. These fourteen hut sites are evenly distributed throughout the settlement, although it is notable that none are located within the inner enclosing element of the hillfort. This, however, may be a consequence of the thick overgrowth within a large portion of the interior which may have obstructing identification of such features.

Dense clusters of smaller hut sites often accompany larger examples at Brusselstown Ring (Fig. 8.27). It could be tentatively argued that these clusters represent individual kin groups, with the head of each family differentiated by larger structures. Cleary (2007, 141) suggests it is possible that the size variation of structures reflects an element of social stratification.

The largest cluster of hut sites at Brusselstown Ring (No: 15) is positioned immediately to the south of the west facing entrance and form a corridor for access to the hillfort interior. The terrain to the east and south falls away sharply and this area remains largely clear of habitation. Similarly, the area immediately to the south, east and north of the inner enclosing elements comprise severe slopes, covered with large glacial erratics that would have limited settlement space. Beyond these areas, in flatter terrain to the south and east, less condensed settlement occurs. Entrances in the inner enclosing elements of the hillfort at the north, east and south, aligned on terrain difficult to traverse, may, if original, have been largely symbolic features used to emphasise the perceived inclusiveness of the community.

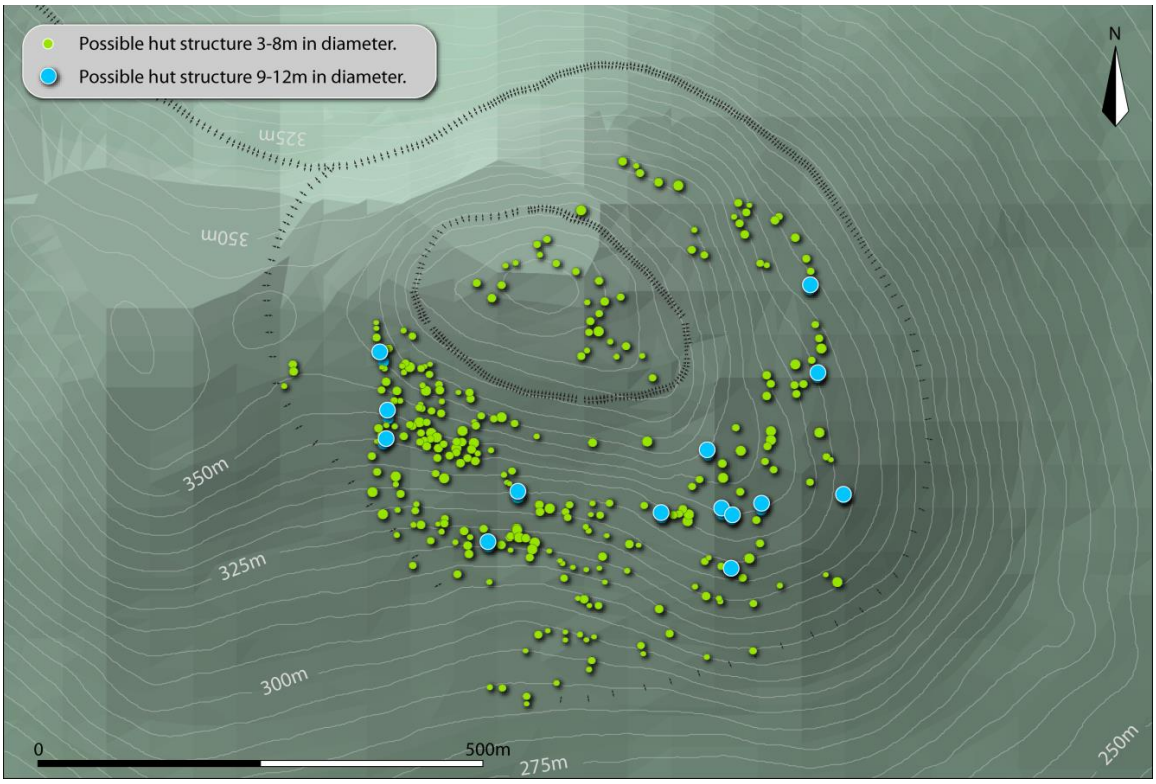

Fig. 8.26: Possible structures identified by GPS survey at Brusselstown Ring.

There are no structures abutting or within 10m of the external face of the inner enclosing elements at Brusselstown Ring (No: 15) and it is unlikely that settlement was obstructed by a ditch. The bank is positioned at the edge of a sharp drop in slope at the south-east, east, north and north-west and this probably affected the distribution of structures close to the bank in these areas. More suitable terrain is available in the south and south-west, however that area does not seem to have been settled. It may have been kept clear to allow better visibility of the defences from other hillforts in the area or from low-lying, settled regions in the landscape. Direct, unobstructed visibility of impressive displays of status and resource consumption would have been an important element of competitive display. In that respect, the positioning of hut structures around Brusselstown Ring may have be significant.

The southern and south-western slopes of Brusselstown Ring (No: 15) are highly visible from both Rathcoran (No: 92) and Kilranlagh (No: 60). This is in contrast to the north-eastern, northern and north-western slopes of the hilltop, which are obscured by various topographical elements. The settlement, therefore, seems to be positioned in areas visible from other sites. This may reflect topographic considerations but could be viewed as an aspect of competitive display, where a substantial settlement, visible to rival hillforts (**Model 1**) reflected the labour force and potential man-power at the disposal of the community at Brusselstown Ring. Bowden and McOmish (1989, 13) have suggested that some British hillforts were deliberately placed on sloping ground to make activities within the interior visible to outsiders, while at the

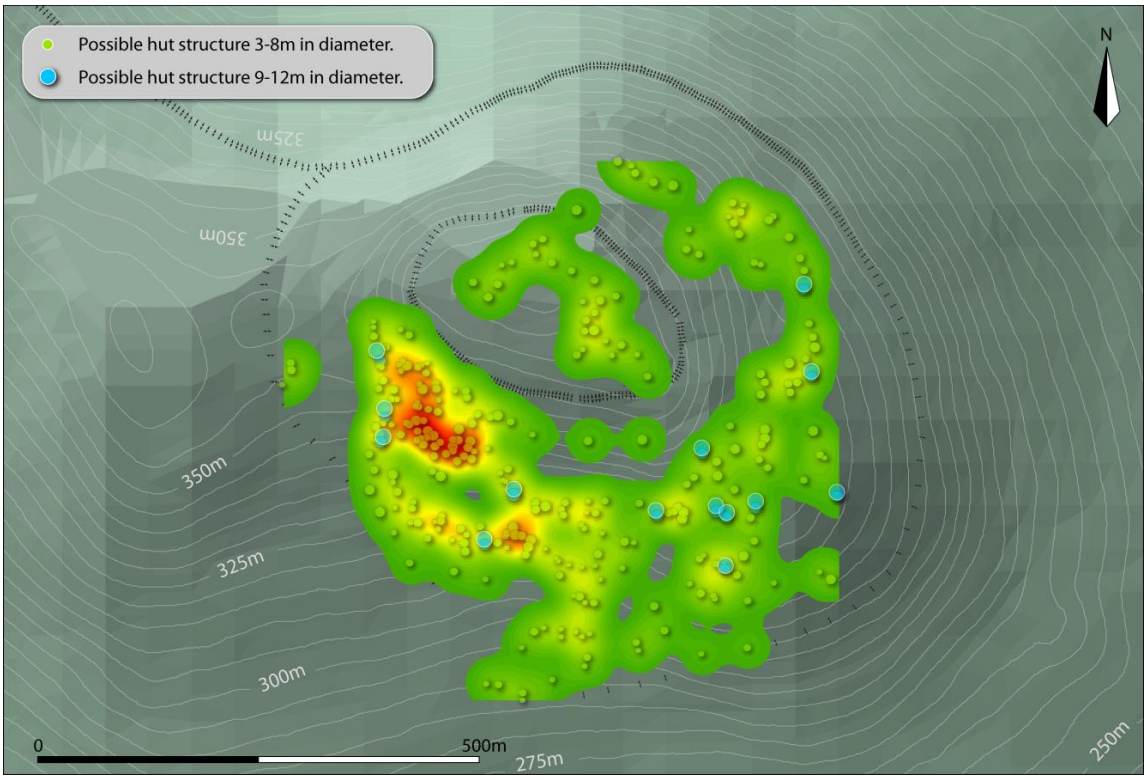

Fig. 8.27: Density analysis of possible hut structures at Brusselstown Ring.

same time excluding them from participation. Driver (2013, 135) has developed this argument to suggest this would have facilitated the communication of strength, where the interior revealed a populated, well organised community. If we consider the Path-Distance Catchment models and viewshed analysis for Brusselstown Ring and the other settlements on Spinans Hill, these analysis show the Glen of Imaal positioned to the north-east was probably the main focus for the community. In this regard, if the hillforts were not contemporary and represent a palimpsest of enclosures (**Model 2**), the layout of the settlement at Brusselstown Ring cannot be easily explained.

A similar pattern can be seen at Rathcoran (No: 92). Approximately 124 circular hut structures have been identified through LiDAR and geophysical survey (Fig. 8.28). Dense heather and gorse prevented collection of adequate LiDAR data at the south-west where there are few identifiable hut structures. A small portion of the hillfort is clear of vegetation and in this area there seems to be evidence of dense settlement. This variability probably reflects the collected data and ground conditions, and a similar density could be expected for much of the hillfort.

Approximately 89.9% of the potential structures at Rathcoran (No: 92) measure 5–8m in diameter. A group of structures of approximately 5m diameter are clustered in the south-east of

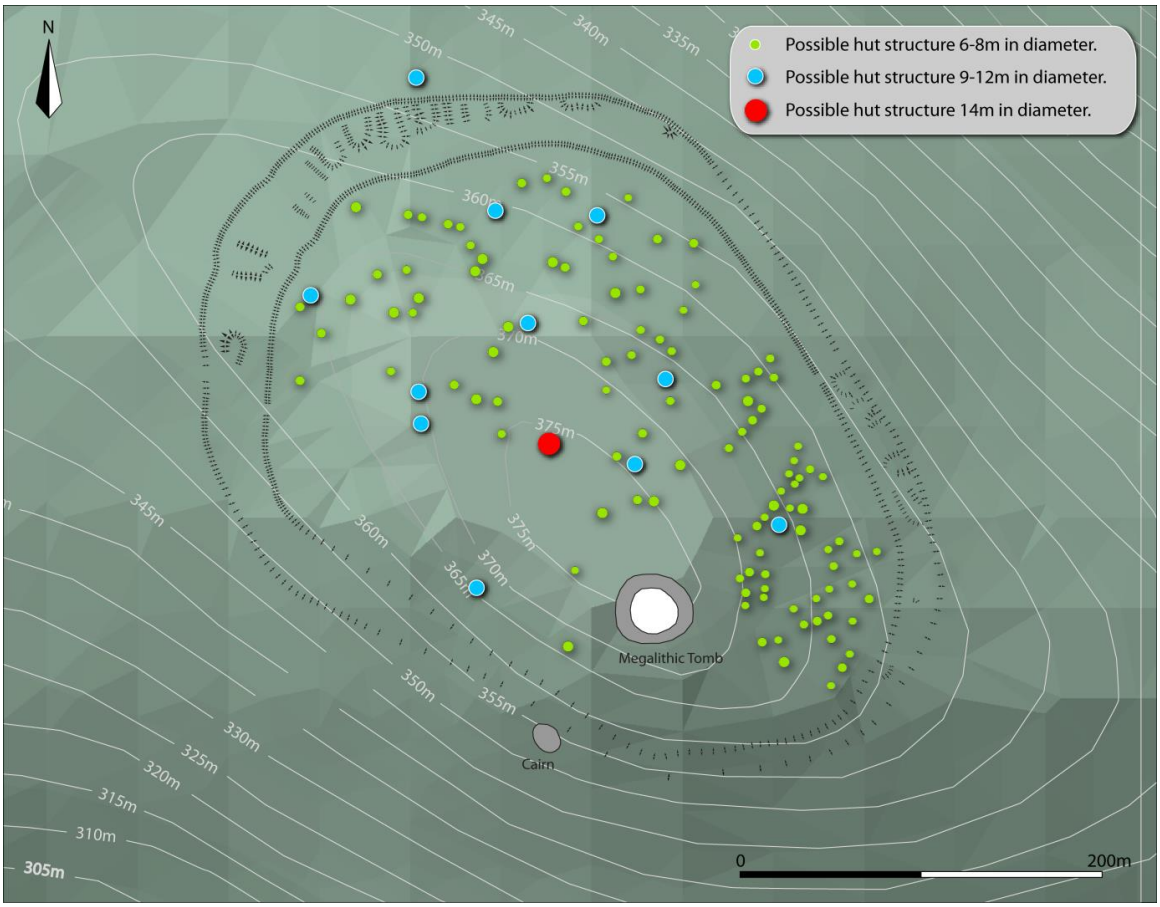

Fig. 8.28: Possible structures identified by LiDAR, GPS and geophysical survey at Rathcoran.

the interior where ground conditions were favourable for surveying. These could be interpreted as ancillary structures. There is a more uniform distribution of structures if these examples are removed. Comparable structures may exist in other areas obscured today by vegetation. The majority of the remaining sites compare favourably with Cleary's size analysis of Bronze Age structures. This highlights a dominance of structures measuring 7–8m in diameter (Cleary 2007, 139). Similar to Brusselstown Ring, a smaller number of structures, comprising *c.*10.1% of the total settlement, are larger and are spread evenly throughout the interior. These are generally associated with more dense areas of occupation (Fig. 8.29). Again, this distribution could be viewed as representing different kin groups present at the site.

There are no recorded structures within 30m of the passage tomb at Rathcoran (No: 92). This area may have been kept clear of occupation to highlight the monument and differentiate it from normal occupation. It could also have been a sacred area which was taboo for everyday residence. The majority of structures are at least 10m from the inner bank of the hillfort. Only at the north-west, where the enclosing elements are largest, are there any examples of structures within this zone. If Rathcoran is an unfinished hillfort, the area abutting the enclosing elements may have remained clear of occupation while construction of the site continued.

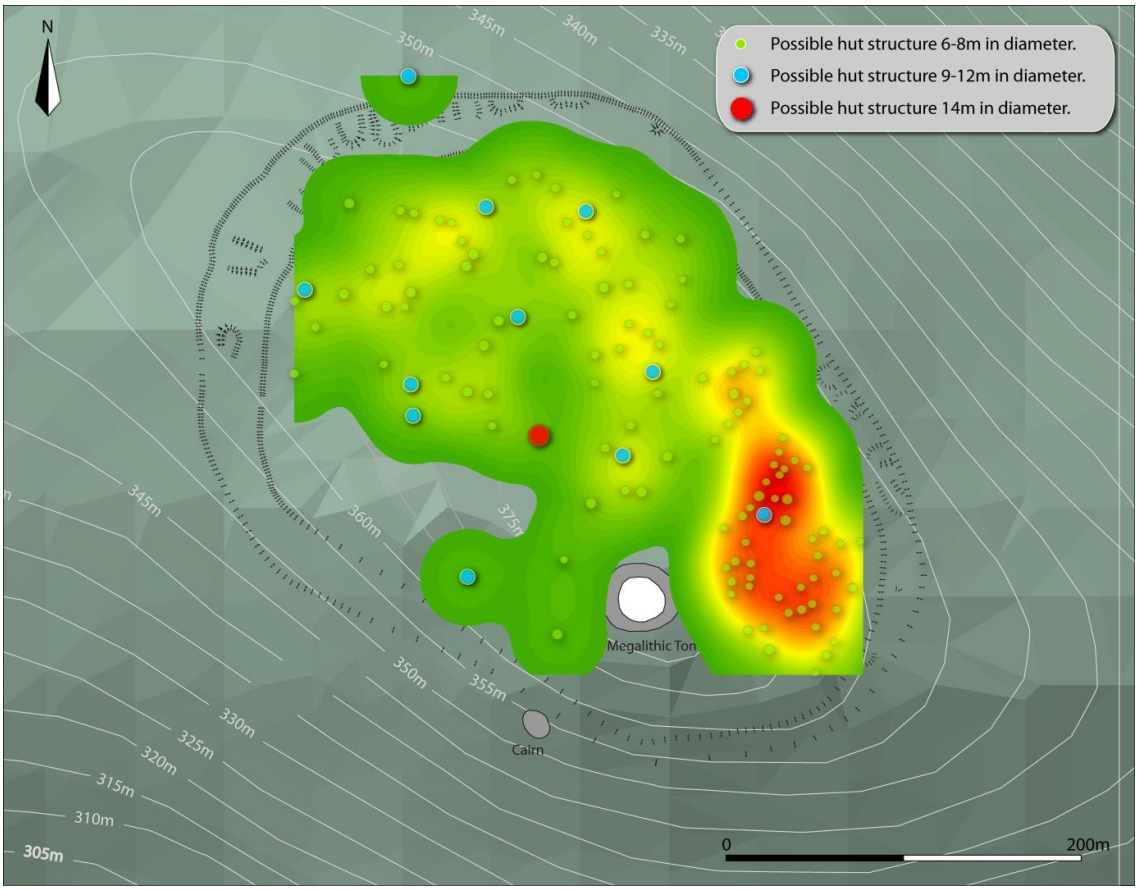

Fig. 8.29: Density analysis of possible hut structures at Rathcoran.

One exceptional structure is seemingly the focal point of the interior and is distinguished from other possible hut sites by its prominence and size. It is positioned centrally within the interior and comprises a contiguous series of boulders approximately 14m in diameter. It is the third highest hut site within Rathcoran (No: 92) and is positioned strategically, overlooking the west, north, east and south-eastern portions of the interior, making it the most visible structure inside the fort. It seems to be deliberately separated from other hut sites, with no other examples identified within a 25m radius. The possible northern entrance of the hillfort is partially aligned on the structure. Although there are a number of hut sites between the large structure and the possible entrance, these are unlikely to have obstructed visibility, due to its commanding position and elevation of the structure. There is a path created by an absence of hut sites, extending from the entrance towards the central structure and this is lined by two substantial hut sites. Immediately outside the hillfort, approximately 10m north-east of the northern entrance, a third substantial structure may have been positioned to control access to the interior. It is tempting to suggest that the large, central structure was the residence of an important person/family. The remainder of the inhabitants may have comprised kin groups present to construct the hillfort, with more substantial structures housing the heads of each group. Grogan (2005a, 243) revealed structures built at Mooghaun (No: 85) during the initial construction stage of the hillfort were abandoned after its completion, inferring the construction of somewhat permanent structures during the building process. A similar scenario could have taken place at Rathcoran. The structures could also reflect an earlier phase of enclosure at the site before it was later partially re-built (see Chapter …).

It is more difficult to assess the evidence for settlement structures at Hughstown (No: 55), considering the ephemeral nature of the geophysical anomalies. Approximately 41 subtle magnetic anomalies were identified in the survey that might represent hut structures (Fig. 8.30; Fig. 5.40; Fig 5.41). Although the evidence is less comprehensive than Brusselstown Ring (No: 15) or Rathcoran (No: 92), there are a number of similarities in density and distribution. The size range is higher than the previously examined sites. The majority of the possible structures range from 6–9m in diameter and there are a number of sites in the southern cluster that average 10m in diameter (Fig. 8.31). There are four larger hut circles that range 11–13m in diameter and these are positioned at the edge of each cluster, with two large structures near the southern, largest group. This is similar to the distribution patterns at Brusselstown Ring and Rathcoran. Within the central enclosure at the summit of the hilltop, a substantial structure, 17m in diameter, is visible on the surface. This is apparent as a low-relief circle of covered stone approximately 0.7m in average width and up to 0.3m high. Geophysical survey revealed the structure was probably

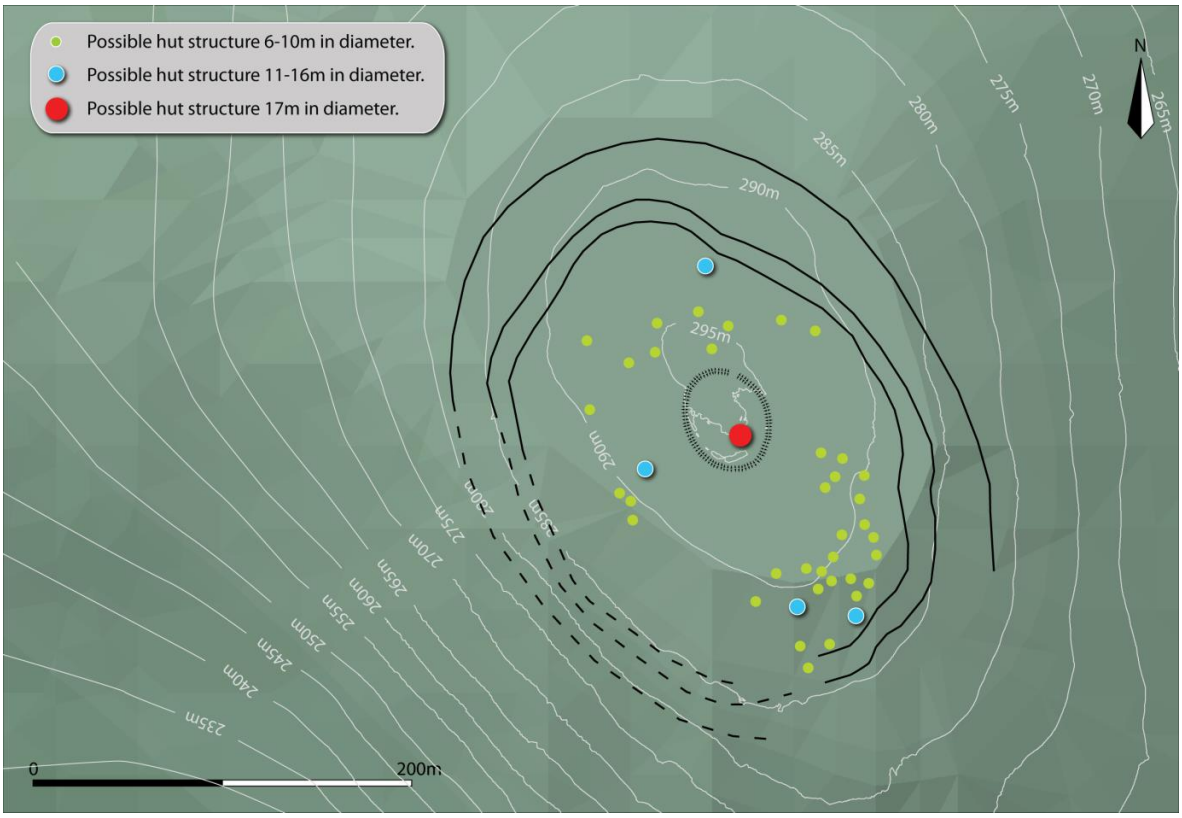

Fig. 8.30: Possible structures identified by geophysical survey at Hughstown.

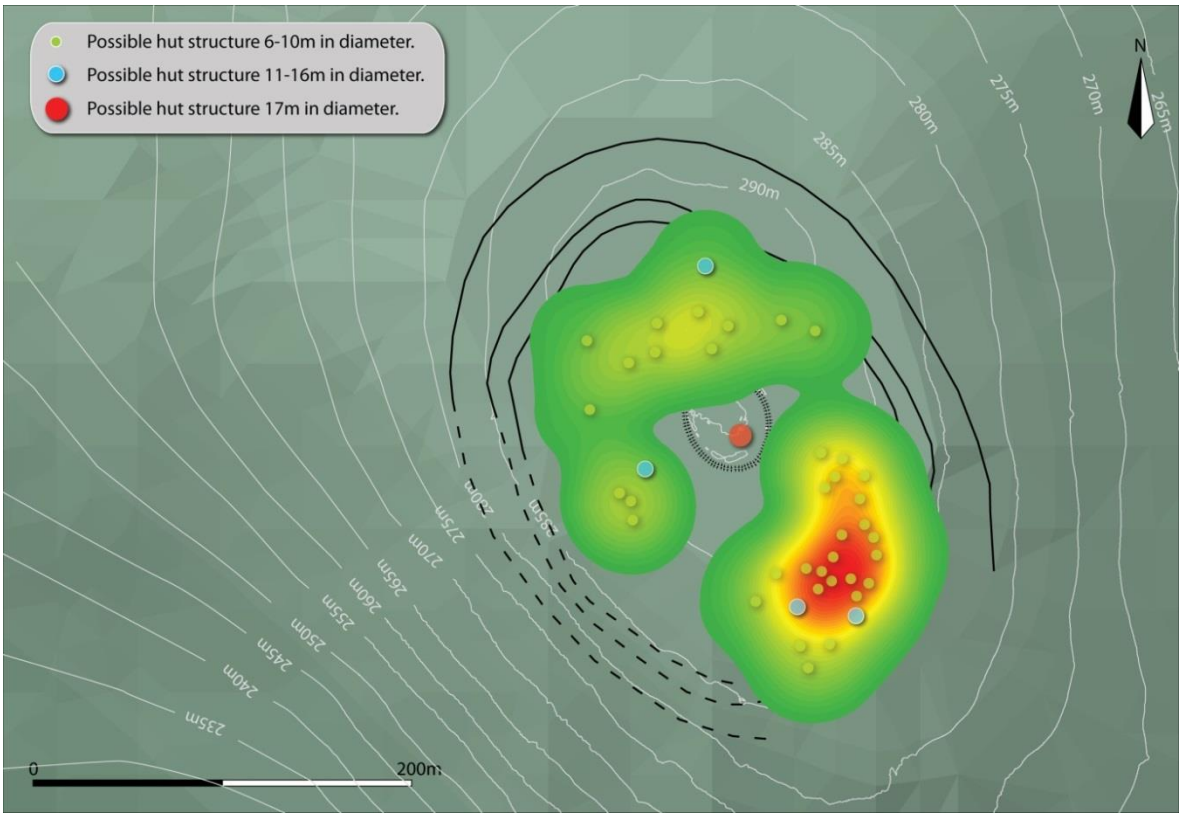

Fig. 8.31: Density analysis of possible hut structures at Hughstown.

destroyed by fire. It was clearly differentiated from the smaller structures both in terms of its size and position within the enclosure. Similar to Rathcoran, this structure and the surrounding enclosure was probably a focal residence in the interior and may have housed an elite. If correct, this suggests that significance was placed in the location of settlement structures and that people of higher status had more privilege to occupy structures in certain location. At Brusselstown Ring, hut sites located inside the inner enclosing elements may have been differentiated from those outside. The possible circular structures inside Hughstown may also hint that the hilltop was re-used during the Late Bronze Age, as circular structures usually don't appear until the Later Neolithic and Bronze Age.

There is limited evidence for settlement at other hillforts in the area, principally due to the inability to carry out geophysical surveys due to geology and vegetation cover and the lack of high resolution LiDAR data. At Tinoran (No: 103), the dense tree cover obstructs both types of survey, although, prior to the area being forested a hut site was recorded inside the second enclosing elements at the south-west. No settlement features have been identified at Spinans 1 (No: 98) while dense forestry makes the recognition of such features at Kilranlagh (No: 60) difficult.

Geophysical survey at the levelled enclosure in Sruhaun (No: 101) townland on Tuckmill Hill also revealed no internal features. This does not necessarily mean that there was no occupation of the interior, as negative results in geophysical surveys may be due to a number of different natural processes. Occupation features may be masked by background readings or may be to slight to be identified in the results. Sruhaun is much smaller than other hillforts in the Baltinglass group, and so could a different type of enclosure, possibly used for stock management, as a cattle coral for example. However, if this is correct, why would the enclosure be positioned 633m from the contemporary Rathnagree (No: 94) or 381m from Rathcoran (No: 92). If this was used for stock management than it would have been better positioned as close to settlement as possible, rather than on a strategic and highly visible spur on Tuckmill Hill (see Chapter 7.4). This positioning is even more curious if we consider it would have made the enclosure a more obvious target for raiding or attack. Chapter 7.4 argues that Sruhaun is strategically located on one of a number of paths to the summit of Tuckmill Hill while also overlooking areas of land not visible to either Rathnagree or Rathcoran. Sruhaun, therefore could have formed one of three contemporary forts protecting the summit and its inhabitants. Sruhaun also fits the criteria of the Atlas of British and Irish hillforts, being in a topographically

dominant landscape position and being over 0.2ha in size and therefore, the term 'hillfort' is probably the most applicable term for the Sruhaun enclosure.

At Rathnagree (No: 94) up to 19 possible structures were identified, but this is probably not representative of a true distribution due to issues with the LiDAR data and vegetation cover. Trial excavation at Rathnagree also revealed potential evidence for settlement in the form of a possible arc of a structure and this may indicate more extensive settlement of the hillfort. A 'settlement cluster' was recorded by Condit (1992) on the north-eastern facing slopes of Spinans Hill, immediately outside Spinans Hill 2 (No: 99). Condit notes that settlement comprising enclosures, hut sites and field walls are evident in aerial photographs covering an area of 320m by 145m. Field walking by the present author identified a more defined settlement comprising two enclosures with associated hut sites and a series of field walls. These features may not necessarily be contemporary with the construction and occupation of the hillforts. The problem of dating highlights the difficulty in identifying convincing evidence for extra-mural settlement that may be contemporary with hillforts in the area.

A large enclosure somewhat comparable in size with these hillforts was identified by Corlett at the western base of Keadeen Mountain (Corlett 2004) (Fig. 8.32 and Fig. 8.24). This comprises a sub-oval enclosure measuring 2.76ha. The bank of the enclosure is slight and consists of a collapsed stone wall 1.5–1.8m wide and 0.5m in height (*ibid.*, 80). A possible standing stone and a number of hut structures were recorded in the interior, though Corlett argues these were probably not contemporary with the enclosure. The size of the bank and the absence of identifiable contemporary settlement led Corlett to conclude that the enclosure was probably not defensive and may have served some ceremonial or ritual use. The location, at the edge of a possible territorial boundary separating Spinans Hill and Kilranlagh, might support this interpretation. Corlett suggests that there are potentially three original entrances, located on the east, south and north-west sides. These are simple, narrow breaks in the bank and reflect the morphology of many entrances found at Irish hillforts. Intriguingly, the southern and north-western breaks are orientated on Kilranlagh (No: 60) and Brusselstown Ring (No: 15) respectively, while the eastern entrance is aligned on a cursus monument near the top of Keadeen which extends towards the summit where a large, heavily robbed-out cairn is located. The similarities between the enclosing elements at Brusselstown Ring and Kilranlagh may hint at a possible affiliation between the two sites. If this is correct, the enclosure at the western base of Keadeen may have functioned as a gathering place for the two communities who would then process towards the mountain summit.

Three other enclosures of comparable size and location have been identified in the Baltinglass area (Fig. 8.24). At the north-western base of Kilranlagh, near the edge of its potential territorial boundary, Liam Price identified a large enclosure of 2.24ha extent (Corlett and Weaver 2002b, 539). Price describes the enclosing elements as comprising an outer ditch almost 12 paces wide with an internal bank 7 paces wide and a possible internal ditch. He also notes a cairn inside the enclosure where a Late Bronze Age pottery vessel was found when the site was being levelled. Unfortunately the enclosure has been completely destroyed and forested and no other information regarded the size is available. Considering the potential ritual elements, i.e. the potential internal ditch, cairn and Late Bronze Age burial, the site could be regarded as a ceremonial or burial centre demarcated by a boundary.

A similar interpretation could be ascribed to Rathmoon, a large enclosure 1.8km south-east of Hughstown (No: 55) hillfort. Rathmoon is described by Grogan and Kilfeather (1997) as an approximately circular hilltop enclosure 120m in diameter. The lowland siting does not fit with a hillfort classification. Geophysical survey identified a much larger and more complex system of enclosing elements than previously identified (Fig 5.47 and Fig. 5.48). Four widely spaced

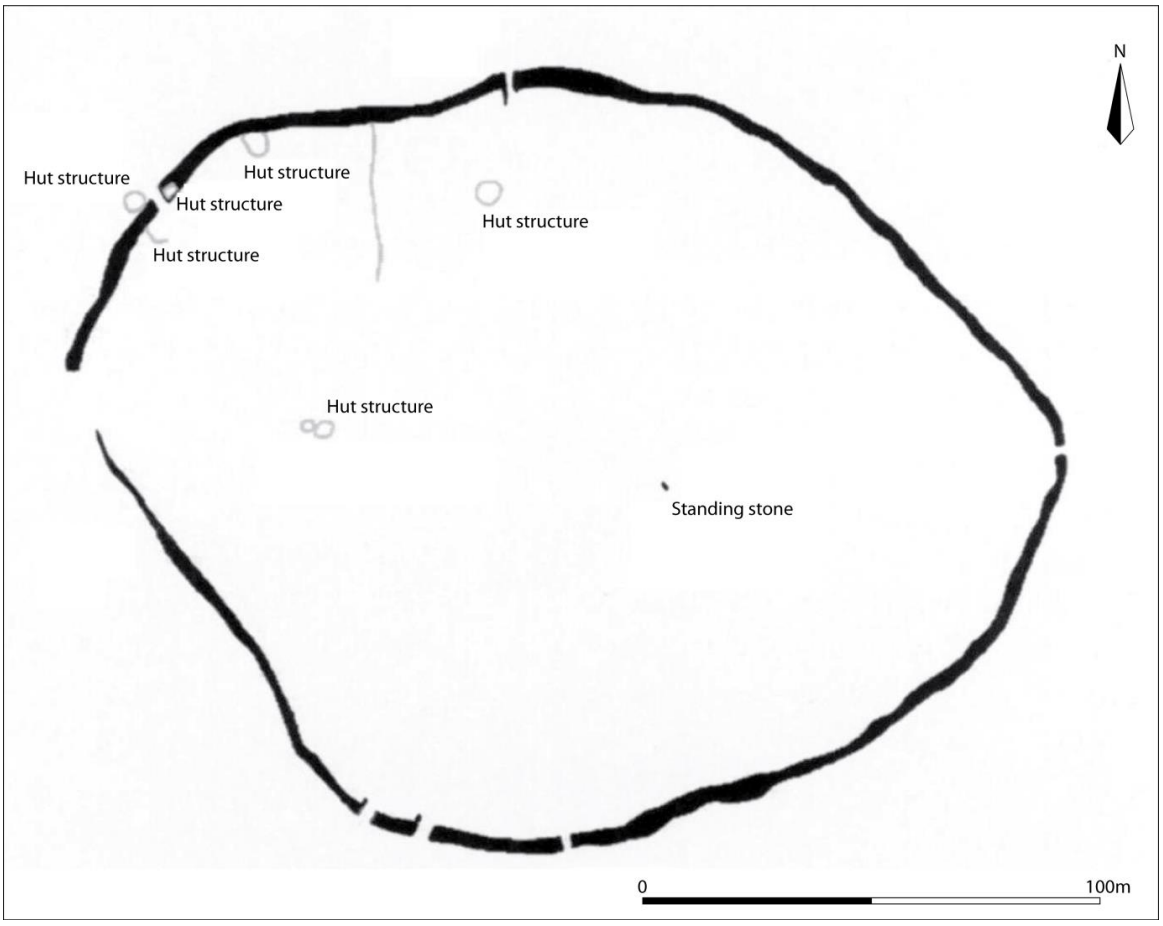

Fig. 8.32: Plan of large enclosure at base of Keadeen Mountain (after Corlett 2004, 81).

enclosing elements were recorded covering a total area of 1.71 ha. The alignment of possible entrance openings in all four enclosures may suggest that they are contemporary. Entrances in the north-east and east are orientated on Tuckmill Hill, while there is an additional south/south-west facing break. Five circular features were identified within the two innermost enclosures and these could represent other burial monuments such as levelled ring-barrows. The elaborate form of the enclosing elements is reminiscent of the hillforts in the Baltinglass area, although the potential evidence for burials in the interior suggests it functioned as a funerary site. Again, the liminal location of the enclosure, just outside of the potential territorial boundary separating Hughstown and the hillforts on Tuckmill Hill, is interesting. Rathmoon is roughly equidistant from both, although it is notable that the site is more accessible from Hughstown, taking approximately 1 hour to travel to, in contrast to 2 hours from Tuckmill Hill.

A fourth large enclosure recorded as a vegetation mark in aerial photography is located at the north-western base of Corballis Hill. The site is approximately 1.1 ha in size and is positioned immediately outside the potential territorial boundary that may define Hughstown. Corballis Hill itself is a prominent topographical feature and comprises the westernmost hilltop of the Baltinglass group. Unfortunately, the hilltop is densely forested and LiDAR data is not available, but it remains a possible location for another hillfort. The large enclosure at its base may have functioned in much the same way or may have been used as a ceremonial or burial centre.

It is clear that these four large enclosures located in low-lying positions at the periphery of territories did not function as mundane settlement sites. Rather, the evidence, particularly from Rathmoon, suggests that these were ritual monuments that may have acted as sacred meeting places between rivalling hillfort communities, where burial and other ritual acts took place.

The majority of Late Bronze Age settlements in Ireland consist of one or two isolated domestic houses and are usually not enclosed (Ginn 2012, 27; Ginn 2014, 47; Grogan 2014, 60). This raises the possibility of significant extra-mural settlement in the Baltinglass area that has not been identified. Intensive extra-mural activity was probably focused on the hillslopes overlooked by the hillforts. This is supported by environmental analysis at other hillforts in Ireland, which have revealed substantial deforestation in areas immediately surrounding Rahally (No: 88), Haughey's Fort (No: 53) and Mooghaun (No: 85), among others (see Chapter 2.2.5). This could reflect extra-mural settlement, but could equally be associated with settlements within these hillforts. A similar scenario is likely at the hillforts in the Baltinglass area. The

settlements at Brusselstown Ring (No: 15), Rathcoran (No: 92), and possibly Hughstown (No: 55), represent intensive, seemingly hierarchical occupation. This evidence opposes Ginn's (2013, 53–54) interpretation of Late Bronze Age society as largely egalitarian and instead supports the traditional hierarchical model.

8.4 SUMMARY

The Path-Distance-Catchment models suggest that hillforts in the Baltinglass area had overlapping zones of influence that is more easily explained by **Model 2**. These catchment models broadly correspond with influence zones proposed by Grogan (2005a) and Cunliffe (2000). Conversely, viewshed analysis highlights that the each enclosure or complex of enclosures had a unique field of visibility usually overlooking distinct land blocks. This could support **Model 1** and it is interesting that these results broadly correspond with the more simplistic Thessian Polygon technique.

Obviously there was a significant ritual element to the Baltinglass landscape and this was central to the way individual communities or different generations of the same community perceived themselves. Barrows and other burial monuments helped to reinforce core territorial boundaries, acting as visible claims to the land and may have helped to legitimate the rule of an elite. Such core boundaries have been tentatively identified at Haughey's Fort (No: 53), Co. Armagh. The presence of such features in the Baltinglass landscape may reflect a more widespread practice rather than a need to define the boundaries of a number of contemporary societies. It also supported the creation of group identity which will be discussed in more detail in the next chapter.

This survey has identified evidence of residential settlement at some of the Baltinglass hillforts. This suggests that hillforts such as Rathcoran (No: 92) and Brusselstown Ring (No: 15) had an extensive internal settlement with some evidence for a hierarchical layout. This could suggest the presence of an elite or 'special person/family' at these sites. Conversely, at Sruhaun (No: 101) there is limited evidence for habitation, although the absence of such features in geophysical surveys does not necessarily mean hut structures were not present. The diversity in the settlement record at Baltinglass is reflected in the wider hillfort phenomenon, where extensive settlements have been recorded at Knockadhu (No: 69), Co. Antrim for example, contrasting with the absence of habitation at Rahally (No: 88) in Co. Galway. Large enclosures in lowland positions, often on the periphery of core boundaries, may have been used as elaborate communal ritual and burial places.

CHAPTER 9

THE SIGNIFICANCE OF HILLFORTS

This chapter will place the site and landscape information discussed in previous chapters into the wider context of the Irish hillfort phenomenon. The different possible functions of the Baltinglass sites will be considered along with analogous evidence from other Irish hillforts. The importance of trade and craft production at Irish hillforts has been overlooked and will be discussed in detail. There is particularly strong evidence for long-distance trade linking Irish sites with places in Continental Europe and such mechanisms may have been important factors in the success of a hillfort community. Hillforts could have functioned effectively as landscape markers or 'beacons in the landscape'. The enclosing elements may have been symbols of competitive display. Equally, there was a more practical defensive element to sites, used to protect a community, food stocks, artisans or animals from real or perceived external threats. The building of a hillfort may have had a wider significance, bringing together disparate groups in the landscape to increase social cohesion and help form group identity. This chapter will argue that these diverse meanings are not necessarily separate and can be combined to form a cohesive argument outlining the life cycle of a hillfort. Although the Baltinglass hillforts correspond with this new interpretation, it is clear that this landscape is unique in an Irish context. The underlying reasons for the creation of this group will be assessed and placed in its wider context.

9.1 HILLFORTS AS AREAS FOR TRADING AND CRAFT-PRODUCTION

The Bronze Age, and in particular the Late Bronze Age, is often considered to have seen a dramatic increase in the exploitation of natural resources, maximisation of agricultural productivity and competition over trade routes (Earle 2002; Bruck and Fontijn 2013, 202). The limited natural availability of ores such as gold, copper and tin provided a stimulus for the development of exchange networks and facilitated the evolution of politicised economies concerned with the production, display and consumption of prestige goods (Van De Noort 2013, 382; Yates 2007, 120). This prestige goods economy drove social interaction through trade in the Atlantic zone and is archaeologically visible in the distribution of common metalwork forms

(Henderson 2007, 57; Yates 2007). This system necessitated an increase in agricultural activity, to provide enough surplus stock to allow for the exploitation of exotic resources.

Prestige goods systems are essentially active growth-driven economies that depend on continued economic success to produce wealth. The political power of the economic leaders was derived from their ability to accumulate, display and distribute this wealth. Ultimately, wealth resulted from the successful management of available resources and particularly agricultural produce (Yates 2007, 2–3; 107). In this respect, Yates (2007, 4) suggests that intensive farming may have been the basis of rapid economic growth. This is supported by pollen analysis of contemporary environments surrounding hillforts such as Haughey's Fort (No: 53), Co. Armagh, Rahally (No: 88), Co. Galway, and Mooghaun (No: 85), Co. Clare. These studies indicate intensive land clearances, representing a large expansion in farming activity associated with the construction and settlement of hillforts (Chapter 2.2.6). In Ireland, the collapse of this economy coincides with the cessation of hillfort construction and a period of woodland regeneration. Van de Veen and Jones (2007) have similarly linked the 'decline of the Late Bronze Age elites' with the introduction of new iron technology and a reduction in long-distance trade. This suggests that long-distance exchange of metal supplies necessary for bronze production was the driving mechanism for growth in agricultural production at this time, and also supports palaeo-environmental evidence that connects hillforts with this economy.

These processes rapidly expanded the availability of metal and access to exotic materials (Henderson 2007, 91), which could be attained, stored and displayed as symbols of competition, by an increasing number of individuals (Ruiz-Galvez 1991, 287). This model is attested in wider trends during this period, most notably through the rise of a warrior aristocracy (Kristiansen 1999), which is apparent in the universal acceptance of elite warrior items such as the sword, shield and spear (Cunliffe 2008, 225).

9.1.1 Trade and exchange

Sea, coastal and riverine transportation were important outlets for the dissemination of artefacts, ideas and belief systems throughout the Bronze Age. Riverine transportation is particularly attested by the concentrated distribution of imported amber beads along the River Shannon and its tributaries. Amber provides one of the clearest indicators of long-distance trade in prehistoric Ireland (O'Brien 2012a, 227). It is found in significant amounts in the Baltic, notably present-day Poland, Kaliningrad, Lithuania and the coast of Jutland, Denmark. It also has a

natural distribution spreading from the east coast of England and across northern Europe to the Black Sea (Feeney-Johnson 2012, 96; Harding 2013, 374). Analytical techniques can distinguish between Baltic amber and other sources such as those in Romania and Sicily, but cannot distinguish between Baltic amber and other sources in Northern Europe (Harding 2013, 374). Waddell (1998, 258) suggests that the limited amount of natural amber in eastern Britain means that, more than likely, amber was imported from the Continent. Late Bronze Age amber is found exclusively in bead form indicating that these items were probably imported pre-made (Feeney-Johnson 2012, 93). During this period there is a significant increase in the use of amber throughout Ireland. This contrasts with the British evidence, where amber finds are comparatively scarce (Beck and Shennan 1991, 102; Feeney-Johnson 2012, 93). Feeney-Johnson (2012, 93) argues that this suggests Britain was often bypassed, with amber transported directly to the Irish markets. Amber beads have been found at Dún Aonghasa (No: 40) and Rathgall (No: 90) hillforts, attesting to continental links.

The significance of coastal and sea travel is attested in the amber assemblage from Dún Aonghasa (No: 40). This hillfort was strategically positioned at the mouth of Galway Bay, with extensive views of the region and coastal sea-routes to the north and south. Evidence for long-distance trade is apparent in nine complete and four incomplete amber beads, two probable bead fragments, and an object tentatively identified as a stud and a non-diagnostic scrap (Feeney-Johnson 2012, 94). Scientific analysis of these reveals that, with the exception of one unclassified sample, all finds originate from the Baltic. Moloney (2013, 13–14) suggests that the inclusion of amber in Late Bronze Age hoards substantiates the idea that it was a ritually and symbolically significant material which would explain its presence on high status sites.

Three amber beads and several fragments were recovered from Rathgall (No: 90) hillfort, Co. Wicklow, including a composite bead with gold mounting. A comparable bead was found at Milmorane, Co. Cork (Raftery and Becker forthcoming, 161) and both are probably of foreign origin. Eighty-eight complete and fragmentary glass beads from Rathgall confirm that the hillfort community was involved in long-distance exchange (Fig. 9.1). Glass beads from three sites in Ireland, Rathgall, Lough Gur in Co. Limerick and Freestone Hill (No: 45) hillfort, Co. Kilkenny, are closely matched by examples from a small number of sites in Germany (Hartmann *et al.* 1997), France (Gratuze *et al*. 1998), Switzerland (Henderson 1988) and northern Italy (Henderson 1988, Brill 1992; Towel *et al* 2001; Angelini *et al* 2004, Angelini *et al* 2009) and to a lesser extent Britain (Henderson 1988). These beads contain low magnesia (MgO) and high potassium oxide (K^2O) levels (LMHK) (Henderson 1988). The site of Frattesina (dated to 1200–

1000 BC) in northern Italy produced semi-fused glass and other industrial by-products such as crucibles and large numbers of glass ingot fragments, strongly indicating that glass-working and/or production was taking place on-site (Brill 1992; Henderson 1988). This constitutes the only evidence of glass production in Late Bronze Age Europe to date (Angelini *et al*. 2009, 329). In total, 2651 glass finds, mostly comprising glass beads belonging to the LMHK mixed alkali glass group were recovered from the site (*ibid.*, 330). This constitutes the largest find of prehistoric glass in Europe. The evidence at Frattesina is indicative of a highly specialized glass workshop (Angelini *et al.* 2004, 1183). Only a single bead of LMHK glass has been found in Britain at All Canning's Cross in Whilshire and this tentatively infers direct contact between Ireland and Northern Italy/Switzerland.

Excavations at Haughey's Fort (No: 53) recovered a possible handle from a Central European bronze bucket and a possible bronze pin from northern Europe (Mallory 1991, 21; Warner 2006, 24; Mallory and Baban 2014, 26; Brandherm 2014). Brandherm (2014) has argued that the bucket handle fragment was perhaps a native attempt to copy a Central European vessel. Two bronze vessels, a Fuchstadt type bowl and Jenisovice type cup, were also recovered and appear to have been manufactured in northern Europe, possibly in northern Germany (Mallory and Baban 2014, 26). At present, both types are unknown in Atlantic Europe. Approximately 700m south-west of Haughey's Fort, a hoard in the townland of Tamlaght, dated typologically to the Roscommon Phase, comprises a sword and bronze bowls that were probably imported from Central Europe (Warner 2006; 2013, 38). An Iberian-style gold neck-ring was found 600m east of Haughey's Fort which probably date to the Middle/Late Bronze Age

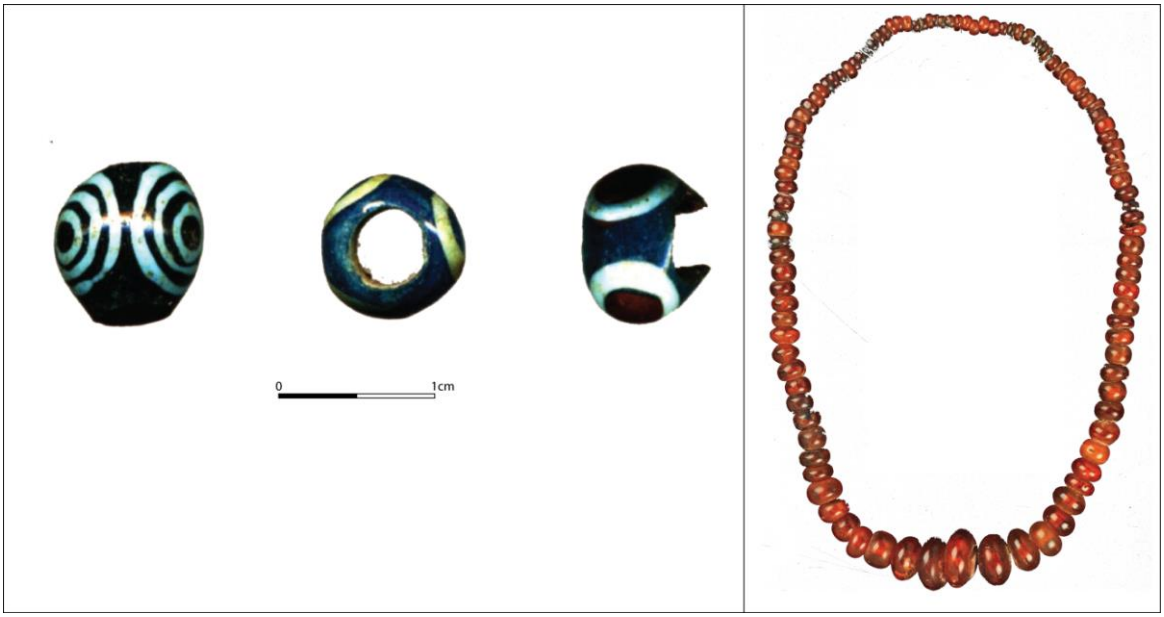

Fig. 9.1: Glass beads from Rathgall (after Beaker 2010), and amber necklace from Tooradoo, Co. Limerick (http://microsites.museum.ie/bronzeagehandlingbox/object-amber.html).

transition (Warner 2013). The variety of finds indicates the hillfort had trading links with various regions of Continental Europe, with particularly strong links with Northern Europe.

A portion of a similar Iberian style neck ring was found in a hoard recovered within the interior of Downpatrick (No: 37) hillfort in Co. Down (Fig. 9.2). Panels of engraved herringbone design on the neck ring are comparable to Iberian neck rings of Berzocana type (Almagro-Gorbea 1995, 140; Eogan 1994; Waddell 1998, 198–199), indicating potential links with western France before 1000 BC. A total of three hoards were recovered at Downpatrick and Warner (2013, 37) suggests that a number of these objects may have been imported from Iberia.

In this context, it is interesting to note the distribution of Late Bronze Age vessels ornamented with conical rivets (MacWhite 1945, Fig. 6), which extends exclusively from central/northern Italy, through Switzerland, into Denmark and then Ireland, largely avoiding Britain. Considering this as a potential prehistoric trade route, Denmark has a high concentration of natural 'Baltic' amber. The distribution of amber would correspond with this route, as all of the aforementioned artefacts are rarely found in Britain.

This potential trade route may be further defined by the restricted distribution of Late Bronze Age U-notched shields (termed Herzsprung shields). There is a concentration of these

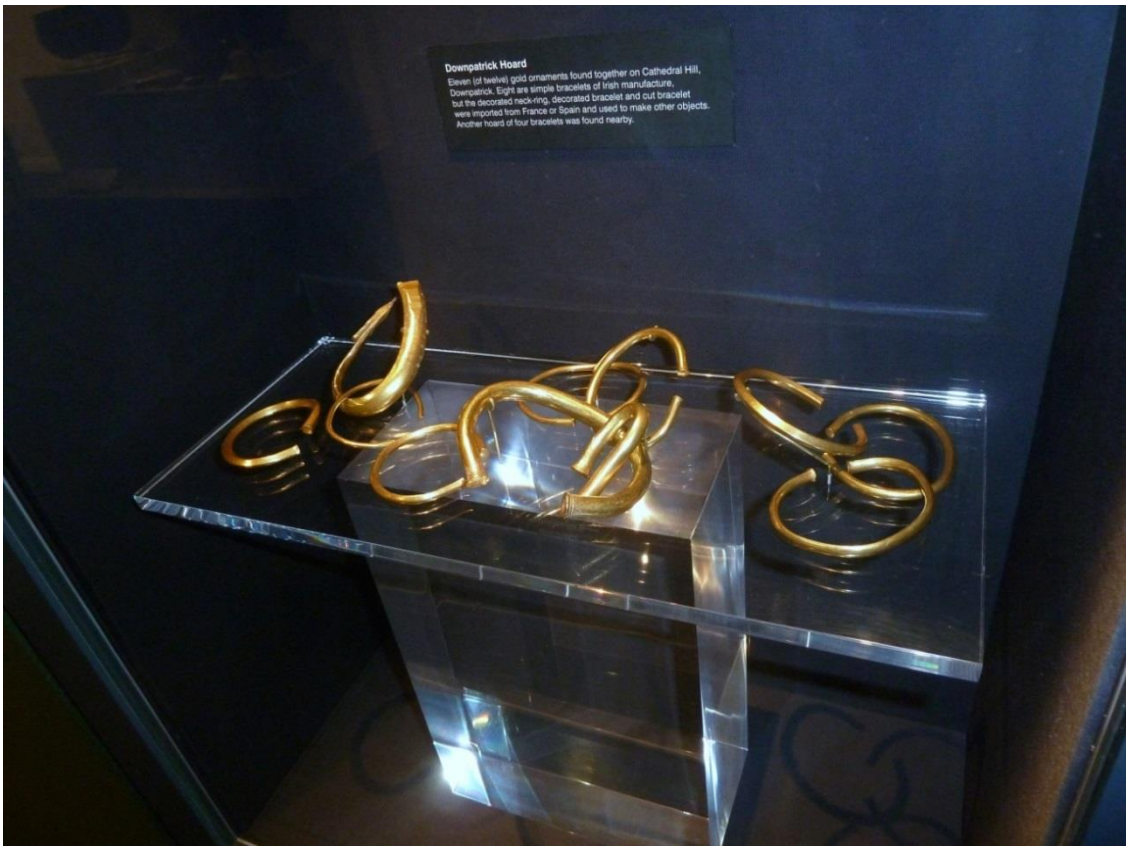

Fig. 9.2: Downpatrick gold hoard as displayed in the Ulster Museum.

shields in and near Denmark, where six examples have been recovered. Two examples have been identified in northeastern Germany and a further example in eastern Germany. A single U-notched shield has been discovered in northern Italy, and two in western Ireland. No examples of this type have been identified in Britain (Henderson 2007, 82–85; Coles 1962). It may also be noteworthy that a bar toggle found at Rathgall (No: 90) is striking similar to numerous examples found in southern Denmark and northern Germany and is most likely an import from that area (Raftery 1975; Waddell 1998, 270). Waddell also points out that this object lacks any comparisons in Britain.

Eogan (1981) has suggested that the general shape and concentric circle decoration on gorgets (which date from 900–600 BC) also demonstrate a Nordic influence. This could indicate continued trade links with this region into the later part of the Late Bronze Age, although the origins of this artefact type are disputed (Waddell 1998, 244). The concentric circle decoration on the Lattoon gold disc, Co. Cavan, has also been used as an example of Irish-Nordic contact, being compared with the famous Trundholm gold disc from Denmark (*ibid.*, 259). Certain types of Late Bronze Age pins, notably the disc-headed pin, may also derive from the Nordic region (Eogan 1974). The rarity of this artefact type in Britain, and their abundance in Denmark and northern Germany (Eogan 1974; Waddell 1998, 254–255), is further testament to direct Irish–Nordic contact. The Late Bronze Age cup-headed type pin is also found in Ireland, but has a sparse distribution in Britain. A concentration of these pins have been found in Denmark (principally Jutland), Sweden and northern Germany (Eogan 1974). This further emphasises the limited part Britain played in the diffusion of certain artefact types (*ibid.*, 100), and prompted Eogan (1974, 100–101) to suggest that contact between Ireland and the Nordic area was 'quite strong' during the Late Bronze Age. Eogan (1974, 97) suggested that a sunflower pin mould from Jarlshof in the Shetland islands, Scotland, could be taken as evidence for a possible route around Scotland, connecting Ireland with the Nordic area. Waddell (1998, 259) has also highlighted the possible significance of this route in the distribution of a Scandinavian type of socketed axe found in both south-western Scotland and in Co. Antrim.

The occurrence of *Chevaux-de-frise* is often taken to indicate close ties between the Iberian Peninsula, Ireland and Britain during the Late Bronze Age/Early Iron Age (Raftery 1951, 214). Harbison (1971, 195) however, has argued that the Spanish–Portuguese and Irish–British examples are not closely related, and instead emphasised the commonality of the Irish, Welsh and Scottish examples. This feature is recorded at three sites in Ireland, only one of which, Dún Aonghasa (No: 40), can be regarded as a Bronze Age hillfort.

Henderson (2007, 77) remarks that evidence for contacts between Ireland and Scotland occurs throughout the Late Bronze Age and is evident in the Glentrool phase when Irish influence is apparent with the circulation of the bag-shaped axe (Eogan 1995, 134) and Irish gold ornaments such as dress fasteners and gold bracelets during the Ewart Park/Duddingston phase. Bowen (1972, 54–56) has highlighted the large numbers of Irish gold objects in eastern Scotland and the occurrence of ornaments and weapons of Irish origin in the Orkney and Shetland islands at this time. The Irish type sunflower pin mould and a mould for an Ewart Park sword (which is an Irish type), at Jarlshof, Shetland, and Irish bronze implements incorporated into the Adabrock hoard on the Isle of Lewis, Scotland (Coles 1960, 50), put further emphasis on potential Irish-Scottish contacts. The distribution of lock-rings (*c.* 900–600 BC) may attest to the continued links between northern Britain and Ireland, and in particular North Munster, where there is a heavy concentration of these artefacts (Eogan 1969, 93).

Class 3 flesh hooks have a distinct concentration in the north of Ireland, and interestingly, the Dunaverney, Co. Antrim (dated to 1050–900 BC), and Lurgy, Co. Tyrone examples are located close to sea routes that connect Scotland and Ireland (Fig. 9.3). Another Class 3 flesh-hook was discovered on the western coast of Scotland, at Killeonan 2, Argyllshire (Needham and Bowman 2005, 101). Needham and Bowman (2005, 101) have also noted similarities between the Dunaverney and the now lost Lurgy example with another Class 3 flesh-hook found at Senhora da Guia, Baiões, Portugal dated to 1150–800 BC. The Dunaverney and Baiões examples both have suspended rings under the shaft and display encircling grooves and rib decoration. Drawings of the example from Lurgy suggest similar decoration on the wooden shaft. The Baiões flesh-hook was discovered in a hillfort with another ritual feasting implement, the articulated spit, examples of which are found primarily in mid-Portugal. Two single faced palstaves originating from mid-Portugal were discovered in the Buxton and Armagh museum by Chitty (1936). Both examples are thought to have come from the north of Ireland, respectively Armagh or Monaghan, and Antrim or Cavan. The compositional and stylistic similarities of these flesh-hooks may suggest direct links between hillforts in Northern Ireland and the example at Baiões or settlements in central Portugal. This link is attested by the distinctive bobbin head style of the class 3 flesh hooks. Two examples of the bobbin style, one in north-eastern Ireland (Dunaverney) and another in western Scotland (Killeonan 2), demonstrates the potential links between these communities and conforms to Needham and Bowman's (2005, fig. 11) northern Irish – western Scottish 'flesh-hook zone'.

A V-notched leather shield from Clonbrin, Co. Longford (Fig. 9.4) is the only example of its type in Europe, although there are two examples of V-notched wooden shield moulds from Ireland. Heath (2009, 102) has suggested that wooden and leather shields may have been more common than bronze examples. Twelve images of V-notched shields are found in south-western

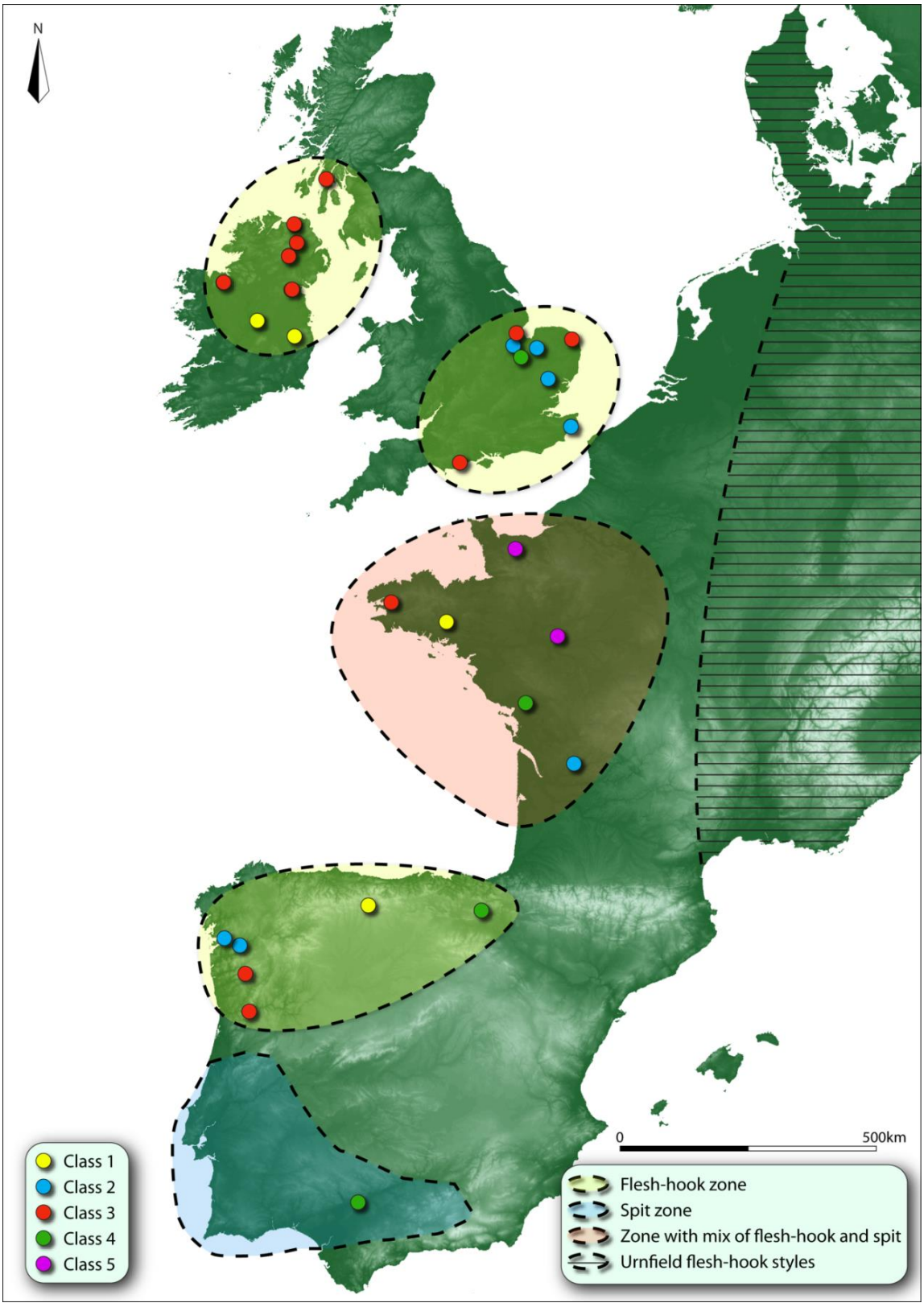

Fig 9.3: Flesh-hook zones (after Needham and Bowman 2005).

Iberia, where they are inscribed on stone stela (carved stones found in western Iberia which portray warrior elites). This distribution has been used as evidence for direct contact between Ireland and Iberia (Henderson 2007, 84). The Clonbrin shield is strikingly similar to the V-notched shield depicted on a stela from Solance de Cabañas in Cáceres, Spain (Cunliffe 2008, 258). These Spanish carvings date from the tenth to eight centuries BC. This corresponds with a radiocarbon date of 1194–934 BC for the Clonbrin shield. The earlier dates obtained for the wooden Churchfield shield in Co. Mayo (1392–1129 BC), the wooden U-notched shield from Annadale, Co. Leitrim (1258–1010 BC) and the wooden V-notched shield mould from Kilmahamogue, Ballinlea, Co. Antrim (1950–1540 BC) attest to the extended use of this shield type (Needham *et al*. 2012, 486; Waddell 1998, 242). Needham *et al*. (2012, 486) suggest there was a major horizon of shield production, comprising both organic and bronze examples, around 1300–1000 BC. At a comparable time in Germany, some 'chieftain's graves' contain numerous bronze studs or nails that, due to their positioning, can be interpreted as bronze fittings for possible organic shields (*ibid.*, 486). This infers that shields were an important symbol of high status individuals or elites.

The distribution of U- and V-notched shields implies contact with Denmark and southern Iberia during the beginning of the Late Bronze Age. In Ireland, these have a distinctly western bias centred on the Shannon River and estuary. In contrast to this distribution, there are a number of distinctly British type shields found in Ireland (Coles 1962; Henderson 2007, 85;

Fig. 9.4: The Clonbrin leather shield from Co. Longford. (after King-Harman and Armstrong 1909, 263).

Waddell 1998, 242) which attest to strong Irish-British contacts in the Later Bronze Age. Six British type shields are found in Ireland, three Yetholm and three Eynsham types. Distributions of the Ballintober sword, one of the earliest types of sword used in Ireland or Britain also highlight Irish-British links. This sword type dates to the 12th century BC and is distributed across the northern half of Ireland, across southern Britain and Armorica (Cunliffe 2001, 291–292; Henderson 2007, 63). The high concentrations of this sword type in the Thames Valley complements the concentration of Yetholm type shields and attests to the emergence of a major centre of bronze production in this area. The spread of these artefacts suggest that Ireland was linked with the Thames valley during the early part of the Late Bronze Age *c.* 1200–1000 BC.

Cunliffe (2001, 290–291) has also noted a coastal pattern in the distribution of Irish gold hair-rings. While these are somewhat evenly distributed throughout Ireland, there is a distinct cluster apparent along the southern British coast. Cunliffe suggests this is further evidence of a possible trade network during the early period of the Late Bronze Age. Further evidence for trade is provided in the distribution of gold bar torcs dated *c.*1200–1000 BC. These are found primarily in eastern Ireland and in south western and southern Britain, but also in lesser numbers in Armorica and northern France and two examples from Iberia.

These complex and long-distance trade networks are particularly visible in the distribution of Irish cauldrons in northern Europe. Gerloff (1987) suggests that the concept of the cauldron spread from Central Europe before Irish bronze smiths developed indigenous versions which were then distributed to Britain, western France, Denmark and Iberia (Briggs 1987; Cunliffe 1991, 55–56; Henderson 2007, 82). Although the date for the introduction of these impressive artefacts is disputed (Cunliffe 2001, 291–292; Gerloff 2010; Henderson 2007, 82), it is likely that they originate in Ireland in the 10th century BC and continue in use until about the 8th century BC.

The artefactual evidence highlights contact between Ireland and the Nordic world particularly during the early part of the Late Bronze Age *c.* 1200–1000 BC, which continued until the end of the Late Bronze Age. This may have been direct, or more likely, through a complex coastal network along the northern and western coast of Scotland, avoiding to a large extent, southern Britain. The spread of LMHK glass and conical riveted vessels indicates contact with northern Italy and Switzerland. Links between this area, northern Germany and the Nordic zone may imply a route in which material from Italy, such as LMHK glass, through a series of exchanges, ended in the eventual use of the material in Rathgall (No: 90) and Freestone Hill (No: 45). These contacts may have been stimulated by the lack of natural supplies of copper, tin or

gold in the Nordic area (Eogan 1995, 128). This does not mean that exchange networks were not in place with the rest of Britain. Conversely, extensive links with the Thames Valley are attested by the distribution of Ballintober type swords and Yetholm type shields during this period, and such exchange route may also have distributed Armorican artefacts into Ireland. Evidence for direct contact between Ireland and Iberia is also attested, although on a lesser scale.

In south-western Iberia, an estimated 400 artefacts were recovered in the estuary of the Odiel River, including 78 swords (55 of carp's tongue type from Armorica), 22 short swords or daggers, 88 spearheads (including some lunate spearheads from Ireland), fragments of a helmet and a brooch (Cunliffe 2008, 254–255). Radiocarbon dates from wood associated with the bronze artefacts date the deposit to the mid-tenth century BC (Cunliffe 2001, 279). The group of artefacts show the extensive maritime exchange network that extended from Ireland and Britain through north-western France and into Iberia. Two Late Bronze Age wrecks in southern England, one near Dover Harbour, the second near Salcombe estuary in Devon, contained bronze artefacts, some of which were of northern French origin (*ibid.*, 278–279). At the end of the fourteenth century BC, a ship was wrecked off the southern coast of Turkey, near Ulu Burun. This contained six tonnes of copper ingots, tin ingots, bronze swords, ostrich eggshells, ivory, slabs of blue glass, logs of exotic wood, amphorae of aromatic resin, amber, Mycenaean pottery and items made in Syria and from the Canaanite coast (*ibid.*, 261). These ship-wrecks give a clear idea of the range of rare, high-status raw material and artefacts that were traded throughout Europe from the beginning of the Late Bronze Age. This complements the distribution of bronze artefacts found along the Atlantic coasts of Europe, and highlight intense maritime and riverine mobility (Cunliffe 2008, 254). The introduction of wooden block wheels during the Late Bronze Age is also attested by the discovery of two examples in counties Roscommon and Longford. Wooden track-ways crossing extensive areas of wetland suggest that land-based mobility was also becoming an important means of communication and trade.

9.1.2 Hillforts and trade

New patterns of interaction developed around the beginning of the Late Bronze Age, *c.*1300 BC, with elite elements of ranked societies playing a central part in the exchange process. Their political power and status was seemingly linked with their ability to control the distribution of exotic goods (Waddell 1995, 162; Sharples 2007, 112). This surge in social interaction is attested by the distribution of various exotic objects found in Ireland, Britain and the continent, and the spread of warrior culture which manifests itself in warrior objects of strikingly similar form

throughout Atlantic Europe (Cunliffe 2013, 252). To control this trade, elites may have constructed hilltop settlements in strategically significant positions in the landscape. These hillforts may have had a role as points of embarkation synonymous with trade. This perceived function may have continued in Britain during the Iron Age. In a passage in the *Massilliot Periplus*, a description of the sea routes around the Atlantic coast in the Early Iron Age, a passage refers to islands in the Atlantic called Oestrymnides 'rich in the mining of tin and lead. A vigorous tribe lives here, proud-spirited, energetic and skilful. On all the ridges trade is carried on'. The text locates this place as two days sail from Ireland, which would place it in either Cornwall or Brittany (Cunliffe 1997, 149). The last comment could highlight the continued link between hilltop locations and trade.

There seems little doubt that ability to acquire prestige goods of exotic origin carried a considerable premium (Bradley 1990, 133). This may have led to the centralisation of communities and economies to try and monopolise trade and production of such items. Evidence for hillforts in Ireland and the Continent suggest that they provided a range of specialist economic and defensive functions that restricted access to high-status objects and centralized control over both agricultural and craft production (Brück and Fokkens 2013, 95). This corresponds with Cunliffe's argument that a hillfort functioned as a 'central place', acting as a focal point in a redistribution network (Cunliffe 1995, 93). This is prompted by the discovery of some 2,400 grain storage pits within Danebury hillfort (Cunliffe 2011, 99; 113–116). Bradley (1990, 137) states that there is evidence that food supply was regulated through centralized storage at Late Bronze Age hillforts in Britain. Interestingly, the Danebury Environs Programme has found that grain stored in the fort was not distributed to nearby sites, but was prepared and used within or possibly traded (Brown 2009, 207).

Renfrew and Bahn (2006, 215) note that an important indicator of centralised control of a society is the existence of permanent storage facilities for food and goods. This may be reflected in the archaeological record at a number of hillfort sites in Ireland. A dozen or so clay, wattle and daub-lined pits of varying size were excavated in the interior of Downpatrick hillfort, Co. Down (Proudfoot 1954, 98). At Haughey's Fort (No: 53), Co. Armagh, large pits containing quantities of carbonized grain were found, containing fragments of quern stones, coarseware pottery and metalwork. These are interpreted as grain storage pits by the excavator (Mallory 1995, 78; Mallory and Warner 1988). The large volume of cereal remains at Haughey's Fort is unusual (McClatchie 2014, 40). Analysis of the plant remains highlights a lack of chaff and a variety of weed types, implying the cereals were obtained and processed in a variety of

environments (*ibid.*). McClatchie has interpreted Haughey's Fort as a central place for the storage of seed corn and surplus produce, which may have been used for communal feasting. Geophysical survey at Toor More (No: 36) hillfort, Co. Kilkenny (Appendix 2), has identified a concentration of pit-like features within the interior of the inner enclosing element.

Centralized societies are often associated with increased intensification of farming (Renfrew and Bahn 2006, 215). This is attested in the pollen record at many hillfort sites in Ireland, where there is an intense tree clearance episode and increase in agricultural indicators contemporary with the construction and occupation of the hillfort. This may have been to acquire surplus stock for trade or to accommodate full-time craft specialists.

Where extensive excavation has been undertaken, there is evidence of craft-working at a number of Irish hillfort sites. At Dún Aonghasa (No: 40), for example, 460 moulds and crucible fragments were found (O'Carroll 2012a, 28), while at Rathgall (No: 90) several thousand clay mould fragments were recovered (Raftery 1976, 345). Both assemblages are noteworthy for the range of artefacts being produced in comparison to any other Irish site (O'Carroll 2012a, 41). Mould fragments from Rathgall indicate that weapons and tools were being produced. This included evidence for socketed spearheads, spearheads with shallow lozenge-shaped cross-sections, swords, palstaves, socketed bag-shaped axes and possibly rapiers (Raftery and Becker forthcoming). Other object, such as knives, razors and pins, were also being cast. At Dún Aonghasa, a similar range of artefacts were being created, including two different types of socketed spearhead, swords and socketed axes, as well as knives, bracelets, pins and studs/buttons (O'Carroll 2012a). Interestingly, two of the three socketed axe moulds discovered had decoration near the socket, possibly indicating their use as a ceremonial object. At both sites there is clear evidence for long-distance trade and it is tempting to suggest that they traded bronze weapons and goods for exotic materials such as amber, glass and other bronze and gold items.

Mallory (1995, 80–81) has posited that the small traces of gold found within pit features at the centre of Haughey's Fort (No: 53) may have been fragments of industrial waste, intended to be utilised in the ornamentation of some object. A gold stud found in one of these pits dated 1260–910 BC is broadly contemporary with the construction and occupation of the hillfort. Approximately 18 fragments of clay moulds used to produce leaf-shaped bronze swords were recovered from limited excavation at the nearby King's Stables votive pond. This is more substantial evidence linking the builders of the hillfort with the production of prestige goods. More recent analysis of the bronze and gold items by Brandherm (2014) and Warner (2014)

reveals that there is probably a metal workshop area within the hillfort where bronze casting and gold working took place. The remains clearly imply some specialist knowledge of the industries (Brandherm 2014, 65). Mallory and Baban (2014, 26) argue that the sword moulds found in the nearby King's Stables suggests that casting of swords was probably undertaken by the residence of Haughey's Fort just outside the area enclosed by the outer ditch.

In central and western Europe, beginning around 1400 BC, new centres of bronze and craft-working arose (Bowen 1972, 52). Jiran *et al.* (2013, 792) have noted the high frequency of metalworking evidence at hillfort sites in the Czech Republic and Austria during the Late Bronze Age. A similar situation is apparent in France, where hillforts such as Fort-Harrouard and Saint-Pierre-en-Chastre were centres for the intensive production of prestige goods (Mohen and Bailloud 1987; Brun 1993, 178). Burgess and O'Connor (2008, 46–48) have noted that an unusually large proportion of Late Bronze Age metal artefacts have come from *castros*, inferring that these hilltop sites were utilised as craft-working centres. Many contemporary German hillfort also produce evidence for craft-working such as the Hunenburg hillfort near Waterstedt, Germany (Heske 2007; Heske *et al.* 2010; Jockenhovel 2013, 741). Osgood and Monks (2000, 66) suggest that by the end of the Late Bronze Age, much of the production of goods seems to have taken place at fortified sites and this is seemingly reflected at some hillfort sites in Ireland.

The importance of controlling the exotic goods market was a paramount concern for elites and hillfort communities. There is no evidence at the present time for long-distance trade or craft production at the Baltinglass hillforts. This reflects the limited amount of excavation at these sites. Rather than focusing of the artefactual evidence, the appearance of the earliest hillforts at Baltinglass could tentatively imply that the communities in the area were obtaining the knowledge of how, why and where to build these monuments from abroad, probably through long-distance travel and this may represent a proxy of long-distance trade. The building of unique defensive system would have been a visible display of the esoteric knowledge attained by the community through long-distance travel and could have been used as an element of competitive display. Similarly, the appearance of other somewhat contemporary site types could indicate long-distance travel. For example, Burl (2000) has suggested that the cluster of multiple stone circles in the Wicklow area are similar to those found in Cumbria, England, and has tentatively suggested there may have been some form of connection between these two areas. The attainment of such knowledge may have validated the position of elites. Long-distance travel may have been undertaken by high status individuals as a mechanism of obtaining social capital and status. Leonard (2014, 125) has pointed out that the extensive planning as well as

investment in resources and social capital, would have imbued foreign objects or ideas with further status. Furthermore, she argues that this would have been a visible display of the resources and knowledge available to the traveller. The strategic siting of many Irish hillforts, as well as the Baltinglass examples, further indicates their importance with regard to trade and the control of exotic goods and other resources.

9.2 HILLFORTS AND ROUTEWAYS

The emerging emphasis on competition and the control of resources and land can be connected with the construction of hillforts. It is often argued that many examples in Ireland and Britain are positioned to dominate natural routeways and/or natural resources (Hamilton and Manley 2001, 31; Bruck 2007, 31). The enclosing elements of these monuments and the clearance of vegetation served to monumentalize natural topography and help them contrast with the natural environment. Such landmarks would have been essential for long-distance travel. The construction of hillforts helped to visibly proclaim the power and control a community possessed over the land (Cunliffe 2006, 159). This monumentalization of the natural landscape effectively fed into a competitive social system centred on the display of power. The construction of a hillfort has been regarded by Driver (2013, 153) and Sharples (2007, 180) as the 'conspicuous consumption of labour', where the construction of large complicated enclosures reflects the size, strength and power of a community.

Brown (2009, 201) suggests large numbers of hillforts in England and Wales are located on escarpments and near river valleys, in locations connected to their use as 'trading nodes', an idea influenced by the research of Neustupný (2006). Much of the early interpretations of hillforts in the 1970's is based on the assumption that hillforts may have acted as central places where storage and the redistribution of goods was common place (Harding 2012, 203; Cunliffe 1995; Cunliffe 2006). The Danebury research project was particularly influential in this regard.

A large proportion of the Irish hillforts are located at strategic positions overlooking one or more natural 'corridors', suggesting that control of these areas contributed significantly to their positioning. This has been noted by Grogan (2005b; 2014, 68), although he does not discuss this in detail or provide any quantifiable data. This is not a phenomenon confined to Ireland. Murrieta-Flores (2012, 114) has identified that natural corridors in the Sierra Morena region in Spain seem to have been heavily used during prehistory and noted that settlement and ritual

activity is strongly linked with these natural routeways. Similar evidence has been identified in central Portugal by Fonte *et al*. (2011), and in the Alpine region (Bruck and Fokkens 2013, 95).

Driver (2013, 59) suggests that hillforts functioned as permanent, symbolic points of reference for travellers and acted as locales for embarkation and destination. O'Sullivan and Condit (1998, 35) posit that hillforts were primarily meant to be seen from a distance by the local community as well as travellers and traders. They argue that hillforts would have reminded people that they were within the boundary of a specific political territory. Hillforts were constructed, not as places which were physically passed through, but as 'beacons in the landscape' that expressed the authority and power the local community felt they possessed over the local landscape (Brown 2009). This may be seen as an attempt by the hillfort builders to exerted control over the routeway by monitoring movement through the landscape, and as such, restricting access to different resources. This is important, considering that the Bronze Age is often thought to have seen a dramatic increase in the exploitation of natural resources, competition over trade routes and intensification of agricultural output (Earle 2002; Bruck and Fontijn 2013). The construction of many hillforts in Ireland may have been connected to this control of resources and movement across the landscape.

9.2.1 The Shannon estuary

Formoyle Beg (No: 44), Co. Clare, is a large bivallate hillfort, overlooking a prominent river valley defined by the Slieve Bearnagh mountains (Fig. 9.5). Targeted excavation has dated the construction of this monument to the Late Bronze Age *c.* 1200–1000 BC (O'Brien 2013b). Both enclosing elements comprise a low-earthen bank and shallow ditch with evidence for a wooden fence/palisade, and take advantage of natural terraces that exaggerate the size of the enclosing elements from the exterior. Considering the slight defences, it may be better to view this monument as a symbol of power to be viewed from a distance, rather than a distinctly defensive structure. In this respect, the light wooden fencing at Formoyle Beg could have augmented the visibility of the site, making the hillfort more impressive and significantly more visible in the landscape. These fences may also have had a practical element, keeping livestock protected and corralled.

The importance of visibility is highlighted by the viewshed analysis (Fig. 9.6). Significantly, the hillfort is highly visible from the river valley to the immediate north and east, and is one of the most visible topographical features from the valley floor. The latter forms a

Fig. 9.5: The Shannon Estuary with local hillforts highlighted.

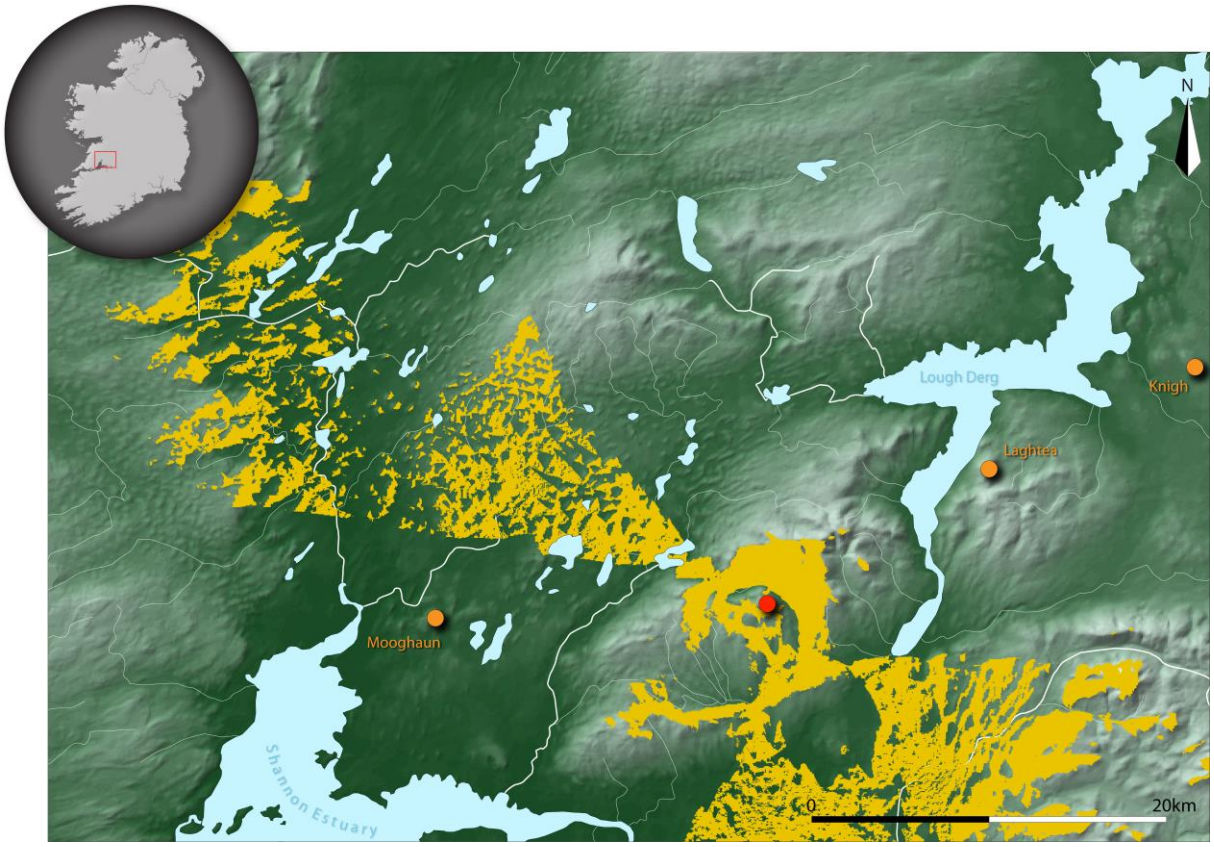

Fig. 9.6: Viewshed analysis of Formoyle Beg. Note the comprehensive views of the natural routeway connecting the Shannon Estuary valley with the southern fording point at Lough Derg.

natural routeway through the Slieve Bernagh Mountains which, together with Lough Derg to the east and the Slieve Aught Mountains to the north, forms a physical barrier to the Irish midlands. The eastern terminal of the valley is adjacent to the southernmost fording point of Lough Derg (Killaloe), providing the most accessible point at which to cross this large natural barrier. This routeway was likely to have been strategically and economically important, providing access the resources of Lough Derg and the Shannon estuary, as well as controlling the movement of people and trade in the region. The valley itself may have acted as a trade route during the Late Bronze Age, which may be connected to the construction of the hillfort.

The importance of the Killaloe ford is attested to at beginning of the Bronze Age, when a flat axehead was deposited here. Its importance increased over time, as revealed by the deposition of three Middle Bronze Age spearheads, a Middle Bronze Age dirk and two rapiers, as well as a Late Bronze Age leaf-shaped lunate spearhead, a class four sword and a double edged sickle (Bourke 2001). Condit and O'Sullivan (1999, 37) have suggested that the weapon deposits at Killaloe highlights the importance of warrior identity to the emerging communities of the region. Leonard (2014, 128) further argues that these deposits were expressions of warrior identity tied to a particular location and could be seen as symbols of ancestral entitlement to the resources of that region.

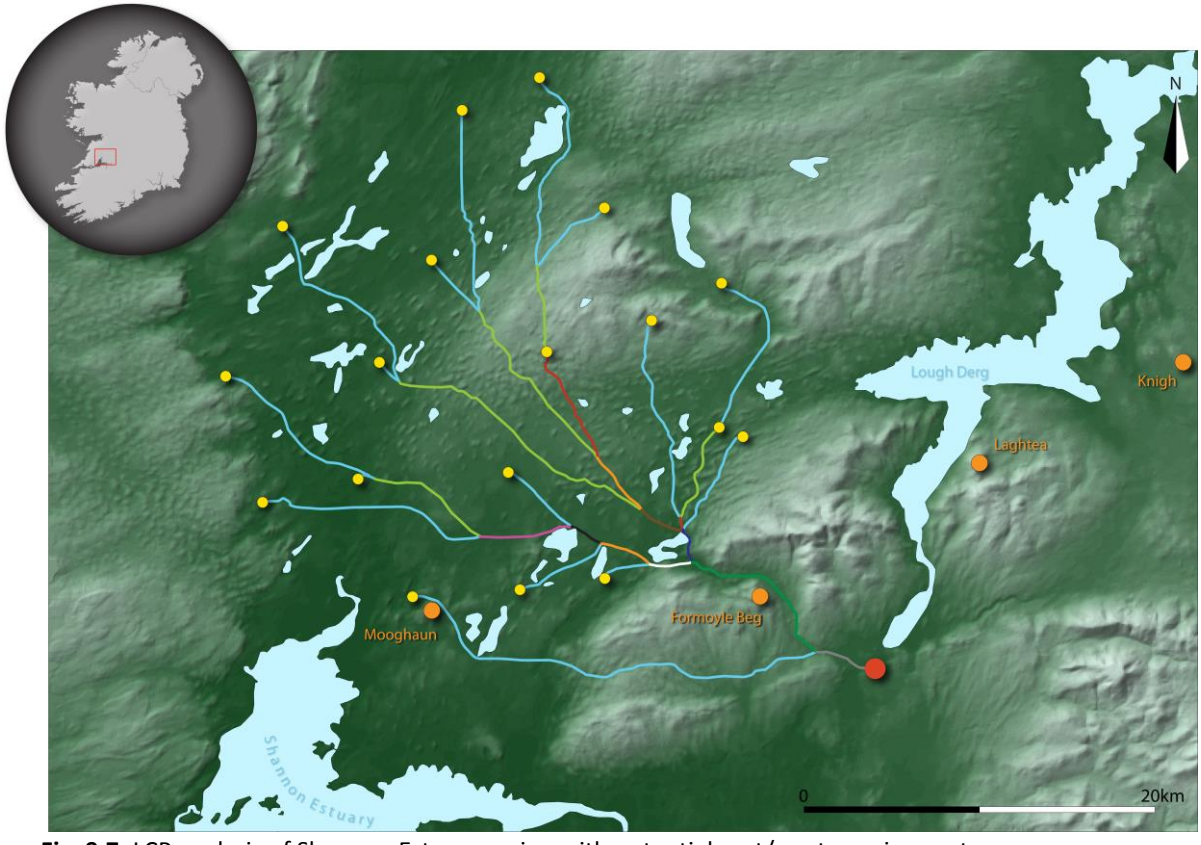

Fig. 9.7: LCP analysis of Shannon Estuary region with potential east/west running routeways.

Least-Cost-Path (LCP) analysis highlights the importance of this river valley as a potential prehistoric trade-route (Fig. 9.7). Eighteen arbitrary start points were located to the west of Lough Derg and a single destination point was positioned at the southernmost fording point of the lake. Topography was chosen as the main cost factor for this analysis. Although this does not take into account other potential areas of cost such as forests and rivers or cultural and social boundaries, the analysis is still useful. The LCP demonstrates that the majority of the points (17 of the 18) traverse the river valley overlooked by Formoyle Beg (No: 44), indicating that this is statistically the easiest route to the east. The viewshed and LCP analysis indicate that Formoyle Beg hillfort was positioned to take advantage of a significant natural routeway linking the western areas of Lough Derg to the eastern midlands.

To the west of Formoyle Beg (No: 44), the large trivallate hillfort at Mooghaun (No: 85) dominates the lakeland zone to the north of the Shannon estuary (Fig. 9.5). Similar to Formoyle Beg, the banks at Mooghaun largely follow the contours of the hill, taking advantage of the natural slopes to make the enclosing elements seem larger from the exterior. The large rubble limestone banks would have added to the contrast created by the clearance of vegetation from this hilltop. The northern extremity of the Shannon estuary is particularly visible from the hilltop, suggesting that Mooghaun may have been constructed primarily to control access to this important strategic and economic location (Fig. 9.8). Waddell (1998, 269) has observed that Mooghaun seems to be located in respect to a natural routeway extending from the Fergus and Shannon estuaries to the eastern terminal of the Broadford river valley which is dominated by the aforementioned hillfort at Formoyle Beg. Interestingly, Formoyle Beg and Mooghaun hillforts are broadly contemporary, dating to approximately 1250–900 BC. An undated dugout canoe was found in Clenagh townland which is positioned near the end of an overland routeway running roughly north-south past Mooghaun to an inland fording point over the Ardsollus River (Grogan 2005b, 45; Leonard 2014, 128). This clearly indicates riverine travel was taking place in the immediate vicinity.

LCP analysis, with the same start and destination points and cost criteria as Formoyle Beg (No: 44) of this north-south running natural routeway indicates that statistically the easiest route (14 of 18 points) from north to south extends through areas close to, or visible from, Mooghaun (No: 85) hillfort (Fig. 9.9). More significantly, a topographical bottle-neck formed by the southern edge of the Slieve Bernagh Mountains and the Shannon estuary, in which 14 of the 18 arbitrary start points travel through, is highly visible from Mooghaun. It is clear from the concentration of Late Bronze Age weapon deposits in the Shannon River, and a concentration of

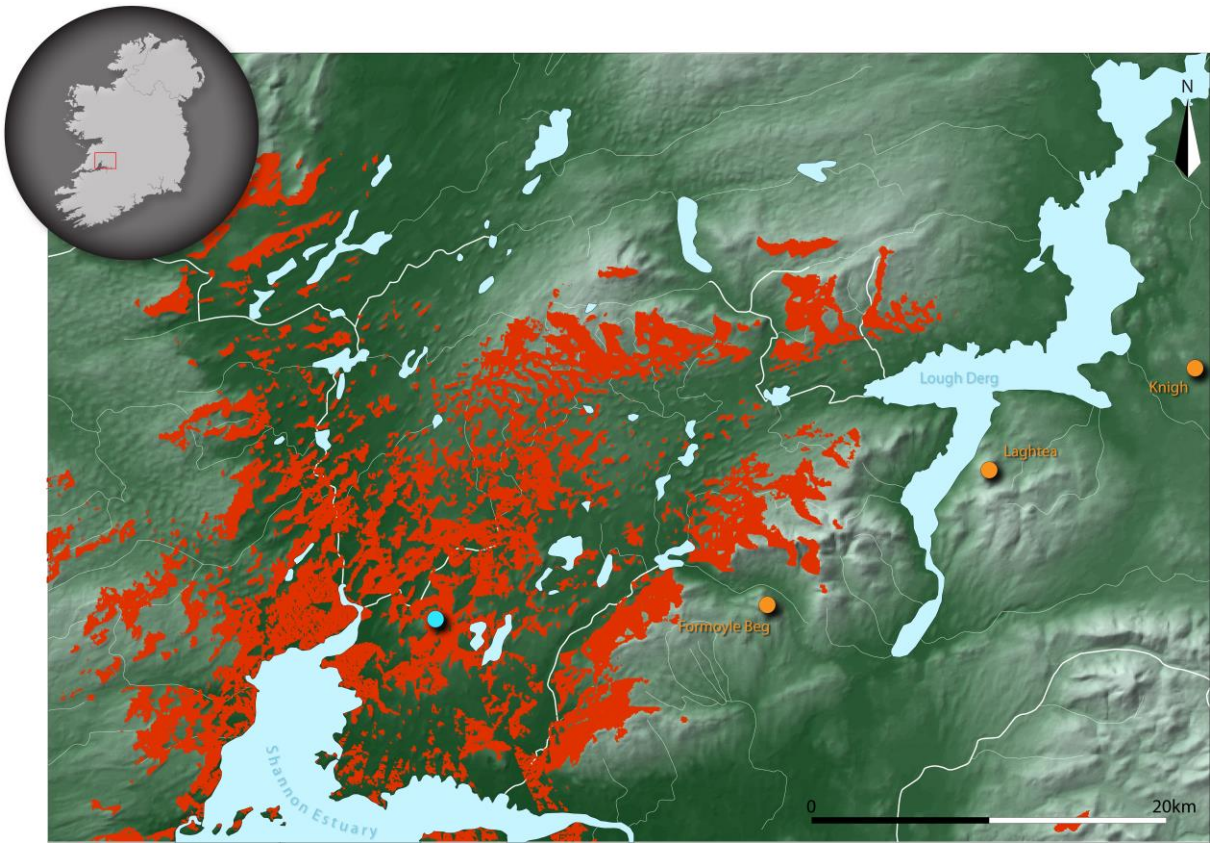

Fig. 9.8: Viewshed analysis of Mooghaun. Note the comprehensive views of the Shannon Estuary.

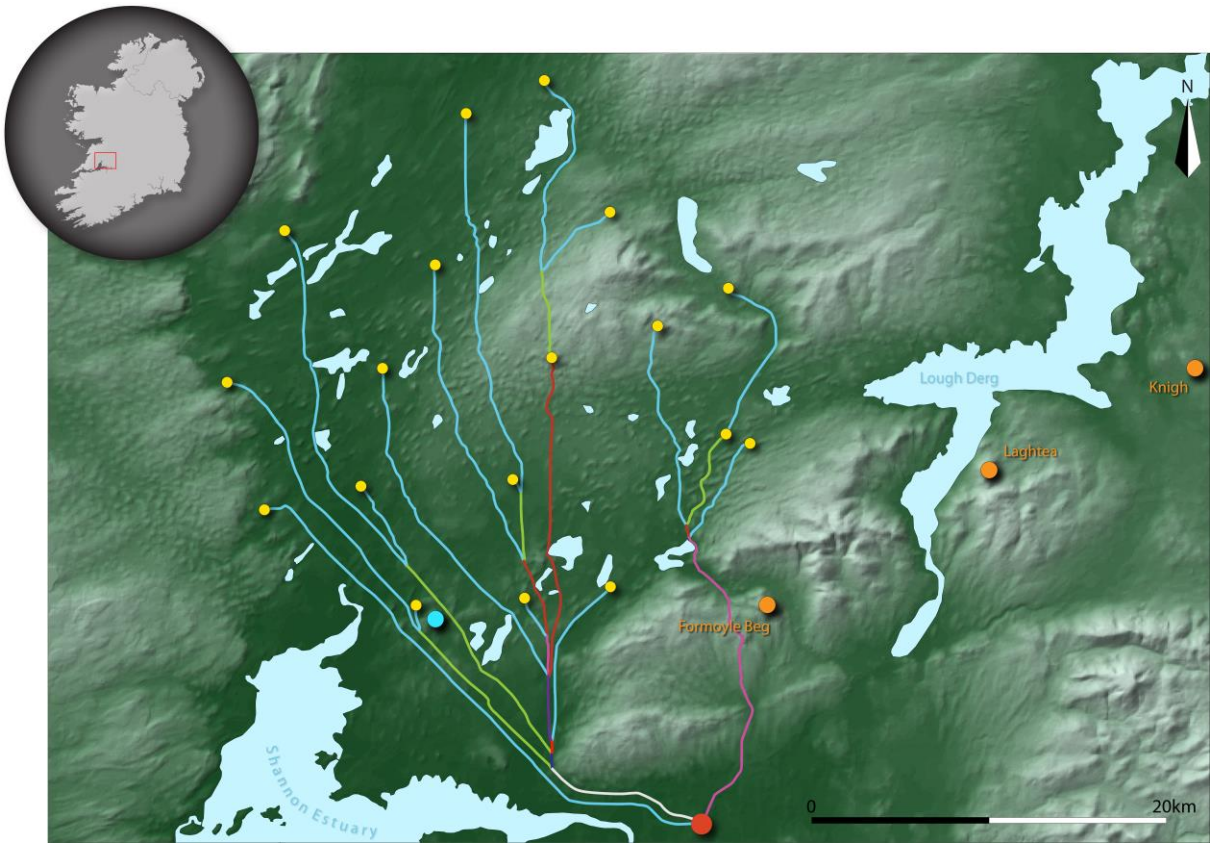

Fig. 9.9: LCP analysis of Shannon Estuary region with potential north–south running routeways.

amber beads near this river and its tributaries (Feeney-Johnson 2012, 93), that this navigable river was a major focus for prehistoric trade. Interestingly, the undated univallate hillfort at Laghtea (No: 75), Co. Tipperary, dominates Lough Derg and is located to overlook its southern opening and fording point. At this fording point, two Late Bronze Age swords (Class 4 and Class 5) were recovered, further attesting to the significance of this junction. Cunliffe (2008, 360) and Waddell (1998, 244) have noted the unusually large number of Late Bronze Age gold artefacts found in the immediate region of Mooghaun, and have linked this with the hillfort, suggesting it may have formed a focal site in an elite system. There is little doubt that this concentration of gold artefacts reflects an area of importance and wealth. Eogan (1995, 134), however, stresses that the absence of foreign gold object types in the area 'prohibit us from considering North Munster as an Atlantic emporium or trading centre', and instead suggests that the distribution of 'lock-rings' infers land connections eastward. This interpretation does not consider the large number of amber beads in the area.

9.2.2 The Dingle Peninsula

Glanbane (No: 45) hillfort in Co. Kerry is situated on the eastern edge of the Slieve Mish Mountains (Fig. 9.10). Immediately to the east, the Mullaghareirk Mountains border a broad

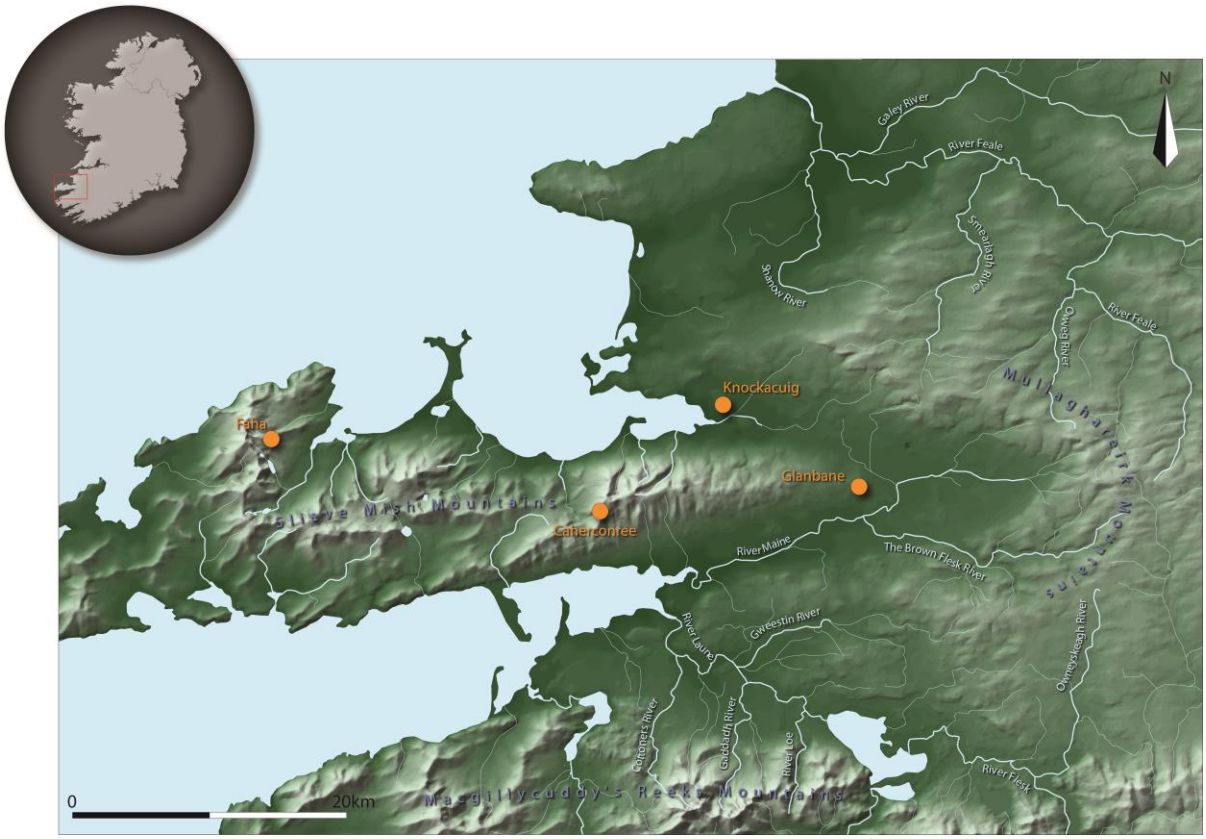

Fig. 9.10: The Dingle Peninsula with local hillforts highlighted.

valley overlooked by the hillfort. Targeted excavation of its defences have dated its construction to the Late Bronze Age *c.* 1150–900. While the banks of the enclosing elements were unimpressive in size, large stone from the lower ditch fills indicate that the outer edge of the banks were reveted, making them more visible in the surrounding landscape. The substantial rock-cut ditches were probably not visible from the low-lying land below the hilltop (Fig. 9.11). However, the northern to eastern defences of the hillfort are positioned on sloping ground, which may have enhanced their visibility, particularly from the routeway. Geophysical survey of Glanbane has produced evidence for internal structures and two substantial enclosures at its centre (Fig. 9.12; Fig. 9.13). Large, individual post-holes comprising a structure over 45m in diameter crowns the highest point of the hillfort and this seemingly truncates a 55m earthen

Fig. 9.11: Rock-cut ditch of inner enclosing element at Glanbane hillfort in Co. Kerry.

Fig. 9.12: Gradiometry survey results at Glanbane hillfort, Co. Kerry.

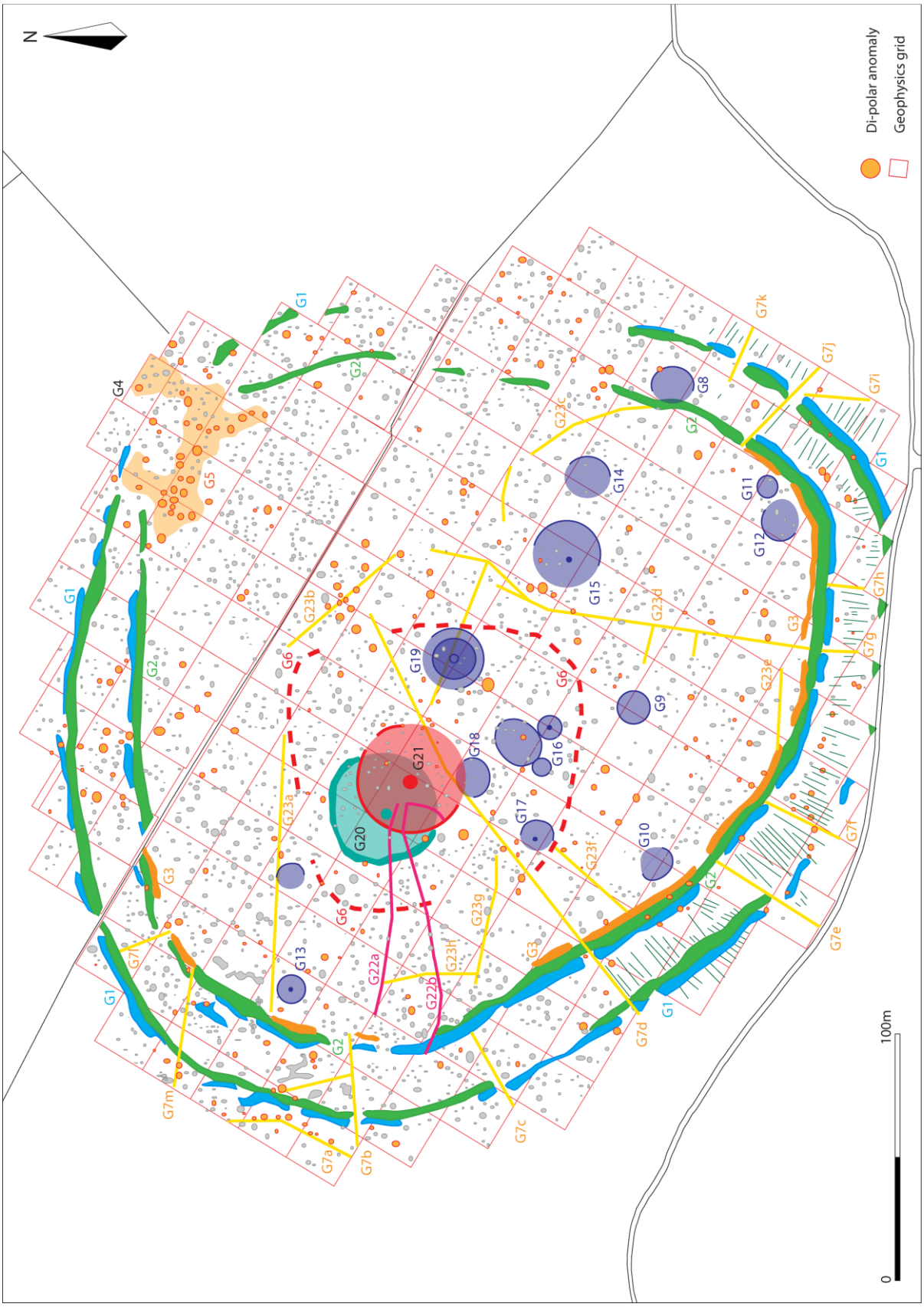

Fig. 9.13: Gradiometry survey interpretation at Glanbane, Co. Kerry.

enclosure. Both features would have contributed to a significant, highly visible, topographical marker.

The dominant views from Glanbane (No: 45) are of the natural passage connecting Tralee Bay with Dingle Bay to the south (Fig. 9.14). LCP analysis confirms the statistical presence of this routeway (Fig. 9.15). Five arbitrary start points were positioned to the north of Tralee Bay and a single destination point was placed in the south-east. The LCP analysis indicates the easiest topographical route (5 of the 5 points) is through this valley. Geophysical survey has identified the entrance of the fort on northern sloping ground. The positioning of this entrance may infer a greater need to project status and visibility in the Tralee Bay area. Cumulative viewshed analysis has identified that Glanbane hillfort sits on the edge of an area of land that is highly visible from both the generated LCP pathway and within the valley in general. Sitting at the edge of this high/low visibility area would help to further contrast the hillfort and the surrounding landscape.

Knockanacuig (No: 66), a bivallate hillfort 7.21ha in maximum size, is positioned on a slight rise overlooking Tralee Bay 1.6km to the west. Viewshed analysis indicates that the dominant views from Knockanacuig are of the southern inlet of Tralee Bay, suggesting that it may have been located to command a sea route (Fig. 9.16). Excavation of this monument ahead of a housing development retrieved Iron Age dates from the outer ditch of the monument (per comm. Lars Dunne); although the preliminary report indicates that there was substantial re-cutting of this feature. Without further contextual information, this cannot be securely dated to the Iron Age.

Positioned on a ridge near Brandon Mountain, on the western edge of the Slieve Mish Mountain range at 777m OD., the high altitude inland promontory fort of Faha (No: 42) is the highest recorded hillfort in Ireland or Britain. This almost inaccessible monument comprises two widely spaced drystone walls that defend the eastern edge of a ridge. Viewshed analysis highlights that the hillfort may have been positioned to afford maximum views of Tralee Bay (Fig. 9.17). However, the hillfort is located in a mountainous region which would have diminished its visibility when viewed from Tralee Bay.

Approximately 25km to the east of Faha, another high altitude inland promontory fort at Caherconree (No: 16) is positioned in the heart of the Slieve Mish Mountains. The hillfort is situated on the edge of a west facing mountain ridge at 659m OD. The site comprises a substantial drystone wall which curves in an east-west direction for approximately 110m. A

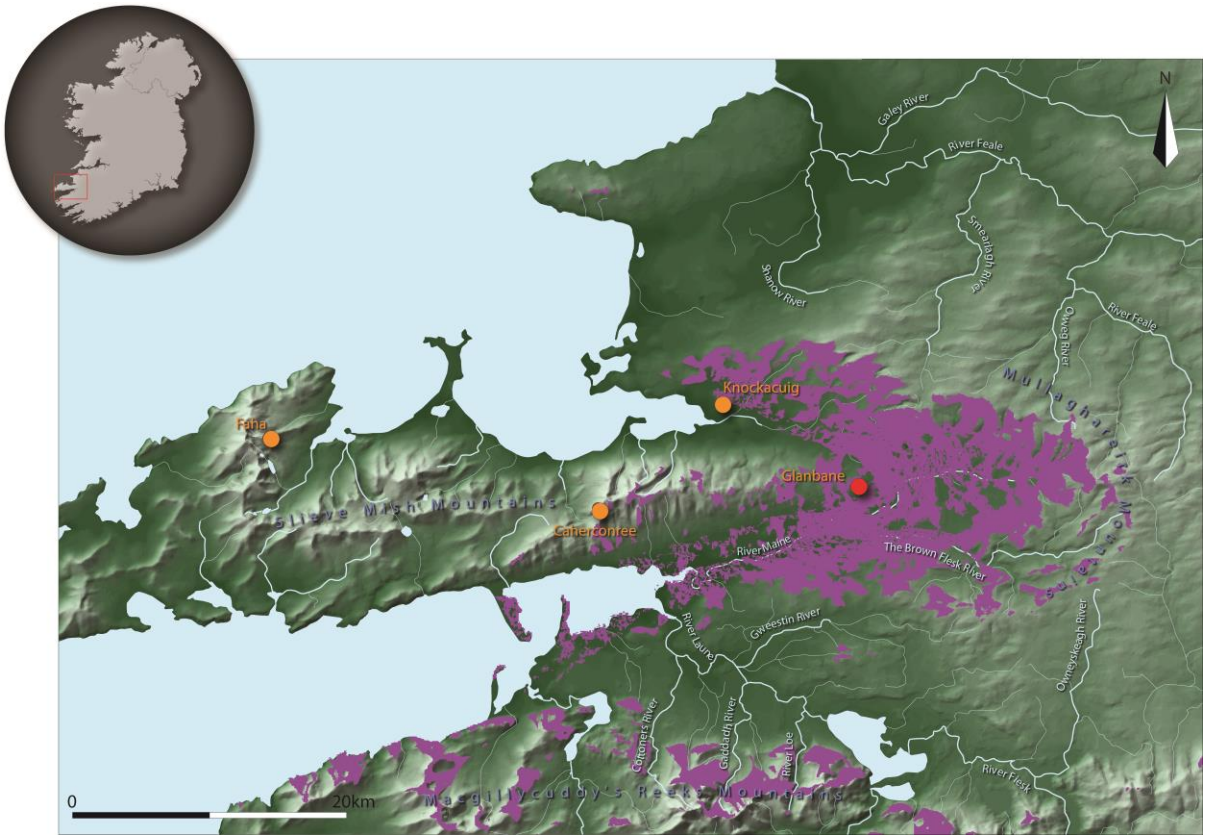

Fig. 9.14: Viewshed analysis of Glanbane hillfort.

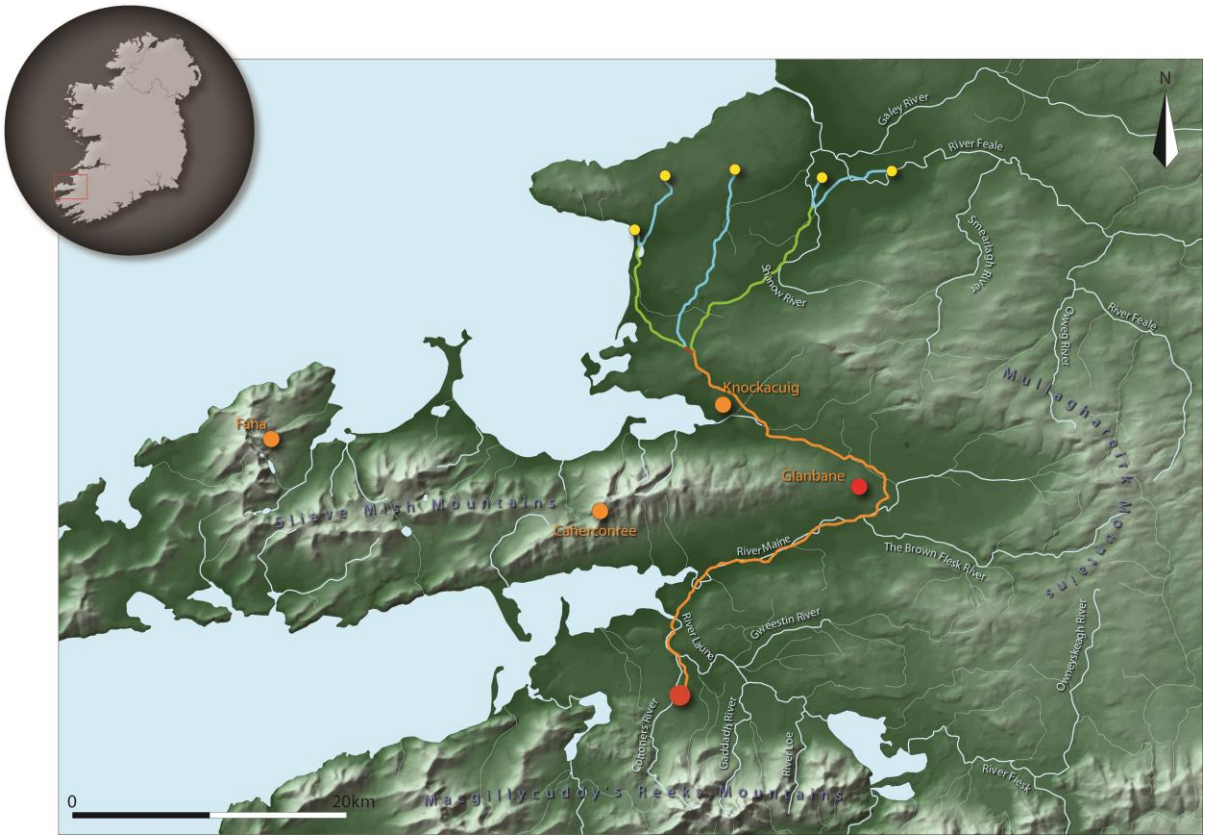

Fig. 9.15: LCP analysis of Dingle Peninsula with potential north/south running routeways.

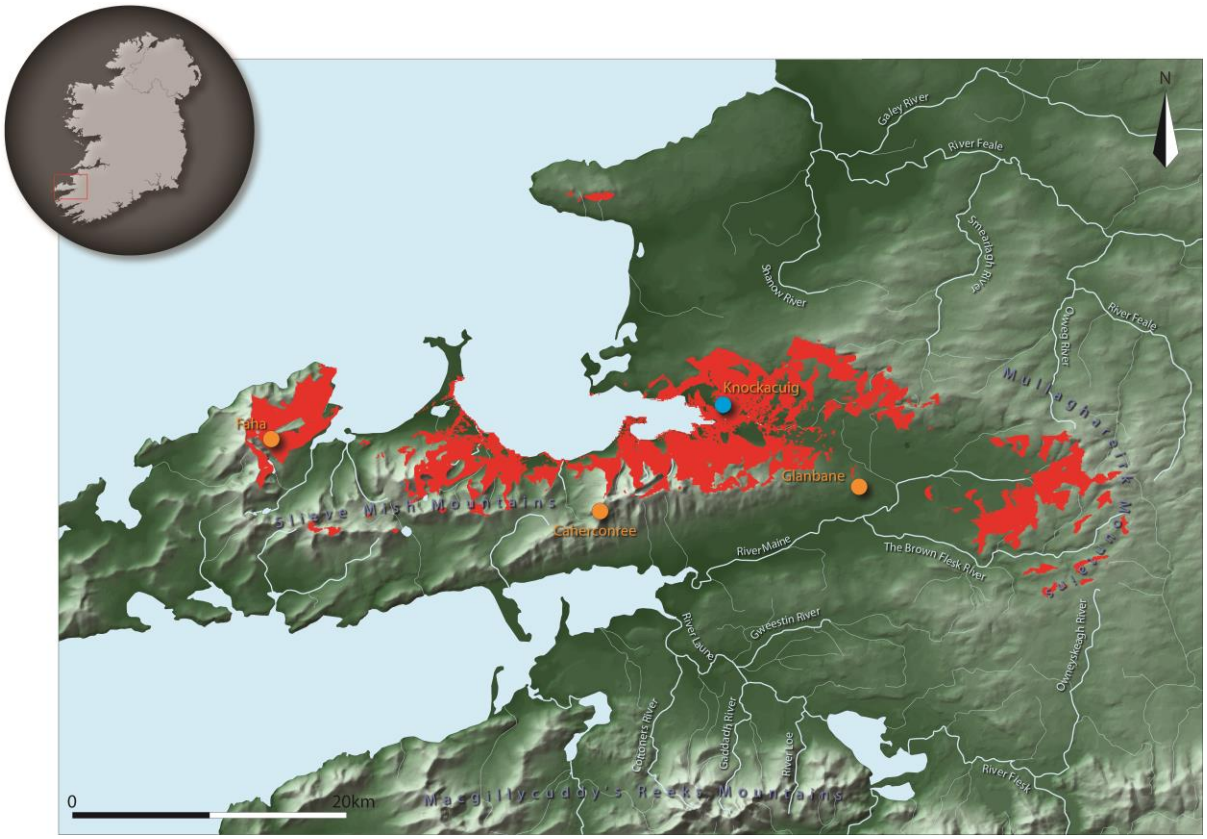

Fig. 9.16: Viewshed analysis of Knockacuig hillfort in Co. Kerry.

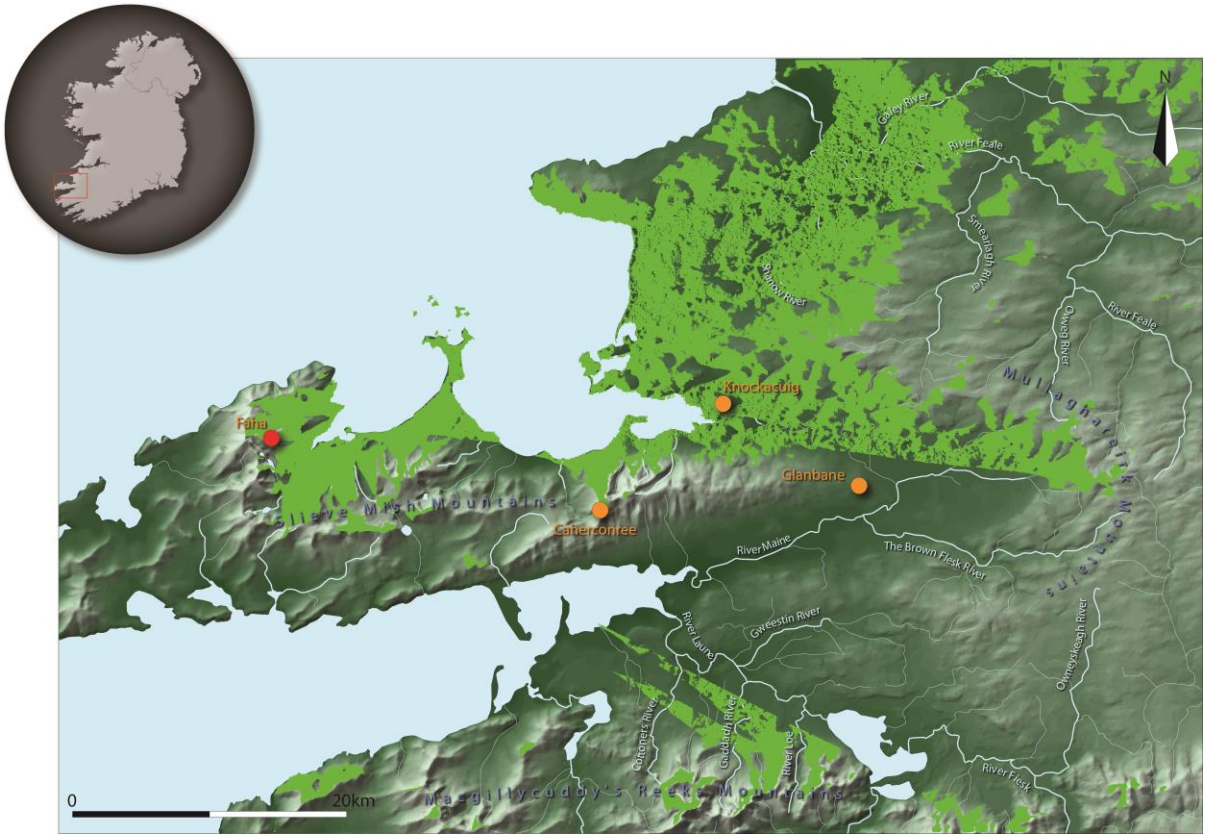

Fig. 9.17: Viewshed analysis of Faha hillfort in Co. Kerry.

number of D-shaped structures are apparent abutting both the internal and external face of the inner wall. No other features are visible within the interior, although deep blanket bog, up to 80cm in depth, may be overlying more extensive settlement evidence. The site itself is regarded in Early Medieval mythology as the fort of Cu Roi, one of the main antagonists to Cú Chulaind in the Ulster Cycle. The dominant views from Caherconree are of Dingle Bay, but a large proportion of Tralee Bay is also visible (Fig. 9.18). The visibility of the monument is enhanced by the distinctive promontory the site is built on, which contrasts sharply with the natural landscape, creating what Smith (1756, 156) described as 'a beacon' in the landscape. This locational setting was a contributing factor in the placement of the hillfort, particular considering the monument is immediately overlooked to the north-east by the mountaintop also known as Caherconree. This setting leaves the site vulnerable, although one could consider the inaccessible location of the fort itself highly defensive. The location of Caherconree may be related to a need to be highly visible in the natural landscape, to have extensive views of both northern and southern sea-routes, and to appear monumentally defensive.

Although these hillforts may not have been in contemporary use, the evidence suggests that the Dingle peninsula was an area of importance, particularly with regard to trade and the movement of goods and people. The four recorded hillforts were located in strategically

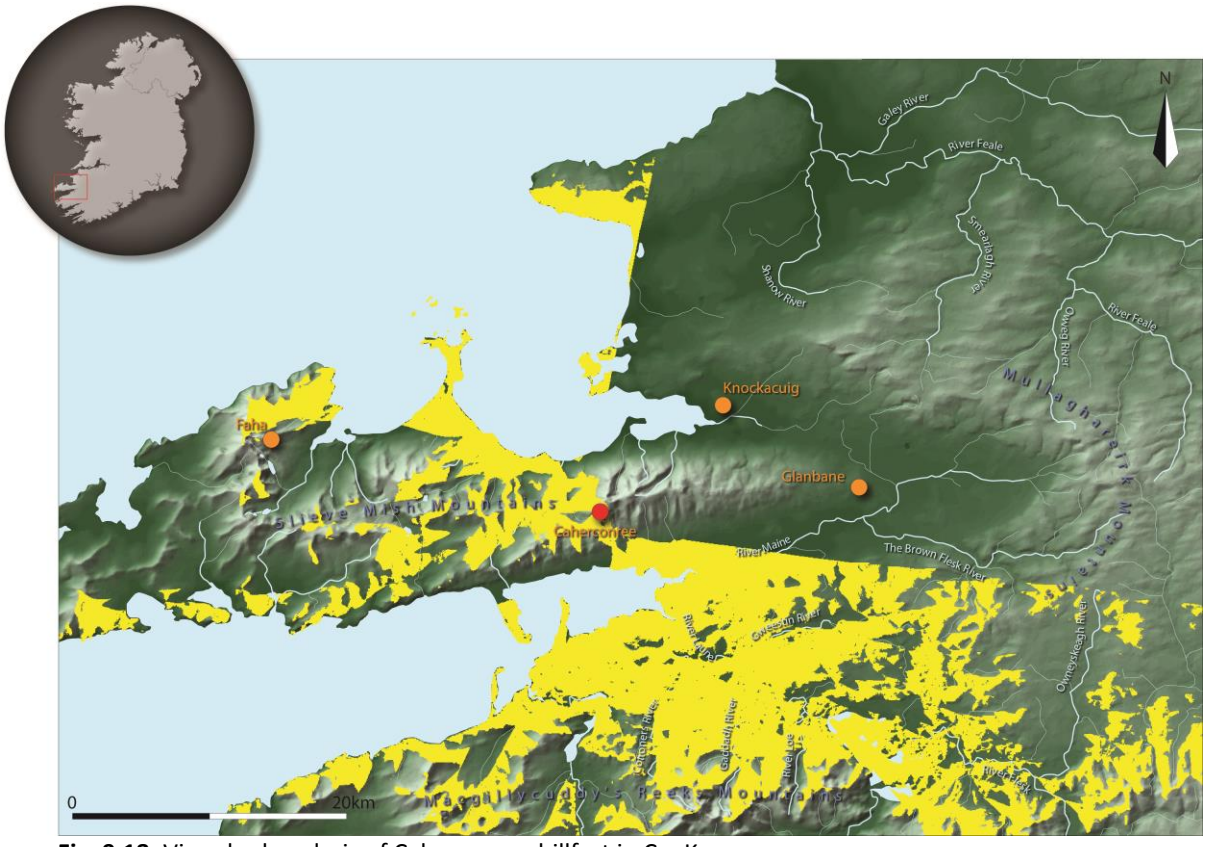

Fig. 9.18: Viewshed analysis of Caherconree hillfort in Co. Kerry.

significant locations in the landscape, overlooking important natural routeways. The control of movement and trade and the display of monumental structures in an attempt to assert authority over the landscape were an important elements in the location of these sites.

9.2.3 The Antrim coast

Naturally conspicuous locations in the landscape seem to have been sought to build a hillfort, as long as they adhered to other strategic and defensive needs. Knockdhu (No: 69) and Lurigethan (No: 81) hillforts in Co. Antrim are prime examples. These high altitude inland promontory forts are sited on impressive mountain spurs overlooking the eastern Antrim coastline (Fig. 9.19; Fig. 9.20). These are highly contrasting topographical landmarks which make the sites highly visible in the local landscape. A recent LiDAR survey of Knockdhu (No: 69) hillfort has identified up to 50 possible hut structures (McNeary 2012). Limited excavation has dated the construction of the hillfort to the beginning of the Late Bronze Age (Macdonald 2012). Although Lurigethan hillfort remains undated, the strong similarities to Knockdhu suggest a similar date.

Hodges (1975) had previously noted the extensive views from Knockdhu (No: 69), which overlooks the Irish Sea crossing and the western coast of Scotland. Viewshed analysis has confirmed these broad views, but has also highlighted the restricted views of the immediate landscape (Fig. 9.21). The lowlands to the immediate east are overlooked, possibly inferring this

Fig. 9.19: Location of Lurigethan hillfort, Co. Antrim.

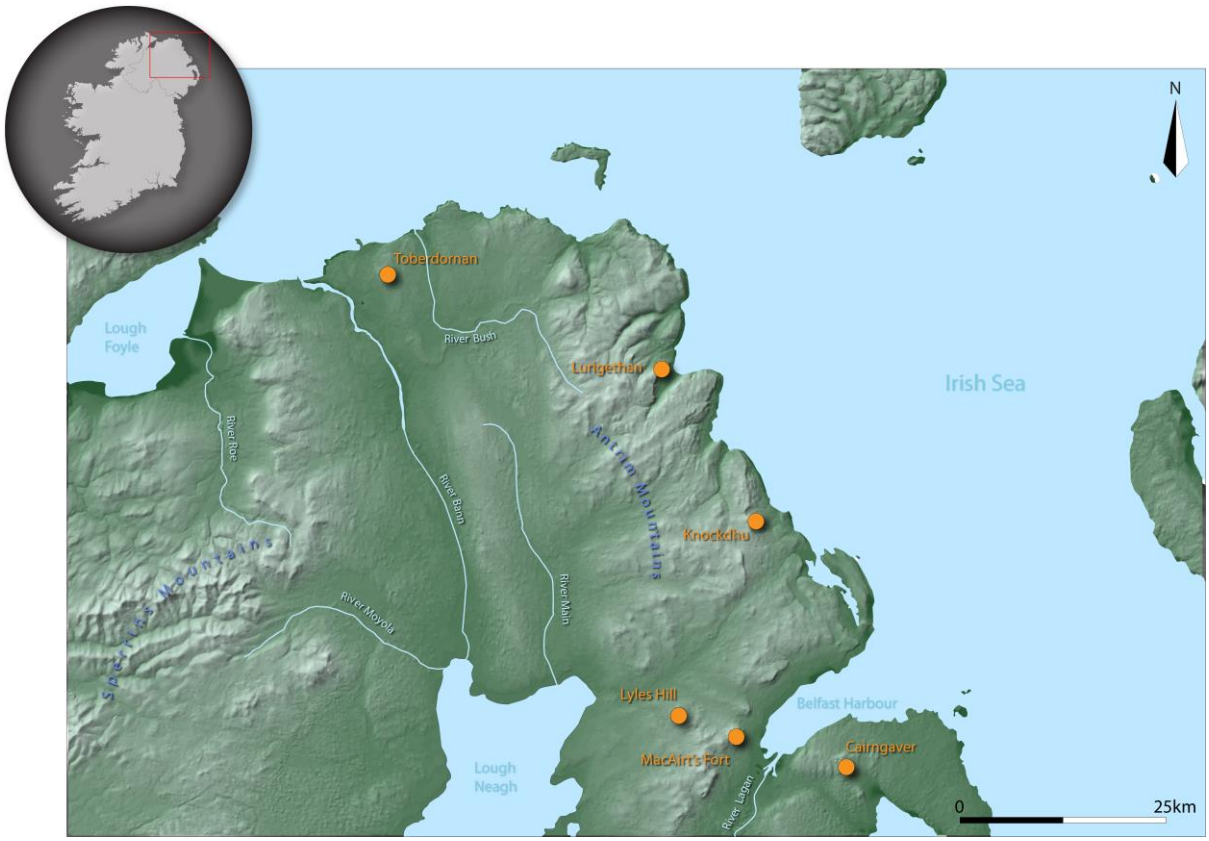

Fig. 9.20: The Antrim coast with local hillforts highlighted.

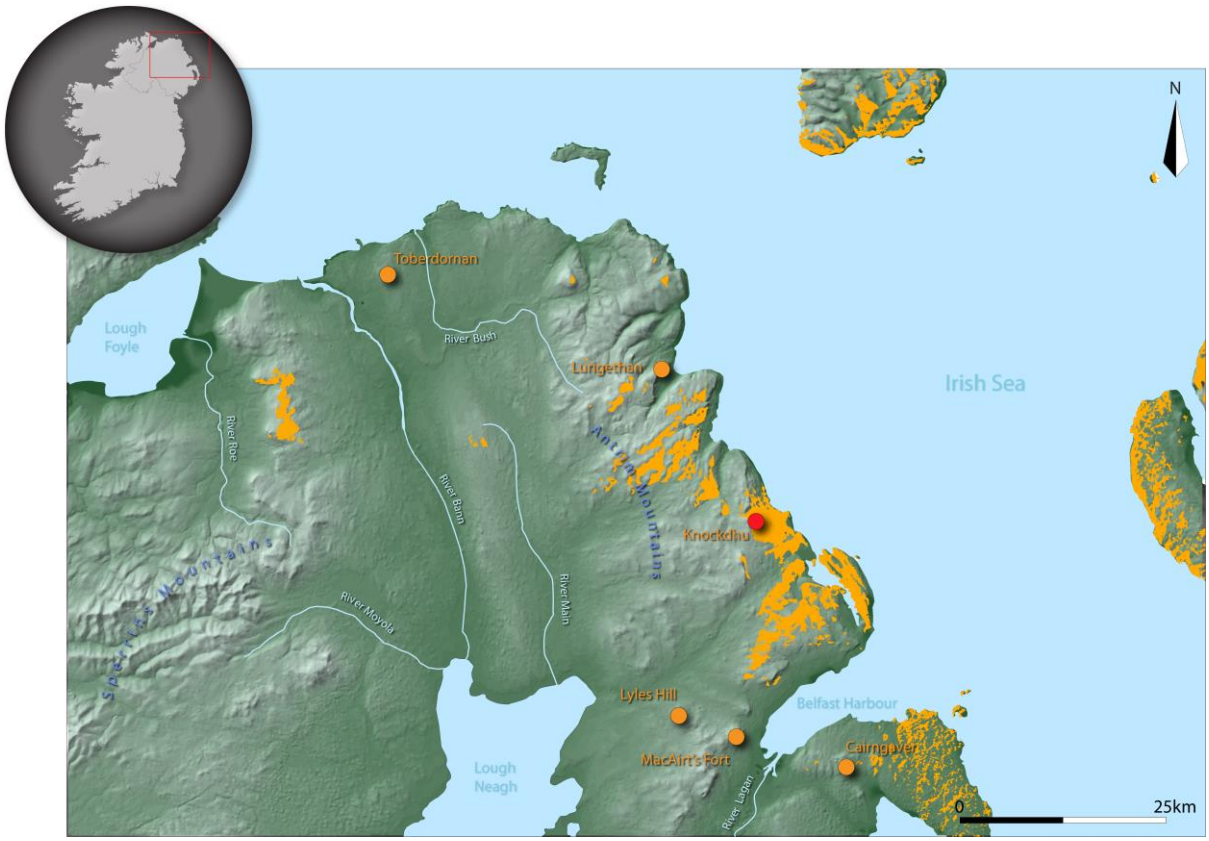

Fig. 9.21: Viewshed analysis of Knockdhu hillfort in Co. Antrim.

was as an area of settlement controlled by the hillfort builders. Views to the west and most accessible route to the site are impeded by a slight knoll which sits on slowly rising terrain. The viewshed, therefore, suggests that an unrestricted view of the Irish Sea crossing was more important than panoramic or defensive control of the land routes in the immediate environs. Hodges (1975, 19) argued that Knockdhu and other forts on the eastern coast, such as Lurigethan, may have been integral to the trading patterns of Ulster from as early as the Late Bronze Age. The extensive settlement within Knockdhu may suggest that the monument was built and occupied by a large, thriving community who controlled the sea route to Scotland.

Lurigethan (No: 81) hillfort, 22km to the north/north-west of Knockdhu (No: 69), is strikingly similar in both construction and siting. Aerial photography has revealed a number of hut structures within the fort and more may await identification. Pollen analysis of a peat core 3.6km from Lurigethan has identified an intensification of activity, culminating in a major clearance episode at 1130–850 BC. A very low level of tree pollen at this time suggests that the local area was almost entirely cleared (Weir 1993, 22). Extensive woodland clearances associated with hillforts have been noted elsewhere in Ireland during the Late Bronze Age (Plunkett *et al*. 2009, 274). Late Bronze Age field systems at Galbolly Lower and Loughnatrosk, Co. Antrim attest to the significant intensification of activity in the environs of Lurigethan and the Antrim plateau during this period. Cunliffe (2012, 257–258) states that it is difficult to resist the suggestion that the prime cause of the appropriation of land for its productive capacity was the desire to produce agricultural surpluses that could be used in part for gift exchange. Certainly, the increased surpluses created by intensive farming likely underpinned the elite class. Viewshed analysis suggests that the fort was located primarily to take advantage of the Irish-Scottish sea routes in the area, and similar to Knockdhu, views of the easily accessible western approach to the hillfort are severely restricted (Fig. 9.22). This is in contrast to the extensive views of the lowlands immediately to the north, east and south of the site, and of the Scottish coast and the Irish Sea crossing.

Knockdhu (No: 69) and Lurigethan (No: 81) are not inter-visible and share a limited composite viewshed, possibly indicating that these hillforts formed the focus of different, rival communities who competed for control of the Irish Sea crossing and the trade it facilitated. A third promontory fort, McArt's Fort, may be located to overlook both Belfast Harbour and the eastern coast of Scotland. This intensification of settlement activity in the area corresponds with an increase in trade between the Antrim coast and western Scotland, as evidenced by the northern Irish–western Scottish 'flesh-hook zone' (Needham and Bowman 2005), the heavily

Irish-influenced Glentrool phase and the appearance of Irish axe forms and Irish gold ornaments during the Ewart Park/Duddingston phase (Henderson 2007, 77). Sea and riverine travel in the Late Bronze Age were essential in consolidating local, regional and international trade and formed important trade routes. Knockdhu and Lurigethan and may have acted in a similar role to the Late Bronze Age hillfort at Dún Aonghasa (No: 40) Co. Galway, which was strategically positioned to exploit and control the maritime resources and trade routes of Galway Bay.

9.2.4 North Kilkenny

Two hillforts in Co. Kilkenny attest to the importance of controlling topographical and riverine routes during the Late Bronze Age (Fig. 9.23). Toor More (No: 36) hillfort sits on a north-south running ridge at 244m above sea-level, overlooking the town of Ballyragget to the east. The hillfort comprises two enclosing elements visible on the ground as low relief banks. Geophysical survey identified potential palisade features on the crest of the banks and this was subsequently confirmed by excavation (O'Brien 2014) (Fig. 7.11; Fig. 7.22). There is an apparent absence of internal features, identifying only one potential hut structure. Extensive views of the western lowlands and the valley of the River Nore are particularly evident from the site (Fig. 9.24). This

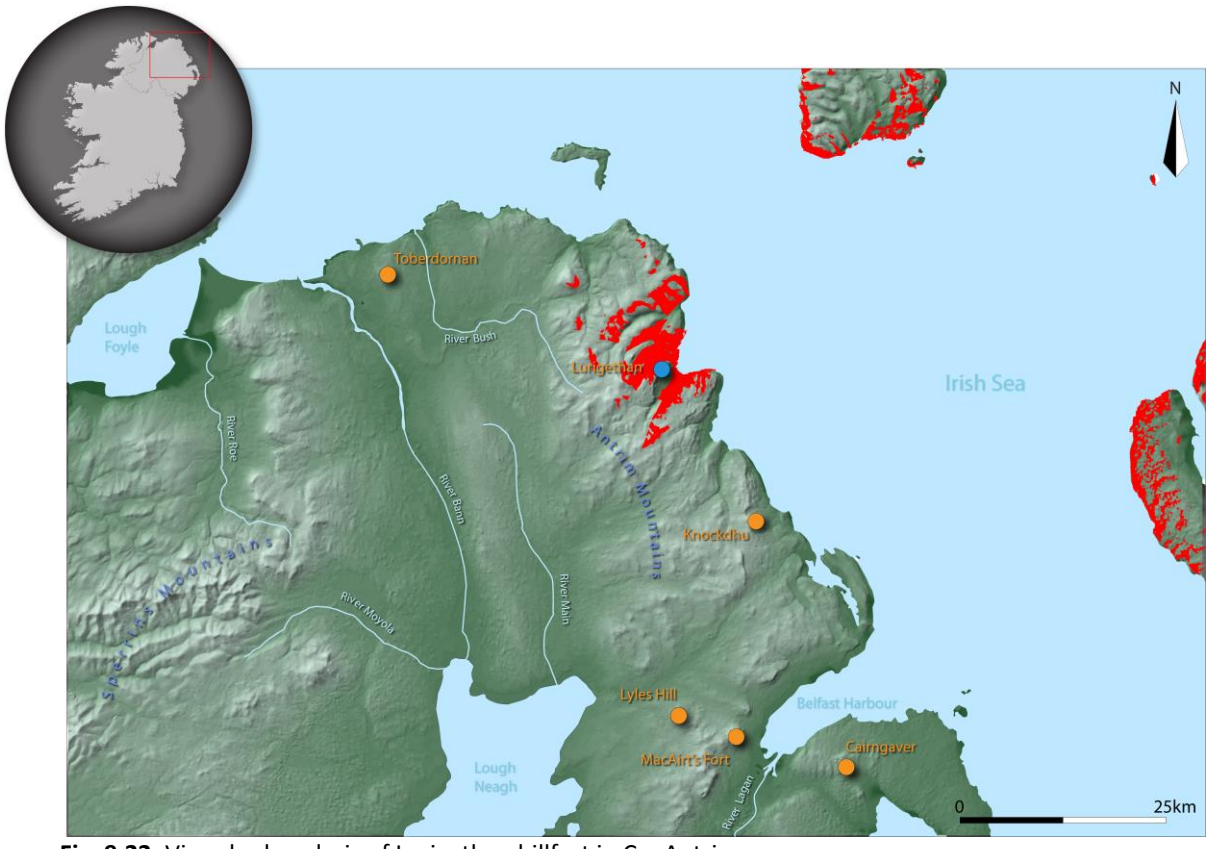

Fig. 9.22: Viewshed analysis of Lurigethan hillfort in Co. Antrim.

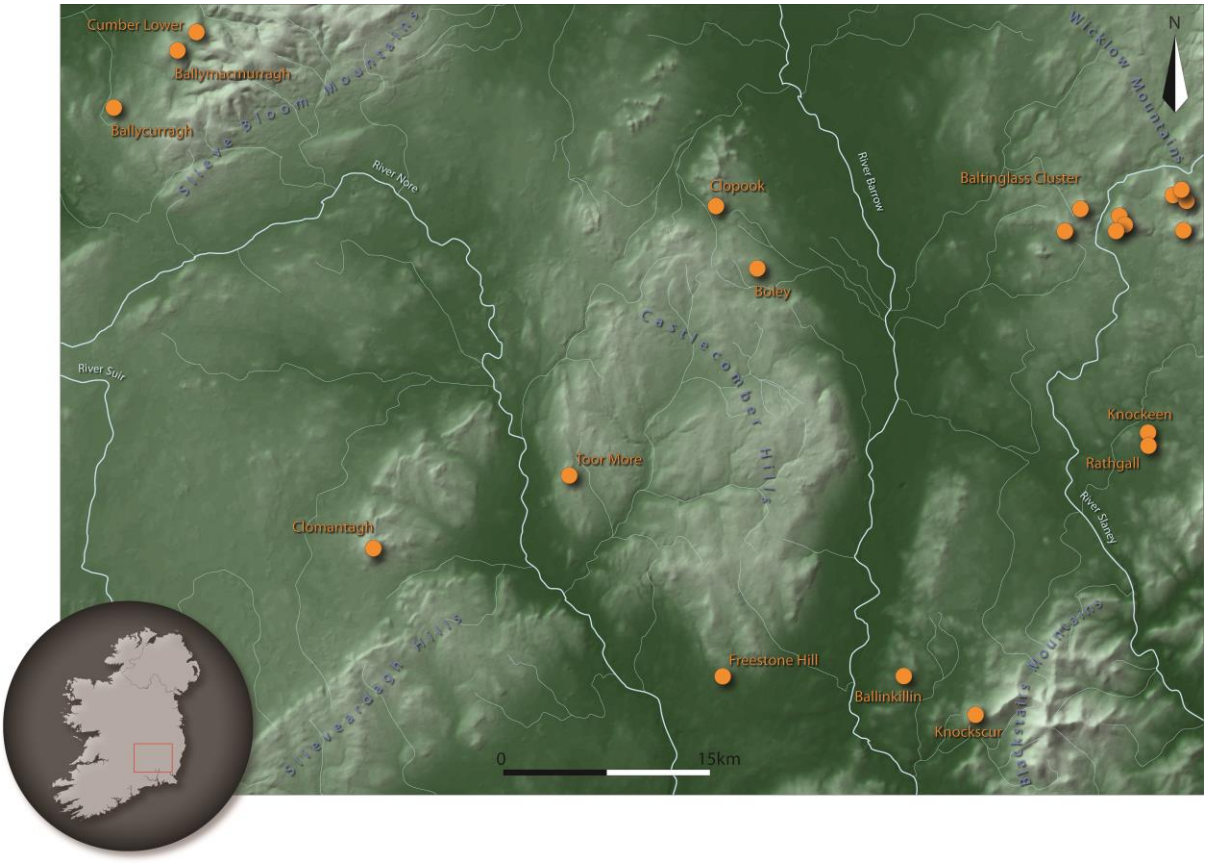

Fig. 9.23: North Kilkenny with local hillforts highlighted.

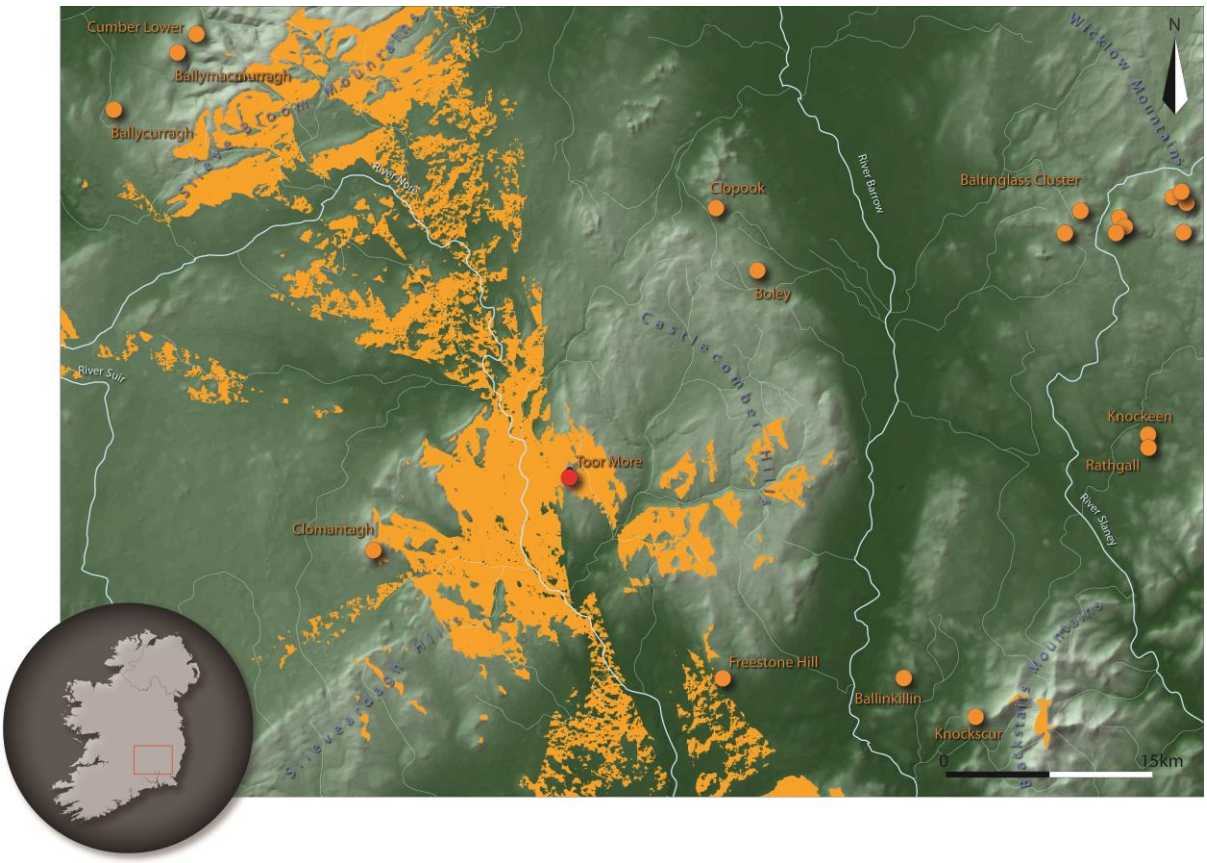

Fig. 9.24: Viewshed analysis of Toor More hillfort in Co. Kilkenny.

distinct concentration of ring-ditches in this valley may highlight the importance of this region and the River Nore in later prehistory. It may be significant that nearly all of these ring-ditches and this section of the River Nore are highly visible from Toor More. LCP analysis underlines the importance of this river valley as a land- and riverine-based routeway, connecting the Laois, Kilkenny and North Tipperary lowlands (Fig. 9.25). Travelling south from a north or western direction, eight of nine start points use the Nore valley, indicating this is statistically the easiest route to the south from the north and west. Cumulative viewshed analysis suggests that Toor More is positioned in one of two areas visible to almost all of the viewer points (Fig. 9.26). Further cumulative analysis of the LCP pathway attains similar results. The circular shape and composition of the enclosing elements, which do not follow the contours, would have contrasted with the natural setting of the hilltop, making this highly visible area at odds with the local landscape. Travelling in an east-west direction, three of the nine start points use this valley, the remaining six use the Barrow valley to the east, avoiding the central mountainous area. A significant concentration of ring-ditches surrounding the River Barrow may emphasise the importance of this river.

Clomantagh (No: 27) hillfort, a univallate site 3.25ha in size, is on the south-western edge of a mountain ridge, overlooking a gap that marks the western approach to the Nore valley.

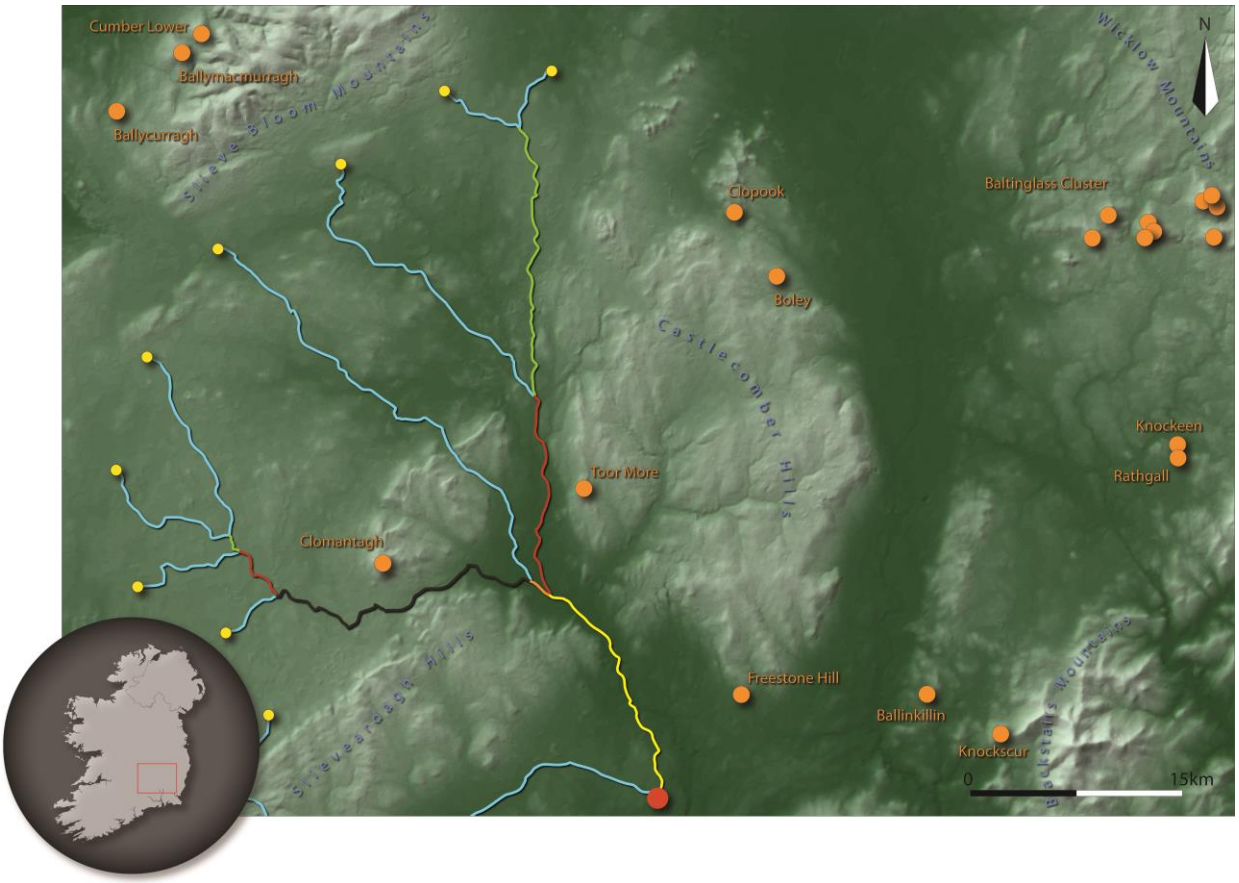

Fig. 9.25: LCP analysis of north Kilkenny with potential north/south running routeways.

The hillfort is situated at the highest point in the middle of this ridge. This is the only location on the ridge that affords extensive views of lowlands to the west. There is a concentration of up to eight ring-ditches at the mouth of this opening, emphasising the importance of this routeway. The hillfort has extensive views of this opening, as well as broad views of the western lowlands

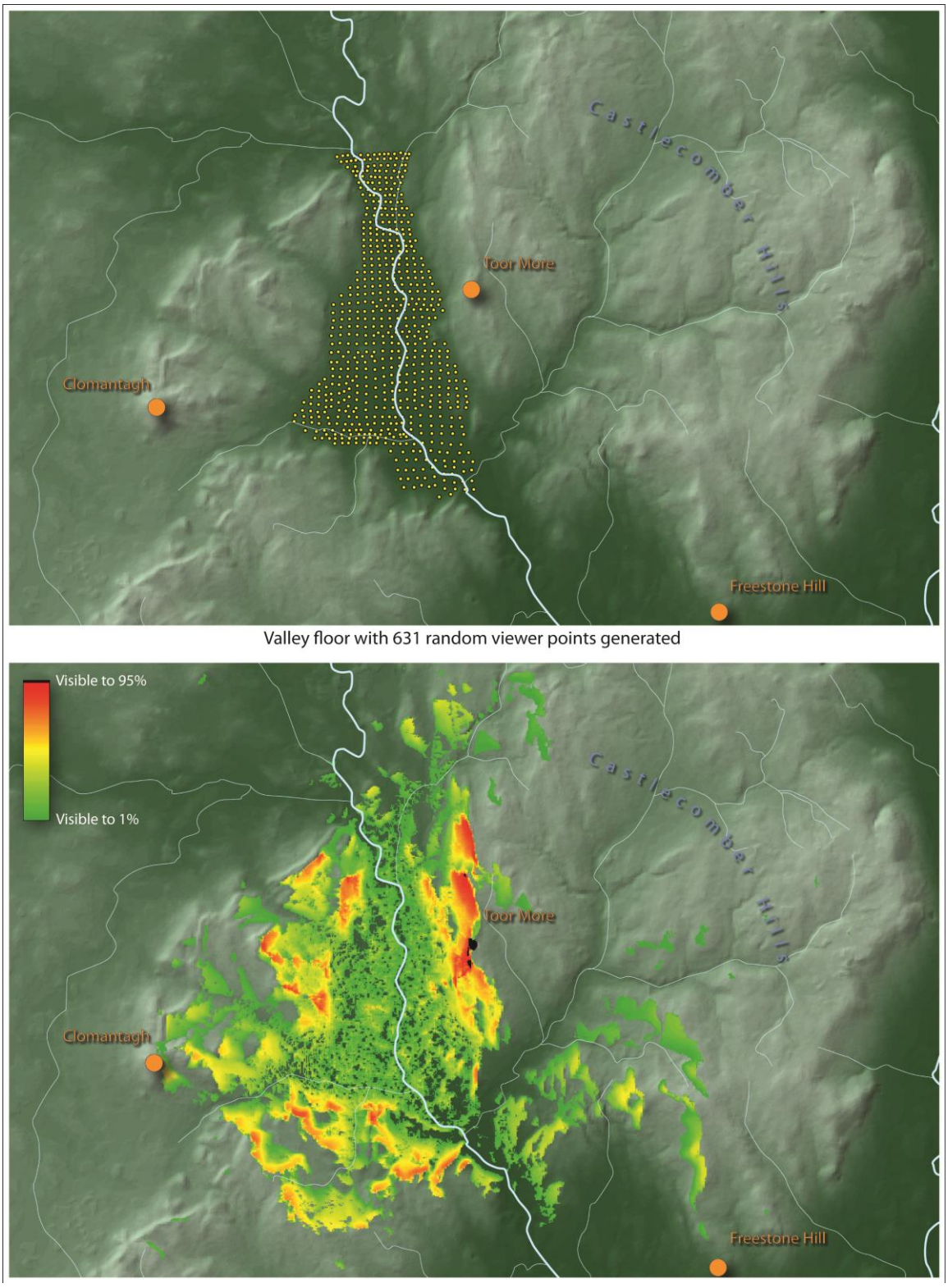

Fig. 9.26: Cumulative viewshed results of north Kilkenny region. Note one of only two areas visible to over 95% of the viewpoints is Toor More.

(Fig. 9.27). Interestingly, Clomantagh Hill translates as 'Hill of the Gapped Stone' (logainm.ie), possibly hinting at an ancient association between the hilltop and natural routeway.

The hillfort on Freestone Hill (No: 45) is positioned to control access to the southern openings to both the Nore and Barrow river valleys. Ó Floinn (2000, 15) notes that the hillfort overlooks 'The Pass of Gowran', which formed the principal routeway from Laigen (Leinster) into the buffer state of Osraige (between Leinster and Munster) during the Early Medieval period. Byrne (1973, 169) also notes the importance of this route, suggesting that access to Munster was restricted, the normal path from Leinster being guarded by the prehistoric hillfort of Freestone Hill. Evidence of long-distance trade is evident in the LMHK glass beads found at the hillfort (Raftery 1969). Scientific analysis of these beads suggests long-distance exchange between this site and LMHK production centres in northern Italy and Switzerland.

9.2.5 West Limerick

Recent excavation confirms that Ballylin hillfort in Co. Limerick dates to the beginning of the Late Bronze Age around 1300–1000 BC (O'Brien 2013c). It is strategically situated to visually dominate an expanse of low-lying terrain and the navigable Deel River to the east (Fig. 9.28). It is

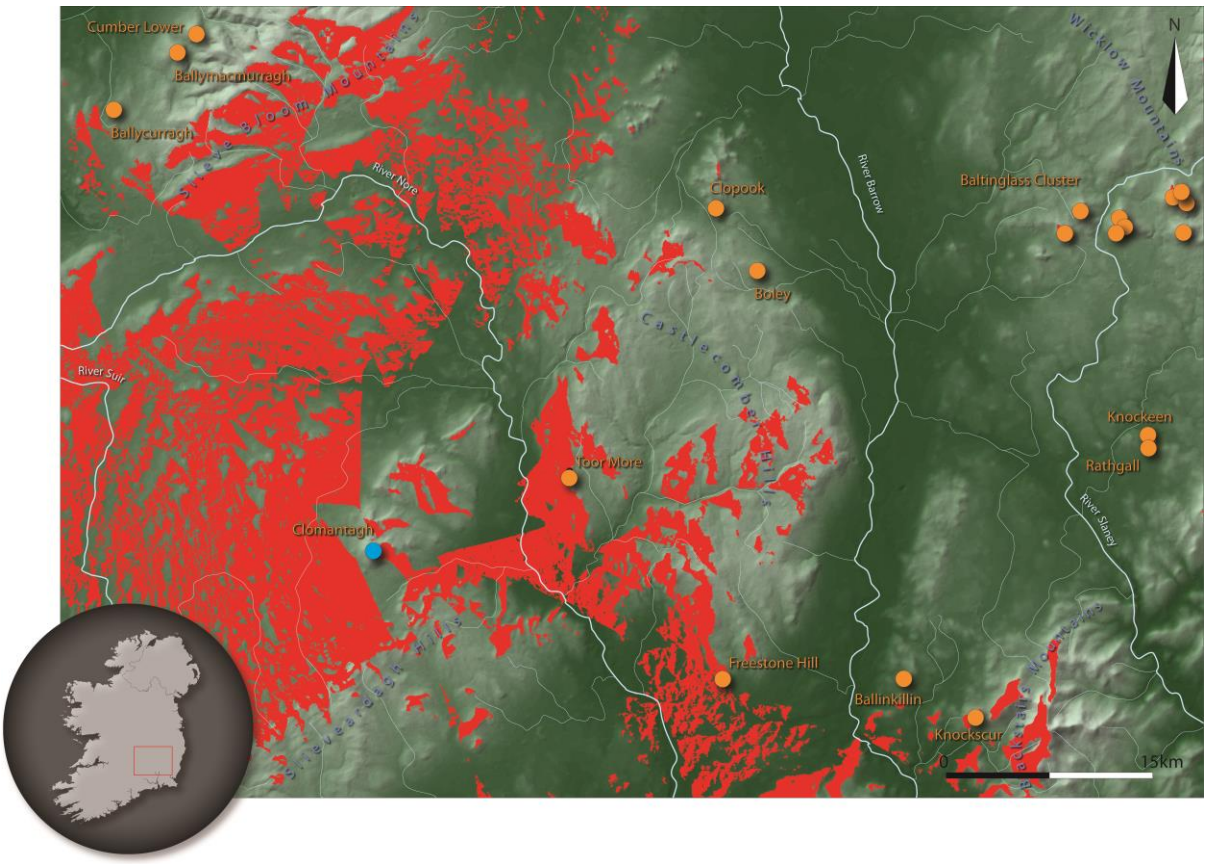

Fig. 9.27: Viewshed analysis of Clomantagh hillfort in Co. Kilkenny.

positioned at the summit of a hillspur projecting from a roughly north–south escarpment. This escarpment is an impressive topographical landmark that is visible from a considerable distance.

Visibility analysis has revealed Ballylin (No: 9) hillfort has a comprehensive viewshed of this low-lying landscape, as well as good views of the Shannon Estuary to the north (Fig. 9.29). Interestingly, visibility of the escarpment and the landscapes to the west are poor, inferring Ballylin was not located to take advantage of these areas. This is particularly important considering Bell and Lock's (2000) interpretation of the hillforts of the Ridgeway in England. They argue that the hillforts are positioned to take advantage of the movement of people and goods on the escarpment and have suggested that travel in this area took place on the escarpment rather than in the low-lying terrain the hillforts overlooked. In contrast, Ballylin seems to be deliberately positioned to overlook low-lying terrain to the east. The cumulative visibility analysis supports this assumption (Fig. 9.30). Approximately 1578 randomly positioned viewer points were generated in the eastern landscape. The results reveal that Ballylin is only one of two areas visible from 98% of these viewer points. This is statistically one of the most prominent points in the landscape. It also confirms that this escarpment is a major landscape feature, highly visible from all areas in the low-lying region.

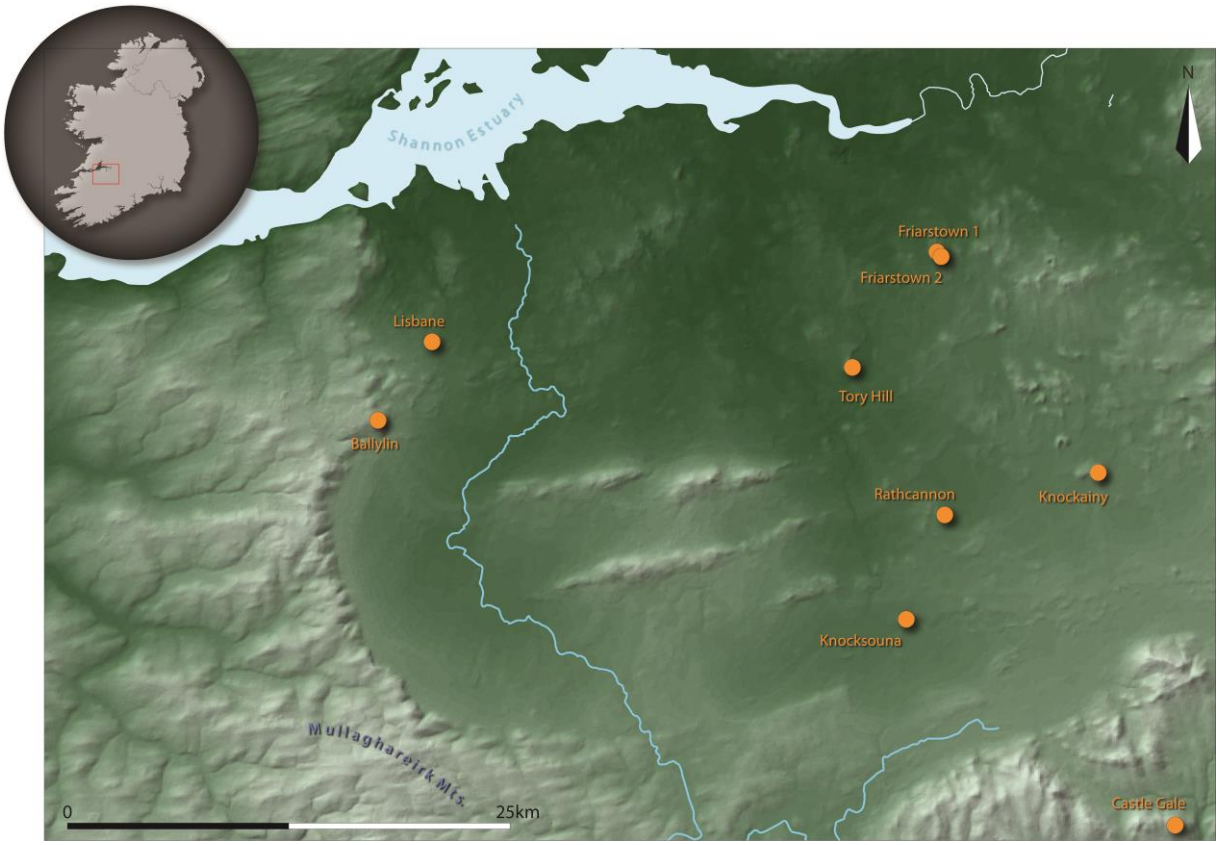

Fig. 9.28: West Limerick region with local hillforts highlighted.

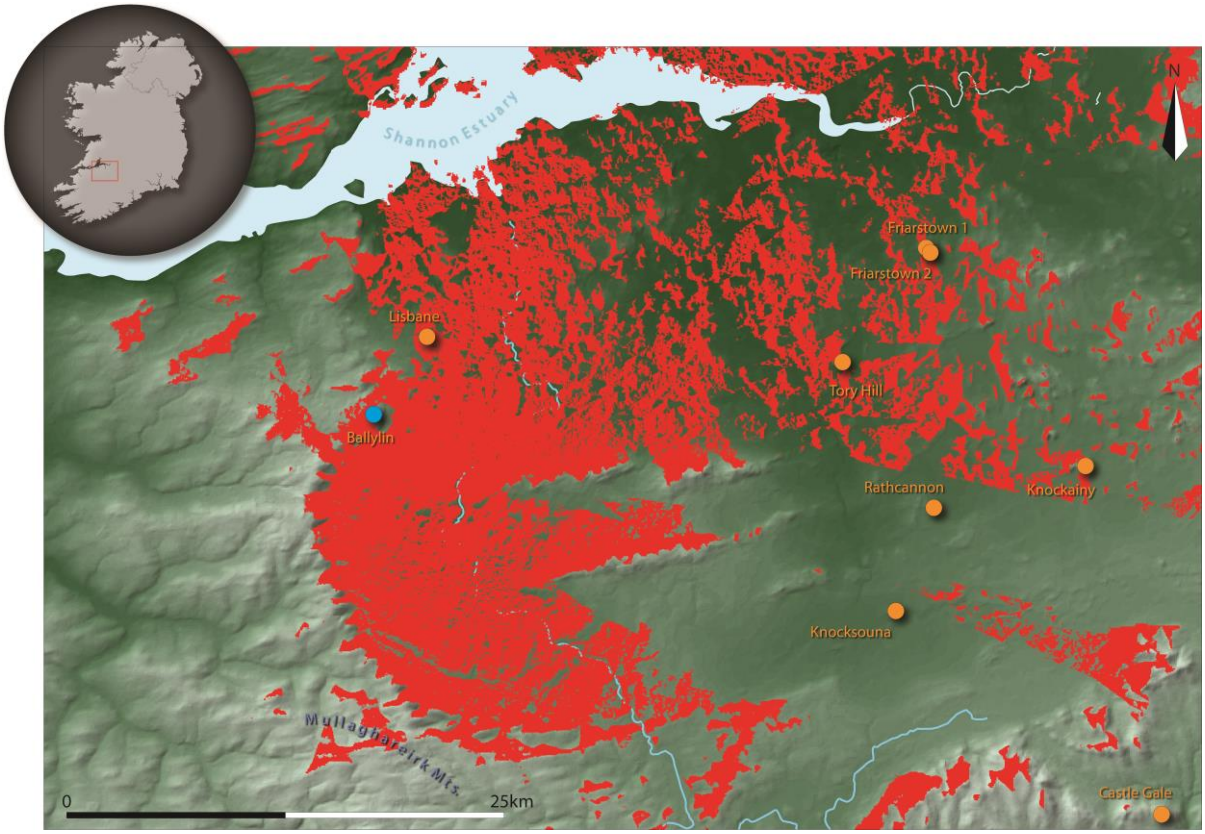

Fig. 9.29: Viewshed analysis of Ballylin hillfort.

9.2.6 South Wicklow

The multivallate hillfort of Rathgall (No: 90) occupies the highest point of a ridge with extensive views in all directions. The bivallate hillfort of Knockeen (No: 70) is positioned 250m to the north (Fig. 9.31 and Fig. 9.32). The construction and settlement of Rathgall has been dated to 1400–800 BC, although Bayesian analysis narrows this date range to about 1165–1120 to 1100–1050 BC (Raftery and Becker forthcoming). This corresponds with the artefactual evidence, which suggests that the main phase of occupation was before 1000 BC (*ibid.*). Excavations revealed imported and high-status artefacts, which Raftery suggests are evidence of long-distance trade. This is particularly evident from the LMHK glass beads that may have their origin in northern Italy, while amber beads and bar toggle indicate a Baltic connection (*ibid.*). This trade network was facilitated by nearby river systems that create a route towards the Irish Sea to the east and south (*ibid.*). This is confirmed by LCP analysis that highlights the importance of the rivers and river valleys in the mountainous area surrounding Rathgall (Fig. 9.33).

Seven arbitrary points were selected to the west of the site on the natural routeway created by the north–south flowing Barrow River. With a destination point on the eastern coast, seven points converge east of the Slaney River and follow the Derry, Aughrim and Avoca Rivers,

which form a distinctive deep river valley in the southern Wicklow Mountains. This topographical route links the southern midland to the Irish Sea, a route largely blocked by the Wicklow Mountains. With a destination point in the south, all seven points converge immediately to the west of the Slaney River and follow the river valley south towards the coast. Viewshed analysis

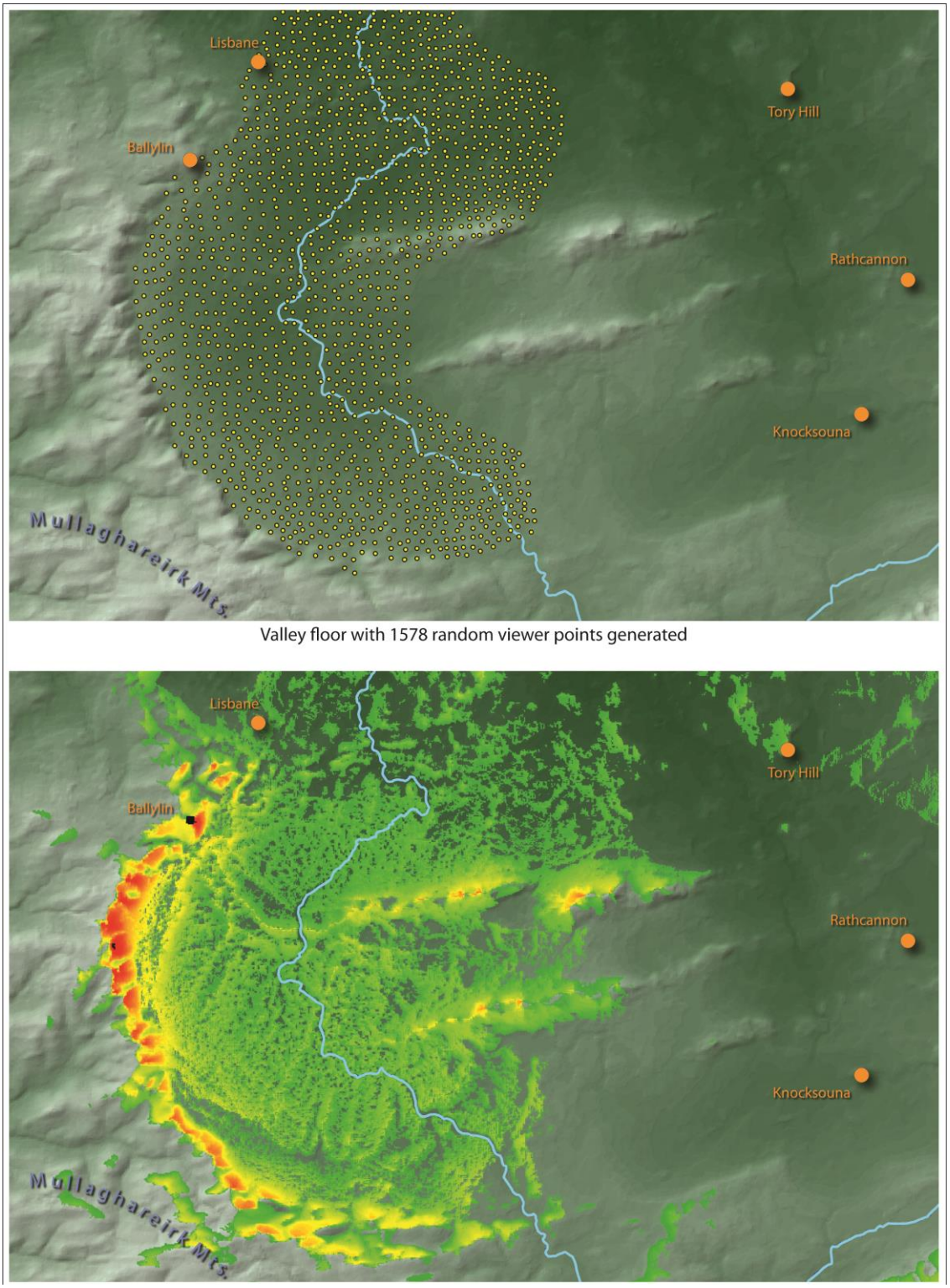

Fig. 9.30: Cumulative viewshed results of the west Limerick region. Ballylin is one of only two areas visible to approximately 98% of the viewer points.

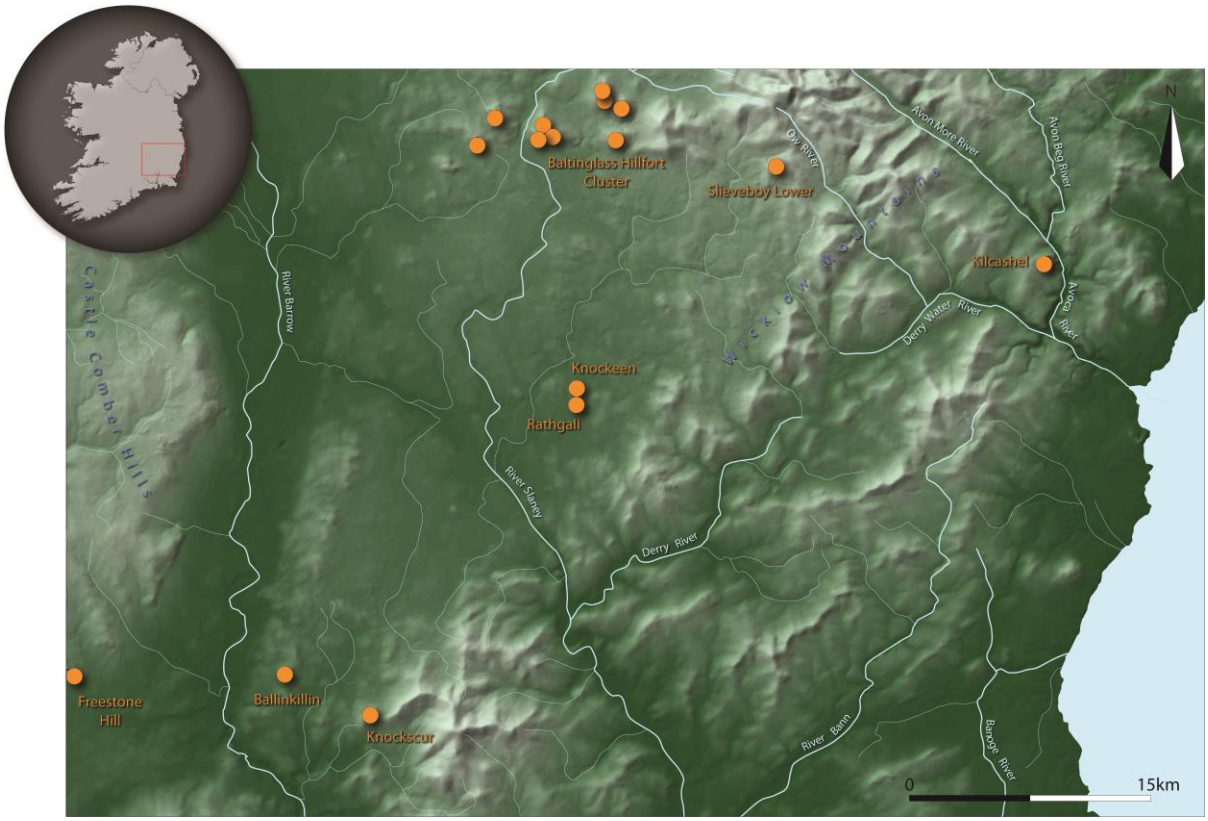

Fig. 9.31: South Wicklow region with local hillforts highlighted.

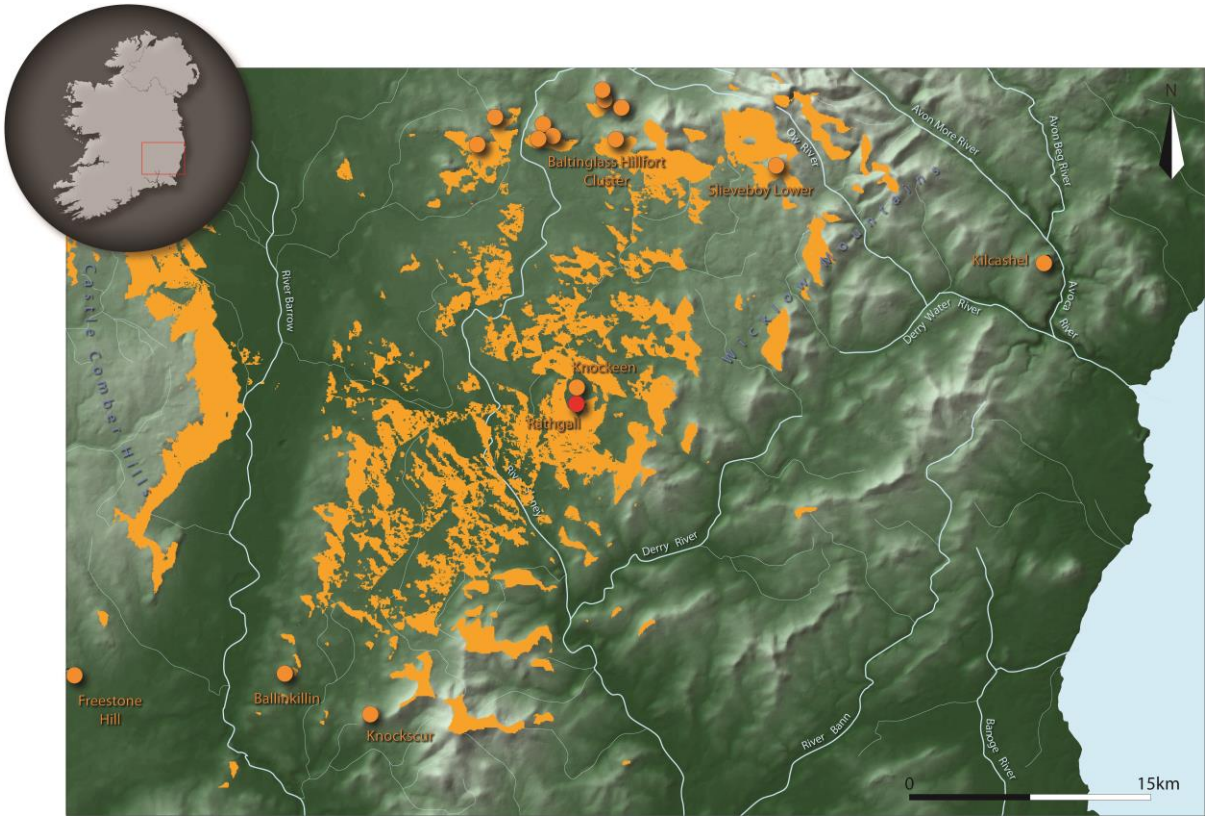

Fig. 9.32: Viewshed analysis of Rathgall hillfort in Co. Wicklow.

reveals that Rathgall hillfort overlooks a considerable stretch of the Slaney River, with more concentrated views in the areas where the seven arbitrary points converge. This suggests that the hillfort may have been sited to take advantage of those routeways.

Kilcashel (No: 57) hillfort, Co. Wicklow, a small univallate monument 1.58ha in size, overlooks the eastern mouth of the Avoca River, controlling access to the routeway leading to the south and south-east (Fig. 9.31). Extensive copper deposits were found less than 40m from the site and mined around AD 1720. The possibility of prehistoric copper mining has also been raised, but cannot be substantiated (Gallagher and O'Connor 1999, 43). Hillforts in Gotschenberg at Bishofshofen and Klinglberg at St. Viet, Austria, are associated with the production and supply of copper, and, although spectulative, Kilcashel hillfort may have played a similar role. Set in similar topographic situations, next to extensive copper deposits and dominating a deep river valley, these monuments take advantage of the rare natural resources in the area and control the natural land and riverine routes. Kilcashel may also have been used to distribute and control assess to gold deposits, although the source of Irish Late Bronze Age gold is still a matter of some debate. Up to 2000 ounces of gold was extracted from the Avoca River within a few months during a gold rush in 1796, and the area later became Ireland's only commercial gold mine. Viewshed analysis of Kilcashel hillfort reveals that the monument was positioned to dominate

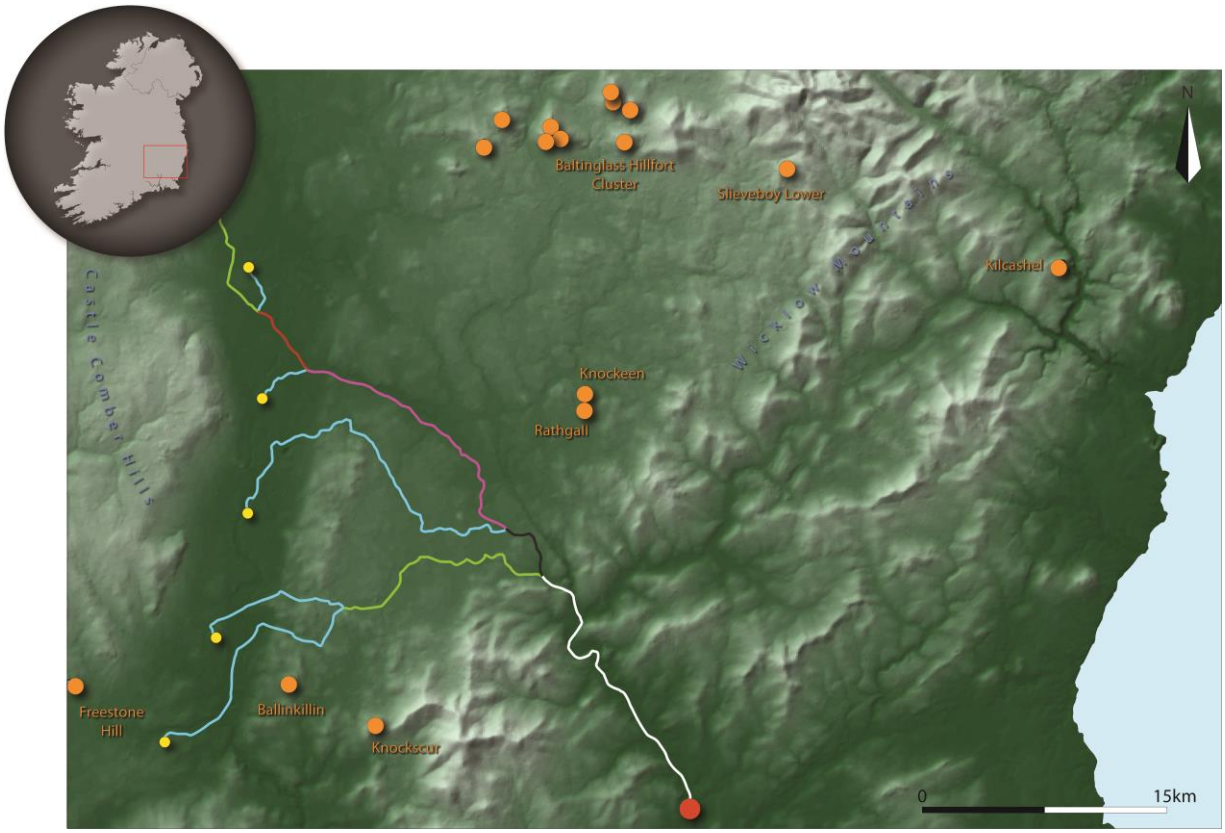

Fig. 9.33: LCP analysis of Rathgall hillfort in Co. Wicklow.

this river valley, with the majority of the river being visible from the monument (Fig. 9.34). The river valley itself is surrounded by the Wicklow Mountains and provides no clear route to other areas or resources zones. Therefore, it might be speculated that the hillfort was built primarily as a means to control the potentially abundant natural resources in the valley. This would correspond with the archaeological evidence at Rathgall (No: 90), where the intensity of metalworking and the variety of objects recovered imply specialist activity that required regular supplies of metal (Raftery and Becker forthcoming). Bradley (1984) has suggested that control over metal resources was one of the primary concerns of Late Bronze Age and Iron Age societies. This is attested at the Late Iron Age hillfort at Llanymynech Hill, Wales, which was built on a copper mine. The distinctive ores from this mine have been recognised in objects from Moel Hiraddug and Llyn Cerrig Bach hillforts, ore recovered from Bryn-dinas and crucibles from Old Oswestry hillforts (Davis and Lynch 2000, 208). This indicates that these later hillforts were greatly dependent upon trade with other hillfort communities.

9.2.7 Routeways and the Baltinglass hillforts

The evidence presented here focuses on hillforts with secure construction dates, and discusses nearby hillforts that may be contemporary. Viewshed and LCP analysis highlight the importance

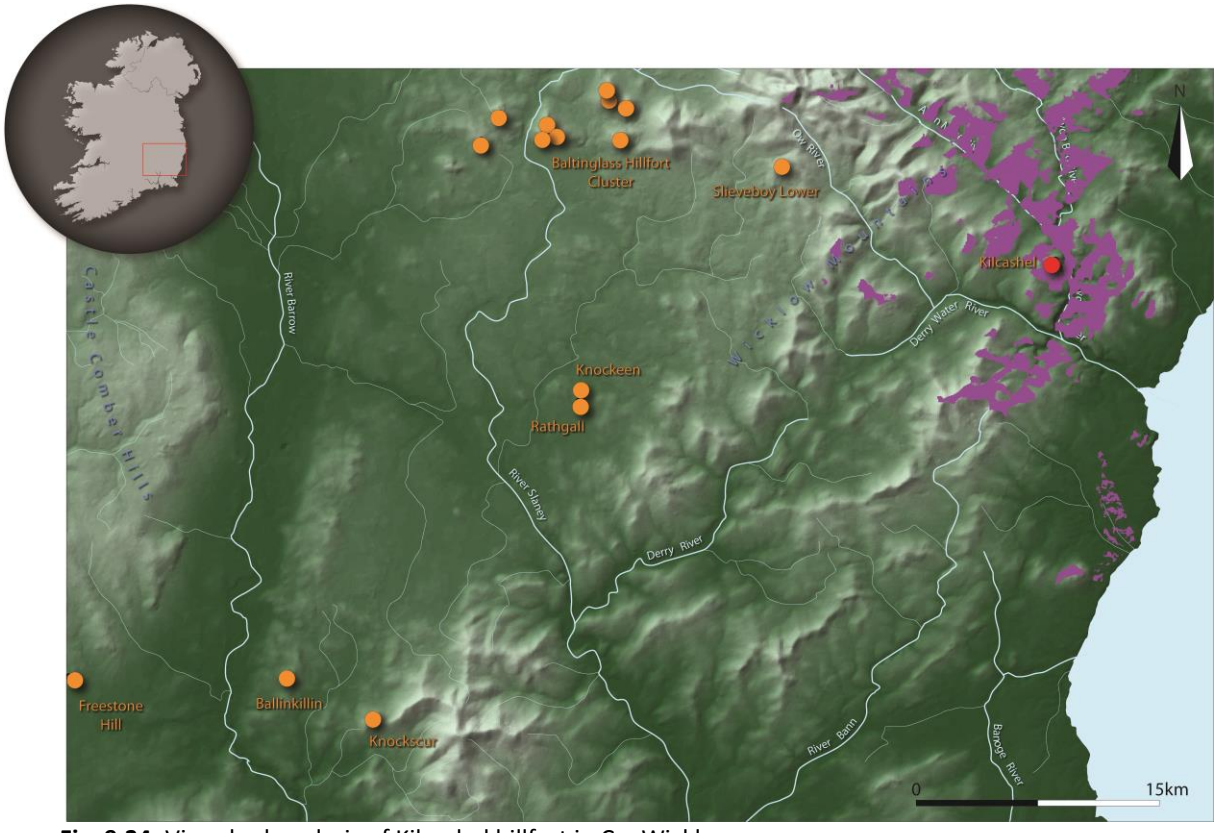

Fig. 9.34: Viewshed analysis of Kilcashel hillfort in Co. Wicklow.

of maintaining strategic control of natural routeways by sitinghillfort monuments in highly visible locations. This is further highlighted when sections of some hillforts, such as Clashanimud (No: 26), are positioned on partially sloping ground, making large portions of the interior visible from the adjacent routeway and increasing visibility of the entire monument. This evidence compliments the studies of Fonte *et al*. (2011) and Sherratt (1996). Both have linked the distribution of hillforts with the control of movement and emphasise the importance of rivers in that regard. Similarly, Brown (2009, 197) argues that hillforts 'controlled inter-regional routes of traffic and trade [rather] than simply dominating their own immediate block of downland'. This has been challenged by Sharples (2010, 68), as it assumes a controlling relationship between rivers and hillforts which is not always present and does not explain the absence of sites on many apparently strategic rivers. Sherratt (1996) however, relegates the importance of overland transportation, seeing these routes used 'primarily between rivers' and stating that 'even if the river itself was not the means of transportation, it is likely that cross-country routes for pack animals or porters often followed the gentle slopes of riverine routes (*ibid.*, 225). While it is clear that river systems provided significant arteries for travel, overland routes also played important and independent roles in this system. This has recently been advanced by Driver, who has identified significant Iron Age overland routes in the north Ceredigion region of Wales. Such a route is apparent in Ireland in Co. Limerick, where the Late Bronze Age hillfort at Ballylin (No: 9) is located on a northern plateau of an extensive and prominent north-south running escarpment.

A significant number of undated hillforts also correspond with this proposed model, such as Carn Tighernagh (No: 19), Caherdrinny (No: 17) and Castle Gale (No: 24)in Co. Cork for example. Those sites that cannot easily be linked with an obvious routeway may be located close to more obscure and subtitle passages or natural resources. Haughey's Fort (No: 53), Co. Armagh, and Rahally (No: 88), Co. Galway, for example, are sited in lowland areas where there is little topographical variation or stand-out topographical markers. Palaeo-environmental evidence has indicated that the construction of both hillforts are associated with intensive land clearance episodes and subsequent increases in agricultural activity. This is consistent with other hillfort sites such as Mooghaun (No: 85), where pollen analysis has been undertaken. This may imply that Haughey's Fort and Rahally were being used as a similar focal point for an agricultural based community, and as such, may have had a similar function(s). Cleary (2007, 265) has suggested that the deliberate backfilling of pits with a range of both domestic and high status material within Haughey's Fort may signify the importance of the monument for the exchange of commodities. As noted above, the variety of finds recovered within that hillfort and in the

immediate environs indicates trading links with various regions of Continental Europe. There is clearly a link with long-distance trade even at hillfort sites in low-lying areas. In these lowland situations, river systems may have taken on an increasingly important role in the transportation and movement of goods and people.

While the limited extent of archaeological excavation at several of the Baltinglass sites has produced no artefacts indicative of long-distance trade, the prominence of the monuments in the landscape may help to understand their function(s). As noted in the previous chapters, those hillforts have extensive viewsheds of the surrounding landscape. Cumulative viewshed analysis reveals that the hillforts are highly prominent in the local and regional landscape and form some of the most imposing topographical features within a 25km radius (Fig. 9.35). Topographical prominence would help to contrast with the natural environment and the Baltinglass hills as certainly notable features in the landscape. They extend westward from the edge of the Wicklow Mountains into an extensive area of flat lowland. When the region is divided into northern, western and southern parts (the east has been disregarded as it is mostly mountainous), it becomes evident that the hillforts are particularly visible in the landscape to the south and west.

Although the hillforts are highly visible from the north, the undulating terrain in this area detracts from their prominence. Cumulative viewshed of the western lowlands surrounding the River Barrow highlight the topographical dominance of the Baltinglass hillforts. The sites are visible to over 70% of the 450 arbitrary viewer points generated (Fig. 9.35). Similarly, the group of hillforts are visible to almost 70% of 560 arbitrary viewer points in the southern landscape. Apart from Lugnaquilla and Keadeen Mountains, the hillforts are the most visible topographical features from the south. The low-lying terrain in this area and lack of significant topographical features emphasis the hilltops and make them stand out in the wider landscape.

The Baltinglass hillforts border the River Slaney which may have acted as a significant navigable river in prehistory. The significance of the river during the Bronze Age is attested by the numerous artefacts deposited within it, such as the Early Bronze Age hoard of six bronze flat axheads and two ingot fragments found near Tullowbeg, Co. Carlow, approximately 15km to the south of Baltinglass town. All of the Baltinglass hillforts, with the exception of Kilranlagh (No: 60), are within 2.3km of the river (Kilranlagh is just over 4 km away). There are excellent views of all of the hillforts from the river (Fig. 9.36). It is interesting to note that the slight river valleys created by the river system restricts visibility of a large amount of the surrounding landscape and it is only from these hilltops that there are extensive views of the river.

If the control of trade and exotic goods was the primary concern for hillfort communities during the Late Bronze Age than why is there such a large group of forts this far inland? The easiest way to control the trade in imported artefacts and metal would be to procure the materials from traders near the coast, unless the communities were themselves extracting some

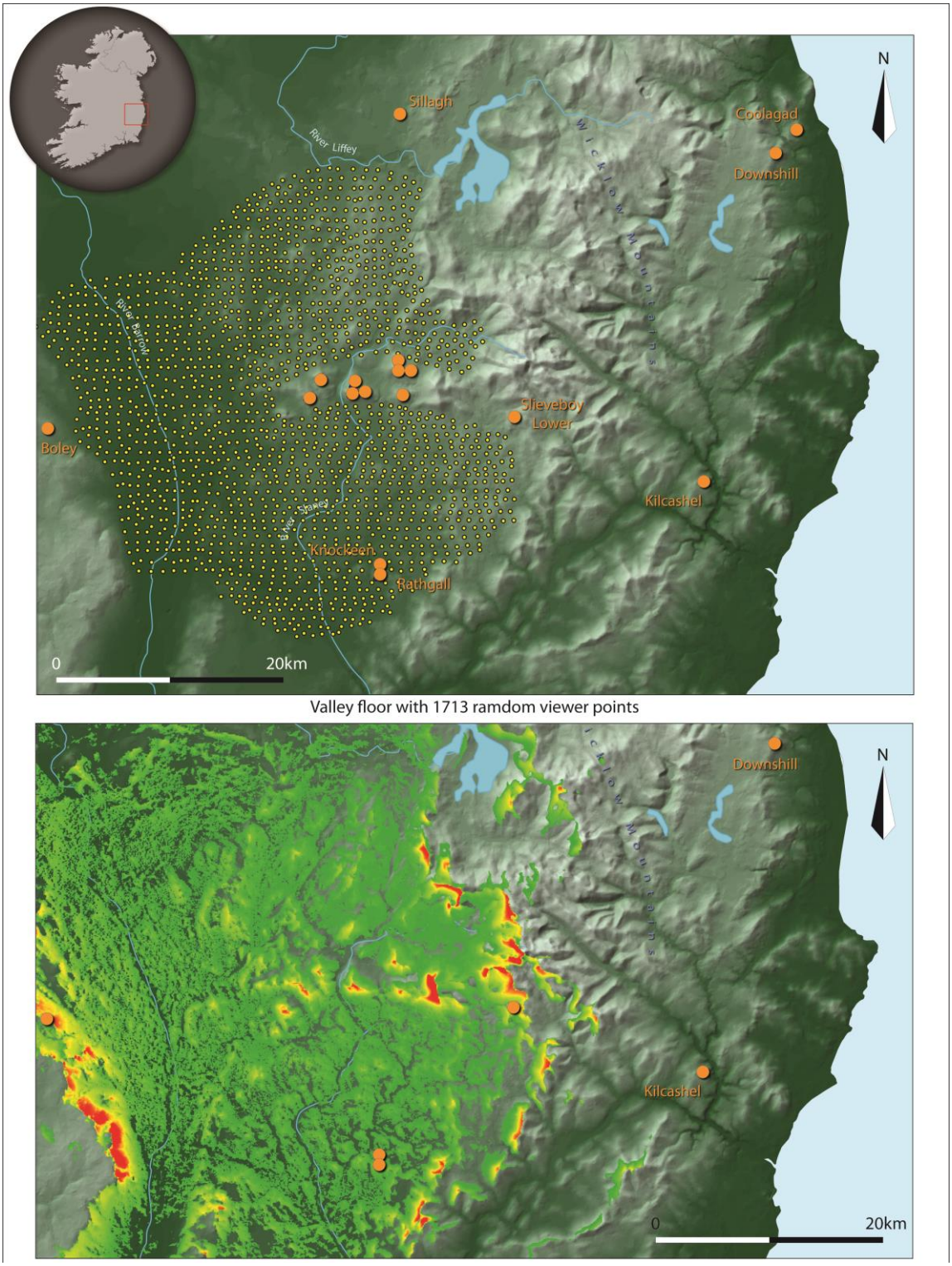

Fig. 9.35: Cumulative viewshed analysis of the Baltinglass region. Note the Baltinglass hillforts are highly visible within these landscapes, visible to over 65% of viewer points. Only Keadeen Mountain is more prominent in these landscapes.

of those same resources. The Wicklow Mountains and its hinterlands contain a diverse range of natural resources ranging from precious metals to fertile agricultural lands. These agricultural lands could have contributed to surplus stock controlled by an elite, who subsequently traded for prestige goods and metal. Sharples (2007, 180) has argued that hillfort communities were in

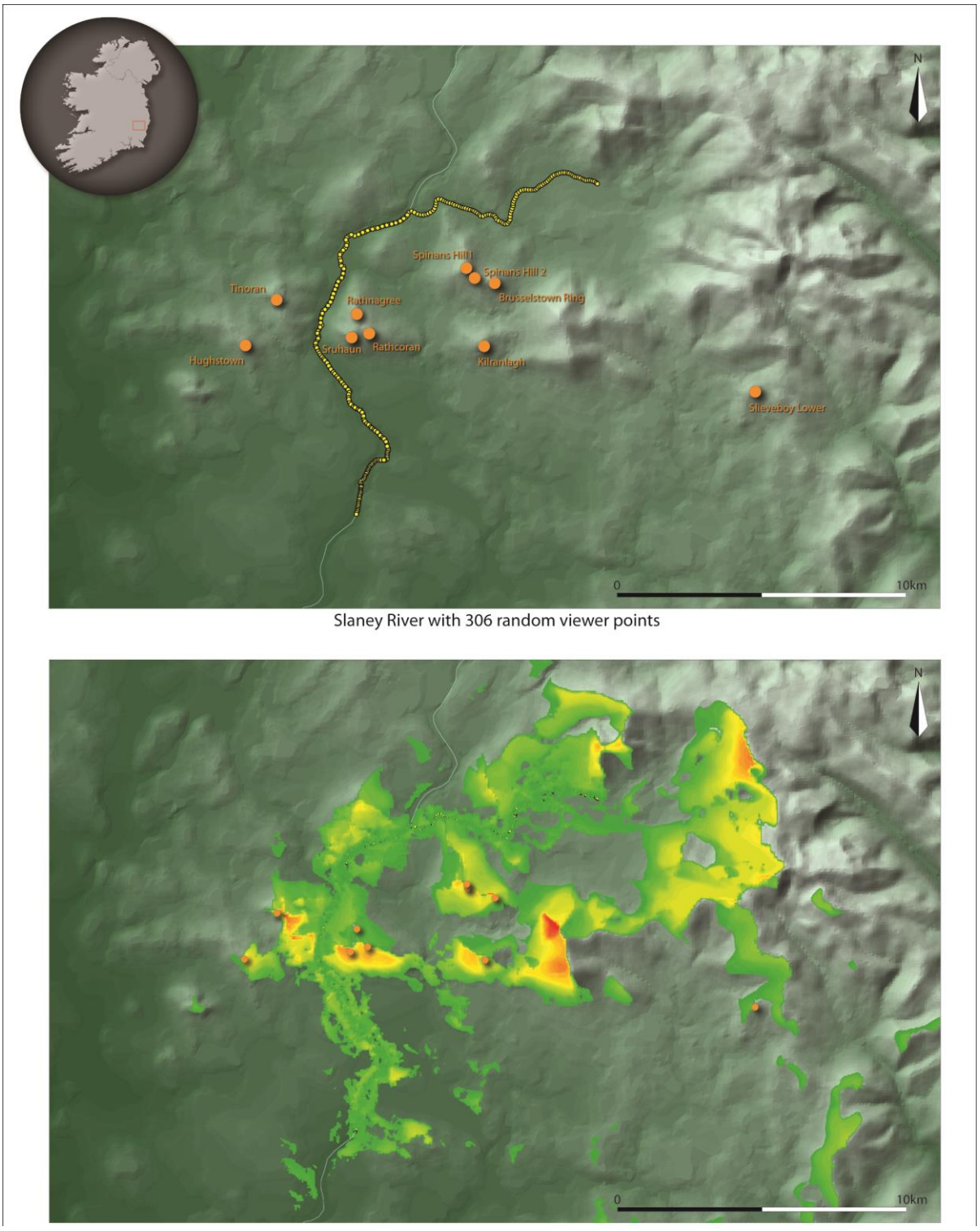

Fig. 9.36: Cumulative viewshed analysis from the Slaney River surrounding the Baltinglass forts. Note the Baltinglass forts are highly visible from the river, while there is a lack of visibility of low-lying ground.

competition to attract increasingly larger numbers of people to help in the construction of their hillfort. A large population base with strong agricultural practices creating surplus stocks would have created the economic conditions for the emergence of elites.

The Baltinglass hillforts are positioned near natural sources of copper and gold, although in most cases there is no evidence to suggest that either resource was extracted in prehistory. The significant quantity of Bronze Age gold from Ireland has supported the assumption that rich sources of gold were known at the time and that Ireland was a major centre of gold production (Cahill 1993; Waddell 1998; Henderson 2007, 75). Henderson (2007, 75) goes so far as to suggest that Ireland was perhaps more gold-producing than bronze-receiving. The general consensus was that Wicklow was probably the primary gold producing area in Ireland during the Bronze Age. However, recent fieldwork by Warner *et al*. (2009; 2010) have argued that the different levels of tin, copper and silver naturally mixed with gold objects dating to 2400–1100 BC indicates that it came from the Mourne Mountains in Co. Down. The results also show that gold was probably obtained from placer deposits. This has been contradicted by a more recent study by Standish *et al*. (2015), which convincingly argues that Early Bronze Age gold was obtained from Cornwall.

Warner (2015; forthcoming) has noted the clustering of gold sources around Rathgall (No: 90) hillfort and chemical analysis has suggested that it is 'highly probable' that this area contained the source gold for at least two of the Rathgall gold artefacts (Fig. 9.37). The remainder of the gold objects have a silver content of around 15% and most natural sources for this occur in the north of the country. A small boulder containing gold in Ballygarrett in north Co. Wexford with a silver content of approximately 15% has recently been identified and this may indicate a hard-rock source in the vicinity with gold of that type (*ibid.*). All of the gold objects from Rathgall could have been extracted from a Wicklow source, and so this could have been a significant area of gold exploitation.

The Annals of the Four Masters state that gold was first smelted in Ireland around 1620 BC at *Foithre Airthir Liffe*, an area comprising parts of Wicklow, Kildare and Dublin, by *Uchadan*, an artificer of the *Feara Cualann* of Co. Wicklow. Although this cannot be regarded as historically accurate, it probably indicates that gold was being extracted from the Wicklow Mountains before the completion of the text around AD 1600 and thus before the identification of placer gold deposits at Avoca 200 years later. This legend corresponds well with the archaeological record that indicates gold-working at Rathgall (No: 90) around 1100 BC.

Interestingly, Warner has identified a gold deposit containing less than 4.9% silver at the point in the Slaney River closer to the Baltinglass hillforts, and another near the source of the Slaney itself. The source of the Slaney is less than 5km from the source of the Avoca River where approximately 2000 ounces of gold was extracted during a few months in 1796. The Baltinglass hillforts are strategically positioned in this regard. This location is positioned close to a gold source, lands with a significant agricultural capacity, a wide catchment area to obtain resources and people, and more accessible trade links. As such, if the communities were exploiting gold deposits in the area, the hillforts were impeccably located. This may also explain why Rathcoran was known as the 'Golden Fort' in antiquity (Lewis 1837, 174), though it must be acknowledged that there are no prehistoric gold finds from the area.

It may also explain the clustering of hillforts in the Baltinglass area. Although there are numerous streams in Ireland that have produced gold grains, few have generated the quantity necessary to create a sustained output of objects. The discovery and exploitation of a few rich placer deposits, therefore, is a more likely scenario than the 'dogged' collection of a few grains from many streams (Warner *et al*. 2009, 24). Competition for control over these 'few' rich deposits may therefore have been inevitable. Communities who achieved control over these

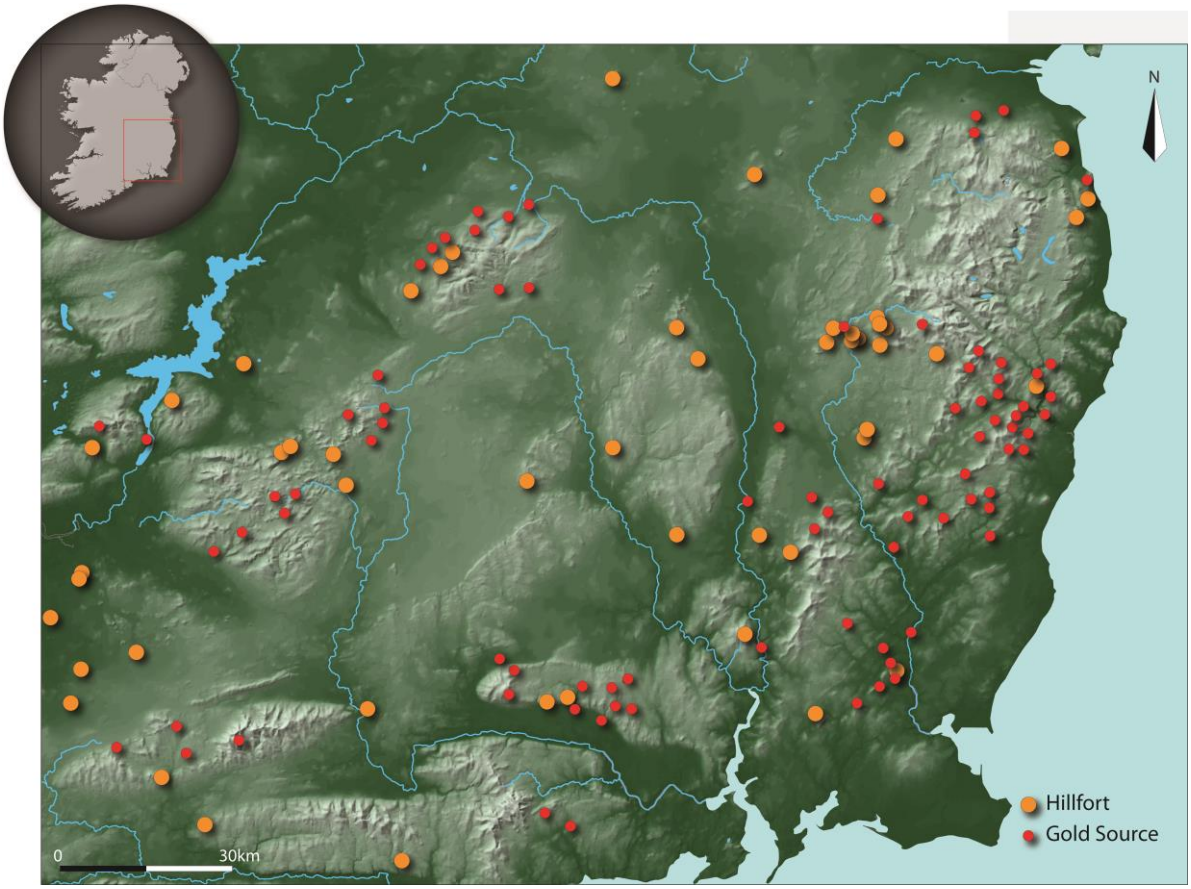

Fig. 9.37: Gold sources in Ireland (after Warner 2015; forthcoming).

valuable resources increased in size and power, allowing for more elaborate forms of competitive display (Sharples 1991, 259–260). The availability of exploitable gold deposits may have caused; a number of communities to cluster in an area around these deposits (**Model 1**), or, caused different generations of the same community to remain in the same area over a prolonged period of time (**Model 2**).

9.3 HILLFORT FUNCTION

The function of Irish hillforts is often interpreted in relation to research in Britain, incorporating evidence from monuments built and used there during the Iron Age. This is despite a growing corpus of evidence for Late Bronze Age hillfort construction in Britain, and a lack of evidence for Iron Age examples in Ireland. This chronological issue is significant, considering the important changes that occur with the onset of the Iron Age, and the differences between Ireland and Britain during this period (Barrett 2012; Bradley 1980; Hodson 1964; Rowlands 1980). It is important, therefore, to consider the Irish evidence as a separate cultural phenomenon in the Late Bronze Age, before developing a broader discussion and synthesis. This is not to dismiss the very evident connections between Ireland and Britain, as well as Ireland and Atlantic Europe, at that time. Rather, by taking the Irish evidence in isolation, we can escape the constraints of the hillfort 'grand narrative' and associated spatial and temporal problems, and put forward new interpretations appropriate to the Irish evidence.

Enclosure is a conscious act, involving the expenditure of resources that could have been employed elsewhere (Mytum 2013, 6). Neustupný (2006) considers the practical, social and symbolic significance of enclosure, concluding that prehistoric peoples may not have necessarily distinguished these as separate aspects of hillfort use. Although there is a general consensus that hillforts had a number of diverse functions that changed throughout time and region, recent debate has focused on two competing views (Armit 2007; Brown 2009; Harding 2012, 27; James 2007; Lock 2011). The first argues that some of these monuments functioned as practical, defensive enclosures (see Armit 2007). An alternative view criticizes this position, highlighting the inherent weaknesses in hillfort design and interpreting these sites as symbols of 'social isolation' (see Lock 2010). More recent studies stress the importance of monumental display in hillfort architecture and their role in the proclamation of power and status (Sharples 1991; Driver 2013).

The defensive perspective is based on the assumption that violence was a recurring threat during the Iron Age in Britain (Mytum 2013, 310). This was a view first advanced by

Wheeler after his excavations at Maiden Castle (Fig. 9.38), where thousands of sling stones were discovered (Wheeler 1943). Wheeler (1943, 43) saw this as evidence for warfare based on the mass use of the sling, explaining the evolution of the site from univallate to multivallate as a means of dealing with this threat. Avery subsequently proposed an evolution from simple defences incorporating dumped material reverted by wood, to larger dump defences with no wooden revetment to avert the threat of fire (Avery 1986; 1993). Wheeler's interpretation corresponds well with the development of Maiden Castle, where the number of sling stones recovered increase exponentially during the developed phase of the hillfort (Armit 2007). Armit (2007) and Wheeler (1943, 41) see the make-up of the enclosing elements at Maiden Castle as further evidence for its defensive nature. Up to four closely spaced banks and ditches comprise the hillfort. The large enclosing elements were constructed at a steep angle, set at 40° or higher. Armit argues that this slope would have provided sufficient defence to allow the hillfort to be protected by a small force (Armit 2007, 27–28). Furthermore, Armit (2007, 27–28) proposes that multivallation was intended to keep defenders out of range of effective sling fire and to prevent any possibility of rush attack. Finney's critical review of the sling calls into question the use of multivallation as a form of defence, as it does not explain the continued building of ditches and banks at many hillforts (Finney 2006). In practical terms, Finney (2006, 80) suggests that a large

Fig. 9.38: Maiden Castle in Dorset, England (Google Earth 2015).

inner bank and ditch with a smaller outer enclosure placed 70m apart is all that is necessary for protection against assault by sling. Armit (2007, 27) has suggested that multivallation provides a 'ranging certainty' which would enable well practiced defending slingers to 'pick off attackers with deadly accuracy'. However, the addition of such earthworks and the amount of labour required seems unnecessary for such practical use, considering other, less labour intensive markers such as wood or bushes could have been employed. Bowden and McOmish (1987; 1989) also point out that the earthworks would have 'cut off' defenders from potential lines of retreat. Conversely, Armit (2007, 31) suggests that the use of the sling would not have necessitated stationing defenders on the outer ramparts, meaning defenders would not be 'isolated'.

Cunliffe's excavations at the developed hillfort of Danebury (Fig. 9.39) revealed similar evidence for use of sling stones, recovering one large deposit of 10,300 stones near the eastern gate (Cunliffe 2011). This is comparable to a large deposit of some 22,000 sling stones found near the inner entrance at Maiden Castle. Cunliffe sees the large enclosing elements of Danebury as 'primarily defensive in character' (*ibid.*, 67). The remains of an estimated 100 individuals at Danebury, a number of which show signs of severe injury by weapons such as

Fig. 9.39: Danebury in Dorset, England (Google Earth 2015).

spears and swords, prompted Cunliffe (2011, 77) to associate this with the 'ever-present social horrors of endemic warfare'. Cunliffe (2011, 149–156) exercises caution in relating all of these examples with warfare, highlighting the potential for ritual, particularly where human remains were found in backfilled pits. A large pit within Spettisbury Rings, for example, contained 80–90 skeletons with evidence for sharp-force injuries. A spear point was embedded in one skull (Gresham 1939, 116). A number of high status artefacts were reportedly recovered in the same context, including an iron sword, several currency bars, bronze broaches and rings and a complete bronze cauldron, possibly inferring this was a ritual act, rather than one relating to warfare (Harding 2012, 183).

Harding views the paucity of weaponry in the Early–Middle Iron Age of southern Britain as one of the main problems associated with the 'military' interpretation (Harding 2012, 20). However, James (2007) argues that this could be a misrepresentation of the evidence, considering the changes in depositional practices during this period, rather than a decline in production of these artefacts. The 'war cemeteries' of Maiden Castle, England (Wheeler 1943), Sutton Walls, England (Kenyon 1953; Redfern 2011), South Cadbury, England (Alcock 1972), Dinorben, Wales (Osgood 2006) and Breedon-on-the-Hill, England (Hencken 1938; Craig *et al*. 2005; Redfern 2011) have been used to further emphasize the defensive nature of hillforts.

Redfern's (2011) re-examination of the human remains from Maiden Castle has identified 'overwhelming' evidence for targeted blows to the head and body, assault injuries, and over-kill. Twenty four male skeletons were 'haphazardly' deposited at the entrance terminal at Sutton Walls (Kenyon 1953, 7). At least six were decapitated. Others were partly severed and some skeletons displayed cuts that penetrated the bone. About 30 men, women and children were recovered at the entrance terminal of South Cadbury hillfort mixed with Roman and native weapons (Alcock 1972, 105). At Dinorben hillfort in the Welsh Marshes, the remains of three males were recovered from the basal fill of the hillfort ditch. The skull of one example was cut in two (Osgood 2006), probably in an act of warfare. Similarly, Heath (2009, 111) suggests that the disarticulated and scattered remains of two individuals found underneath the ramparts of Breedon-on-the-Hill hillfort in Leicestershire, England, may be related to warfare. The Late Iron Age phase of Breedon Hill hillfort in Gloucestershire, produced skeletal remains with evidence for blunt and sharp force trauma, multiple injuries, over-kill, and disarticulation and mutilation, with males particularly affected (Hencken 1938; Redfern 2011; Weston 2008). Broken human skulls were recovered at the inner entrance gateway of the hillfort and were mixed with burnt material, prompting Craig *et al*. (2005) to suggest that these could represent human heads

suspended above the hillfort gate before falling when the entrance was set on fire. Similarly, human skulls were displayed near the gateway of the fort at La Cloche at Les Pennes-Mirebeau in the Bouches-du-Rhône (Ralston 2006, 137). A re-examination of the human remains from Danebury has identified potential evidence for their display (Craig *et al*. 2005). Heath (2009, 136) also notes that human heads may also have hung above the entrance to Stanwick hillfort in Yorkshire. The practice of 'head-hunting' or 'head-veneration' during the British Iron Age has recently been highlighted by Armit (2012). The head was regarded as central to a person's power and ownership of this meant control over that power (Armit 2012; Cunliffe 2011, 154). Skeletal remains of nine women and children were recently discovered in the ditch fill at Fin Cop in Derbyshire, England (Waddington 2011). These remains were mixed with faced stone from the internal bank, implying that these individuals were killed and thrown into the ditch as the aggressors were slighting the defences of the hillfort. Ralston, however, notes the rarity of burials recovered in hillfort ditches and suggests that these need to be regarded as something 'distinctly out of the ordinary' (Ralston 2006, 117). The location of burials near hillfort entrances can also be seen to be out of the ordinary, and suggests that their occurrence there goes 'beyond the belief that this was where the dead had fallen' (Harding 2012, 184).

Whatever the potential symbolic or ritual nature of mass deposits of human remains at hillfort entrances and gateways, the evidence at other hillfort sites in Britain certainly has ritual and symbolic overtones. At Yarnbury in Wiltshire, England, nine infant burials were recovered in four different sections across the ditches (Cunnington 1933). The horse burials in the ditches of Blewburton Hill hillfort, and in particular, the horse, rider and dog burial, can be seen as distinctively ritual (Collins 1953). The rider is positioned with one leg over and the other leg under the horse's hind quarters, with dog beside, a scenario that cannot be accidental. This pattern of seemingly ritual deposits within hillfort ditches attests to the importance of ritual in hillfort function transcending time and regionality. Harding (2012, 217) suggests that a ritual dimension was common in all hillforts, whatever other functions they served.

The size of the enclosing elements at Danbury and other developed hillforts in Britain, as well as the 'defensive ingenuity' of entrance features, led Cunliffe (1991, 538) to view hillforts as works designed to proclaim the strength of the occupants and to withstand attack, a view shared by Heath (2009, 121). Armit (2007) sees hillfort architecture as a deterrent, and so, the fact that there is little unequivocal archaeological evidence for hillforts coming under attack is not surprising, since the purpose of deterrence is to avoid it being put to the test (Harding 2012, 198).

Conversely, Hamilton and Manley (2001, 13) argue that Early Iron Age hillforts acted as 'landscape coordinators' within intensive distributions of non-hillfort settlements. Hillfort ramparts 'have the appearance of being delimitators rather than substantial barriers' (Hamilton and Manley 2001, 13). Entrances are simple breaks directing people and animals across through the enclosures and it is 'difficult to imagine security issues being a design intent' (*ibid.*, 13). Lock continued this theme by viewing hillforts as 'structures that mediated a peaceful and harmonious life within small scale agricultural communities' and argues against what he describes as 'the grand narrative of Iron Age warfare' (Lock 2011, 355). He argues that the defences of many hillforts are out of proportion to any possible threat posed (also see Driver 2008; 2013; Finney 2006, 81; Sharples 2007; 2010) and suggests that 'community building' offers a better explanation than a purely defensive rational (Lock 2011, 359). Lock (2011, 359) suggests we should not under-estimate the importance of participation in communal work and social relationships this engendered. Scarre (2011, 17) aptly describes this as 'an act of social construction'. Sharples (1991, 83) considers that the construction of hillforts could have been an annual event which would attract an influx of people from the surrounding communities. Such an assembly would have added an important social function to hillfort construction, bringing together disparate groups and solidifying social ties through marriage arrangements and other relations.

Sharples (2007; 2010, 123) develops this theory, proposing that hillforts were the focus of community building and that hillfort ramparts acted as the mechanism for competitive display. The idea of monumental display has gained popularity in hillfort studies, not least because it can explain quite disparate forms of archaeological information. In a recent study of the hillforts in north Ceredigion, Wales, Driver argues that monumental display was the driving force of hillfort construction (Driver 2008; 2013). This study proposes that hillforts in this region were built using a complex suite of monumental devices to heighten the appearance of the defences from particular approaches (Driver 2013, 135). Although this limits the enclosing elements in strategic terms, it allowed the most important and more visible approaches to effectively communicate greater strategic strength than the hillfort actually possessed (*ibid.*, 135). This also prioritised labour output by focusing on more important sections of the enclosure. Sharples (2007, 180) suggests that if the construction process of a hillfort was related to the gift of labour and resources, then the building of even larger and more complicated enclosure boundaries is effectively the conspicuous consumption of resources. The 'strength' of these hillforts, therefore, may have been in the perceived threat of strength embodied in the monumentality of the main façade ramparts. As Driver (2013, 136) suggests, hillforts may have

been a vital component of a chieftain's 'psychological armoury', acting as more permanent displays of power, less transitory than feasting, raiding or material deposition.

The concept of 'competitive display' can also be seen as a type of psychological warfare. Sharples (1991, 88) envisages ritualized display and threatening behaviour as warfare, although he views such behaviour as a deterrent, or a symbolisation of the nature of conflict, rather than its actual practice. This concept would fit well with the competitive Wessex societies of the Early and Middle Iron Age and Late Bronze Age societies in Atlantic Europe (Hill 1995, 55). Bowden and McOmish (1989, 13) suggest that hillforts positioned on sloping ground, or in areas overlooked by higher ground, were non-defensive. They regard the positioning of such sites as a deliberate device to make activities within the interior visible to spectators outside the enclosure, while also excluding them from participation. Driver (2013, 135) has recently proposed that such sites may have facilitated the communication of strength through visibility, where the interior revealed a populous, well organized community. The positioning of sites on sloping ground may also increase the visibility of the monument from certain positions. As such, this interpretation can be seen as another facet of competitive display. It can also be explained from a defensive standpoint, as Driver (2013, 109) notes that a hillfort with a role to command and/or control a population and/or territory would need to be highly visible.

Monumental display may explain the large defences of some hillforts, the size and composition of the enclosing elements acting as a physical imposition of power (Driver 2013, 109). For example, Sharples (2010, 123) sees the enclosing elements of Maiden Castle as symbols of competitive display. The size of the enclosing elements at Rathgall (No: 90), Co. Wicklow, suggests a need for the ramparts to be visible and contrast in the local landscape. Here, the rather unimpressive location of the hillfort is substantially augmented by large banks. The placing of additional earthworks flanking the main entrance to Carn Tigherna (No: 19) hillfort in Co. Cork could also be interpreted as an attempt to monumentalize the approach to the monument.

In Ireland, the few examples of excessive architecture, such as Dún Aonghasa (No: 40), contrast with the unimpressive nature of many hillfort ramparts. This is also a feature of Late Bronze Age hillforts in Britain (Hamilton and Manley 2001). During that period, the topographical and strategic setting of these monuments was important and monumentality was emphasized by the creation of an enclosing element and the clearance of hill vegetation. Hillforts helped to monumentalize prominent topographic landmarks and heightened the appearance of artificiality, putting the hilltop at odds with the natural environment (Driver 2013, 91; Hamilton

and Manley 2001, 29). Knockdhu (No: 69) and Lurigethan (No: 81) in Co. Antrim, are excellent examples of this. The preoccupation with the display of power is also attested through the production, display and consumption of prestige goods. Monumentalization of the landscape through hillfort construction fed into this competitive social system. In many cases in Ireland, the strategic setting of hillforts may have been acquired from a need to be seen from and control strategic routes, with the hillfort declaring the communities authority over this location.

Elements of competitive display are evident throughout Late Bronze Age society and in some instances can be directly related to hillforts. Animal remains from the ditch deposits at Haughey's Fort (No: 53) in Co. Armagh support evidence for competitive breeding of large animals (Murphy and McCormick 1996, 50; Stevens *et al*. 2010; Mallory and Baban 2014, 26). Domestic animals such as dogs, cattle and goat horn revealed some animals at the site were much larger than the average size of contemporary livestock (Mallory and Baban 2014, 26). In total, the remains of six canines were recovered including two canine skulls. The two skulls are the largest examples found in prehistoric Britain or Ireland (Mallory 1991, 24). Short-lived wood obtained around one of these skulls reveal the remains were contemporary with the occupation of the fort. Approximately 31% of the assemblage at the nearby ritual pool known as the King's Stables comprised dog bones, with three skulls recovered (Lynn 1977). The remains of a possible large dog were recovered at Freestone Hill (No: 45) in Co. Kilkenny (Raftery 1969) and an individual dog of large size, although not fully mature, was also identified at Rahally (No: 88) hillfort (Mullins and Bermingham 2009, 25–26). The competitive breeding of animals may, therefore, have been another facet of this display of power and authority. This phenomenon also features in the early Irish epic, *The Táin*, in respect of the importance of bulls.

Large dogs are often mentioned in ancient Irish texts and seem to be intertwined with hunter-warriors in insular Celtic literature (Bernhardt-House 2007, 14). For example, at the beginning of *Acallam na Senórach* the Irish manifestation of King Arthúr steals Finn's three famous hounds and flees across the Irish sea (*ibid.*, 12). The importance of Finn's hounds is attested as they are given human ancestry in several tales. Chadbourne (2005, 29) has argued that the dogs represent the most cherished aspects of prehistoric warriors and their chosen life: free, wild, impulsive, heroic, quarrelsome, heedless, loyal, and untouched by Christian remorse, guilt or sin. The hounds themselves may be regarded as warriors in their own right, as the literature states that every warrior had at least one leashed hound and in some cases, more than one (*ibid.*, 31). Often the names of the great warriors of the Ulster Cycle are associated with the name or quality of a dog; Cu Chulainn is the 'hound' of Culann the smith, the divine hero Lugh is

sometimes referred to as Mac Con, 'lad of hounds', or Con Mac, 'hound-lad', Conan Mac Morna translates as 'little dog' (*ibid.*, 37). The literature indicates that there often appears to be a correlation between the prowess and status of the dog and his owner (*ibid.*, 37). In several texts, such as *Duanaire Finn*, Finn is said to have fought dog-headed peoples and similar creatures appear in Arthurian legend. These creatures are often described as giants, or having horse features such as manes. For example, one of Conall Cernach's horses in the tales of Cu Culainn's death (*Brislech Mór Maige Murthemni*) is described as having a hound's head. Large dogs accompanying warriors in battle may have been mythologised into such figures. The importance of dogs in prehistoric society may have encouraged competitive breeding and this may be visible in both the archaeological and literary records.

There can be a ritual and ceremonial component to acts of competitive display. The conspicuous consumption and deposition of bronze artefacts in watery contexts is a prime example. Single artefact deposition in the form of swords, spearheads, shields and cauldrons are well documented from the European and insular Bronze Age. The significant number of prestige objects found in rivers and bogs has led to the general consensus that these are deliberate ritual deposits not intended to be recovered. Rivers and bogs are often interpreted as liminal places and may mark territorial boundaries. The deposition of these objects on possible territorial boundaries is significant. They may have been essential in acts of conspicuous consumption, where the community and chieftain/powerful person displayed the resources under their control in front of neighbouring communities, while simultaneously worshiping and placating deities. The conspicuous consumption of prestige objects, therefore, provided a mechanism for competitive display, whereby, the amount, size or significance of the material deposited provided status to the owner(s), as well as obligations on the part of the other group.

This has led to a debate regarding Late Bronze Age weapons and the nature of warfare in contemporary society. Harding (2012, 193) has questioned the assumption that 'weapons' such as spears and swords, as well as other 'warrior' paraphernalia like the shields, are indicative of warfare. The presence of such items in hoards and other ritual contexts, or sword moulds recovered at the Kings Stables ritual pool for example, may suggest a ritual function. Large hoards of distinctive Armorican axeheads, some of which were made wholly of lead, point to weapons (or artefacts) which were being created with the intention of ritual as their principle function. This is consistent with Neustupný (2006) who argues that warfare was not a significant factor in prehistoric European societies, the 'weapons' in question being ritual and symbolic in purpose rather than functional.

A ritual interpretation does not explain the proliferation and evolution of more advanced weapon types in the Late Bronze Age. If ritual was the primary function of swords and other weapons, then we could presume a development unrelated to their use in warfare. Therefore, the development of a more balanced, leaf-shaped sword, with less potential for rivet tares on the hilt resulting in a better sword adapt at close range, slashing combat, would have been an unnecessary evolution if these weapons were for ritual purposes. This is not to deny that weapons had a significant ritualistic role. Kristiansen (1999, 188) accepts this aspect, but argues that 'there can be no rituals or symbols without the reality of what they signify'. Similarly, the use-wear shown on many 'weapons' may be indicative of their active use in warfare. Over 90% of Late Bronze Age Irish swords show signs of edge damage (Bridgford 1997, 106; Osgood 1998, 13; Osgood and Monk 2010) and about 75% of Scottish examples (Bridgford 2002). Approximately 50% of swords from south-east England have visible edge damage, although this lesser number may be exaggerated by the use of small fragments in the studied assemblage (Thorpe 2006, 155). This corresponds with a high percentage of dirks and rapiers from the River Thames which show signs of use (York 2002). Weapons may have had two distinctive life cycles, one functional, being used as an active weapon, the second ritualistic, being deposited mainly in watery contexts. The archaeological record of weaponry, therefore, may be a reflection upon the 'ritualization' of warfare and the inter-personal rivalry that emerged at different times in the Late Bronze Age and Iron Age (Harding 2012, 199).

Late Bronze Age hoards have been recovered from two hillforts in Ireland, namely Dún Aonghasa (No: 40), Co. Galway and Downpatrick (No: 37), Co. Down. Four buffered bronze rings (Cotter 2012b, 48–49) were discovered at Dún Aonghasa. These are not 'typical' Late Bronze Age hoard objects, yet the deposit may still be seen as ritualistic, due to the find location close to the edge of a cliff face. Three hoards were located within the possible Late Bronze Age hillfort at Downpatrick, Co. Down. Hoard 1 was discovered in boulder clay within the interior of the hillfort and comprised five penannular bracelets with lozenge shaped bodies, six penannular bracelets with rounded bodies and a single penannular bracelet with an oval body. Hoard 2 was found in a similar context, 10m from Hoard 1 and comprised four penannular bracelets with a rounded body. A third hoard was found on the site but is otherwise unprovenanced and comprised three sleeve fasteners (Proudfoot 1955; 1957). Other hoards in close proximity to hillfort sites include the famous Mooghaun gold hoard, 1.9Km to the north of Mooghaun (No: 85) hillfort, comprising 157 penannular bracelets with rounded bodies, 11 gold collars, two gold rings, four neck-rings and two ingots; the Tamlaght hoard, comprising one sword, one ring, one sheet of copper and a pottery vessel located 763m south-east of Haughey's Fort (No: 53); a possible hoard 2.4km to

the north-east of Claraghatlea (No: 25) hillfort was recorded by Windele (Cahill 2006). The hoard has since been lost, however, records suggest it contained rings and bracelets weighting a total of 3.98Kg.

The importance of watery places in Late Bronze Age Ireland and potential evidence for associated ritual activity on hillforts is attested at Rahally (No: 85), Co. Galway. This large trivallate hillfort is the most extensively excavated monument of its type in the country (Mullins 2008). About 53% of the interior has been excavated revealing no contemporary artefacts or structural remains. Only 31 hillforts in Ireland have visible structural features within their interiors, only nine of which show evidence for more than ten structures. Few of these have been excavated and proven to be contemporary with the construction and occupation of the hillforts. Brown (2009, 195) has noted a similar phenomenon in Britain and argues that the very presence of a hillfort on a prominent topographical feature would have been enough of a status enhancement not to warrant elaborate internals features and could explain the seeming 'absence of life' at some sites.

Of further interest at Rahally (No: 88) is the conspicuous 30m break in the northern section of the inner enclosing element (Mullins and Bermingham 2009). Here, a wet marshy area extended northwards, the area being covered by colluvial deposits upon excavation. A late La Téne artefact, possibly some horse equipment, was recovered from this context. This marshy area may have been incorporated into the hillfort for ritual and ceremonial purposes, given the divinity and importance of such areas throughout prehistory.

The most convincing evidence for ritual activity associated with an Irish hillfort is found at the King's Stables near Haughey's Fort (No: 53). This man-made feature has been interpreted as a ritual pool, comprising a flat-surfaced sunken hollow 25m in diameter and 3–4m below the average external field level (Lynn 1977, 43). It is surrounded by a broad penannular bank on average 1m in height, with a wide gap in this bank to the west. Twigs preserved in the basal layers of the monument infer that the hollow was waterlogged very soon after its construction. Furthermore, the depth of the hollow, and the high level of the modern water table infer that the basin must have filled up with water soon after it was built, prompting Lynn (1977, 50) to suggest that it was designed as a votive pond. Finds include 18 clay mould fragments for the manufacture of leaf-shaped bronze swords, two sherds of coarseware pottery, animal bones with a high proportion of red deer antlers and dog bone and the anterior portion of a human skull which has evidence that it was cut from the rest of the skull before being re-deposited here (*ibid.*).

Radiocarbon samples from underneath the bank material and on the basal layers of the internal hollow suggest that the Kings Stables was probably built around the same time as Haughey's Fort (Lynn 1977, 48–54; Mallory 1995, 84; Weir and Conway 1988, 28; Mallory and Baban 2014). A 3m wide entrance flanked on either side by a palisade in the middle enclosing element of Haughey's Fort is aligned towards the King's Stables (Mallory 1995, 84; Conway 2006). On that basis, Mallory (1995, 84) suggests that the community that constructed Haughey's Fort is likely to have established the King's Stables.

The evidence strongly suggests that this was an artificial pool constructed for ritual activity and deposition, particularly considering the amount of material recovered from only 5% of the total monument. Cooney and Grogan (1994, 156) have noted the possibility that ritual deposition took place in natural or artificial ponds or lakes associated with hillforts, citing the King's Stables and Mooghaun Lough as prime examples. Two lakes identified at Tara (Newman 1997, 242), as well as Loughnashade lake near Navan Fort, can be considered areas of potential ritual deposition. This further highlights a possible relationship between hillforts and internally ditched enclosures with ritual activity associated with ponds or lakes. An embanked pool identified by the author near the large fort at Hughstown (No: 55), Co. Kildare, may be another example (Fig. 9.40). This is an interesting parallel for the King's Stables.

Fig. 9.40: Possible embanked pond near Hughstown fort in Co. Kildare.

Structural evidence from Haughey's Fort (No: 53) offers further indications of contemporary ritual activity. A large 25–30m wooden structure comprising an arc of three lines of stakes set outside larger posts is dated 1250–900 BC (Mallory 1995, 75; Mallory and Baban 2014). Within this structure a series of substantial pits were identified containing carbonized grain, coarse ware pottery, fragments of quern stones, metal artefacts and fragments of bronze and gold (Mallory 1995, 78; Mallory and Warner 1988). This structure has been interpreted as evidence that Haughey's Fort 'defended as it may be, was primarily the focus of ritual activities' (Mallory 1995, 84). Recent geophysical survey of Glanbane (No: 49) hillfort in Co. Kerry (Appendix 1) has revealed a large wooden structure 45m in diameter, which truncates a larger (55m in diameter) enclosure (Fig. 9.12; Fig. 9.13). These are placed at the highest point of the interior. The Haughey's Fort and Glanbane structures may be analogous ritual features associated with both hillforts, and may hint at the potential ritual uses of the monuments themselves.

Evidence for feasting identified at Dún Aonghasa (No: 40) and Haughey's Fort (No: 53) may have a ritual significance. At Haughey's Fort, an 18m section of the inner ditch produced an estimated 3000 animal bones, with a minimum number of 69 cattle, 43 pigs, six dogs, four sheep/goat and three horses (Mallory and Baban 2014, 25–26; McClatchie 2014). Mallory and Baban (2014, 25–26) argue that unless there was an efficient method of preservation, the only sensible way to disperse such large quantities of meat was through communal feasting. McClatchie's (2014) study of the plant remains suggests the range of weeds present and lack of chaff indicates cereals there were processed from a variety of different environments. This implies that Haughey's Fort may have acted as a central place for dispersed, small-scale communities who gathered together at the site for communal activities, such as feasting and storing food products. Interestingly, isotope analysis at Danebury hillfort in England has revealed that humans consumed food from different locations, while the animals did not, implying a variety of foods were imported to the site (Stevens *et al.* 2010).

McCormick and Murphy (2012, 157–158, 166) have noted the presence of pig bone at Dún Aonghasa (No: 40), even though the lack of tree cover on the island would not have been amenable to pigs who would have seasonally relied on a diet of oak mast. The pig bone assemblage therefore implies that this meat was imported to the island from the mainland. Residue analysis of the Dún Aonghasa pottery by Evershed *et al*. (2012) revealed that pig meat was stored or cooked in the vessels. Again, this evidence supports the idea that

disparate groups were congregating at the hillfort, bringing food stocks possibly for communal feasting events.

The preparation of communal feasting requires long-term planning and the intensification or augmentation of subsistence activities for the accumulation of surpluses (Spielmann 2002, 197). The organiser of the feast may have used the gathering as a mechanism to maintain the *status quo*, to elevate their own status or create obligations among others (Leonard 2014, 55). Dietler (1990, 363) argues that the guests who attend, enter into a reciprocal obligation of indebtedness. As such, communal feasting can become a highly competitive process and can also be highly ritualised. Leonard (2014, 148) has suggested that the trend seen in the activities at Haughey's Fort (No: 53) and the nearby King's Stables could be related to celebrating the finest products of the region, such as the best barley, the largest animals, the most advanced ceramics or the best craftwork. The communal gathering of people to use such products and witness the deposition of others could be seen as ritual commensality in order to ensure the continued fertility of the land.

9.3.1 Defence, ritual and the Baltinglass hillfort group

Conventionally, hillforts have been interpreted as defensive enclosures, but their disparate size, topographical setting and architectural form suggest that this need falls short of providing a wholly adequate explanation for all of them (Coles and Harding 1979; Ralston 1996; Payne 2006, 1). Although there is clearly a ritual element to hillforts, the Baltinglass group have visible defensive traits. These have already been discussed in detail in the previous chapter. The main supporting evidence for this interpretation is the strategic siting of the three closely positioned hillforts on Tuckmill Hill. The three forts may have been built by the same community and could be broadly contemporary. They are deliberately situated to overlook the immediate environs of the hilltop and the easiest access routes to the summit. This suggests the defensive properties of the terrain affected the positioning of the hillforts on Tuckmill Hill. The present evidence suggests that the largest of these three hillforts, Rathcoran (No: 92), was destroyed before it was completed and its partially constructed palisade was burnt. Geophysical and excavation evidence has confirmed that Rathnagree (No: 94) was comprehensively destroyed by fire and there is tentative evidence that Sruhaun (No: 101) was also burnt down. This was probably a deliberate act of destruction by a rival community. More tentative evidence for destruction is found at Hughstown (No: 55), although this is associated with a potential earlier Neolithic phase of

occupation. Although the destruction of the enclosing elements does not necessarily imply that the hillforts were constructed as defensive enclosures, it may infer that hillfort communities were highly competitive and were involved in inter-regional warfare.

The hillfort complex on Spinans Hill may be another indication that the defensive properties of the local topography affected the location of these forts. Positioned on the northern and southern summits of Spinans Hill, the two forts are strategically positioned to overlook the base and slopes of the hill and its immediate environs. Visibility of the approaches and terrain immediately surrounding the fort was of particular importance. Smith and Cochrane (2011, 80) have argued that views of the immediate environs of defensive sites are the most important, allowing an approaching enemy to be seen and close agricultural lands to be overlooked.

The size and number of enclosing elements at some of the Baltinglass hillforts might also reflect defensive considerations. Grogan (2005a, 234–237) has noted the extensive size of the northern portion of Rathcoran's (No: 92) inner bank, stating that it is almost double the size of the largest bank from Mooghaun (No: 85) hillfort in Co. Clare. If the remainder of the enclosing elements at Rathcoran were completed to the same extent, with the addition of a wooden palisade, it would have formed an imposing obstacle for attackers. Similarly, the Phase 1 palisades at Rathnagree (No: 94) may have stood up to 4m high and would also have comprised a significant barrier.

The size and number of enclosing elements may also be related to the concept of competitive display, although this does not diminish their practical use as defensive enclosures. The conspicuous consumption of labour and resources used when building a hillfort offered a less transitory way of displaying power and status than feasting or artefact deposition. This may be reflected by the fact that all of the Baltinglass hillforts (except Sruhaun) are intervisible (Fig. 9.41). Rathcoran (No: 92) is also an excellent example of the concern for competitive display. The most complete section of this hillfort is located in the only area visible to all of the hillforts in the Baltinglass cluster. If this is an unfinished hillfort, the construction process may have begun on the most visible section of the monument, or if the hillfort is completed, the most visible portion of the enclosing elements is the most monumental.

Although defence was a primary concern for the communities in the area, there are also ritual components to these hillforts. For example, the comprehensive burning of the enclosing elements at some of the Baltinglass sites could reflect the ritualization of warfare. The resources

and number of people needed to start and maintain such fires implies that it may have been a community event. After the defenders were subjugated, the aggressors would have destroyed the defending communities symbol of power in a most visible way, destabilising the group. In turn, this would help to reinforce the attacking groups' sense of place, identity and strengthen social cohesion, as well as reinforce an elites right to rule. This 'ritualization of warfare' may be evident at other hillfort sites in Ireland. Burning of palisades and enclosing elements occurs at other Irish hillforts (such as Clashanimud and Toor More). Both Krause (2007) and Primas (2002) have noted the frequency of hillfort destruction by fire on the continent during the Late Bronze Age.

Ritual was also used to augment defensive elements such as territorial boundaries, which may be a feature of many of the Baltinglass hillforts. Visible burial monuments were deliberately placed near or in view of natural boundaries such as rivers and streams, possibly to ritually reinforce the core boundary of a community and its right to the land. Less visible cist burials were positioned surrounding the base of Tuckmill Hill, possibly to demarcate the hilltop as sacred and this may have happened at other sites in the cluster. Other ritual features include Boleycarrigeen stone circle near the eastern base of Kilranlagh (No: 60) hillfort, and a possible embanked pond near the southern base of Hughstown (No: 55). The latter may be a particularly important find, as the only other prehistoric man-made pond in Ireland or Britain is associated with the hillfort of Haughey's Fort (No: 53) in Co. Armagh.

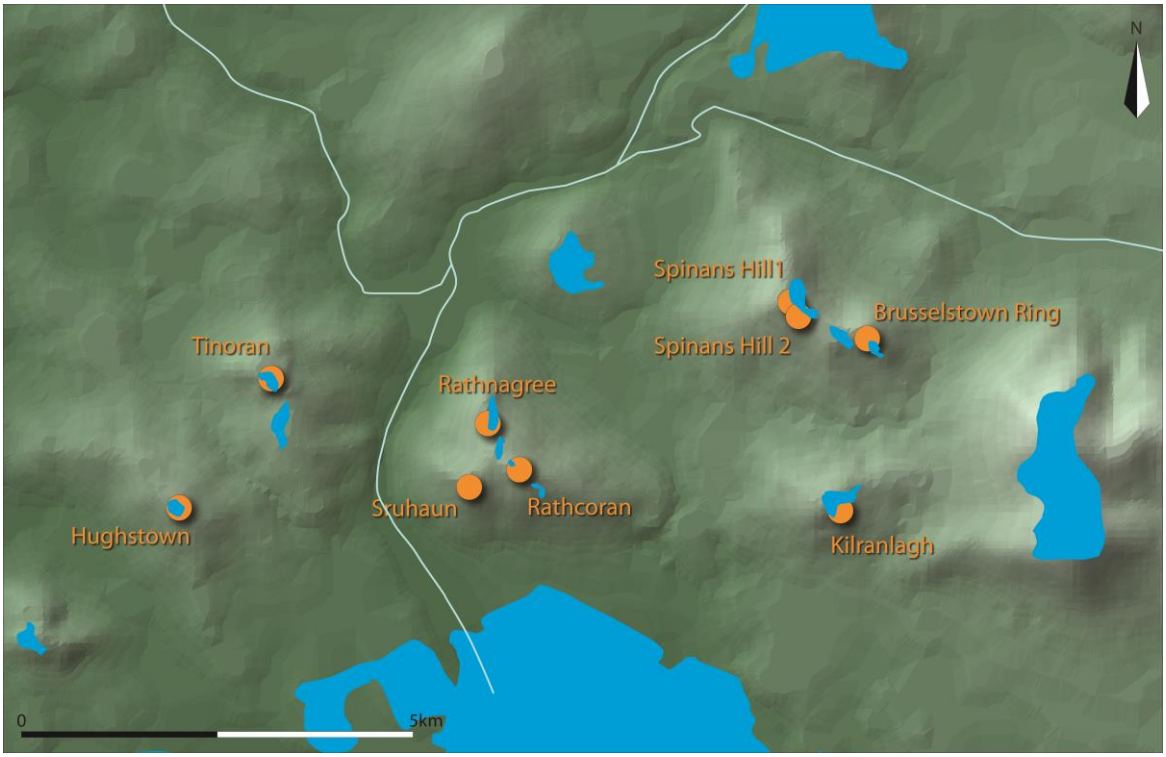

Fig. 9.41: Area visible to all of the Baltinglass hillforts highlighted in blue.

There are no obvious ritual features directly associated with the hillforts, although a 50m diameter stone enclosure at the summit of Hughstown (No: 55) may be analogous with the contemporary wooden enclosure at the centre of Haughey's Fort (No: 53) or the wooden enclosure discovered at the highest point of Glanbane (No: 49) hillfort in Co. Kerry. The building of the hillforts themselves could be interpreted as a way of reinforcing the social cohesion of a group.

If some of the Baltinglass sites are contemporary (**Model 1**) the density and close spacing of these sites may have compelled the hillfort builders to consider the defensive elements more prominently. As such, the Baltinglass sites may not accurately reflect the situation in other parts of Ireland where there may not have been an immediate threat to the community.

The ritualization of warfare evident at the Baltinglass sites is reflected at other Late Bronze Age hillforts in Ireland and the Continent. Some of the ritual elements there can also be linked with other hillfort sites in Ireland. The Baltinglass hillforts, therefore, exhibit both ritual and defensive elements and this corresponds with the broader emerging picture of these monuments in Europe.

9.4 Summary

The archaeological evidence suggests that Irish hillforts fit into a model of a competitive Late Bronze Age society. These monuments represent highly visible displays of power, with their landscape position dominating trade routes, controlling the distribution of goods and the movement of peoples. It may be suggested that the distinctive siting of the monuments were based on a need to control territory and routeways through visibility. This was particularly important, as many believe that elites created and maintained positions of social dominance by controlling the population and supply of prestige goods and metal (O'Brien 2015, 290). A large number of Irish hillforts are located at strategic positions in the landscape, at the interface between upland and lowland landscapes and overlooking one or more natural corridors (Condit 1998, 22; Grogan 2005b; Waddell 1998, 269). The need to control these routeways, and to be seen from them, may have been a significant factor in choosing these locations. The importance of natural routeways has been noted by several researchers on the continent (see Chapter 3). Similarly, early hillforts in Britain are positioned to control physical access to varied landscapes and resources (Hamilton and Manley 2001, 31).

This does not exclude the communal aspect of hillfort building as presented by Lock (2011) or the potential defensive role of these monuments promoted by Armit (2007). Rather, it may be seen to amalgamate the two, in a multi-layered interpretation of these sites. A community may have built a hillfort primarily to convey their authority over a routeway and to attract trade. This construction process may have been important for consolidating a disparate social group and in the creation of group harmony and identity. During the life-cycle of the hillfort, the site may have performed a number of diverse functions for the community. It may have been used as a defensive refuge, a central place for elites or craft-specialists, or a meeting or assembly point at certain times in the year where social function such as ritual feasting may have taken place.

Sharples (1991, 84) admits that control over exchange networks and the inter-community alliances that facilitated trade would be a principal cause of conflict and competition. The destruction of a hillfort would have been a striking visual way of undermining this authority. The archaeological evidence for the burning of hillfort defences is evident in a number of excavated and surveyed examples (e.g. Rathcoran, Rathnagree, Clashanimud, Toor More). Although some hillforts may not have been built to function primarily as defensive enclosures, they may still have been heavily linked with warfare practices in prehistory. Late Bronze Age hillforts may be seen as 'inevitable targets'. This term was used by Heath (2009, 51) to describe the Neolithic causewayed enclosures of Britain. Heath (2009, 51) comments that these enclosures must have been important high status sites that were in some way removed from the norm and suggests that they attracted 'the hostile intentions of 'foreign' communities who sought to usurp the material wealth and the resulting social power that this commanded'.

A hillfort may have been destroyed by a rival elite or community who were competing for the same resources or trade opportunities. While this had the practical function of eliminating a rival from competing in exotic goods and long-distance trade networks, the destruction of hillfort defences in acts of warfare could also have created vivid memories of subjugation for the community associated with the site and deconstructed their social order. Conversely, it would have reinforced the identity of the hostile group, solidifying social cohesiveness and creating social memory. A successful attack may have consolidated an elite's position and increased their status.

The life-cycle of the enclosing elements of a hillfort would therefore have been integral in the formation and consolidation of group identity on a number of levels. The construction of the hillfort could have allowed the builders to consolidate social cohesion and group identity.

The ‘active life’ of the enclosing elements would have been essential in displaying this identity in the local landscape, and their destruction would have reinforced the identity of the aggressive community, while simultaneously deconstructing the social order of the building community.

The location and function of hillforts, and particularly those in Ireland, therefore, can be linked to the need to control the landscape and the movement of people and goods. This in turn would facilitate other potential functions such as ritual or assembly, the hillfort being highly visible in the landscape, yet decisively liminal within it. Similarly, the hillfort would have acted as a mechanism for the display of status and power within this landscape and would correspond with the competitive society within which they were built.

The Baltinglass hillforts correspond well with this model. They are strategically positioned at the interface between four landscapes; the flat valley to the south surrounding the River Slaney, the flat valley to the west surrounding the River Barrow; the undulating landscape to the north; and the upland mountainous terrain of the Wicklow Mountains to the west. This would have provided a diverse range of resources and a dense population from which to attract labours and traders. The hillforts may also have been positioned near areas which could produce copper and gold, although this cannot be verified. The River Slaney, which all of the forts surround and overlook, would have provided access to trade and communication routes. The siting of the Baltinglass hillforts, therefore, mush be viewed as strategic.

Evidence for warfare and the comprehensive destruction of the enclosing elements by fire is well attested at the Baltinglass sites. This corresponds well with the evidence from the continent. Primas (2002, 50) has noted the propensity for wooden enclosures in almost all phases of the Late Bronze Age and their subsequent destruction by fire. Harding (2001, 334) and Bogucki (2004, 88–89) suggest that ‘almost all’ of the Urnfield hillforts in Central Europe were rapidly destroyed, with artefact assemblages often indicating a single phase of occupation that rarely exceeded one hundred years. The increased evidence for violence at these sites has also been noted (Thorpe 2013, 240). The evidence for destruction at the Baltinglass sites suggest that the hillfort communities were drawn into inter-regional warfare. These communities were probably competing for various resources, people and access to traders and exotic goods. This may have led to heightened tension and subsequent acts of aggression.

This may have necessitated the hillfort communities to consider defence as a primary function. This is reflected in the strategic siting of the hillforts on Tuckmill Hill and Spinans Hill, and in the size and number of enclosing elements at Tinoran. The enclosing elements may also

reflect elements of competitive display. Ritual was also a component of the Baltinglass landscape, as attested by the numerous barrow monuments and other burials, stone circles, standing stones and ritual ponds. Hillforts performed a variety of functions through Europe during Late Bronze Age and it is clear that the Baltinglass group correspond with this multifunctional approach.

CHAPTER 10

CONCLUSION

The final chapter summarises the contribution this research has made to the knowledge of the Baltinglass hillfort landscape, and to Irish hillforts in general. The study addresses a diverse range of topics relating to hillfort research, including ritual, warfare and settlement. These are examined in the context of both the Baltinglass hillforts and other such sites in Ireland. The research has highlighted the potential of Baltinglass as a seminal area for Bronze Age hillforts. This is based on research undertaken in the study to consider the following:

- To record the full extent and relevant archaeology of Baltinglass hillfort landscape.
- To compare the topographical setting of these sites to other hillforts in Ireland.
- To examine the design and form of different types of hillforts in Baltinglass, in relation to parallels elsewhere in Ireland.
- To analyse the techniques used in the building of these hillforts.
- To understand the function(s) of individual hillforts in Baltinglass, and the group as a whole.
- To address the significance of these hillforts in contemporary society in respect of settlement organisation and economy, ceremony and ritual.
- To examine the clusters of hillforts as a wider phenomenon in Ireland.

Until recently, there has been a notable lack of research on Irish hillforts. Apart from a limited number of excavations and even fewer landscape studies, research in this area has declined since Barry Raftery's important contribution (Raftery 1972; 1974). Of particular interest to Raftery (1994, 62–64) were the 'amazing' group of large hillforts in the mountains of West Wicklow, in particular, the Spinans Hill complex which he described as a 'remarkable and dramatic discovery'. Condit (1992; 1998) brought these hillforts to attention in the modern era and highlighted the importance of this landscape. Following his initial work, there has been no field research undertaken on these sites prior to the present study. It is now possible to retrieve new information was retrieved using a variety of invasive and non-invasive methods including LiDAR, geophysical survey and excavation. The wealth of information provided by these surveys

provides a greater understanding of this complex prehistoric landscape, contributing important data relating to the aforementioned research questions.

10.1 BALTINGLASS: THE EVOLUTION OF A HILLFORT LANDSCAPE

The construction of the Early Neolithic enclosure at Hughstown (No: 55) is important from a local perspective, in that it implies a large population base existed in the Baltinglass area during the 4th millennium BC. This is supported by other possible Early to Middle Neolithic monument types such as Linkardstown burials, stone axes found in the local region, and by the construction of burial cairns and passage tombs. Hughstown may be the largest Early Neolithic enclosure discovered in Ireland to date and is morphologically distinct in having no notable 'causeways' along its perimeter, while the excavation evidence points to a defensive element in its design. It is somewhat unique and therefore needs further work. It also presents us with an interesting scenario, where other sites identified as 'hillforts' could prove to be much earlier in date and highlights the need for a continued programme of dating. The continued importance of the landscape during the Late Neolithic/Early Bronze Age is attested by the presence of the embanked stone circle at Castleruddery and possible cursus monuments.

The Middle/Late Bronze Age saw a significant expansion in human activities in the area, with the construction of hillforts, stone circles, standing stones barrows and so forth. It is likely that this period saw the construction of many of the hillforts in the area. Six hillforts were known prior to this study with an additional site, Spinans Hill 1 (No: 98), tentatively identified by Condit (1992; 1998). During the course of fieldwork, the author confirmed the presence of the latter and identified two unrecorded hillforts in the Baltinglass landscape, namely Sruhaun (No: 101) on Tuckmill Hill, and a site on Kilranlagh hill (No: 60) (see Chapter 5.2 and Chapter 5.3.2). These discoveries provide a more comprehensive view of the archaeology of the area.

Chapter 6 proposed two models explaining the possible evolution of the Baltinglass landscape, dealing specifically with the chronology of the group. **Model 1** argues that the hillforts are broadly contemporary and were probably built by a number of competing communities during the Middle/Late Bronze Age transition, with additional elements being added to some sites throughout the Late Bronze Age. **Model 2** suggests that some of these sites are not contemporary and the Baltinglass group comprises a palimpsest of monuments dating from the Early Neolithic to the Iron Age/Early Medieval period.

Considering the present evidence, it is concluded that, to some extent, both models are partially correct. There seems to have been a succession of sites over time, to create this palimpsest, but some sites were in contemporary use. For example, the three forts on Tuckmill Hill may comprise a contemporary group of sites built by the same community. Radiocarbon dates from Sruhaun (No: 101) and Rathnagree (No: 94) suggest both sites are broadly contemporary, while Rathcoran (No: 92) has not been dated. Similarly, the Spinans Hill complex may also consist of a group of hillforts built at the same time but not necessarily contemporary with those on Tuckmill Hill. Two of the enclosing elements at Tinoran (No: 103), for example, were built later than Sruhaun or Rathnagree (although considering these dates suggest these two enclosures at Tinoran were not built at the same time, one of the remaining undated defences could be contemporary). Without further dating information it is difficult to put forward a definitive chronology for the cluster. It is clear, however, that the Baltinglass landscape was an important area as early as the Early Neolithic, when the first of its large hilltop enclosures were built.

10.2 THE LIFE CYCLE OF THE BALTINGLASS HILLFORTS

10.2.1 Construction and design

Chapter 7.1 examined the diverse range of morphological components in the design of the Baltinglass hillforts, including the different layouts and construction features (see Table 7.1). These ranged from univallate to moderate and widely spaced defences, some of which possibly comprised up to five banks. A variety of construction techniques and elements were used, including combinations of wood, stone and earth. Several examples include the incorporation of heavy wooden palisades, also noted at other Irish hillforts. Two explanations have been proposed to explain this phenomenon (Chapter 6.1). In this regard, the need to project the identity of a community may be a primary concern. Groups may have intentionally employed unique construction elements to differentiate themselves from past and present communities. This interpretation is supported by the highly visible and strategic location of many Irish hillforts (see Chapter 9.2). This may have been one of a number of important functions invested in the enclosing elements themselves. The difference in design may also be explained by the different dates of the sites.

Rathcoran is an important case-study for studying construction techniques, as some researchers (Raftery 1994; Waddell 1998; Condit 1992; 1998) have interpreted the site as the

only potential example of an unfinished hillfort in Ireland. Driver (2013, 84) has recently suggested that many hillforts that were previously understood to be unfinished can be reinterpreted as finished, arguing that variability in the number and size of the enclosing elements may be related to competitive display, providing an interesting new approach in which to interpret this monument. This is discussed in detail in Chapters 7.2 and 7.3. Although it is provisionally concluded that Rathcoran (No: 92) could represent an unfinished hillfort, three scenarios can be presented to explain the physical features of the site today:

1. This is a finished hillfort, with evidence for internal occupation, where the northwestern side was monumentalised with large banks, a palisade and quarry pits that had a water holding function. The site was subsequently destroyed and abandoned.

2. This is an unfinished hillfort, where the completed northwestern side had a palisade, which was burnt down during construction, and remained incomplete once the site was then abandoned. The quarry pits in this instance represent quarries for bank material that were intended to be joined together to create a wide, shallow ditch between the two enclosing elements.

3. This is a partly re-built hillfort. There was a partial attempt to rebuild the fort after it was destroyed by fire. The re-building may have taken place directly after the destruction by same community or a different group, or some time later by a different group.

The high resolution LiDAR data and fieldwork at Rathcoran (No: 92) and Rathnagree (No: 94) has provided an opportunity to look at hillfort construction techniques. Excavation of the Phase 2 enclosing elements at Rathnagree, for example, revealed that the core of the bank comprised stone most likely deriving from field clearance. This core was capped with earth and had an external stone revetment, the stone probably being quarried from the external ditch. Grogan (2005a, 226) argues that loose stone was collected and used to form the 'marker line' at Mooghaun (No: 85) hillfort. A similar scenario has been suggest for Rathcoran, where field clearance was used to form the core of the bank. The palisade may then have been secured in place with material derived from quarry pits. This would have added height to the palisade as well as reducing labour by negating the need to dig post-holes.

There is evidence for a level platform abutting the enclosing elements at Rathnagree (No: 94), Rathcoran (No: 92) and Tinoran (No: 103). Similar features were identified at

Mooghaun (No: 85) hillfort. These flat surfaces may have been used as a flat base to construct the hillfort bank. When completed they could also have been used as habitation areas.

Possible evidence for gang working has been identified at Rathcoran (No: 92) and Rathnagree (No: 94). This is visible as discrete sections of banks that join together creating abnormal kinks or overlaps. More tentative evidence includes variations in the size of the enclosing elements.

Chapters 7.2 and 7.3 discusses the different construction techniques involved in erecting large palisaded enclosures such as Phase 1 of Rathnagree (No: 94) hillfort. Such community projects would have helped to create a shared identity within a disparate community, which Lock (2011) argues was one of the main functions of hillforts.

10.2.2 Occupation and use

The Baltinglass hillforts are topographically located in highly prominent positions, and are particularly visible from the landscapes to the south and west. This empirical data was quantified using GIS analysis such as viewshed and Least-Cost-Path analysis. The hillforts are positioned close to the Slaney River, which may have acted as a significant routeway in prehistory. This is attested by the numerous Bronze Age artefacts recovered from the river (see Chapter 9.2.7). The diverse range of natural resources of the region may be an important reason why this group of hillforts was constructed in this area. The Wicklow Mountains and its hinterlands contain natural resources ranging from precious metals to fertile agricultural lands. Good quality soils were important to increase agricultural yields to produce surplus stock for trading, which in turn may have attracted a strong farming population. An adequate work-force was required for the construction of these hillforts and so, the importance of a stable population base cannot be underestimated. The hillforts are also located near sources of copper and gold, although there is no evidence to suggest that either resource was mined in prehistory. Warner (forthcoming) has discovered placer gold deposits in the Slaney River near Baltinglass and at the source of the Slaney itself. The Baltinglass hillforts are strategically positioned in this regard, being located as close to the source of the Slaney as possible without actually being in the mountains. This provided the hillfort communities with a larger catchment area with greater potential for increased agricultural yields, access to a more diverse range of resources, larger population groups and trade links. The Baltinglass hillforts, therefore, correspond with the topographical

location of many other Irish hillfort, being strategically located with regard to routeways and natural resources.

GIS and landscape analysis of the Baltinglass area helped to generate tentative territorial and catchment models for the hillforts in the group (Chapter 8.1 and Chapter 8.2). These suggest that extensive areas were accessible to the hillfort communities. The distribution of barrows and other burial monuments suggest that each fort may have had a core territory surrounding the area at the base of each hilltop. Viewshed and Least-Cost-Path analysis suggests that at Tuckmill Hill, the core area and access to the summit was protected. Burial monuments could have helped to reinforce core territorial boundaries, acting as visible claims to the land and may have helped to legitimate the rule of an elite. It also supported the creation of group identity.

Analysis of the function of the Baltinglass hillforts was a primary focus for this study. Survey at these sites revealed a disparate level of occupation evidence which could suggest the individual forts had different functions. At Brusselstown Ring (No: 15), for example, the author discovered up to 288 possible hut structures on the southern and southeastern slopes. This settlement is highly visible from Tuckmill Hill and it is notable that there are far fewer hut sites on the eastern and northern slopes of the hilltop. This is particularly striking when we consider that the main zone of visibility and accessibility of Brusselstown Ring (No: 15) is north-east towards the Glen of Imaal, which was possibly the core territory controlled by the hillfort builders. We could interpret the strategic positioning of these hut sites as an intentional act of competitive display. Driver (2013, 135) argues that some hillforts positioned on sloping ground may have been a deliberate attempt to highlight a community's strength, where the interior revealed a populated, well organised community. Similarly, at Rathcoran, there is evidence for intensive settlement inside the hillfort, while tentative evidence of occupation structures has been identified at Hughstown. Locational analysis of the individual sites reveals a possible hierarchical system of internal settlement (see Chapter 8.3). Interestingly, there is limited evidence for settlement at Sruhaun, suggesting it could have had a different primary function, possibly associated with stock management. The site could still have maintaining an element of defensiveness, particularly when viewed from a distance, possibly as a deterrent to attackers.

Chapter 7.4 discussed the defensive properties of these hillforts with specific reference to their strategic location. This is supported by GIS and landscape-derived catchment models, which attempted to reconstruct the territorial zones concerned (Chapter 8.1 and 8.2). Chapter 7.4 took Tuckmill Hill as a central case study because of the excellent quality of geophysical, excavation and LiDAR data available. Excavation revealed that Rathnagree (No: 94) and Sruhaun

(No: 94) could have been contemporary (Rathcoran is currently undated). An interpretation of the LiDAR data suggests that the three forts may have formed a comprehensive defensive system protecting the main access points to the tribolate hill and overlooking the entire extent of the hilltop and hillslopes (Fig. 10.1). This is significant, as it suggests that a single community or an alliance may have built more than one hillfort. If the same logic is applied to the complex of hillfort on Spinans Hill, than six of the nine hillforts in the Baltinglass area could have been built by two communities (although neither 'group' of sites, nor many of the individual sites, may have been contemporary).

Territoriality may have been an important aspect of the defence of these sites. The visible marking of 'core boundaries' would have made apparent the portions of the landscape that were restricted to outsiders. Analysis of aerial and satellite imagery, as well as LiDAR revealed numerous features tentatively identified as prehistoric burial monuments, such as barrows (Chapter 5.7 and Chapter 8.2). These add to the already notable number of recorded barrows in the landscape, and other prehistoric ritual and burial monuments such as standing stones, cist burials, mounds, cairns and stone circles of different periods. The concentration of ritual monuments supports the assumption that this is an important Bronze Age landscape. The distribution of these burial monuments, and in particular those that could be contemporary with the hillforts in the area, may reflect a conscious effort by individual hillfort communities to physically mark territorial boundaries. Although such boundaries were probably defined by topographical features, such as rivers and streams, the addition of visible burial monuments would have ritually reinforced these boundaries and claims to the land.

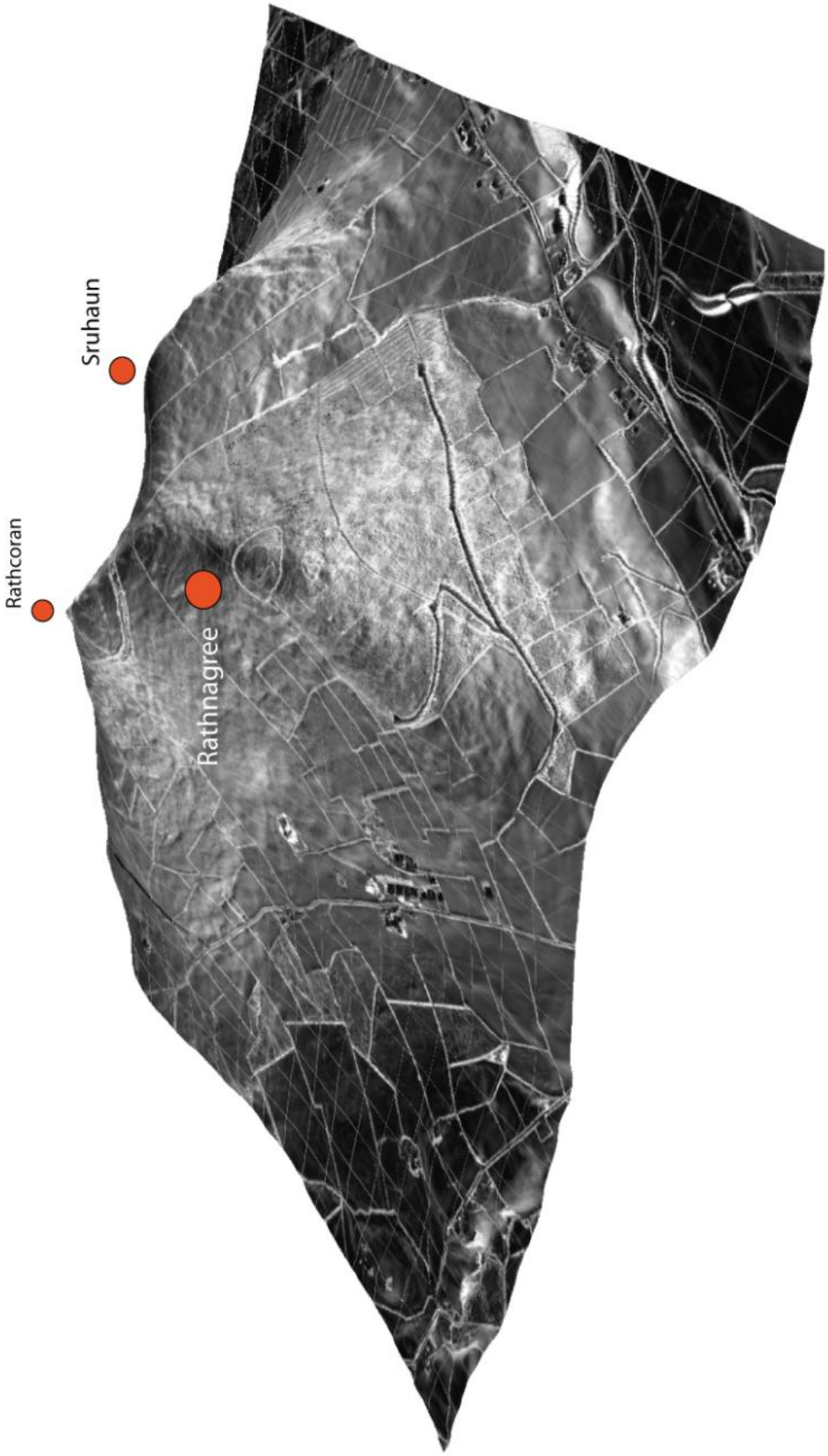

Fig. 10.1: Three dimensional view of Tuckmill Hill.

10.2.2 Abandonment and destruction

The ritual component of the Baltinglass hillforts was discussed in Chapter 7.5, with particular reference to the burning of the enclosing elements at some sites. At present, evidence for burning may be focused on Tuckmill Hill, with confirmed evidence at Rathnagree and possible evidence at Sruhaun and Rathcoran. Future excavation may reveal such evidence at Tinoran or the sites on Spinans Hill. Although burning can be characterised as a destructive act, it can also be interpreted as a formalized ritual activity undertaken by the builders of the hillfort themselves or by a rival community. Thomas (2008) and Noble (2006) have argued that the destruction of some monumental Neolithic wooden structures was an important and intentional act undertaken by the builders linked with the creation of memory and with cycles of death and rebirth. Conversely, we could also consider the importance of such intentional destruction would have had if it was undertaken by an aggressive rival group. The comprehensive destruction of Rathnagree (No: 94), for example, would suggest that extensive amounts of resources and people would have been needed to start and maintain the fires and it is likely this would have been a community event. This destruction could have been a ritual performance undertaken by a victorious community after battle, where they comprehensively destroyed a rival hillfort. The act of destruction would have created vivid memories of subjugation for the community associated with the hillfort. More importantly, it would have reinforced the communal identity of the hostile group, solidifying social cohesiveness and creating social memory. A successful attack may have consolidated and legitimated an elite's position as head of the community and increased their status in both his community and the now subordinate group. It may also have had a practical element, with the successful elite removing a rival from competing in exotic goods and long-distance trade networks.

These interpretations are placed in the broader context of the Irish hillfort in Chapter 9.3. It is concluded that hillforts were probably used for a variety of functions and a model for the 'life cycle' of a hillfort can be proposed. It is argued that the enclosing elements of a hillfort would have been integral in the formation and consolidation of group identity on a number of levels. The construction of the hillfort could have allowed the builders to consolidate social cohesion and group identity. The 'active life' of the enclosing elements would have been essential in displaying this identity in the local landscape, as well as claiming ownership over this area and the resources and people contained within. Their destruction would have reinforced the identity of the aggressive community, while simultaneously deconstructing the social order of the building community and essentially destroying their identity.

10.3 BALTINGLASS: THE WIDER CONTEXT

Chapters 9.1 and 9.2 highlighted the strategic location of many Irish hillforts, which often overlook one or more natural routeways. Although this has been noted by other researchers such as Grogan (2005b; 2014, 68), this study is the first to demonstrate the association using quantitative results. GIS analysis, including Least-Cost-Path, viewshed and cumulative visibility are central to corroborating this assumption. These methods reveal that a hillfort such as Toor More (No: 36) in Co. Kilkenny is deliberately positioned to visually dominate a natural routeway and an extensive tract of low-land to the west. In addition to the conspicuous location of the hillfort, the presumed clearance of vegetation, as well as the construction of enclosing elements, would have combined to monumentalise this prominent place in the landscape.

As argued in Chapter 9.2, such landmarks would have been essential for long-distance travel and trade. Such a link has been identified by researchers in Britain and the Continent. Brown (2009, 201) for example, argues that large numbers of English and Welsh hillforts may have been used as 'trading nodes'. Driver (2013, 59) has argued that many hillforts acted as locales for embarkation and destination, and were what Brown (2009) describes as 'beacons in the landscape'. The location and function of hillforts in Ireland can also be linked to the control of movement of people and goods. This, in turn, would facilitate other potential functions such as ritual or assembly, the hillfort being highly visible in the landscape, yet decisively liminal within it. The hillfort would have acted as a mechanism for the display of status and power within this landscape, in keeping with the competitive society within which they were built. This meant that hillforts would have been 'inevitable targets' for rival communities, making the defensive capabilities of these fortifications a significant consideration for the builders. The increased evidence for violence and destruction at Late Bronze Age hillforts in Ireland and Europe corresponds with this interpretation.

The possible reasons for the clustering of hillforts in Ireland, Britain and the Continent is discussed in Chapter 6. Five scenarios are proposed to explain this phenomenon:

- Formation of an alliance network.
- A consequence of partible inheritance.
- Fortification of a frontier zone.
- Control of strategic routeways.
- Control of important natural resources.

It is concluded that the principal reason for clustering of hillforts relates to the control of natural routeways or resources, which is also argued for the Baltinglass group. From an economic standpoint, the location of the Baltinglass group would have provided a diverse range of resources and a dense population, allowing the elites in the area to gather larger groups of people to build and maintain the forts, as well as being able to produce larger quantities of surplus food stock for trade or to support the builders of the hillforts or craft-specialists. The hillforts may also have been positioned near areas that could produce copper and gold. The River Slaney may have been part of such a trade route and in that respect, the Baltinglass hillforts were strategically sited. This is somewhat evidenced in the large communities which would have been needed to build these massive hillforts, as well as the large number of possible hut structures discovered at Brusselstown Ring (No: 15) and Rathcoran (No: 92) hillfort (Chapter 8.3).

10.4 FUTURE WORK

Further LiDAR and geophysical surveys in the Baltinglass area would be important to identify other unrecorded archaeological sites. Environmental analysis, in particular, pollen records of long-term vegetation change and human impact, would help better understand the prehistoric environment of the area. Finally, further excavation would clarify how these monuments related to each other in a chronological and functional sense. Investigation of other hillfort groups could also be beneficial to place the Baltinglass cluster in its wider context.

10.4.1 Survey

Harding (2012, 113) has noted that investigation of extra-mural settlement in the immediate vicinity of hillforts has been neglected. He blames the lack of such investigations for the paucity of formal Iron Age cemeteries in the archaeological record. The Heuneburg hillfort in Baden-Wurttemberg, southern Germany, illustrates the potential for such discoveries. A recent study of these environs by Fernández-Götz and Krausse (2012, 31) revealed a dense settlement over an area of approximately 100ha, representing a population of approximately 5000. Similarly, Corney and Payne's (2006, 58) investigation of a levelled ditched enclosure approximately 200m to the south-east of Bury Hill in Upper Clatford, England, suggests the settlement there may have been contemporary with the hillfort.

The use of a single sensor gradiometer limited extensive investigations at the Baltinglass sites. Future survey might include possible barrows identified through LiDAR and satellite imagery, as well as more extensive investigations of the immediate environs of the hillforts. The use of GPS-enabled multi-sensor cart systems would be particularly useful, as the recent reduction in the cost of purchasing or renting these systems would significantly reduce the time it takes to undertake a survey (e.g. Schot *et al*. 2016). The 5 sensor MXPDA system made by Sensys, for example, can collect in excess of 10ha of data a day with a 0.5m traverse interval. In contrast, it would take two people approximately 12 days to collect the same amount of data using a single sensor system. The use of such a cart system would allow the immediate environs of the Baltinglass hillforts to be extensively investigated. This might identify extra-mural settlement and activity, relict field systems and other agricultural features, as well levelled ritual and burial monuments. This would help to better understand the immediate environs of these sites and how they related to the hillforts in terms of settlement, economy and ritual. Additionally, although there is no convincing evidence for the construction of hillforts on other hilltops in the Baltinglass area such as Stratford/Ballyhook Hill, Saundersgrove or Corballis, these geophysical survey methods would allow those areas to be investigated quickly and in a cost effective manner.

Other specialist geophysical methods could also be employed to good effect. Electrical Resistance Tomography (ERT), for example, is a method where a series of measurements can be taken along a transect with probe spacing being increased to record different depths, creating a pseudo-section. This technique could be used to estimate the width and depth of hillfort ditches or to identify levelled bank features. It would be particularly useful at Rathcoran (No: 92) where it could be used to investigate the depth of the quarry pits and indicate if they were rock cut.

Ground Penetrating Radar (GPR) could also be used to investigate these quarry pits and the enclosing elements of hillforts. GPR works somewhat like sonar, in that an electromagnetic pulse is sent from a transmitting antennae, and received by another that measures the two-way travel time of a pulse of energy which has reflected off a subsurface deposit. These reflections are cause by the contrast between electrical properties and the difference in soil layers and buried artefacts (Conyers 2004, 23–27; O'Connor, 1997, 269). Again, this would be useful to investigate the Rathcoran ditches.

The potential of LiDAR and other types of terrain mapping has been highlighted by a number of recent projects. For example, the extensive extramural settlement at the Heuneburg hillfort was discovered by LiDAR survey (Fernández-Götz and Krausse 2012, 31), as was

extramural activity at the inland promontory fort of Knockdhu (No: 69) in Co. Antrim (McNeary 2012). The excellent quality data derived from the Tuckmill Hill LiDAR (16 points per m²) commissioned for this project emphasises how the effective use of such data can reveal important information regarding both unrecorded and recorded archaeological sites. The number of unrecorded hut structures and possible barrows identified on and around Tuckmill Hill through analysis of LiDAR data indicates the potential for wider application of this technique. This data contrasts with the lower quality data obtained for Tinoran (No: 103) and Hughstown (No: 55) forts (0.25 points per m²), although, in some instances, that resolution can be useful. A high resolution LiDAR survey across the entire Baltinglass area of approximately 9km by 3.5km would reveal many new features in that landscape.

LiDAR survey of the Spinans Hill complex would be particularly useful as the local igneous geology limits the application of geophysical techniques. The identification of 288 possible hut structures on the southwestern slopes of Brusselstown Ring (No: 15) suggests an impressive settlement within the complex. High resolution LiDAR would record those features in detail, as well as other examples now obscured by vegetation. This would also allow a more in-depth analysis of the 'settlement cluster' identified by Condit (1998) on the northern base of Brusselstown Ring and other possible settlement structures in or around the complex. The survey would also record the Spinans Hill 1 (No: 98) and Spinans Hill 2 (No: 99) enclosures to a level of detail not presently available. These partially levelled hillforts were mapped for this project using basic GPS survey and aerial photography. A detailed digital surface model would allow a thorough analysis of the defensibility of the sites, as well as their morphology and construction methods used.

A less costly method for creating a digital surface model would be photogrammetry. With the use of automated drones equipped with high resolution cameras, large areas can be surveyed at a fraction of the cost of LiDAR. For example, a 200ha area surrounding the Spinans Hill complex could be surveyed and the data processed in less than a week at a relitavley low cost. The survey would produce high quality aerial photographs for the entire area at a 1cm pixel resolution. This data would be able to generate a DTM with a resolution of approximately 884.7 points per m², although such a high resolution is usually unnecessary. Unlike LiDAR data, photogrammetry cannot penetrate vegetation, and so tree cover, and even small shrubs, heather and gorse, are problematic. The technique is best suited to green field sites such as Hughstown. Conversely, in many cases, high resolution LiDAR cannot penetrate dense conifer forestry, as indicated by the data collected on Tuckmill Hill. Therefore, the application of

photogrammetry on Spinans Hill would be effective, whereas it would be of limited value at Tinoran hillfort.

Pollen analysis of select areas in the Baltinglass region would provide vegetation records to reconstruct the past environment. There are a number of small fens in the area that could be targeted for this study. Holdenstown Bog, for example, is located approximately 4km to the south of Tuckmill Hill, while Lowtown Fen is positioned 1.5km to the north-west of Tinoran (No: 103). Local ponds and bogs could also be targeted for analysis. Environmental investigations at other Irish hillforts, such as Haughey's Fort (No: 53), have revealed extensive tree clearance at these locations the same time the hillfort was being constructed. Increase in agricultural indicators infers the slopes of the hill were being intensively used for farming, possibly to create surplus stock for trade or other activities. A similar scenario might be applicable to the Baltinglass sites. This analysis would also add to an understanding of the economic base of hillfort communities in the area, i.e., what type of agriculture was being practiced.

Analysis of peat samples or waterlogged basal deposits from ditch sections could provide insect and plant macrofossil remains that would further detail the on-site environment of the hillfort and provide evidence for possible agricultural activity. Snail remains found in the ditch fill at Freestone Hill (No: 45) in Co. Kilkenny, for example, are characteristic of dry fauna and infer that the sites of the hilltop were covered with patches of hazel scrub and open grassland. Other insect remains such as dung beetles, could indicate the presence of cattle, and their presence could further our understanding of hillfort function. Were these insects to be recovered from Sruhaun (No: 101), this might indicate that its primary function was a cattle enclosure.

10.4.2 Excavation strategy

As Cunliffe (2006, 153) points out, it is 'only by recourse to excavation can questions of activity and chronology be adequately addressed'. Excavation on a large scale is certainly required if detailed diachronic models are to be constructed for the Baltinglass landscape. Further excavation is needed to form a comprehensive chronology of the Baltinglass sites and place them in their proper cultural context. This will help to clarify other questions such as how and why this cluster emerged. Targeted investigation of the remaining hillforts (Rathcoran, Kilranlagh, Spinans Hill 1, Spinans Hill 2 and Brusselstown Ring) is necessary to obtain radiocarbon dates relating to construction phases. This will also produce additional data on how these hillforts were constructed and could be used to confirm the geophysical indicators of a palisade at Rathcoran (No: 92) or Brusselstown Ring (No: 15). The excavations at Tinoran have

highlighted the need to date all of the enclosing elements at each site, while the discovery of an Early Neolithic enclosure at Hughstown (No: 55) also requires further investigation.

A detailed sampling and dating strategy may be able to reveal different phases and distinguish between construction, use and destruction/abandonment. It must be cautioned that the selective use of datable material can be a limiting factor in determining the true longevity of occupation and this is particularly evident when only a few samples are available. Bayesian techniques, where a sufficient number of samples with clear stratigraphic relationships have been attained, may help to develop more robust site chronologies. These techniques rely upon additional information (usually stratigraphic) relating to a series of radiocarbon samples in order to improve the accuracy and precision of the dates (Schulting 2011, 145). Applying this technique to the Baltinglass sites would require more extensive sampling and dating than has already been undertaken.

For example, these techniques take into account samples lower in the sequence will be earlier than those that are stratigraphically higher. Therefore, a series of dates from the lower fill of a ditch would be needed to 'constrain' the date range of the basal fill, allowing for a more refined *Terminus Ante Quem*. This would be particularly useful for Rathnagree (No: 94) or Sruhaun (No: 101), where the radiocarbon estimations have considerable date ranges. Refining these may help to better understand the overall chronology of the sites and the wider complex of hillforts.

Targeted excavation could be undertaken at Rathcoran (No: 92). As well as investigating the enclosing elements, the excavation of a quarry pit would be useful. This could clarify the purpose and dating of those features, to determine if they are contemporary with the enclosing elements. Sample excavation of possible hut structures within the interior could help to clarify their relationship with the hillfort, and any material culture found could help to test the model of hierarchical system of settlement, presented in Chapter 8.3. The excavation of some of the structures at Brusselstown Ring (No: 15), and possible structures identified by geophysics within the interior of Hughstown (No: 55), would be similarly useful.

More extensive excavation of the interior of hillforts, as highlighted at Rathgall (No: 90) and Haughey's Fort (No: 53), can have an important impact on how we interpret these monuments. Rather than testing hut structures or enclosing elements, a larger excavation in the interior would investigate evidence for settlement structures, craft activities, other economic processes, or ritual activities. Such excavation might also identify the duration of activity at the

site or its later re-occupation. Many of the multiple hut platforms at Knockdhu (No: 69) hillfort date to the Late Bronze Age, however, some were dated to the Late Neolithic/Early Bronze Age (Macdonald 2008). Minute gold fragments, as well as cereal remains and bronze objects, were identified within pits in the interior of Haughey's Fort. These were significant findings as some exotic objects from the interior were manufactured on the Continent (Mallory and Baban 2014; Brandherm 2014). These discoveries contributed significantly to how we interpret Haughey's Fort and highlights the importance of large-scale investigations of the interior of hillforts.

The Danebury Environs project is an example of the importance that wider landscape investigations can have on the interpretation of hillforts (Cunliffe 2000). Understanding the wider landscape and how different monuments related to Danebury helped Cunliffe to present a comprehensive overview of the hillfort and its landscape. A similar programme of research could be undertaken in the Baltinglass area. Sample excavation of possible ring barrows, relict field systems, hut structures etc., identified through LiDAR and satellite imagery would date and clarify the significance of these features in the cultural landscape of the hillforts. Dating the four large low-lying enclosures at the base of Corballis, Hughstown, Kilranlagh and Keadeen would also clarify if these sites are contemporary with the hillforts. This would allow us to better understand their relationship with the hillforts and other components of the local settlement landscape.

This research has highlighted that the Baltinglass landscape was a significant place as early as the beginning of the Neolithic period. A range of ceremonial monuments from this period have been identified. Of particular importance is the newly identified Early Neolithic enclosure at Hughstown (No: 55). Further investigation of monuments that may date to this period, such as the cursus on the western slopes of Hughstown and near the summit of Keadeen Mountain, the numerous cairns in the area, Linkardstown burials and the embanked stone circle at Castleruddery. Excavation may help us to better contextualise the Neolithic landscape of the Baltinglass area. Similarly, dating of human remains from cist burials found in the Baltinglass area, and particularly those surrounding the base of Tuckmill, will help to place these important burials in their cultural context, and clarify their relationship, if any, to the hillfort enclosures.

10.4.3 GIS

This project is one of the first analytical GIS studies of a prehistoric settlement landscape undertaken in Ireland. A number of techniques were used to analyse the Baltinglass cluster and

Irish hillforts in general, such as viewshed and cost surface analysis. While there are other techniques that might be of benefit for future research (see below), the GIS techniques used in this study could be further refined. The problem with these techniques is the quality of the data used in the analysis. The SRTM data for most of the elevation models generated for this study comprises 30m² pixels. The use of high-resolution LiDAR at Tuckmill Hill highlighted the information that can be gained when applying viewshed and Least-Cost-Path on high quality terrain models. However, this study also identified problems associated with such data, including issues with modern field systems impeding visibility and path generation.

Integration of other cost factors affecting movement and visibility, such as palaeo-environmental factors, needs to be considered. As Gillings (2009, 352) points out, it has become customary in GIS-based studies of visibility or Least-Cost-Path to acknowledge the problems associated with modelling the past environment, and then to effectively ignore them. This is partly associated with a lack of suitable data, as is the case in the present study. For example, no palaeoecological studies have been undertaken in the Baltinglass area and it is therefore impossible to reconstruct the past environment. While it is likely that the environs of Irish hillforts were intensively cleared of vegetation during the construction phase, these local environments have not been considered, in respect of how individual trees, scrubs or bushes affected visibility or movement in certain areas. It is difficult to apply such a methodology without very detailed environmental data. Even when the facilities are available to acquire and analyse such material, specific site conditions are needed for preservation that may not exist on the site or in enough locations across the monument. Gearey and Chapman (2006) adopted this approach when studying a bivallate Iron Age enclosure at Sutton Commons near Doncaster, England. This study attempted to recreate the micro-environment of the large enclosure, modelling areas of alder vegetation using a predictive model. Although the authors concluded that there are issues with this approach, it highlighted the significant effect local vegetation can have on visibility.

Predictive modelling has a long tradition in North America (Stančič and Kvamme 1999) but is not often applied in Europe, the notable exception being the Netherlands (Verhagen 2007). Such models are used to predict the likelihood of site locations using GIS cost-surfaces. Stančič and Kvamme (1999) used the Bronze Age hillforts on the island of Brač in Croatia as a case-study, to examine and model the relationship between hillforts and their natural and social environment. The basic logic of such models is simple; first, a set of variables that are considered to have influenced site location (in this case hillforts) are defined; then, hillfort characteristics of

each variable are compared against locations without hillforts. A 'threshold' value is then created for each variable; this threshold is used to create a binary layer, and multiple layers are then added together. The model for the Brač study revealed 'only a handful' of areas that might contain unrecorded hillforts and unfortunately these were not tested to reveal the success of the model (*ibid*., 235). More recent applications of this modelling technique has incorporated broader data sets, using cost-surfaces with ranging cost factors rather than simple binary layers. Although this helps to refine the model, there are still several underlying problems. For example, cost factors such as social or cultural influences are difficult to model, often being subjective or culturally determined. The use of such a technique to identify possible hillfort sites in Ireland may prove beneficial, however, such a model needs to be qualified with extensive field research.

GIS-based studies, and in part the present study, often attempt to integrate results into a theoretical framework that Gillings (2012, 601) suggests has 'explicitly, and vocally, excluded such techniques…exacerbating the sense of theoretical naivety' on the part of the GIS user. He concludes that GIS research has a crucial role to play in experiential landscape research, although it has failed to do so. He argues that 'affordance' be used as a 'framing device for GIS-based experiential studies and offered a glimpse of how it might be profitably put into place' (*ibid*., 611). Affordance viewsheds offer a more nuanced analysis of visibility (Gillings 2009, 2012). This analysis calculates individual viewsheds for every cell that falls within a landscape or selected area. Each cell is then coded with the total number of cells that can see it. This is effectually a derivative of cumulative viewshed analysis. Affordance viewsheds are different because they use every cell as a potential viewer point. This results in a more 'complete' model of visibility and prominence within a landscape. However, Gillings (2009, 352) himself points out that a 'large view' does not necessarily equate to a dominating or panoramic one. The widespread use of this technique is hindered by the number of calculations involved. For example, in Gillings (2009) case study, 279,789 individual viewsheds were generated for the analysis within an area of approximately 20km by 18km (a similar or larger area might be used for a hillfort focused study). This would need considerable computational hardware and time, but is a possibility for future research on Irish hillforts.

Recent developments with agency-based modelling have allowed techniques such as Least-Cost-Path to integrate with theoretical aspects of human behaviours. This technique has been used by zoologists since the early 2000's as a means of predicting the migration patterns of animals (Clevengar *et al.* 2002), but has not been widely applied in archaeological research. Agent-based modelling attempts to simulate the causality of individuals or objects in time and

space (Johnston 2013, 1). Like Least-Cost-Path analysis, the model gives 'instructions' to the GIS system (such as move from one point to another in the quickest and most energy efficient way). This process carried out numerous times, with the results from each previous simulation influencing the next model to ultimately produce a pattern of movement more akin to human behaviour. From an archaeological standpoint, this technique attempts to incorporate the experience of individuals who move through the landscape and how that experience increasingly optimises future movement. This technique uses cost surfaces to help define movement, and therefore, is limited by the same problems as Least-Cost-Path analysis, such as the quality of the digital terrain model or accurately reconstructing past environments. As such, in many cases, the use of the same cost-surfaces results in similar if not identical pathways being predicted.

New analytical GIS techniques are frequently added to GIS software, and some of these may have archaeological applications. For example, the recently created 'solar radiation' function can calculate the amount of sun a landscape is exposed to. This may be important, as it could have had an influence on site location. Location exposed to more sun took advantage of more daylight, increased heat, increased visibility and more productive agricultural and farming lands (Casarotto *et al*. 2012, 10). This analysis could be added to predictive models and other cost surface analysis, or to highlight areas with a higher potential agricultural yield that would have been more amenable for settlers or hillfort communities.

Point-Process Modelling (PPA) has recently become recognised as a statistical tool that can help to establish whether an observed distribution deviates significantly from the null hypothesis of a random pattern. Eve and Crema (2014, 271–272) state that the few examples where these models have been applied in archaeology have been successful. This might be a useful tool when analysing hillfort distributions, or artefact patterns such as some spearheads, swords and axes, that may be contemporary with these sites. The use of other statistical tests to identify the validity of other GIS techniques such as viewshed or Least-Cost-Path may also prove beneficial. Lake *et al*. (1998) for example, successfully use a number of statistical tests including a Kolmogorov–Smirnov test, to examine the validity of cumulative viewsheds generated to test the premise that Mesolithic sites on the Rhinns of Islay were sited preferentially with respect to commanding views.

10.4.4 Irish Hillforts

This project highlights the potential of further research on other hillfort clusters in Ireland. An example is the pair of hillforts at Rathgall and Knockeen in Co. Wicklow. It would be useful to know if the two sites were contemporary, and what was the functional relationship. Chapter 6.1 noted that there are two types of hillfort clusters: those where hillforts are positioned on opposing hilltops and those that are located on the same hilltop or in extremely close proximity. Investigation of both clusters would therefore be necessary. Those in close proximity on the same hilltop may be broadly contemporary, considering the dating evidence already obtained from Rathnagree (No: 94) and Sruhaun (No: 101) on Tuckmill Hill. Other targets of this type could include the Friarstown hillforts (No: 46 and 47) in Co. Limerick which are positioned approximately 40m apart, or Rathgall (No: 90) and Knockeen (No: 70) hillforts in Co. Wicklow, 300m apart. Examples spaced on opposing hilltops include Knockadigeen (No: 64) and Ballincurra (No: 4) hillforts in North Tipperary, or the sites at Ahenny (No: 2) and Curraghadobbin (No: 34) in southeastern Tipperary. Excavation is needed to clarify these questions, supported by geophysical and LiDAR survey.

From a broader perspective, more detailed work needs to be undertaken on Irish hillforts in general and this includes environmental, geophysical and LiDAR surveys, as well as more environs studies of the Danebury type. The question remains as to the dating of univallate hillforts in Ireland, and a detailed dating programme should be considered, similar to the current project being undertaken on multivallate Irish hillforts. Such a study could also incorporate the smaller univallate enclosures known in Ireland as 'hilltop enclosures', as none of these have been adequately dated but are still regarded as being contemporary with hillforts. Other site types included in the broad categorisation of 'hillfort' in Britain also need more thorough investigation. Both coastal and low-lying inland promontory forts are poorly understood in Ireland and an extensive dating programme would provide a more robust chronology for these sites. This also brings to bear the issue of terminology. The term hilltop enclosure, for example, is markedly different in Ireland (an enclosure on a hilltop less than 1ha in total size that is contemporary with the traditional Irish hillfort, dating to 1300–800 BC) than in Britain (a large enclosure on a hilltop often over 10ha in size that often pre-dates the traditional British hillfort, dating to 900–600 BC). *The Atlas of British and Irish hillforts* has, to some degree, provided a framework for compiling these different terms and sources together, although how applicable this will be on a European level remains to be seen.

10.5 HILLFORTS: A TENTATIVE NARRATIVE

At around 1400 BC and continuing until *c.*800 BC, Bronze Age communities in many parts of Ireland constructed large enclosures on prominent hilltops. These were often positioned at the edge of upland areas, in strategically important locations that provided access to various resources and good quality agricultural land. They often overlooked natural routeways such as navigable rivers or overland routes.

These hillforts may have been commissioned by elites who resided there once completed. The builders probably comprised dispersed groups who farmed the land around or within view of the site and owed patronage to this elite. The construction and maintenance of the hillfort would have been an important way of building communal identity and group cohesion. The enclosing elements of the fort had numerous practical functions. They served as a visible manifestation of an elite's authority and power, and their perceived control of the land, people and resources in that area. The defences also had more symbolic functions for the dispersed community who helped to build it, acting as a unique central monument with which these people could identify. The hillfort formed a permanent visible reminder of the social ties and obligations that loosely tied this community together and a symbol of group identity.

At certain times of the year, the fort functioned as a central place, where peoples would come together for various ritual and feasting events, and to perform tasks such as gift exchange, marriage arrangements, trade, storage of excess goods, and so forth. Such activities are tentatively suggested in the record of some excavated hillforts. The cereal remains discovered at Haughey's Fort (No: 53), for example, were not produced in the immediate environs and were probably brought to the site by a farming group under the patronage of the resident elite (McClatchie 2014). This suggests an extensive catchment area for the hillfort, as well as its use for communal storage and feasting. Similar evidence has been discovered at Downpatrick hillfort in Co. Down, where a number of pits produced cereal remains. Bronze cauldrons and other ritual feasting equipment, as well as the widespread occurrence of *fulacht fiadh* in the Irish landscape, suggest that Bronze Age societies practiced communal feasting at different times. Prestige and foreign goods at Haughey's Fort, Rathgall (No: 90) and Dún Aonghasa (No: 40) also attest to these sites functioning as trading centres. Evidence at Haughey's Fort and Rathgall indicates that prestige goods were being manufactured on site. Overall, the excavation evidence highlights the diversity of activities at hillforts and suggests each site fulfilled different functions at the centre of their respective communities.

There is considerable variability in the archaeological record. For example, no settlement structures were identified at the extensively excavated Rahally (No: 88) hillfort in Co. Galway, contrasting with the apparently dense settlement at Brusselstown Ring (No: 15) recorded by the author, or the occupation evidence from Knockdhu (No: 69) hillfort in Co. Antrim. As Cunliffe (2006, 160) notes, a convincing explanation for such disparity is not immediately apparent, but may be explained by the geographical and temporal variability in how hillforts were perceived and functioned.

These monuments became significant central places for dispersed communities, becoming symbols of power and authority for the resident elite. As such, they became an inalienable part of a competitive, warrior-focused, social system, and were inevitably targeted by rival communities. The destruction of a hillfort, often in a highly visible manner such as burning, would have helped to deconstruct the social order of the local community while re-enforcing the strength and identity of the rival group. It also had practical functions, such as removing a rival from participating in trading networks or allowing access to new resources or people. The use of fire at hillfort sites such as Clashanimud (No: 26), Co. Cork, Toor More (No: 36), Co. Kilkenny or Rathnagree (No: 94) in Co. Wicklow, may have led to changes in design of the Irish hillfort, where wooden elements were not incorporated to nullify the threat of fire.

At Baltinglass a group of up to nine large hillforts were constructed in a confined area overlooking the River Slaney on the western edge of the Wicklow Mountains. Although the chronology is at present unclear, the size and elaborate nature of some of these monuments indicates this is a seminal area for hillforts in Ireland. Evidence for human settlement in the area extends as far back as the Early Neolithic (3800–3400), when the large enclosure at Hughstown (No: 55) was constructed, with other Neolithic monuments in the area including two cursus', Linkardstown burials, cairns and passage tombs. Hillforts in the area, such as Rathnagree (No: 94) and Sruhaun (No: 101), began to be constructed at the end of the Middle Bronze Age (1500–1200) and are the oldest known sites of this kind in Ireland. Hillfort construction of some sort, be it the creation of an entirely new site or the extension of an existing one, continued throughout the Late Bronze Age (1200–800) on sites such as Tinoran (No: 103), and probably Kilranlagh (No: 60), Hughstown, and probably at the complex on Spinans Hill. The extensive settlements identified at Rathcoran (No: 92) and Brusselstown Ring (No: 15) indicates extensive population levels in the area that could sustain these massive building projects. The continued construction and refurbishment of the Baltinglass sites has not been readily identified at other hillforts in Ireland. This further highlights the significance of these Wicklow hillforts at a national level. The

continued occupation of that area may have been underpinned by the readily available natural resources in close proximity, such as good quality agricultural land, upland hunting, riverine resources, with navigable rivers such as the Slaney used for trade and possible access to natural minerals such as copper, and in particular, gold.

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The Baltinglass Landscape and the Hillforts of Bronze Age Ireland

Volume 2 of 2

Catalogue and Appendices

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CATALOGUE OF IRISH HILLFORTS

The following catalogue presents available data relating to the 108 hillforts known in Ireland to date. Each site is given a unique number that allows cross-referencing with the main text. The catalogue entries comprise a site summary, where a brief description of the hillfort is presented. More specific data is displayed in table format and includes site details such as name, county, co-ordinates; information relating to topographical setting; morphological details such as size and shape; internal features; measurements of enclosing elements; details of prior excavations and other investigations. An aerial or satellite image of each site is also presented.

This data has been compiled using a number of sources, including the county inventories, the national online database for archaeological sites and other published information from excavations, surveys and descriptions. However, in many cases, detailed information for a site may be lacking due to an absence of the above resources. For example, a number of counties do not have published inventories and the online database often used this information for their entries. Approximately 40 sites have been visited by the author over the course of this project, and additional site information was recorded. Where detailed satellite imagery exists, site measurements were recorded, such as the footprint of the hillfort, and in some instances when information was not available, bank and/or ditch measurements were taken.

Each site is referred to by the name it is most commonly known as. For example, Rathcoran hillfort in Co. Wicklow is the most common reference for the site, despite this name not being part of an associated townland incorporated by the hillfort, whereas Clashanimud in Co. Cork was not given a name in antiquity and is therefore more commonly referred to by the name of one of the townlands it incorporates.

Catalogue Number 1: Aghnahoo, Co. Tyrone

Summary

Contour fort surrounding summit at the northeastern end of a hill ridge, overlooking the Derg river valley to north. The site has a total footprint of approximately 1.3ha. The bank consists of stone covered in peat and heather. The bank survives well throughout their circuit, although a portion of the perimeter at the northern side has been levelled. An enclosure at the south-west of the hillfort measures approximately 50m in diameter and comprises a collapsed stone wall 1m in height. Chart (1940, 228) notes that this may be an Early Medieval ringfort, as the enclosing elements are not concentric with the hillfort. Surrounding this is another oval bank 5m wide and 0.5m high. This truncates the hillfort bank at the south-west. There are a number of entrance breaks in the hillfort as well as the probably later enclosures to the south-west, although these are unlikely to be original Chart (1940, 228). At least three rectangular houses are apparent within the interior. Considering the probably multiphase activity at the site, it is impossible to suggest a date for these hut sites.

Site Details	
Name	Aghnahoo
County	Tyrone
Townland	Termonamonga
RMP Number	TY023-016
ITM Co-ordinates	621947, 880185
Site Condition	Partially extant
Land Category	Scrub/Heather

Topographical Situation	
Height in metres OD	202
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.29 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	3 rectangular structures

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Monument survey by Chart (1940, 228).	
Finds Summary	
No known finds.	
References: Chart, D.A. 1940. *A Preliminary Survey of the Ancient Monuments of Northern Ireland*. Stationery Office, Belfast.	

Aerial Photography

Fig. 11.1: Aghnahoo hillfort, Co. Tyrone (Google Earth 2015).

Catalogue Number 2: Ahenny, Co. Tipperary

Summary

Contour fort surrounding summit of a domed hill at the centre of a east–west running escarpment, overlooking the Linguan River and its valley. It is located 3.2km to the east of Curraghadobbin hillfort. Ahenny is univallate for its entire circuit and has a total site footprint of 8.4ha. Ramparts survive well north and north–west, although the size of the enclosing elements vary considerably in this area. The bank is maximum 5m wide and 1m high and is composed of earth. Possible outer bank at south, 1m wide and 0.2m deep. Possible internal ditch at north-east 1.2m wide and 0.9m deep, possibly modern. At north, there is an external, V shaped ditch 0.5m wide and 0.7m deep and a counter scarp bank 1.4m wide and 0.9m high. Enclosing elements at south have been truncated by a modern road and are destroyed at east. There are no recorded entrance features or any evidence for internal features on the surface. The site has been heavily affected by commercial forestry. The southern half of the interior is under mature forestry. A large section of the enclosing elements at the south have been truncated by a forestry road. The northern half of interior under scrub and bracken growth.

Site Details	
Name	Ahenny
County	Tipperary
Townland	Ahenny
RMP Number	TS079-027
ITM Co-ordinates	640251, 629079
Site Condition	Partially extant
Land Category	Scrub/Heather

Topographical Situation	
Height in metres OD	296
View from summit	Panoramic
Topographical Position	Hill summit/ ridge
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	8.4 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	0.2m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	1m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	V	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
N half of the Ahenny is depicted as an irregular field boundary in the second edition Ordnance Survey maps, but is not identified as a hillfort.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.2: Ahenny hillfort, Co. Tipperary (Google Earth 2015).

Catalogue Number 3: Ardamagh, Co. Cavan

Summary

Contour fort surrounding the summit of hilltop, overlooking Coppony Lough and tributaries of the Annalee River. The site has a total footprint of approximately 1.1ha. The bank survive well at the north-east and eastern sides, otherwise ploughed flat. O'Donovan (1995) describes the enclosing elements as a low, narrow bank with shallow external ditch, although there are no exact measurements available. No obvious entrance features recorded. No evidence for any internal features on the surface. Interior is currently under pasture.

Site Details	
Name	Ardamagh
County	Cavan
Townland	Ardamagh
RMP Number	CV016-003
ITM Co-ordinates	646438, 812875
Site Condition	Partially extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	123
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.07 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map identification in second edition Ordnance Survey maps. Also depicted in second edition Ordnance Survey mapping. Monument survey in 1995 by O'Donovan.	
Finds Summary	
No known finds.	
References: O'Donovan, P. 1995. *Archaeological Inventory of County Cavan*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.3: Ardamagh hillfort, Co. Cavan (Bing Maps 2015).

Catalogue Number 4: Ballincurra, Co. Tipperary

Summary

Univallate contour fort surrounding the domed summit of mountain at the northern edge of the Silvermines Mountain range. Knockadiggeen hillfort is visible 1.4km to north-east. Ballincurra hillfort has a total footprint of approximately 1.1ha. It is univallate for the entire circuit. The enclosing elements survive best at north-east, where they comprise an earthen bank approximately 0.69m high and 1.8m wide, with a V-shaped external ditch approximately 3m wide, and 0.5m deep. There are no recorded entrance features. There is a heather covered cairn near the centre of the hillfort. This measures 18m in diameter and 2.2m in maximum height, and is positioned at the highest point of the interior. Commercial forestry plantation covers approximately two thirds of the hillfort. The remainder is under heavy heather growth.

Site Details	
Name	Ballincurra
County	Tipperary
Townland	Ballincurra
RMP Number	TN027-140001
ITM Co-ordinates	192410, 169800
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	404
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.13 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.69	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	1.8	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	0.5	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	3	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	V	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map detection in second edition Ordnance Survey mapping. Monument surveyed by Farrelly and O'Brien (2002).	
Finds Summary	
No known finds.	
Reference: Farrelly, J. and O'Brien, C. 2002. *Archaeological Inventory of County Tipperary Vol. 1: North Tipperary*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.4: Ballincurra hillfort, Co. Tipperary (Google Earth 2015).

Catalogue Number 5: Ballinkillin, Co. Carlow

Summary

Sub-oval contour fort enclosing the flat summit of Ballinkillin Hill which is located on the southern summit of a north–south running ridge. There are panoramic views from the summit. The Barrow River is highly visible to the west and south. This hillfort has a total site footprint of 5.5ha. It comprises two earthen banks with an intervening ditch and is best preserved at the north-west. The outer bank is leveled through most of its length but is extant in the west and north-west and visible as a vegetation mark in the east. This suggests it may have originally formed a complete circuit. The interior of the site has recently been graded. No evidence for any entrance features. No evidence for internal features on the surface.

Site Details	
Name	Ballinkillin
County	Carlow
Townland	Ballinkillin
RMP Number	CW019-027
ITM Co-ordinates	672174, 656293
Site Condition	Partially extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	149
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Possibly)
Shape	Sub-rectangular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	4.38 hectares
Area enclosed by Enclosing Element 2	5.47 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	3m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First depicted in first edition Ordnance Survey mapping as a large, sub-oval field boundary. The site is also depicted as such in the second edition Ordnance Survey maps.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.5: Ballinkillin hillfort, Co. Carlow (Bing Maps 2015).

Catalogue Number 6: Ballybreen, Co. Clare

Summary

Contour fort located on summit of Doon Hill near the village of Kilfenora. The site is univallate, with an approximate footprint of 1.1ha. The bank survives well throughout its circuit. It measures approximately 15m in maximum width. An external ditch is apparent at the south-west, west and north-west. It likely extended for the full circuit of the rampart and has a maximum width of 17m. Simple entrance break in the enclosing elements recorded in the second edition Ordnance Survey maps. This is probably not original. No evidence for any internal features on the surface. The interior is overgrown with scrub and light tree cover.

Site Details	
Name	Ballybreen
County	Clare
Townland	Ballybreen
RMP Number	CW019-027
ITM Co-ordinates	517053, 692638
Site Condition	Partially extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	143
View from summit	E-N-W
Topographical Position	Hill summit/ ridge
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.12 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	15m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	17m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance Survey mapping. More detailed earthwork survey in the second edition Ordnance Survey mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.6: Ballybreen hillfort, Co. Clare (Google Earth 2015).

Catalogue Number 7: Ballybuckley, Co. Wexford

Summary

Circular contour fort surrounding the summit of Ballybuckley Hill with excellent views from summit. There are particularly good views of the Slaney River to north-east, east and south-east. The enclosing elements form a complete circuit and have a total footprint of 1.8ha. The bank survives well throughout its circuit, although there is some partial destruction of the northern section which has been replaced by a modern field bank. The earthen bank measure approximately 11m in maximum width and 1m in maximum height. There is no evidence for a ditch feature. Three breaks in the enclosing elements are likely to be modern gaps. No evidence for any internal features on the surface. The interior is under pasture and is divided by a later field boundary.

Site Details	
Name	Ballybuckley
County	Wexford
Townland	Ballybuckley
RMP Number	WX025-034
ITM Co-ordinates	694900, 633424
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	92
View from summit	E-N-W
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.77 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	11m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Earliest identified map detection in first edition Ordnance Survey 6 inch mapping. More detailed earthwork survey in second edition Ordnance Survey maps. Monument survey by Moore (1996, 25).	
Finds Summary	
No known finds.	
References: Moore, M. 1996. *Archaeological Inventory of County Wexford*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.7: Ballybuckley hillfort, Co. Wexford (Bing Maps).

Catalogue Number 8: Ballycurragh, Co. Offaly

Summary

Circular multiple enclosure positioned in upland terrain on gently sloping western facing hillslope, overlooking Fuarawn River to west and south. The site has a total footprint of approximately 4.9ha. The site is bivallate for the entire circuit with widely spaced enclosing elements separated on average 45m apart. The inner enclosing elements comprise an earthen bank up to 3.5m in external height. The outer bank is approximately 4m wide and up to 4m in external height. The south-east sections of inner and outer enclosing elements are destroyed and the outer bank is quarried at south. There is light tree cover over enclosing elements, though the interior is largely under pasture. No evidence for any entrance features. No evidence for any internal features on the surface.

Site Details	
Name	Ballycurragh
County	Offaly
Townland	Ballycurragh
RMP Number	OF039-037
ITM Co-ordinates	614177, 697994
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	143
View from summit	N-W-S
Topographical Position	Hillslope
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	none
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Likely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.9 hectares
Area enclosed by Enclosing Element 2	4.91 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	45m
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	3.5m external	**Height of bank**	1m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	4m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First depicted in first edition Ordnance Survey mapping as a circular setting of field boundaries. More detailed earthwork survey in second edition Ordnance Survey maps where the monument was identified as an enclosure. Recorded by O'Brien and Sweetman (1997) for the archaeological inventory of Co. Offaly.	
Finds Summary	
No known finds.	
References: O'Brien, C. and Sweetman, D. 1997. *Archaeological Inventory of County Offaly*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.8: Ballycurragh hillfort, Co. Offaly (Google Earth 2015).

Catalogue Number 9: Ballylin, Co. Limerick

Summary

Widely spaced multiple enclosure in commanding position on Ballylin Hill. The hilltop is positioned on a partial spur in a north–south running escarpment. This provides Ballylin with panoramic views of the Limerick plains and Shannon estuary to the north, east and south. The hillfort has a total footprint of 20.5ha. It is bivallate for its entire circuit with a slight in-turned entrance at the east side of the inner enclosure. There are two other breaks in the inner enclosing elements at the north-east and west that may be original. There are no obvious corresponding breaks in the outer enclosing features. There is no evidence for any internal features on the surface. The enclosing elements survive well throughout much of its circuit, however, they are heavily overgrown in places and are under approximately 0.3m of peat. Excavation revealed that the inner enclosure comprised an internal bank with an external, partially rock-cut ditch and counter-scarp bank. The external enclosure consisted of an internal bank and ditch of slighter proportions than the inner example. The entire hillfort is under a heavy blanket of heather and patches of scrub. Geophysical survey has identified a scattered distribution of possible pit features within the inner enclosing elements at the east. Late Bronze Age dates from basal fill of inner enclosing elements.

Site Details	
Name	Ballylin
County	Limerick
Townland	Ballylin
RMP Number	LI028-085
ITM Co-ordinates	525748, 639522
Site Condition	Partially extant
Land Category	Peat/heather/gorse

Topographical Situation	
Height in metres OD	243
View from summit	Panoramic
Topographical Position	Hilltop
Do the enclosing features follow the contours of the hilltop	Yes

Morphology	
Class	2 (Definitely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	7.65 hectares
Area enclosed by Enclosing Element 2	20.5 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	118
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Entrances	
No. of original entrances	3
Width of entrance	Break at NE of inner enclosure 8m wide. Break at SE of inner enclosure 4m wide. Break at W of inner enclosure 6m wide.
Orientation entrance	NE, SE, W

Site Interior	
Hut Structures	No
Mound	Yes
Cairn	No
Other internal features	Possible levelled enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.3m	**Height of bank**	0.5m	**Height of bank**	n/a
Width of bank	3.5m	**Width of bank**	2.5m	**Width of bank**	n/a
Depth of ditch	0.5m	**Depth of ditch**	0.2m	**Depth of ditch**	n/a
Width of ditch	2.5m	**Width of ditch**	1.5m	**Width of ditch**	n/a
Shape of ditch	U	**Shape of ditch**	U	**Shape of ditch**	n/a

History of Research
Dating
Late Bronze Age dates from basal deposits of ditch fill in both inner and outer enclosing elements.
Investigations
First recorded by John Danaher during aerial photography survey in 1981. Geophysical survey by O'Driscoll (2012a). Targeted excavation by O'Brien (2013c). Earthwork survey by Cody (1981).
Finds Summary
No known finds.
References: Cody, E. 1980. A hill-fort at Ballylin, county Limerick, with a note on Mooghaun, county Clare. *Journal of the Royal Society of Antiquaries of Ireland* 111, 70–80. O'Driscoll, J. 2012a. *Geophysical Survey at Ballylin Hillfort, Co. Limerick*. Unpublished geophysical survey report, University College Cork. O'Brien, W. 2013c. *Excavations at Ballylin Hillfort in Co. Limerick*. Unpublished report, University College Cork.

Aerial Photography

Fig. 11.9: Ballylin hillfort, Co. Limerick (Google Earth 2015).

Catalogue Number 10: Ballymacmurragh, Co. Offaly

Summary

Circular contour fort of approximately 0.8ha enclosed area in commanding position surrounding summit of a steep hilltop at the eastern edge of Slieve Bloom Mountains. The monument could be considered a hilltop enclosure due to its size, however, it is strategically positioned overlooking a number of tributaries of the Camcor River and is positioned 1.9km to the south-west of Cumber Lower hillfort. Ballymacmurragh is bivallate for its entire circuit with closely spaced defences that survive best at the south-east. They comprise two closely spaced earthen banks with intervening and external ditches. The inner bank measures 1.1m wide and 1m in external height (0.4m internal height) and the outer bank measures approximately 3m wide and 1m in external height. The intervening ditch is 1m wide and the external ditch is 0.5m wide (O'Brien and Sweetman 1997). The interior covered in dense scrub. There is a possible original entrance at west-north-west comprising a simple gap and rectangular hut site at the southwestern side of the interior. Commercial forestry plantation abutting enclosing elements at the north, east and west.

Site Details	
Name	Ballymacmurragh
County	Offaly
Townland	Cumber Lower/Clonlee/ Ballymacmurragh
RMP Number	OF039-012
ITM Co-ordinates	618816, 639522
Site Condition	Extant
Land Category	Scrub/bracken

Topographical Situation	
Height in metres OD	316
View from summit	Panoramic
Topographical Position	Hilltop
Do the enclosing features follow the contours of the hilltop	Yes

Morphology	
Class	1 (Likely)
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	0.81 hectares
Area enclosed by Enclosing Element 2	1.03 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Entrances	
No. of original entrances	1
Width of entrance	Simple break at WNW approximately 4m wide.
Orientation of entrance	W

Site Interior	
Hut Structures	No
Mound	Mound (possibly modern)
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.4m	**Height of bank**	1m	**Height of bank**	n/a
Width of bank	1.1m	**Width of bank**	3m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	1m	**Width of ditch**	0.5m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance survey mapping where the monument is apparent as a circular boundary. Also depicted as a circular boundary in second edition Ordnance Survey maps. Recorded by O'Brien and Sweetman (1997) for the archaeological inventory of Co. Offaly.	
Finds Summary	
No known finds.	
References: O'Brien, C. and Sweetman, D. 1997. *Archaeological Inventory of County Offaly*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.10: Ballymacmurragh hillfort, Co. Offaly (Google Earth 2015).

Catalogue Number 11: Belmont, Co. Galway

Summary

Multivallate contour fort in commanding position surrounding the domed summit of Belmont Hill, overlooking tributary of River Clare to east. Belmont is a sub-circular hillfort defined by two closely spaced ramparts and external ditches. It is bivallate for its entire circuit and has a total footprint of approximately 2.3ha. The internal bank survives well throughout its circuit and measures approximately 5m wide and 1m high with some evidence for internal stone facing at the east. The external ditch is flat bottomed and is approximately 5m wide and 0.5m wide at its base. There are the possible remains of a second bank and ditch immediately outside these enclosing elements, though a modern stone wall truncates this bank. There are two simple gaps in the enclosing elements at the south and north-west, however, Raftery (1976, 90-91) suggests that the break at the north-west is not original. Relatively modern graveyard positioned at the centre of the hillfort (Raftery 1976, 81). No evidence for any internal features on the surface that might be contemporary with the fort. Hillfort is currently under pasture.

Site Details	
Name	Belmont
County	Galway
Townland	Belmont
RMP Number	GA015-016
ITM Co-ordinates	535500, 763389
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	92
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	4m
Orientation of entrance	S

Morphology	
Class	1
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.29 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Enclosure, modern graveyard

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	5m	**Width of bank**	n/a
Depth of ditch	2m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	5m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	U	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
There is a relatively modern graveyard positioned at the centre of the hillfort (Raftery 1976).	
Investigations	
First map identification in first edition Ordnance Survey mapping where the site was identified as an enclosure. Monument survey by Raftery in 1976 and Alcock *et al.* in 1995.	
Finds Summary	
No known finds.	
References: Raftery, B. 1976. The hillfort at Belmont in Co. Galway. *Journal of the Galway Archaeological and Historical Society* 35, 89–95. Alcock, O., de hÓra, K. and Gosling, P. 1995. *Archaeological Inventory of County Galway Vol. 2: North Galway*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.11: Belmont hillfort, Co. Galway (Google Earth 2015).

Catalogue Number 12: Boley, Co. Laois

Summary

Large multiple enclosure surrounding the domed summit of Boley Hill, on the northeastern edge of the Castlecomber Hills. The site has widely spaced enclosing elements with a total footprint of approximately 28.1ha. The inner enclosure survives well throughout its circuit, however, it is covered in trees and gorse. It comprises a bank with an external ditch. A natural spring is located in the ditch of the inner enclosing elements at the east. The outer enclosing element survives as a curving field boundary in the west. This is concentric with the inner enclosing element. The remainder is likely to have been destroyed. There is a simple break in the south-west of the inner enclosing elements. No obvious break in the outer bank that might represent an original entrance. There is no evidence for any internal features on the surface within the hillfort. The interior is currently under pasture, with partial tree cover within the inner enclosure.

Site Details	
Name	Boley
County	Laois
Townland	Boley
RMP Number	LA025-027001
ITM Co-ordinates	661408, 686287
Site Condition	Partially extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	222
View from summit	Panoramic
Topographical Position	Hill summit/ edge of ridge
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	SW

Morphology	
Class	2 (Possibly)
Shape	Oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.05 hectares
Area enclosed by Enclosing Element 2	22.12 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	244m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Enclosure, natural spring

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	10.6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map identification in first edition Ordnance Survey mapping where the site was identified as an enclosure. More detailed survey in second edition Ordnance Survey maps. Both clearly depict the inner enclosing elements. The possible outer enclosing elements are apparent as a curving field boundary to the south, west and northwest and were first identified by the author in 2013. Monument survey by Sweetman *et al*. (1995, 16).	
Finds Summary	
No known finds.	
References: Sweetman, D., Alcock, O. and Moran, B. 1995. *Archaeological Inventory of County Laois*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.12: Boley hillfort, Co. Laois (Bing Maps 2015).

Catalogue Number 13: Brandon Hill, Co. Kilkenny

Summary

Hillslope fort positioned on severe south/west-south facing slopes of Brandon Hill, overlooking the source of the Ciodiagh River and a U-shaped glen formed by the mountain. The site is visible as a vegetation mark on aerial photography. It is sub-oval in shape and occupies an area of 1.9ha. The enclosing elements have not been recorded, although they appear to be comprised of a single bank of stone with no apparent ditch. There is no recorded entrance features. There is a cairn within the hillfort to the east. There is no evidence for other internal features on the surface.

Site Details	
Name	Brandon Hill
County	Kilkenny
Townland	Brandon Hill
RMP Number	KK033-008001
ITM Co-ordinates	669749, 639677
Site Condition	Levelled
Land Category	Heather, peat

Topographical Situation	
Height in metres OD	393
View from summit	E-S-W
Topographical Position	Hillslope
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.94 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	yes
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Cairn probably pre-dates the hillfort.	
Investigations	
There have been no archaeological investigations of this hillfort. It is not depicted in any of the historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

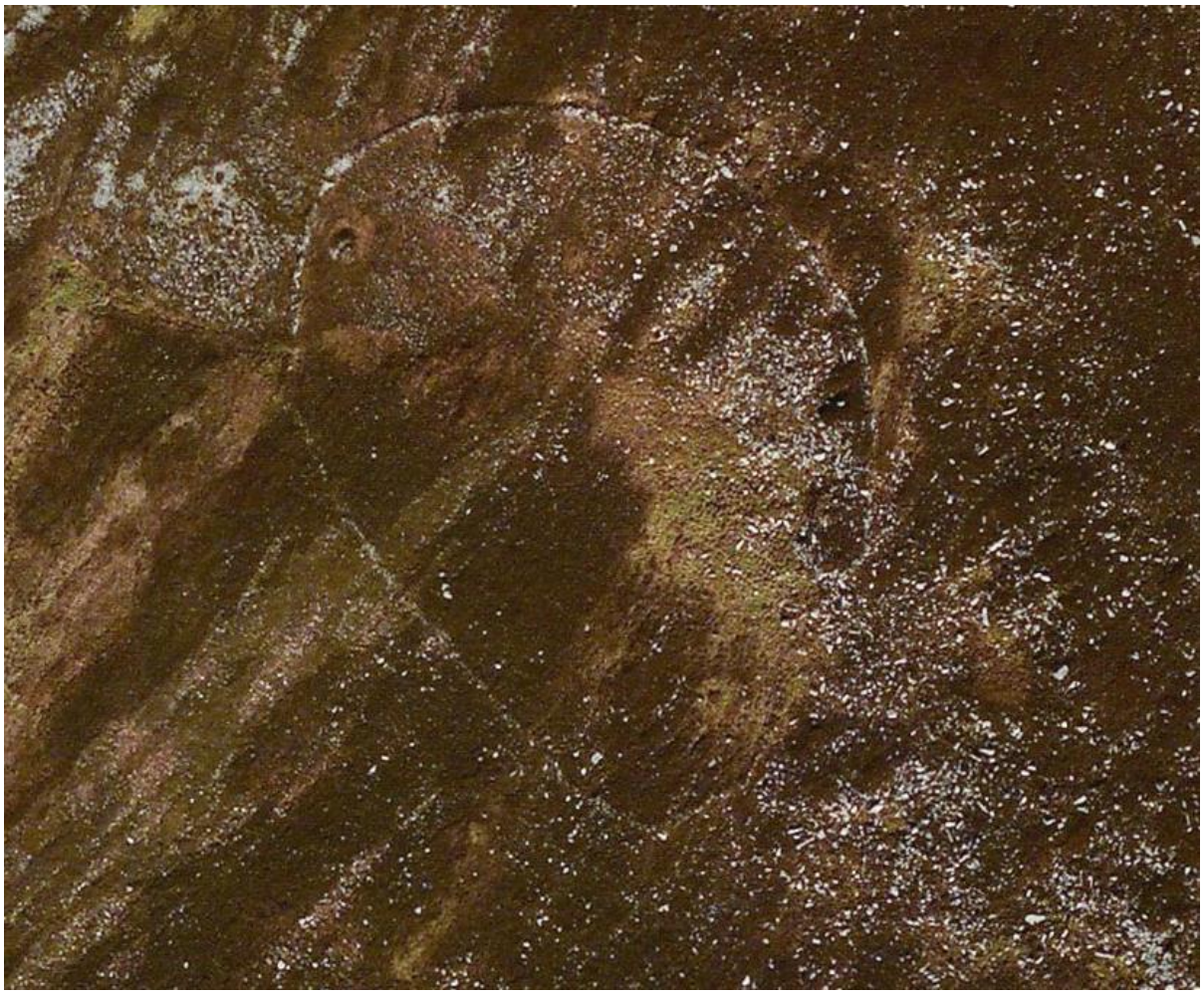

Fig. 11.13: Brandon Hill, Co. Kilkenny (Google Earth 2015).

Catalogue Number 14: Brodullagh South/Cahermore, Co. Mayo

Summary

Contour fort on southern shoulder of hilltop, surrounding the summit and overlooking the Black River to the east. The hillfort has a total footprint of approximately 2.3ha. Enclosing elements survives well throughout its circuit and consists of a circular stone bank, on average 12m in width and measuring approximately 180m in diameter. There is no indication of an associated ditch feature. Ordnance Survey mapping indicates three gaps in the bank to the north, east and west. It cannot be determined if these are original or later features. A possible hut structure was recorded within the interior. No other information relating to this structure is available. At the centre of the site, a circular mound of stones is apparent. This is not depicted in the historic mapping and may be modern. The maps do, however, suggest the presence of another enclosing elements surrounding the centre of the interior, measuring approximately 70m in diameter. It is likely that this is a Medieval feature and its destruction may be connected to the appearance of the central mound of stone. Some tree cover on northern of side of the interior.

Site Details	
Name	Brodullagh South
County	Mayo
Townland	Brodullagh South/ Kinlough
RMP Number	MA123-041001
ITM Co-ordinates	525370, 751418
Site Condition	Extant
Land Category	Pasture/forestry

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.35 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	43m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	53
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	12m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Depicted in first and second edition Ordnance Survey 6 inch and 25 inch mapping as a hillfort. These sources indicate that the southeastern section of the inner enclosing element was destroyed prior to first edition mapping in 1842.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.14: Brodullagh hillfort, Co. Mayo (Bing Maps 2015).

Catalogue Number 15: Brusselstown Ring, Co. Wicklow

Summary

Multiple enclosure surrounding the south-eastern summit of Spinans Hill at the south-west edge of the Wicklow Mountains, with panoramic views. Brusselstown Ring is one of nine hillforts comprising the Baltinglass hillfort group. It has a total footprint of 32.43ha making it one of the largest hillforts in Ireland. The inner enclosing elements form a complete circuit and survive almost intact. It comprises a stone bank approximately 12m wide and 1m high. There are four possible entrances comprising simple breaks in the inner bank at the north, east, south and west. The outer rampart has been damaged at the south-west but likely formed a complete circuit. It is currently covered by grass and heather but comprises a stone bank about 10m wide and up to 1.3m in height. There are no apparent entrance features in the outer enclosure. Two structures have been recorded within the inner enclosure and twenty three structures between the inner and outer defences (Grogan and Kilfeather 1997, 41). GPS survey by the author revealed an estimated 250 additional circular structures within the hillfort. The interior is mainly under pasture with pockets of scrub and gorse.

Site Details	
Name	Brusselstown Ring
County	Wicklow
Townland	Brusselstown
RMP Number	WI027-018
ITM Co-ordinates	692948, 691138
Site Condition	Partial
Land Category	Forestry/heather

Topographical Situation	
Height in metres OD	402
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	4
Width of entrance	N,S,E and W range from 1–2m wide.
Orientation of entrance	N, S, E, W

Morphology	
Class	2 (Likely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	4.63 hectares
Area enclosed by Enclosing Element 2	32.43 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	294m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.9m	**Height of bank**	1.3m	**Height of bank**	n/a
Width of bank	11.7m	**Width of bank**	10.2m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence for the hillfort. Stone axe found on Spinans Hill indicating Neolithic activity, however, it is unknown if this was discovered within the hillfort (Condit 1992, 20).	
Investigations	
Earliest identified map detection in first edition Ordnance Survey 6 inch mapping, where only the inner enclosing elements were depicted as a hillfort. Also depicted in second edition Ordnance Survey maps. Monument survey by Condit in 1992 and 1998. Monument survey by Grogan and Kilfeather (1997). GPS survey by the author in 2014.	
Finds Summary	
Stone axe from the hilltop; exact provenance unknown, but may not be from hillfort.	
References: Grogan, E. and Kilfeather, A. 1997. *Archaeological Inventory of County Wicklow*. The Stationary Office, Dublin. Condit, T. 1992. Ireland's hillfort capital: Baltinglass, Co. Wicklow. *Archaeology Ireland* 6 (3), 16–20. Condit, T. 1998. Observations of the Baltinglass hillfort complex. In Corlett, C. and O'Sullivan, A. (eds), *Wicklow Archaeology and History* 1, 9–25.	

Aerial Photography

Fig. 11.16: Brusselstown Ring hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 16: Caherconree, Co. Kerry

Summary

Caherconree is a high altitude inland promontory fort positioned on a western facing triangular spur off the summit of Caherconree Mountain in Co. Kerry. The enclosing elements are possibly bivallate and cut off the eastern approach. The remainder of the fort is protected by steep natural cliff edge at the north, west and south. The inner enclosing element survives as a drystone wall of Old Red Sandstone blocks. It is 110m long and survives best at the centre, measuring 3m in maximum height and 4.5m wide. An internal wall-walk is apparent throughout most of its length and comprises three steps surviving in good condition. A possible outer enclosure comprises a low bank and outer ditch 8–10m outside the inner example. Lynch (1899, 12–17) noted that the bank originally extended the full width of the promontory, however, only a small section to the north is visible today. Two possible original entrances are visible in the inner enclosing element at the north-east. No evidence for any internal features on the surface, although deep peat deposits may obscure possible activity. Five circular structures abut the interior and exterior of the inner enclosing wall. A possible stone trough was found in the interior (Lynch 1910).

Site Details	
Name	Caherconree
County	Kerry
Townland	Ballyarkane Oughter
RMP Number	KE046-003
ITM Co-ordinates	472643, 606700
Site Condition	Extant
Land Category	Peat

Topographical Situation	
Height in metres OD	659
View from summit	E,S,W
Topographical Position	Spur
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	Both at north-east. Simple 1.5–2.3m wide gaps.
Orientation of entrance	North-east

Morphology	
Class	3
Shape	Triangular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.22 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	10m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	3m	**Height of bank**	0.75m	**Height of bank**	n/a
Width of bank	4.5m	**Width of bank**	1.5m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	0.5m	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	1.5m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First recorded on 1st edition Ordnance Survey 6 inch mapping. The enclosing elements form part of the townland boundary.Survey by Lynch in 1910.	
Finds Summary	
Lynch (1910) reports that a possible stone trough was removed from the site in the 19th Century.	
References: Lynch, P. 1899. Caherconree, Co. Kerry. *Journal of the Royal Society of Antiquaries of Ireland* 9, 5–17. Lynch, P. 1910. A relic of Caherconree. *Journal of the Royal Society of Antiquaries of Ireland* 20, 357–360.	

Aerial Photography

Fig. 11.16: Caherconree hillfort, Co. Kerry (Google Earth 2015).

Catalogue Number 17: Caherdrinny, Co. Cork

Summary

Near the village of Fermoy, an oval contour fort of approximately 12.5ha enclosed area is positioned on an isolated hill overlooking the Blackwater River valley to the south and Fushion River valley to the north. The enclosing elements are partially preserved, with possible traces of two closely spaced banks with stepped profiles apparent at the north-east and north-west. The banks comprise a dump construction with external stone facing, built on and partially cut into a natural scarp. The defences are largely destroyed to the east. Two possible simple entrance breaks at the north-west and south-west. The northwestern entrance comprises a simple 1.5m wide gap through the bank and ditch. At the south-west, the entrance consists of a 6m wide ramped gap cutting through the enclosing elements at an angle. Three other breaks in the enclosing element are likely to be later additions. Topographical survey by The Discovery Programme identified 14 hut structures within the interior to the north (Doody 2008). A ruined Medieval castle surrounded by an enclosure of unknown date is positioned at centre of the hillfort. The interior is under a mixture of pasture and gorse, the latter being particularly visible at the north and west.

Site Details	
Name	Caherdrinny
County	Cork
Townland	Caherdrinny
RMP Number	CO019-097003
ITM Co-ordinates	579671, 607836
Site Condition	Extant
Land Category	Pasture/overgrowth

Topographical Situation	
Height in metres OD	210
View from summit	Panoramic
Topographical Position	Hilltop
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	NW is 1.5m wide and SW is 6m wide
Orientation of entrance	NW, SW

Morphology	
Class	2 (Possibly)
Shape	Oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	12.59 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Tower house, hilltop enclosure?

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	Field bank	**Height of bank**	0.5m	**Height of bank**	n/a
Width of bank	Field bank	**Width of bank**	12m	**Width of bank**	n/a
Depth of ditch	Field bank	**Depth of ditch**	0.5m	**Depth of ditch**	n/a
Width of ditch	Field bank	**Width of ditch**	1.4m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Ruined Medieval castle (tower house) positioned at centre of hillfort.	
Investigations	
Apparent in first and second edition Ordnance Survey maps as a circular setting of field boundaries but not identified as a fort. Topographical survey by the Discovery Programme identified a number of hut structures within the interior of the hillfort to the NW. The survey also revealed the closely spaced multivallation of the defences to the north/north-west.	
Finds Summary	
No known finds.	
References: Doody, M. 2008. *The Ballyhoura Hills Project*. Wordwell, Bray.	

Aerial Photography

Fig. 11.17: Caherdrinny hillfort, Co. Cork (Bing Maps 2015).

Catalogue Number 18: Cannakill/Oldcroghan, Co. Offaly

Summary

Univallate contour fort in commanding location at summit of isolated hilltop. There are extensive views from the summit and the site overlooks Yellow River to the north. The enclosing elements are almost completely destroyed, but are visible as a low-rise, oval shaped earthwork surrounding the domed summit of the interior. This bank measures up to 11m wide. There are no recorded entrance features or obvious breaks visible in the aerial or satellite imagery. There are no obvious internal features that might be contemporary with the hillfort. A number of prehistoric wooden trackways recorded near the hillfort to the east, north-east and north could have been connected to the hillfort. A church, graveyard and graveslabs are apparent in the interior. A gently sloping flat-topped mound is positioned at the highest point of the interior. This measures 30m in diameter and is 4m in maximum height. Two other mounds have been recorded at the base of the hilltop to the south. There have been no archaeological investigations of this hillfort.

Site Details	
Name	Oldcroghan
County	Offaly
Townland	Cannakill
RMP Number	OF010-004009
ITM Co-ordinates	647970, 733187
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	217
View from summit	Panoramic
Topographical Position	Hilltop
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	15.06 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No (but they are levelled)

Site Interior	
Hut Structures	No
Mound	Yes
Cairn	No
Other internal features	Church, graveslabs, graveyard

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	11m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
None. Identified as a possible hillfort by the National Monuments Service. Southern and eastern sections of the enclosing elements are visible in recent aerial and satellite images.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.18: Cannakill/Oldcroghan hillfort, Co. Offaly (Bing Maps 2015).

Catalogue Number 19: Carn Tigherna, Co. Cork

Summary

Oval multiple enclosure of approximately 5.3ha in commanding position, overlooking the Blackwater and Bride river valleys at the eastern edge of the Nagle Mountains. Bivallate for the entire circuit with additional earthworks at the possible entrance to the west-north-west. The inner enclosing elements survive well throughout the majority of its circuit. It comprises a dump stone bank, maximum 1.6m in height with no obvious ditch feature. However, at the southwestern side, the bank is positioned at the edge of a natural scarp. The outer enclosing feature is best preserved to the west-south-west and is of similar composition. The additional earthworks at the west-north-west entrance comprises 2–3 earthen banks and corresponding external ditches. They abut the outer enclosing elements and surround a possible original entrance. A large cairn is positioned at the highest point in the interior. A Food Vessel burial was recovered after removal of some of the cairn material in 1832 (Borlase 1897, 13). No evidence for other internal features on the surface. The interior is heavily overgrown. The Discovery Programme undertook an earthwork survey at the (Doody 2008).

Site Details	
Name	Carn Tigherna
County	Cork
Townland	Corrin Hill
RMP Number	CO035-049001
ITM Co-ordinates	580624, 595936
Site Condition	Partial
Land Category	Forestry/gorse

Morphology	
Class	2 (Likely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	3.21 hectares
Area enclosed by Enclosing Element 2	5.28 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	19m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	219
View from summit	Panoramic
Topographical Position	Edge of ridge
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	3
Width of entrance	n/a
Orientation of entrance	NW, SE, SE

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	High Cross (modern)

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.6m	**Height of bank**	1.6m	**Height of bank**	n/a
Width of bank	7.5m	**Width of bank**	7.5m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Cairn positioned at the centre of the hillfort at highest point. Removal of some of the stones at the summit of the cairn revealed a Food Vessel burial.	
Investigations	
Not identified as a hillfort in any historic mapping. Stone was taken from the central cairn in the late 1832 and a Food Vessel burial was discovered (Borlase 1897, 13). Earthwork survey by The Discovery Programme in 2008.	
Finds Summary	
Food Vessel.	
References: Borlase, W. 1897. *The Dolmens of Ireland*. Chapman and Hall Ltd, London.	

Aerial Photography

Fig. 11.19: Carn Tigherna hillfort, Co. Cork (Google Earth 2015).

Catalogue Number 20: Carrowgarve, Co. Roscommon

Summary

Oval contour fort surrounding domed summit and northwestern facing slopes of Mewlaghadooey Hill, overlooking Castleray town, as well as the Francis River and its tributaries to north-west. Univallate for its entire circuit with a total footprint of 3.5ha. Ramparts partially survive at western side as a low-rise bank measuring 0.1m high and 6m wide with a low scarp to the east. The remainder of the hillfort is visible as a vegetation mark on aerial photography. There are no recorded entrance features. A large bowl barrow and ring barrow are visible within the interior. A second ring barrow is positioned on the enclosing elements at the south-east. The interior is currently under pasture.

Site Details	
Name	Carrowgarve
County	Roscommon
Townland	Carrowgarve
RMP Number	RO027-014001
ITM Co-ordinates	572903, 778152
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	152
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	3.48 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	One bowl Barrow, two ring barrows

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
There have been no archaeological investigations of this hillfort. The hillfort is not identified in any historic mapping. First recorded as a hillfort by the national monuments service.
Finds Summary
No known finds.

Aerial Photography

Fig. 11.20: Carrowgarve hillfort, Co. Rosscommon (Google Earth 2015).

Catalogue Number 21: Carrownrush, Co. Sligo

Summary

Contour fort at summit of hilltop at northeastern edge of steep slope, overlooking Sligo coastline with panoramic views from the summit. The hillfort is approximately 1.6ha in total size and comprises two closely set banks with an intervening ditch. The inner bank is largely destroyed and is best preserved at the north-west, measuring 4.5m wide. The intervening ditch measures 4m wide and up to 1.75m deep. The outer bank is approximately 7m wide and 1.4m wide. There is some scrub growth on these enclosure elements. There are also remnants of a possible second external ditch. A large enclosure at the centre of the hillfort is visible in aerial and satellite images. If contemporary, the hillfort may be more appropriately classed as a Class 2 example. A Napoleonic era signal tower at highest point within the interior.

Site Details	
Name	Carrownrush
County	Sligo
Townland	Carrownrush
RMP Number	SL012-008001
ITM Co-ordinates	542674, 835047
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	82
View from summit	Panoramic
Topographical Position	Edge of ridge
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	2
Width of entrance	NW is 2m Wide, SW is 4.6m wide
Orientation of entrance	SW, NW

Morphology	
Class	2 (Possibly)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.09 hectares
Area enclosed by Enclosing Element 2	1.56 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Signal tower, enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	1.4m	**Height of bank**	n/a
Width of bank	4.5m	**Width of bank**	7m	**Width of bank**	n/a
Depth of ditch	1.75	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	4m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
First identified by the Ordnance Survey in 1842 where the site is identified as a fort. More detailed earthwork survey published in the second edition 25 inch Ordnance Survey mapping in 1906.
Finds Summary
No known finds.

Aerial Photography

Fig. 11.21: Carrownrush hillfort, Co. Sligo (Bing Maps 2015).

Catalogue Number 22: Carrowreagh/Grainn of Aileach, Co. Donegal

Summary

Multiple enclosure in commanding position at domed summit of Greenan Mountain, overlooking Lough Swilly. The site has a total footprint of approximately 2.6ha. Ramparts comprise low-rise earthen banks covered in heather. There are possible external ditches associated with the inner and external bank and a possible internal ditch with the middle enclosing element. The middle defences are not apparent at the south-east, but probably formed a complete circuit. There are no obvious entrance features within the interior. No features that might be contemporary with the hillfort are visible within the interior of the site. However, a substantial Early Medieval ringfort is positioned at the centre of the hillfort. This has been identified as the site of Aileach, the Early Medieval seat of the northern Ui Neill. This was surveyed by Petrie in 1835 (Colby 1837). A cairn and holy well are positioned between the inner and middle enclosing elements. The interior is covered in scrub and heather.

Site Details	
Name	Grainn of Aileach
County	Donegal
Townland	Carrowreagh
RMP Number	DG047-012005
ITM Co-ordinates	636598, 919735
Site Condition	Partial
Land Category	Overgrowth

Topographical Situation	
Height in metres OD	241
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Possibly)
Shape	Oval
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	0.55 hectares
Area enclosed by Enclosing Element 2	1.6 hectares
Area enclosed by Enclosing Element 3	2.55 hectares
Spacing between Enclosing Element 1 and 2	41m
Spacing between Enclosing Element 2 and 3	112m
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	Yes
Cairn	No
Other internal features	Early Medieval Cashel, well

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Inner Early Medieval cashel was surveyed by Petrie in 1835 (Colby 1837). Depicted in first edition Ordnance Survey maps as a hillfort. This ringfort was restored between 1874-1878. Detailed earthwork survey in second edition Ordnance Survey mapping.	
Finds Summary	
No known finds.	
References: Colby, T. 1837. Ordnance Survey of Ireland, County of Derry, Vol. 1. Dublin.	

Aerial Photography

Fig. 11.22: Carrowreagh/Grainn of Aileach hillfort, Co. Donegal (Google Earth 2015).

Catalogue Number 23: Carrowntemple/Knockacarrigeen, Co. Galway

Summary

Oval hillslope fort of approximately 4.6ha, enclosing an area surrounding the summit and southern slopes of Knockacarrigeen Hill, overlooking low-lying terrain to the north, east and south. Univallate for its entire circuit with no recorded entrance features. The rampart survives as a rubble stone bank and is extant for much of its circuit. It is best preserved at the south and west where it is a 1m in maximum height. Two cairns and an Early Medieval ringfort located at north of the interior. Excavation has revealed a small elongated stone enclosure within the interior, dated to the Neolithic/Early Bronze Age (Carey 2002). Much of the hillfort is under heavy gorse and scrub growth and a modern water reservoir was built at its summit in recent times. Although there were subsequent excavations by Carey (2002) in 1994, no radiocarbon dates relating to the construction of the hillfort were retrieved. Dates obtained from a small stone-built enclosure inside the hillfort indicate occupation during the Neolithic to Early Bronze Age.

Site Details	
Name	Knockacarrigeen
County	Galway
Townland	Carrowntemple
RMP Number	GA043-033006
ITM Co-ordinates	537801, 748825
Site Condition	Partial
Land Category	Overgrowth

Topographical Situation	
Height in metres OD	101
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	4.85 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	Ringfort, Enclosure, 2 cairns

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
Dates obtained from a small stone-built enclosure inside the hillfort (2121–1913 to 2173–1828 BC and 2600–2484 to 2860–2460 BC) indicate that the hilltop was occupied during the Neolithic and/or Early Bronze Age. There were no dates obtained from the excavated hillfort bank or associated old ground surface (Carey 2002). Therefore, the construction and occupation of the hillfort could date to any period after the Early Bronze Age.	
Investigations	
First discovered by aerial reconnaissance by the Galway Archaeological Survey in 1987, Monument survey by Byrne and Gosling in 1988. Excavation by Carey (2002) in 1994 prior to development.	
Finds Summary	
No artifacts recovered from excavations (Carey 2002, 68). A small number of animal bones were recovered (Carey 2002, 70).	
References: Carey, A. 2002. Excavations at Knockacarrigeen Hill, Tuam Co. Galway. *Journal of the Galway Archaeological and Historical Society* 54, 55–71.	

Aerial Photography

Fig. 11.23: Carrowntemple/Knockacarrigeen hillfort, Co. Galway (Google Earth 2015).

Catalogue Number 24: Castle Gale, Co. Limerick

Summary

Inland promontory positioned on a north-facing triangular hill spur with panoramic views. The interior slopes from north to south and a steep drop at the northern side forms a natural defensive barrier. These defences are augmented with another bank and ditch approximately 10m from this cliff face. On the southern side, two closely spaced enclosing elements comprising a bank-ditch-bank-ditch arrangement form the defensive elements. A topographic survey by The Discovery Programme (Doody 2008) revealed that the banks comprised of earth and stone. There were two recorded entrances, one on the northern side and another at the south. At the highest point of the interior is a small cairn is apparent, however, this has been disturbed in modern times with a trigonometrical station positioned on top. The interior is under dense heather and gorse growth.

Site Details	
Name	Castle Gale
County	Limerick
Townland	Darragh More
RMP Number	LI059-001
ITM Co-ordinates	572098, 616003
Site Condition	Partial
Land Category	Overgrowth/forestry

Topographical Situation	
Height in metres OD	319
View from summit	Panoramic
Topographical Position	Hill spur
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	2
Width of entrance	9m, n/a
Orientation of entrance	N, S

Morphology	
Class	3
Shape	Triangular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.4 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	n/a

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	12m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	7m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence	
Investigations	
Topographic survey by The Discovery Programme (Doody 2008). It is not depicted in any historic mapping.	
Finds Summary	
No known finds.	
References: Doody, M. 2008. *The Ballyhoura Hills Project*. Wordwell, Bray.	

Aerial Photography

Fig. 11.24: Castle Gale hillfort, Co. Limerick (Google Earth 2015).

Catalogue Number 25: Claraghatlea, Co. Cork

Summary

Contour fort positioned at the summit of the Claragh Mountain, overlooking the town of Millstreet. The oval enclosing element measures 122m in diameter and comprises a single bank of loose stone with no discernible ditch. This is best preserved at the north/north-east where it measures up to 6m wide and 0.6m high. It occupies a total area of 1.05ha. There is a possible original entrance at the west/north-west comprising a simple 8m wide break in the enclosing elements. Up to four breaks in the bank have been created in recent years. Near the centre of the interior, a sub-rectangular enclosure, 19m east–west, 14m north–south, is defined by a setting of stones. A cairn, 8m in diameter and 0.5m in maximum height is incorporated into the western section of the hillfort bank. Peat cutting at summit suggest an even blanket of peat approximately 0.2m in depth. There is also some heather growth within the interior.

Site Details	
Name	Claraghatlea
County	Cork
Townland	Claraghatlea South
RMP Number	CO039-052002
ITM Co-ordinates	524973, 589149
Site Condition	Extant
Land Category	Heather/gorse

Topographical Situation	
Height in metres OD	452
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	8m
Orientation of entrance	NNW

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.05 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	Enclosure (possibly a hut structure)

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.6m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
There have been no archaeological investigations of this hillfort. It is not depicted in any historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.25: Claraghtlea hillfort, Co. Cork (Google Earth 2015).

Catalogue Number 26: Clashanimud, Co. Cork

Summary

Enclosing a hilltop on a partial spur in an east–west running ridge, Clashanimud is an oval bivallate multiple enclosure, 8.51ha in total size. The ramparts survive well throughout their circuits. The inner enclosing elements comprise a bank with external ditch and a low counterscarp bank. Excavation revealed that the main bank had exterior stone facing and was reveted on the inside by a timber fence. The remains of a timber palisade was identified at the crest of the bank. Stone quarrying near the inner enclosing element to the west has partially destroyed the enclosing features. The outer enclosure is incorporated into a modern field system. Excavation revealed it consisted of an earthen bank with a light timber fence and an external rock cut ditch. An original entrance to the east comprises a simple 3–4m wide gap and excavations reveal evidence for a possible gate. No evidence for internal features has been identified on the surface or through excavation or geophysical survey. Excavations by O'Brien (2012a, 219–222) in 2004–2006 recovered a stone axe and a whetstone from the interior. Geophysical survey was undertaken prior to the excavation. Late Bronze Age dates from excavation of ditch deposits and palisade features associated with enclosing elements.

Site Details	
Name	Clashanimud
County	Cork
Townland	Clashanimud
RMP Number	CO096-034
ITM Co-ordinates	524973, 589149
Site Condition	Extant
Land Category	Overgrowth/pasture

Topographical Situation	
Height in metres OD	177
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Morphology	
Class	2 (Definitely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	3.67 hectares
Area enclosed by Enclosing Element 2	8.51 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	52m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Entrances	
No. of original entrances	1
Width of entrance	3–4m
Orientation of entrance	W

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
Late Bronze Age dates from basal ditch deposits and palisade features associated with the banks.	
Investigations	
Depicted in the first and second edition Ordnance Survey mapping as a hillfort. Excavation by O'Brien from 2004–2006. Radiocarbon dates from basal deposits of ditch and palisades associated with bank features date to Late Bronze Age. O'Brien (2012a) suggests that the hillfort was destroyed soon after its construction.	
Finds Summary	
A broken stone axe-head and whetstone.	
References: O'Brien, W. 2012a. *Iverni: A Prehistory of Cork*. The Collins Press, Cork.	

Aerial Photography

Fig. 11.26: Clashanimud hillfort, Co. Cork (Bing Maps 2015).

Catalogue Number 27: Clomantagh, Co. Kilkenny

Summary

Circular contour fort, 205m in diameter, surrounding the low-domed summit of Mount Garret and overlooking the town of Urlinford to the south-west. The mountain overlooks an east–west gap in the Slieveardagh Hills. It is univallate for its entire circuit, with the enclosing elements surviving as a low rise earthen and stone bank with evidence for external stone facing. The hillfort has a total site footprint of approximately 3.2ha. There are no recorded entrance features or obvious breaks in the enclosing elements. The remains of a probable megalithic structure is positioned at the highest point of the interior. Manning (1985, 53) suggests that this may be a possible Linkardstown-type burial. There are no other apparent surface features. The interior is currently under pasture.

Site Details	
Name	Clomantagh
County	Kilkenny
Townland	Clomantagh
RMP Number	KK008-124002
ITM Co-ordinates	633212, 665532
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	349
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	3.24 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	Megalithic structure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.5m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	4m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Probable passage tomb at highest point of interior is likely earlier than the hillfort.	
Investigations	
There have been no archaeological investigations of this hillfort. First reference to the site by Tighe (1802).Not depicted in the first edition Ordnance Survey maps. The eastern section of the hillforts is marked out in the second edition but is not identified as a fort.	
Finds Summary	
No known finds.	
References: Manning, C. 1985. Prehistoric sites in the neighbourhood of Ardcroney. *Eile*: *Journal of the Roscrea Heritage Society* 2, 43–55.	

Aerial Photography

Fig. 11.27 Clomantagh hillfort, Co. Kilkenny (Google Earth 2015).

Catalogue Number 28: Clopook, Co. Laois

Summary

Contour fort on top of prominent rock outcrop with panoramic views from the summit. The site has a total footprint of approximately 3.4ha. The enclosing elements comprise a bank, mostly of stone, with no evidence for an associated ditch. The measures up to 7m wide and 1.75m high and survives well throughout its circuit. Possible outer enclosing elements were identified by Grogan (2005b, 114) but have not been confirmed as being related to the hillfort. There is a simple entrance gap at the west and an eastern entrance with outworks. Here, there is a small outer bank immediately outside the main enclosing elements at the east, with a corresponding entrance gap acting like a barbican or defensive earthwork protecting the entrance into the hillfort interior (Sweetman *et al.* 1995, 17). A third bank abuts the exterior of the later around the entrance gap. Complex entrance features are not commonly found at Irish hillforts. possible hut structure was identified within interior recorded by Walsh (1972, 17). A possible high Medieval tower house within interior near the eastern entrance. The interior is heavily overgrown and under dense tree cover.

Site Details	
Name	Clopook
County	Laois
Townland	Clopook
RMP Number	LA019-021001
ITM Co-ordinates	658387, 690736
Site Condition	Extant
Land Category	Pasture/forestry

Topographical Situation	
Height in metres OD	193
View from summit	E-S-W
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	n/a
Orientation of entrance	E, W

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	3.24 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Castle

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.75m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	7m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Possible Medieval tower House within interior.	
Investigations	
Earliest written reference by Byrne (1852). Depicted as a field boundary in the first edition Ordnance Survey maps. The hillfort is recognized in the second edition maps and a detailed earthwork survey is apparent. Monument survey by Sweetman *et al*. (1995, 17).	
Finds Summary	
No known finds.	
References: Sweetman, D., Alcock, O. and Moran, B. 1995. *Archaeological Inventory of County Laois*. Stationary Office, Dublin. Byrne, D. 1852. On the duns of Cloch-an-Phuca and Log-an-Chorain. *Transactions of the Kilkenny Archaeological Society* 1 (3), 298–300.	

Aerial Photography

Fig. 11.28: Clopook hillfort, Co. Laois (Bing Maps 2015).

Catalogue Number 29: Cluttahina, Co. Waterford

Summary

Oval contour fort with a total site footprint of approximately 12.8ha on the summit and western slopes of hill spur overlooking Glenshelane River and valley to immediate west. Possible bivallate Early Medieval ringfort at centre of hillfort with an associated souterrain within the interior. The enclosing elements of the hillfort are on average 120m from the Early medieval enclosure and are visible in some aerial photographs as a vegetation mark. There are no obvious entrance features or any evidence for internal features on the surface.

Site Details	
Name	Cluttahina
County	Waterford
Townland	Cluttahina
RMP Number	WA021-008001
ITM Co-ordinates	658387, 690736
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	143
View from summit	Panoramic
Topographical Position	Ridge summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	N entrance is 5m wide
Orientation of entrance	N, E

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	12.58 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Early Medieval Ringfort souterrain

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Early Medieval souterrain within interior.	
Investigations	
First map depiction in first edition Ordnance Survey mapping where the ringfort is recognized, however, the hillfort is apparent as a series of field boundaries. Site survey by Fitzgerald (1855). Earthwork survey of the hillfort in second edition Ordnance Survey mapping.	
Finds Summary	
No known finds.	
References: FitzGerald, E. 1855. On St Declan's Oratory at Ardmore, County of Waterford, and the old Irish inscription built into its east end. *Journal of the Royal Society of Antiquaries of Ireland* 3, 223–231.	

Aerial Photography

Fig. 11.29: Cluttahina hillfort, Co. Waterford (Ordnance Survey Ireland 2005).

Catalogue Number 30: Commons of Lloyd, Co. Meath

Summary

Near the town of Kells, an oval multiple enclosure of approximately 9.3ha total footprint on a low, conical hill overlooking the River Blackwater. The hillfort is trivallate for its entire circuit with no recorded entrance features. The inner and middle enclosing elements are heavily truncated by later agricultural activity. These are visible on aerial photography as vegetation marks. The defences are closely spaced at the south-west and west (separated by a minimum of 10m) and become widely spaced to the east (separated by up to 86m). The outer ramparts are integrated into a field system. No evidence for internal features contemporary with the construction or occupation of the hillfort. Limited excavations and monitoring by Neary (2004) prior to development. No dating evidence for the construction of the hillfort, although cremated animal bone found within the interior returned a date of 1130–910 BC (Neary 2004, 12). Unpublished geophysical survey by The Discovery Programme in 2013. The area is mentioned in the Early Medieval text, 'The Táin', as being the site of a temporary camp (they spent a single night here) for Queen Maeve's army, who were marching from Connaught to Cooley (Carr 1999, 101). The site is currently under pasture.

Site Details	
Name	Commons of Lloyd
County	Meath
Townland	Commons of Lloyd
RMP Number	ME016-054
ITM Co-ordinates	672245, 776506
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	2 (Possibly)
Shape	Oval
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	2.58 hectares
Area enclosed by Enclosing Element 2	4.99 hectares
Area enclosed by Enclosing Element 3	9.31 hectares
Spacing between Enclosing Element 1 and 2	10–62m
Spacing between Enclosing Element 2 and 3	33–86m
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	129
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Church and graveyard

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence for the construction of the hillfort. Excavation revealed cremated animal bone, which returned a radiocarbon date of 1130–910 Cal. BC (Neary 2004, 12).
Investigations
First map depiction in first edition Ordnance Survey mapping on which the fort is apparent as an oval boundary. Also depicted as such in second edition Ordnance Survey maps. Limited excavation prior to cable laying for telecommunications antennae in 2003 (Neary 2004). Unpublished geophysical survey by The Discovery Programme in 2013.
Finds Summary
No known finds.
References: Neary, P. 2004. Archaeological excavations at Common of Lloyds, Co. Meath. *Final Unpublished Report*, prepared for by Neary Archaeology Ltd.

Aerial Photography

Fig. 11.30: Commons of Lloyd hillfort, Co. Meath (Google Earth 2015).

Catalogue Number 31: Clooagad, Co. Wicklow

Summary

Partial contour fort surrounding the domed summit of steep hilltop. This prominent hilltop sits at the eastern edge of the Wicklow mountains overlooking Greystones town and the Wicklow coastline. Coolagad is positioned 2.8km to the north-east of Downshill hillfort in Co. Wicklow. Coolagad is a univallate site that forms a complete circuit and has a total footprint of 28.2ha. The rampart survives best at the east where it comprises a 4m wide and 1m high bank of earth. There is no obvious associated ditch feature. There are no recorded entrance features or breaks in the enclosing element. The majority of the interior is under mature forestry. This hillfort is not depicted in any historic mapping.

Site Details	
Name	Coolagad
County	Wicklow
Townland	Kindlestown Upper
RMP Number	WI008-015
ITM Co-ordinates	727013, 712570
Site Condition	Partial
Land Category	Forestry

Topographical Situation	
Height in metres OD	129
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	28.2 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	4m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Not depicted in any historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.31: Coolagad hillfort, Co. Wicklow (Google Earth 2015).

Catalogue Number 32: Courthoyle New, Co. Wexford

Summary

Circular contour fort immediately east of the summit of a broad, low hill, overlooking the town of Raheen and Templeshelin Stream to the north. The site has a total footprint of approximately 1.1ha and is named 'Rathlyhar' in first and second edition Ordnance Survey maps. The earthen rampart of this univallate hillfort forms a complete circuit. The rampart survives well throughout its circuit. It measures up to 5m wide and 1.3m deep and has an external ditch that is up to 6m wide in places. First edition Ordnance Survey maps depict a second bank immediately outside the external ditch of the extant enclosing elements. This has subsequently been levelled and has not been previously recorded. A simple gap in the enclosing elements to the west is likely a modern entrance. There is no evidence for any internal features on the surface. The interior is currently under pasture with some tree cover over enclosing elements.

Site Details	
Name	Courthoyle New
County	Wexford
Townland	Courthoyle New
RMP Number	WX030-058
ITM Co-ordinates	682232, 626839
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	90
View from summit	E-W-N
Topographical Position	Low rise hill
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.09 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.3m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	6m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Earliest identified map detection in first edition Ordnance Survey 6 inch mapping where the hillforts is recognized. More detailed earthwork survey in second edition Ordnance Survey mapping. Monument survey by Moore (1996, 25).	
Finds Summary	
No known finds.	
References: Moore, M. 1996. *Archaeological Inventory of County Wexford*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.32: Courthoyle New hillfort, Co. Wexford (Bing Maps 2015).

Catalogue Number 33: Cumber Lower, Co. Offaly

Summary

Large multiple enclosure in commanding position on summit of a steep hilltop, at the eastern edge of the Slieve Bloom Mountains. The site overlooks the Camcor River to north and is 1.9km to the north-east of Ballymacmurragh hillfort. Cumber Lower is most likely bivallate for the entire circuit and has a total footprint is approximately 12.2ha. The ramparts are largely obscured due to dense tree and scrub cover and have not been recorded in detail to date. No evidence for any internal features on the surface. A limited site description by Cooke (1875, 154) suggests that the monument 'stands high, and is a very conspicuous object, surrounded by large stones which appear to have undergone the action of fire'. This could suggest the enclosing elements of the hilltop were destroyed by fire. Cooke (1875, 154) also states that 'the ashes [are] plainly seen around wherever holes are dug for planting'. There are no recorded breaks in the enclosing elements.

Site Details	
Name	Cumber Lower
County	Offaly
Townland	Cumber Lower
RMP Number	OF036-062001
ITM Co-ordinates	620176, 703573
Site Condition	Partial
Land Category	Forestry/overgrown

Topographical Situation	
Height in metres OD	337
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (possibly)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	2.36 hectares
Area enclosed by Enclosing Element 2	12.19 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	74m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Cooke (1875, 154) comments about the position of 'a large earthen rath or ring on Knock-na-man'. The southern portion of the inner enclosing element was recorded as a field boundary in second edition 25 inch Ordnance Survey mapping.	
Finds Summary	
No known finds.	
References: Cooke, T. 1875. *History of Birr*. Tullamore.	

Aerial Photography

Fig. 11.33: Cumber Lower hillfort, Co. Offaly (Ordnance Survey Ireland 1995).

Catalogue Number 34: Curraghadobbin, Co. Tipperary

Summary

Multiple enclosure surrounding the summit and western facing slopes of Curraghadobbin Hill, at the centre of and east–west running escarpment. The site is likely to be bivallate for its entire length, although this cannot be confirmed due to destruction of the outer enclosing elements by modern forestry. The hillfort has a total footprint of approximately 8.4ha. The inner enclosing elements have been heavily damaged by forestry clearance and its subsequent re-setting. They comprise a bank of sandstone boulders up to 1m high and 3.6m wide. There is no obvious associated ditch feature. The outer enclosing elements have been incorporated into later field boundaries or have been destroyed. They have not been recorded and are visible in aerial and satellite imagery. There are no recorded entrance features. An oval cairn is positioned at the centre of the interior. There are no features visible on the surface that might be contemporary with the construction and occupation of the hillfort.

Site Details	
Name	Curraghadobbin
County	Tipperary
Townland	Curraghadobbin
RMP Number	TS079-024001
ITM Co-ordinates	636872, 628616
Site Condition	Partial
Land Category	Forestry

Topographical Situation	
Height in metres OD	227
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Likely)
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	0.84 hectares
Area enclosed by Enclosing Element 2	4.06 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	82m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	3.6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Not visible in any historic mapping. Earliest detection by Irish Army Air Corps and subsequent detection by GSI in 1973. Hilltop covered in forestry during Ordnance Survey mapping surveys.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.34: Curraghadobbin hillfort, Co. Tipperary (Ordnance Survey Ireland 2000).

Catalogue Number 35: Derrynaseer, Co. Antrim

Summary

Positioned at the western edge of a ridge of hills, this univallate contour fort surrounds the slightly domed summit of a hill with excellent views in all directions. The site is univallate for its entire circuit with a simple gap entrance at the south. The enclosing elements survive well at the south where they comprise a bank 1.2m high and 2.8m wide with no evidence for any associated ditch features. There is no evidence for any internal features on the surface. The site is encroached upon at the north by a development that has extended into a large section of the interior of the fort. Another development abuts the hillfort at south. Derrynaseer hillfort is visible in the first edition Ordnance Survey maps.

Site Details	
Name	Derrynaseer
County	Antrim
Townland	Derrynaseer
RMP Number	ANT066-001
ITM Co-ordinates	710546, 863597
Site Condition	Partial
Land Category	Pasture/forestry

Topographical Situation	
Height in metres OD	35
View from summit	Panoramic
Topographical Position	Hill spur
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	S

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.77 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.2m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	2.8m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Visible in first edition Ordnance Survey maps as a hachured, circular enclosure. Ordnance Survey memoirs record that the site was used as a race course until the late eighteenth century (Fagan 1838, 26).	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.35: Derrynaseer hillfort, Co. Antrim (Bing Maps 2015).

Catalogue Number 36: Donaghmore/Toor More, Co. Kilkenny

Summary

Large, widely spaced multivallate enclosure surrounding the summit of Corrandhu Hill, one of three summits in a north–south running ridge overlooking Ballyraggett town. This ridge sits on the western edge of the Castlecomber Hills. The hillfort is draped over the narrow ridge, with the concentric enclosing elements ignoring the steep contours to the east and west of the hill, forming a circle in plan. The site has a total footprint of 8.9ha. Bivallate for its entire circuit with three possible original entrances at north-north-west and south-east identified through geophysical survey undertaken by the author. Enclosing elements survive as low-rise bank features. Targeted excavation by O'Brien (2014) and geophysical survey revealed that the inner and outer enclosing elements consist of banks with external ditches (the inner example being rock cut) with small palisades on the inside of the banks. The banks comprise of soil and stone with a stone revetment. Late Bronze Age radiocarbon dates from ditch deposits and palisade features. There is no evidence for any internal features on the surface, although potential pits and possible hut structures were identified by the geophysical survey. A possible cist burial from the centre of the inner enclosure (Carrigan 1905, 108) could pre-date the hillfort. This may have been associated with a levelled cairn (Carrigan 1905, 108).

Site Details	
Name	Toor More
County	Kilkenny
Townland	Donaghmore/Toor More
RMP Number	KK010-007001
ITM Co-ordinates	647554, 671002
Site Condition	Partial
Land Category	Pasture/forestry

Morphology	
Class	2 (Definitely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.72 hectares
Area enclosed by Enclosing Element 2	8.94 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	103m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	253
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	3 (not confirmed)
Width of entrance	SE entrance is 4.5m wide
Orientation of entrance	NNW (inner), NNW and SE (outer)

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	Cremation, possible p

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.4m	**Height of bank**	0.3	**Height of bank**	n/a
Width of bank	6m	**Width of bank**	6m	**Width of bank**	n/a
Depth of ditch	1.4m	**Depth of ditch**	1.2m	**Depth of ditch**	n/a
Width of ditch	2.5m	**Width of ditch**	1.8m	**Width of ditch**	n/a
Shape of ditch	V	**Shape of ditch**	V	**Shape of ditch**	n/a

History of Research
Dating
Late Bronze Age dates from the basal fill of the inner and outer enclosing elements and associated palisade features.
Investigations
Not apparent in any historic mapping. First written reference by Reverend Carrigan (1905). Geophysical survey of entire site by the author. Targeted excavation of inner and outer enclosing elements by O'Brien (2014).
Finds Summary
Preserved wood in ditch deposits.
References: Carrigan, Rev. W., 1905. The history and antiquities of the diocese of Ossory. Sealy, Bryers and Walker, Dublin. O'Brien, W. 2014. *Excavations at Toor More Hillfort in Co. Kilkenny*. Unpublished report, University College Cork.

Aerial Photography

Fig. 11.36: Toor More hillfort, Co. Kilkenny (Google Earth 2015).

Catalogue Number 37: Downpatrick, Co. Down

Summary

Contour fort in commanding position on summit of Downpatrick Hill, with panoramic views. Visible as a vegetation mark in some aerial photographs. Excavations by Proudfoot (1954 and 1955) revealed a ditch-bank-ditch enclosing element, with the internal ditch of slightly later date. A series of post-holes abutting the inner and exterior face of the bank, as well as tie-beams traversing the base of the bank, were also identified. Proudfoot (1955, 59) suggests these are a later refurbishment of the hillfort. No radiocarbon dates were obtained, though the artefactual evidence dates the site to the Late Bronze Age. Trial excavation by Hamlin and Lynn (1988) identified substantial evidence for reuse during the Early Medieval and High Medieval period. There are no obvious entrance features. Three Late Bronze Age gold hoards were recovered from the interior. An excavated oval structure may be somewhat contemporary with the construction and occupation of the hillfort. This structure is truncated by later features and coarse pottery was found in close proximity (Proudfoot 1954, 97–99). More than a dozen clay or wattle and daub lined pits of varying size were excavated in the interior. A large church and car park were subsequently built inside the fort.

Site Details	
Name	Downpatrick
County	Down
Townland	Downpatrick
RMP Number	DOW037-027
ITM Co-ordinates	748127, 844471
Site Condition	Levelled
Land Category	Development

Topographical Situation	
Height in metres OD	21
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	n/a
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	n/a

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Clay and wattle lined pits

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
Excavations produced coarse ware from the ditch and underneath the bank (Proudfoot 1954; 1955). Proudfoot (1954) suggests these sherds are similar to the Late Bronze Age pottery from crannogs at Ballinderry 2, Knocknalappa and Lough Gara. Intensive occupation of the hilltop in the Early and High Medieval periods saw the refurbishment of the enclosing elements (Proudfoot 1954, 100). Later trial excavations have led Hamlin and Lynn (1988, 61–64) to suggest that the hillfort is Early Medieval. However, this disregards clear evidence for the re-use of the enclosure in later periods and does not explain the presence of Late Bronze Age pottery.
Investigations
Excavations by Proudfoot (1954 and 1955). Trial excavation by Hamlin and Lynn (1988). Not depicted in any historic mapping.
Finds Summary
Late Bronze Age coarse ware pottery discovered within the fill of the enclosing elements. Three Late Bronze Age gold hoards discovered within the interior of the hillfort.
References: Hamlin, A. and Lynn, C. 1988. *Archaeological Excavations by the Department of the Environment for Northern Ireland 1970–1986.* Crown, Belfast. Proudfoot, B. 1954. Excavations at the Cathedral Hill, Downpatrick, Co. Down, 1953. *Ulster Journal of Archaeology* 89, 97–102. Proudfoot, B. 1955a. Excavations at Cathedral Hill, Downpatrick, Co. Down: preliminary report on excavations in 1954. *Ulster Journal of Archaeology* 90, 57–72.

Aerial Photography

Fig. 11.37: Downpatrick hillfort, Co. Down (Google Earth 2015).

Catalogue Number 38: Downshill, Co. Wicklow

Summary

Oval shaped contour fort surrounding the domed summit of Downshill. The site is in a commanding position at edge of the Glen of the Downs, overlooking the Wicklow coastline to the east. Coolagad hillfort is positioned 2.8km to north-east. Univallate for its entire circuit, it has a total footprint of 6.66ha. The enclosing elements comprise a stone faced earthen bank approximately 5m wide and up to 1.6m high. A 4m wide external ditch was discovered during ploughing at the south-east. The ramparts have been damaged by recent forestry. There are no recorded entrance features. No evidence for any internal features on the surface. Interior also severely damaged by deep ridge and furrow associated with tree felling. Earliest map detection in 1906 second edition Ordnance Survey mapping. Trial excavation of enclosing elements in 2007 by University College Dublin. No dateable artifacts were recovered. No available radiocarbon dates.

Site Details	
Name	Downshill
County	Wicklow
Townland	Downshill
RMP Number	WI013-001
ITM Co-ordinates	725213, 710151
Site Condition	Levelled
Land Category	Forestry

Topographical Situation	
Height in metres OD	372
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	6.66 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.6m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	4m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Earliest map detection in 1906 second edition Ordnance Survey mapping. Identified as an oval field boundary. Monument survey by Grogan and Kilfeather (1997, 41–42). In 2007 two test trenches were opened across the bank and ditch on the north and west sides of enclosing elements as part of a research excavation carried out by University College Dublin. No dateable artifacts were recovered. No radiocarbon dates available.	
Finds Summary	
No known finds.	
References: Grogan, E. and Kilfeather, A. 1997. *Archaeological Inventory of County Wicklow*. The Stationary Office, Dublin.	

Aerial Photography

Fig. 11.38: Downshill hillfort, Co. Wicklow (Ordnance Survey Ireland 2000).

Catalogue Number 39: Drumnagranshy, Co. Sligo

Summary

Possible multiple enclosure surrounding the flat summit of Kesh Corann mountain. The site has a total footprint of approximately 2.9ha. The enclosing elements are on average 21m apart. The possible internal enclosing elements have not been investigated and have only recently been identified by the author. The aerial and satellite images suggest this comprises a stone bank. The external enclosing elements consist of a low, heather covered stone wall 2.5m wide and up to 0.5m high. At the north-west to east, the bank is built on the edge of a steep slope. The ramparts and the majority of the interior of the hillfort are covered in blanket bog and heather. An annex abutting the southern section of the enclosing elements has been interpreted as a possible entrance feature. A large cairn at the highest point in the interior measures 26m in diameter with a maximum height of 5m. This may be a passage tomb. A second cairn that could also be considered a passage tomb is visible within the interior. There are no other features visible on the surface.

Site Details	
Name	Drumnagranshy
County	Sligo
Townland	Drumnagranshy
RMP Number	SL040-009
ITM Co-ordinates	571226, 812590
Site Condition	Extant
Land Category	Heather/peat

Topographical Situation	
Height in metres OD	359
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	S

Morphology	
Class	2 (Possibly)
Shape	Pear
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.37 hectares
Area enclosed by Enclosing Element 2	2.87 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	21
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	2 possible passage tombs

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	0.5m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	2.5m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Monument survey by Egan *et al*. (2005) and Kytmannow (2005). Not identified in any historic mapping.	
Finds Summary	
No known finds.	
References: Egan, U., Byrne, E., Sleeman, M., Ronan, S. and Murphy, C. 2005. *Archaeological Inventory of Country Sligo*, *Vol 1: Sligo South.* Stationary Office, Dublin. Kytmannow, T. 2005. New prehistoric discoveries in the Kesh Corran/Carrowkeel complex, Co. Sligo. *Archaeology Ireland* 19 (4), 20–23.	

Aerial Photography

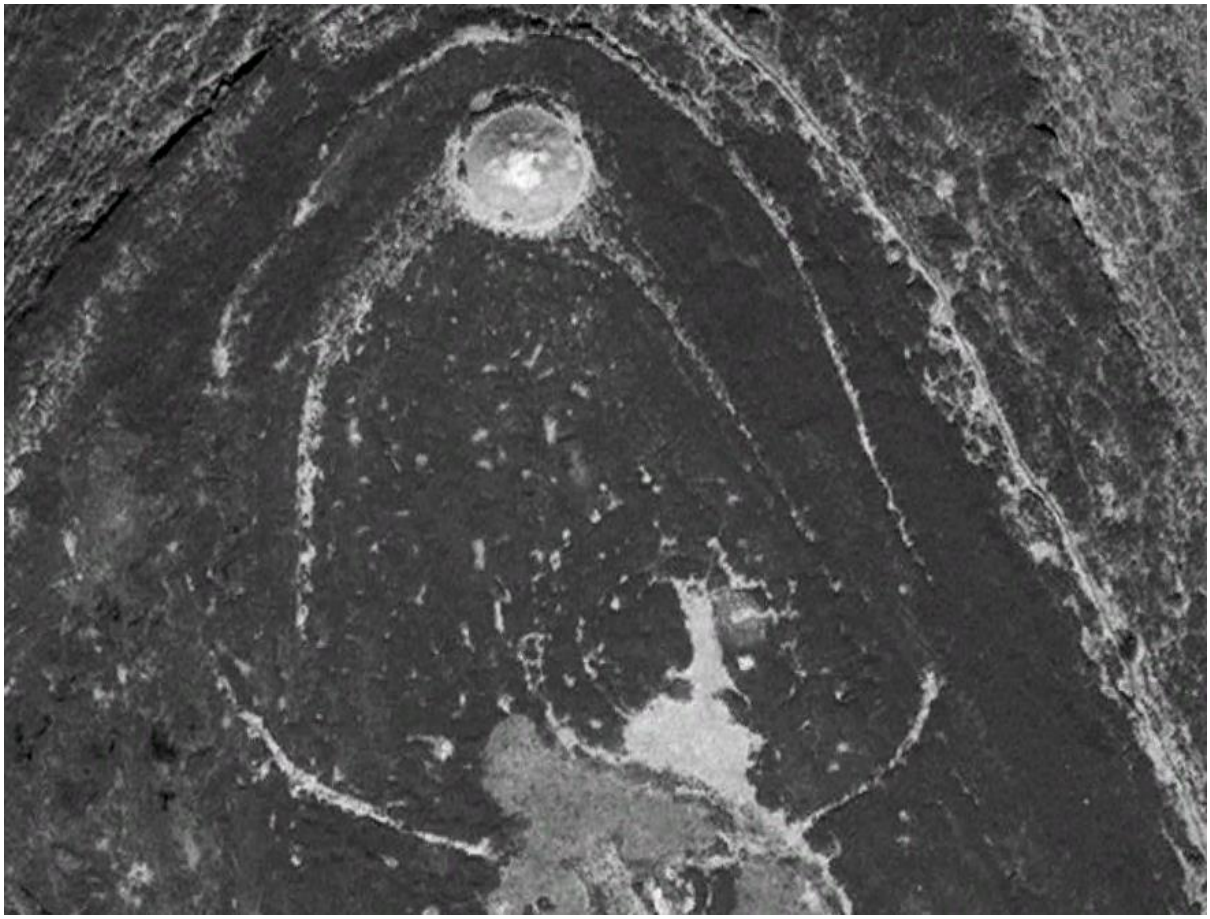

Fig. 11.39: Drumnagranshy hillfort, Co. Sligo (Google Earth 2015).

Catalogue Number 40: Dún Aonghasa, Co. Galway

Summary

The famous cliff-top fort of Dún Aonghasa is located on Inishmore, the largest of the Aran Islands in Co. Galway. It has a total site footprint of 5.9ha and comprises up to four widely spaced enclosing elements that abut a sheer cliff face to the south. There were two main phases of construction. The fort was initially built at the beginning of the Late Bronze Age. A second phase of building and refurbishment took place later, possibly in Iron Age and Early Medieval times. This included the construction of the *chevaux de fries* and a fourth enclosing element. There are three entrances in the enclosing elements that may date to the Late Bronze Age and up to seven entrances which were probably added during the Early Medieval period (Cotter 2012a, 55). The stone banks have been substantially rebuilt in modern times. Up to ten structures were identified within the interior of the fort during excavation. A wide range of artifacts have also been identified including 40 bronze objects. Evidence for the casting of swords, spearheads and decorated socketed axe-heads were also recovered in the form of clay moulds. Excavations by Cotter in 1990s. Mainly Late Bronze Age dates. Iron Age and Early Medieval re-use of the site.

Site Details	
Name	Dún Aonghasa
County	Galway
Townland	Dún Aonghasa
RMP Number	GA110-039
ITM Co-ordinates	481783, 709831
Site Condition	Extant
Land Category	Pasture

Morphology	
Class	2 (Definitely)
Shape	D-shaped
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	0.15 hectares
Area enclosed by Enclosing Element 2	0.92 hectares
Area enclosed by Enclosing Element 3	5.85 hectares
Spacing between Enclosing Element 1 and 2	12–71m
Spacing between Enclosing Element 2 and 3	114m
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	87
View from summit	Panoramic
Topographical Position	Cliff edge
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	3
Width of entrance	Two breaks in inner enclosure measuring 0.8 and 1.2m. Break in outer enclosure.
Orientation of entrance	N, N, N

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	5m	**Height of bank**	4m	**Height of bank**	1.5m
Width of bank	6.1m	**Width of bank**	3.8m	**Width of bank**	1.7m
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
A total of 43 radiocarbon dates from the site, many of these are Late Bronze Age, although the monument was re-used in Iron Age and Early Medieval period (see Warner 2013, 223). Samples relating to the construction of the fort are Late Bronze Age. Four radiocarbon dates suggest pre hillfort activity on the site.
Investigations
First edition Ordnance Survey maps only identified the inner enclosing elements of the site. Excavations by Cotter between 1992 and 1995.
Finds Summary
Late Bronze Age coarse ware pottery, bronze objects, evidence for metal-working, crucible moulds for the casting of weapons and tools, amber beads, human and animal remains and lithics.
References: Cotter, C. 2012a. *The Western Stone Forts Project: Excavations at Dún Aonghasa and Dún Eoghanachta* Vol. 1. Wordwell, Dublin. Warner, R. 2012. The radiocarbon dates from Dún Aonghasa. In Cotter, C., *The Western Stone Forts Project: Excavations at Dún Aonghasa and Dún Eoghanachta,* Vol 2. Discovery Programme Monograph, Wordwell, Dublin, 211–224.

Aerial Photography

Fig. 11.40: Dún Aonghasa hillfort, Co. Galway (Bing Maps 2015).

Catalogue Number 41: Dunmurry West, Co. Kildare

Summary

Oval hillslope fort situated surrounding the summit and southeastern facing slopes of Dunmurry Hill. The summit offers panoramic views in all directions. The univallate hillfort has a total site footprint of 6.3ha. The enclosing element is a poorly preserved, grass-covered, stony bank, up to 6m wide and 0.5m high, with no obvious ditch feature. A mound (probably prehistoric), two possible hut structures and a small enclosure are apparent within the interior of the hillfort. The hut sites comprise circular platforms five and seven metres in diameter and are defined by a circular band of grass covered stones. A larger enclosure has also been identified. This measures approximately 25m in diameter and is defined by a poorly preserved grass-covered stony bank. Interior under pasture with patches of scrub and gorse.

Site Details	
Name	Dunmurry West
County	Kildare
Townland	Dunmurry West
RMP Number	KD022-001001
ITM Co-ordinates	671402, 716918
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	6.29 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	233
View from summit	Panoramic
Topographical Position	Cliff edge
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	Yes
Mound	Yes
Cairn	No
Other internal features	Enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.5m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Mound near summit of hillfort interior may pre-date the construction of the fort.	
Investigations	
There have been no archaeological investigations of this hillfort. The enclosing elements are not visible in any historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.41: Dunmurry West hillfort, Co. Kildare (Google Earth 2015).

Catalogue Number 42: Faha, Co. Kerry

Summary

Inland promontory fort on east–west ridge, on the eastern side of Brandon Mountain in the Dingle Peninsula, Co. Kerry. The triangular promontory narrows to the west and is bounded at the north and south by steep cliffs. Two drystone walls north–south define the most accessible approach to the east. The site occupies a total area of 13.4ha. The stone walls are separated by approximately 120m. The outer defences consist of a 7m wide stone bank that is up to 2.1m high and is approximately 134m long. There is some evidence for an internal wall walk consisting of two steps. A single entrance appears in the well preserved outer enclosing element, comprising a simple, stone faced gap, 2m in width. The inner enclosing element is not as well preserved. It comprises a collapsed stone bank 2.2m wide and up to 1.95m high and extends for a length of 55m. A simple entrance gap in the inner enclosing element comprises a 9m gap between the faced terminal of the stone bank and northern cliff face. There is no evidence for surface features in the interior, which is partially covered by vegetation scrub.

Site Details	
Name	Faha
County	Kerry
Townland	Begagh
RMP Number	KE034-048
ITM Co-ordinates	447882, 612002
Site Condition	Partial
Land Category	Overgrowth

Morphology	
Class	3
Shape	Triangular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	12.04 hectares
Area enclosed by Enclosing Element 2	13.46 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	120m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	822
View from summit	N-E-S
Topographical Position	Mountain ridge
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	2
Width of entrance	E (inner) 9m wide, E (outer) 1.6m wide
Orientation of entrance	E, E

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	2.1m	**Height of bank**	1.95m	**Height of bank**	n/a
Width of bank	7m	**Width of bank**	2.1m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
No investigation of the interior has been undertaken. First identified as a hillfort by Raftery (Cuppage 1986, 82). Not apparent in any historic mapping.	
Finds Summary	
No known finds.	
References: Cuppage, J. 1986. *Archaeological Survey of the Dingle Peninsula*. Oidhreachta Chorca Dhuibhne, Ballyferriter.	

Aerial Photography

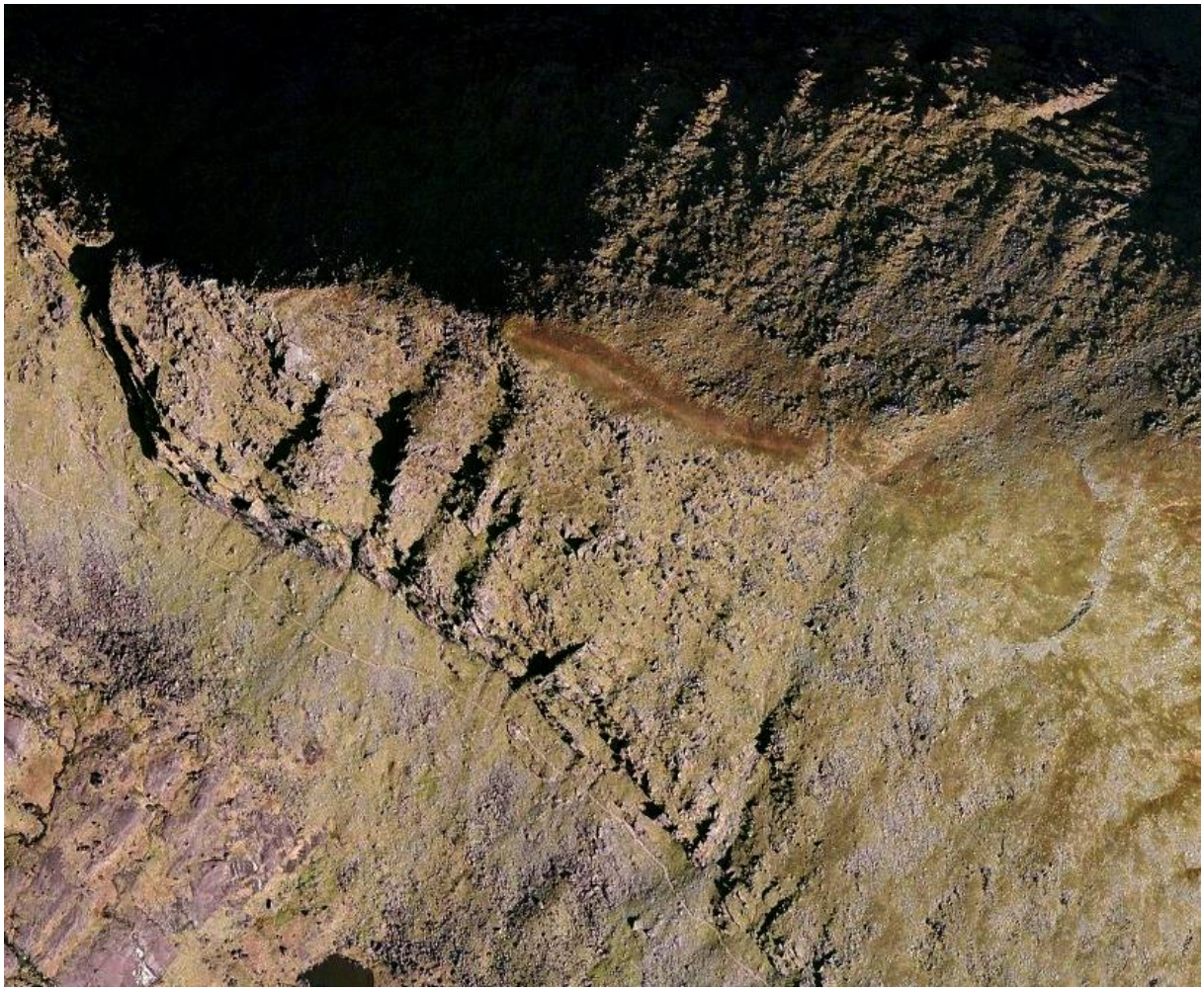

Fig. 11.42: Faha hillfort, Co. Kerry (Bing Maps 2015).

Catalogue Number 43: Forkhill, Co. Antrim

Summary

In commanding position overlooking the modern town of Forkill, a large oval contour fort around the domed summit of Forkill Mountain. The site is univallate for the entire circuit with no obvious entrance features. The rampart survives well throughout and is best preserved at the south. It comprises a substantial drystone wall up to 1m wide and 1.5m high. It is strategically positioned at the edge of steeply sloping ground, giving the impression of greater height from the exterior (Davis and Mogey 1946, 22). A small cairn at the highest point of the interior measures 6.5m in diameter and up to 1.5m high. No other evidence for any internal features on the surface. Some tree cover and thick heather and scrub growth within the interior. Forestry surrounds the enclosing elements on all sides.

Site Details	
Name	Forkhill
County	Antrim
Townland	Orior Upper
RMP Number	ARM031-025
ITM Co-ordinates	702309, 815358
Site Condition	Extant
Land Category	Forestry

Topographical Situation	
Height in metres OD	263
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	4.24 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.5m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	1m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. Cairn at highest point of interior probably pre-date the hillfort.	
Investigations	
First identified in 1946 by Davis and Mogey. Visible in aerial photography. Not apparent in any historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.43: Forkhill hillfort, Co. Antrim (Google Earth 2015).

Catalogue Number 44: Formoyle Beg, Co. Clare

Summary

Multivallate hillfort in commanding position overlooking a deep, curving river valley forming a pass through the Slieve Bearnagh Mountains. The site has a total footprint of approximately 6.79ha. It is bivallate for the entire circuit with widely spaced enclosing elements that are separated by a maximum of 62m. Excavation revealed both defences consisted of a low bank of earth and stone and a shallow outer ditch, with a small counterscarp bank. Evidence for a stake fence was found along the crest of the inner bank. On top and at the outer edge of this bank, a dense series of stake-holes were revealed through excavation. Ramparts survive well throughout but are covered in a layer of blanket bog. No obvious entrance features have been recorded. A possible cairn identified by Condit (1995b, 37) at the summit, although this may not be an antiquity. No other evidence for internal features on the surface. Excavations produced Late Bronze Age dates, indicating the hillfort was constructed during that period. Condit and O'Sullivan (1999) suggest a third outer enclosure exists. This is not supported by recent excavation, which confirmed that the 'outlying ditch' identified by the latter is a modern drainage feature.

Site Details	
Name	Formoyle Beg
County	Clare
Townland	Formoyle Beg
RMP Number	CL044-085
ITM Co-ordinates	560391, 671278
Site Condition	Partial
Land Category	Forestry/peat/farm

Topographical Situation	
Height in metres OD	242
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Definitely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	2.57 hectares
Area enclosed by Enclosing Element 2	6.45 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	62m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.5m	**Height of bank**	0.5m	**Height of bank**	n/a
Width of bank	7m	**Width of bank**	7m	**Width of bank**	n/a
Depth of ditch	0.45m	**Depth of ditch**	0.45m	**Depth of ditch**	n/a
Width of ditch	3m	**Width of ditch**	3m	**Width of ditch**	n/a
Shape of ditch	U	**Shape of ditch**	U	**Shape of ditch**	n/a

History of Research
Dating
Five Late Bronze Age dates from defences of both enclosures, dating the construction and initial occupation of the hillfort (O'Brien 2013b).
Investigations
Earliest identification by Condit (1995b) during investigation of aerial photographs for the North Munster Project. GPS and geophysical survey by Hogan (2004). Excavation by O'Brien in 2012.
Finds Summary
No known finds.
References: O'Brien, W. 2013b. *Excavations at Formoyle Beg Hillfort in Co. Clare*. Unpublished report, University College Cork. Condit, T. 1995b. Hillfort discoveries near Killaloe, Co. Clare. *Archaeology Ireland* 9 (1), 34–37. Hogan, N. 2004. *Survey at Formoyle Beg Hillfort in Co. Clare*. Unpublished report, National University of Galway.

Aerial Photography

Fig. 11.44: Formoyle Beg hillfort, Co. Clare (Bing Maps 2015).

Catalogue Number 45: Freestone Hill, Co. Kilkenny

Summary

This contour fort surrounds the low-domed summit of Freestone Hill, following the 130m contour at the east, south and west. The hilltop is located at the southern foothills of the Castlecomber Hills, overlooking Kilkenny town. It also overlooks a north–south routeway through a gap in the Slieveardagh Hills and Castlecomber Hills. The hillfort is 1.5ha in size and comprises a low-rise bank with external ditch. Excavations undertaken by Bersu in 1948–1949 and published by Raftery in 1969. This revealed that the ditch was rock-cut and varied from U- to V-shaped. It varies in width (1.3–2.5m) and depth (0.75–2m) (Raftery 1969, 33). The bank is composed of stone and gravel, and varies from 2.5–4m wide at its base, rising 0.5–1m above the old ground surface. The discovery of large blocks of stone may suggest some form of wall facing. A potential post-hole was identified on the crest of the bank, however, Raftery (1969, 34–35) suggests this is unlikely to relate to a timber palisade. The interior rises towards a flat centre where the partial remains of a circular wall, 18m in diameter, was surrounded by a larger 37m x 30m oval enclosure (Raftery 1969, 6). Underneath these enclosures, the remains of a cairn was identified. The site has been dated to the Late Bronze Age.

Site Details	
Name	Freestone Hill
County	Kilkenny
Townland	Coolgrange
RMP Number	KK020-018002
ITM Co-ordinates	658829, 656234
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	134
View from summit	Panoramic
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	E

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.52 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	Enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	4m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	2.5m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	2m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	U/V	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
Originally dated to the 4th century BC due to the recovery of Roman artifacts (Raftery 1969; Bateson 1973, 45). Coarse-ware pottery discovered underneath the bank, within ditch fill and within occupation areas (Raftery 1969, 91) implies Freestone Hill was constructed in the Late Bronze Age. Ó Floinn (2000) argues that the pottery and other artifacts, date the hillfort to the Late Bronze Age. A single radiocarbon date (810–550 BC) obtained from charcoal recovered in an occupation layer confirms Late Bronze Age/Early Iron Age occupation (Waddell 1998, 270).	
Investigations	
First map depiction in 1st edition Ordnance Survey mapping, where the site is recognized as a hillfort. Excavations by Bersu (Raftery 1969). Geophysical survey by Roman-Germanic Commission of the Deutsches Archäologisches Institut and the LIARI project of the Irish Discovery Programme.	
Finds Summary	
Thirteen cremations, three inhumations, at least five food vessels and a large quantity of worked flint are associated with earlier activity. Antler picks, coarse-ware pottery and glass beads can be associated with the hillfort. Romano-British bracelets, Roman toilet implements, a bronze mount and copper coin dating to 337–340 AD (Bateson 1973, 45) attest to Iron Age re-occupation.	
References:	Raftery, B. 1969. Freestone Hill, Co. Kilkenny: an Iron Age and Bronze Age cairn: excavation Gerhard Bersu. *Proceedings of the Royal Irish Academy* 68, 1–108. Ó Floinn, R. 2000. Freestone Hill, Co. Kilkenny: a re-assessment. In Smyth, A. (ed.), *Seanachas: Studies in Early and Medieval Irish Archaeology, History and Literature in Honour os Francis J. Byrne*. Four Courts Press, Dublin, 12–29. Waddell, J. 1998. *The Prehistoric Archaeology of Ireland*. Wordwell, Dublin.

Aerial Photography

Fig. 11.45: Freestone Hill hillfort, Co. Kilkenny (Bing Maps 2015).

Catalogue Number 46: Friarstown 1, Co. Limerick

Summary

Contour fort positioned on the low-domed summit of an isolated hill, 7.5km south of Limerick City. The hillfort has a total footprint of 1.5ha. There are panoramic views from the summit. Immediately to the north-east is a second hillfort (No: 47), positioned on a low-domed shoulder of the hill. The enclosing elements comprise a pair of closely set banks with an intervening ditch. The outer bank is likely to be a counter scarp feature. There are no obvious entrance features recorded. No evidence for any internal features on the surface. Extensive plough damage has denuded the enclosing elements. The southern and western section of the enclosing features are under forestry. Kelly and Condit (1998, 19) have suggested that this is a large henge monument. However, the commanding position of the monument and the layout of its enclosing elements suggest that it is more likely to be a hillfort.

Site Details	
Name	Friarstown 1
County	Limerick
Townland	Friarstown
RMP Number	LI013-089
ITM Co-ordinates	558317, 649328
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	83
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrance	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.5 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.3m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	1.2m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	0.5m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by the Cambridge University Committee for Aerial Photography. Site visit by Kelly and Condit (1998) who described the enclosing elements. Not apparent in any historic maps.	
Finds Summary	
No known finds.	
References: Kelly, E. and Condit, T. 1998. Limerick's Tara. *Archaeology Ireland* 2, 18–22.	

Aerial Photography

Fig. 11.46: Friarstown 1 hillfort, Co. Limerick (Bing Maps 2015).

Catalogue Number 47: Friarstown 2, Co. Limerick

Summary

Contour fort situated on the low-domed shoulder of an isolated hill, 7.5km south of Limerick City. The hillfort has a total footprint of 2.1ha. There are extensive views to the north, east and south. Views to the west are blocked by the summit of Friarstown Hill. Immediately to the south-west is a second hillfort (No: 46) on Friarstown Hill. The enclosing elements comprise a pair of closely set banks with an intervening ditch. These survive best at the south-east and south-west. Here, the inner bank is 6m wide and is 1.7m above the bottom of the ditch. The ditch measures 2.5m wide. The outer bank is 3m wide and is 0.5m above the bottom of the ditch (Kelly and Condit 1998, 19). This may suggest it is a counterscarp. There are no recorded entrance features. No evidence for any internal features on the surface. Extensive plough damage has denuded the enclosing elements, which survive best to the south-east and south-west. Kelly and Condit (1998, 19) have suggested that this is a large henge monument. However, its commanding position and layout of its enclosing elements suggest it is more likely a hillfort.

Site Details	
Name	Friarstown 2
County	Limerick
Townland	Friarstown
RMP Number	LI013-094
ITM Co-ordinates	558223, 649288
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.11 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	76
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	7m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	0.7m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	2m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by the Cambridge University Committee for Aerial Photography. Site visit by Kelly and Condit (1998) who described the enclosing elements. Not apparent in any historic maps.	
Finds Summary	
No known finds.	
References: Kelly, E. and Condit, T. 1998. Limerick's Tara. *Archaeology Ireland* 2, 18–22.	

Aerial Photography

Fig. 11.47: Friarstown 2 hillfort, Co. Limerick (Bing Maps 2015).

Catalogue Number 48: Garrangrena Lower, Co. Tipperary

Summary

In commanding position on domed summit of hill overlooking Moanamaddra Lough to east and Fishmoyne River to east and south-east. The site has a total footprint of 2.1ha. It is univallate for its entire circuit and comprises two ditches with an intervening bank. The internal ditch is 1m wide and 0.2m deep. Immediately outside this is a 2m wide and 1m high earthen bank, with an external ditch 3m wide and 0.3m deep. The enclosing elements closely follow the contours of the hilltop. The ramparts survive well throughout its circuit. There is a possible entrance at the west comprising a simple 3m break in the enclosing elements. There are no other recorded entrance features. The interior is under blanket bog and heather.

Site Details	
Name	Garrangrena Lower
County	Tipperary
Townland	Garrangrena Lower
RMP Number	TN028-070001
ITM Co-ordinates	600700, 669980
Site Condition	Extant
Land Category	Heather/overgrown

Topographical Situation	
Height in metres OD	315
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	3m
Orientation of entrance	W

Morphology	
Class	1
Shape	Sub-circular
Internal ditch	Yes
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.06 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	1m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	2m	**Width of bank**	n/a
Depth of ditch	0.2m	**Depth of ditch**	0.3m	**Depth of ditch**	n/a
Width of ditch	1m	**Width of ditch**	3m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
First map identification in second edition Ordnance Survey mapping where the site is recognized as a fort.
Finds Summary
No known finds.

Aerial Photography

Fig. 11.48: Garrangrena Lower hillfort, Co. Tipperary (Bing Maps 2015).

Catalogue Number 49: Glanbane, Co. Kerry

Summary

Multiple enclosure in commanding position at the eastern edge of the Slieve Mish Mountains. It is situated just off the summit of a low-lying, flat hilltop. The hillfort is oval in shape and bivallate for its entire circuit. The monument has been completely levelled and is only visible in aerial photographs and geophysical survey. It occupies a total area of 6.3ha. Excavation confirmed the enclosing elements comprised earthen banks with external stone revetments. Deep external, U-shaped rock-cut ditches were also revealed by excavation. Geophysical survey has identified an out-turned entrance to the north. Here, the separation between the two enclosing elements narrows from 25–30m to approximately 8m and there is a corresponding 10m wide gap in both enclosing elements. No other possible entrances were identified. A number of possible hut structures and two large enclosures were identified in the geophysical survey, as well as post hillfort activity in the form of field boundaries. Radiocarbon dates from basal deposits of the hillfort ditches returned Late Bronze Age dates. The hillfort has been completely levelled and is under pasture. Geophysical survey of the monument by the author and excavation of the enclosing features by O'Brien (2012c).

Site Details	
Name	Glanbane
County	Kerry
Townland	Glanbane
RMP Number	KE039-065
ITM Co-ordinates	492247, 608504
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	86
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	1
Width of entrance	8m
Orientation of entrance	N

Morphology	
Class	2 (Definitely)
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	4.74 hectares
Area enclosed by Enclosing Element 2	6.43 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	28m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Circular post and pit structures, enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	1.35m	**Depth of ditch**	0.8m	**Depth of ditch**	n/a
Width of ditch	3.1m	**Width of ditch**	2.05m	**Width of ditch**	n/a
Shape of ditch	U	**Shape of ditch**	U	**Shape of ditch**	n/a

History of Research	
Dating	
Late Bronze Age radiocarbon dates from basal deposits of both inner hillfort ditch.	
Investigations	
Apparent in the first and second edition Ordnance Survey maps as a series of connecting field boundaries. Geophysical survey of the entire monument by O'Driscoll in 2012. Excavation of the enclosing features by O'Brien in 2012.	
Finds Summary	
No known finds.	
References: O'Brien, W. 2012b. *Excavation at Glanbane Hillfort, Co. Kerry*. Unpublished excavation report, University College Cork. O'Driscoll, J. 2012c. *Geophysical Survey at Glanbane Hillfort, Co. Kerry*. Unpublished geophysical survey report, University College Cork.	

Aerial Photography

Fig. 11.49: Glanbane hillfort, Co. Kerry (Bing Maps 2015).

Catalogue Number 50: Glasbolie, Co. Donegal

Summary

Large contour fort on domed summit of Lurgan Hill at the western edge of upland terrain, overlooking lowland and Donegal coastline to the west. Univallate for its entire circuit, with a total footprint of 5.5ha. The rampart survives well at the south, west and north where it is defined by a collapsed stone wall. The eastern section is delimited by a steep natural scarp. No obvious entrance features have been recorded. An embanked enclosure surrounding a central mound 15m in diameter and 1m high was recorded at the centre of the hillfort by Cody (2002). This mound is called Lurgancarn in the first edition Ordnance Survey maps. Numerous possible circular hut sites are visible in aerial and satellite imagery in the interior. The interior is under pasture.

Site Details	
Name	Glasbolie
County	Donegal
Townland	Glasbolie
RMP Number	DG103-029
ITM Co-ordinates	589827, 867213
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	147
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	5.51 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	Yes
Mound	Yes
Cairn	No
Other internal features	Enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence	
Investigations	
Not apparent in first edition mapping. Second edition survey maps depict the western section of the enclosing elements, although do not recognize them as part of a fort.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.50: Glasbolie hillfort, Co. Donegal (Bing Maps 2015).

Catalogue Number 51: Grannagh, Co. Galway

Summary

Univallate contour fort surrounding the domed summit of a hillock positioned in low-lying terrain. Despite the fort being in a low-lying position, there are panoramic views from the summit. It has a total footprint of approximately 2.8ha. The rampart has been completely destroyed and is visible as a vegetation mark in some aerial photographs. There are no recorded entrance features. No evidence for any internal features on the surface.

Site Details	
Name	Grannagh
County	Galway
Townland	Grannagh
RMP Number	GA114-080
ITM Co-ordinates	549611, 711162
Site Condition	Levelled
Land Category	Pasture

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.76 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	55
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence	
Investigations	
First map identification in first edition Ordnance Survey mapping. Depicted as a circular field boundary; not recognized as a hillfort. Also apparent in the second Ordnance Survey maps as a circular field boundary.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.51: Grannagh hillfort, Co. Galway (Google Earth 2015).

Catalogue Number 52: Granard, Co. Longford

Summary

Possible contour fort positioned on the summit of prominent hill, overlooking Granard town and River Rhine. Summit of hill is occupied by a Medieval motte and bailey castle. The hillfort surrounds these later features and has a total footprint of 1.8ha. It is univallate for its entire circuit with a possible out-turned entrance at the north-west. The rampart survives well at the south-west where it measure 6m wide and up to 2.1m high. There are no apparent ditch features associated with this bank. The majority of the enclosing elements are incorporated into curvilinear field systems to the north, east and south. The interior is under pasture. Forestry abuts the enclosing elements to the north.

Site Details	
Name	Granard
County	Longford
Townland	Granard
RMP Number	LF010-080001
ITM Co-ordinates	632923, 780709
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.83 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	179
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	1
Width of entrance	11m
Orientation of entrance	NW

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Motte and bailey

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	2.1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence	
Investigations	
First map depiction in first edition Ordnance Survey mapping where the site is recognized as a fort. More detailed earthwork survey in second edition Ordnance Survey maps.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.52: Granard hillfort, Co. Longford (Bing Maps 2015).

Catalogue Number 53: Haughey's Fort, Co. Armagh

Summary

Large, mostly levelled, trivallate hillfort, on a low-rise hill in Tray townland, County Armagh. The inner bank may survive as part of modern field system. Middle and outer enclosing elements are visible in aerial photography. Their presence has been confirmed by geophysics and excavation. Excavations by Mallory in 1987–1999 reveal that each of the three enclosing elements comprise an internal reveted bank and external V-shaped ditch ranging 2.3–3.2m deep (Mallory and Babon 2014). A portion of a large 30m structure at the centre of the monument contained a concentration of pits containing bronze and gold-work, Late Bronze Age pottery, lithics, animal remains and environmental remains such as charred cereal grain and worked wood. These features and artefacts were dated to the Late Bronze Age. A possible entrance in the internal enclosing element (15m in width) has been partially excavated. An entrance gap in the middle enclosing element to the north-east was excavated. It comprised a 3m wide entrance flanked on either side by a palisade and is aligned towards the King's Stables, a man-made ritual pool 300m to the north-east of Haughey's Fort. This has also been dated to the Late Bronze Age.

Site Details	
Name	Haughey's Fort
County	Armagh
Townland	Tray
RMP Number	ARM012-013
ITM Co-ordinates	683458, 845300
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	2 (Definitely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	1.83 hectares
Area enclosed by Enclosing Element 2	6.38 hectares
Area enclosed by Enclosing Element 3	10.42 hectares
Spacing between Enclosing Element 1 and 2	55m
Spacing between Enclosing Element 2 and 3	25m
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	74
View from summit	Panoramic
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	SE (inner) 15m wide, NE (middle) 3m wide
Orientation of entrance	SE, NE

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Pits, post- and stake- holes

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	2.8m	**Depth of ditch**	2.3m	**Depth of ditch**	2.25m
Width of ditch	3.2m	**Width of ditch**	2.7m	**Width of ditch**	4.8m
Shape of ditch	V	**Shape of ditch**	V	**Shape of ditch**	V

History of Research
Dating
18 radiocarbon dates date the construction of the hillfort to c. 1381–806 BC (Mallory 1995, 85). A dendro-date of 1166 BC was recovered from waterlogged wood at the base of inner ditch (Ballie and Brown 1991). Some evidence for Iron Age reoccupation. A cup and ring marked stone was found in a pit within the interior. Aitchison (1998) has suggested this dates to the Neolithic/Early Bronze Age and was ritually deposited in a pit radiocarbon dated to the Late Bronze Age.
Investigations
Excavations by Professor Jim Mallory, Queens University Belfast over a number of seasons (1987–1999). For summary see Mallory (1995). Paleo-environmental study of the environs by Weir (1987a; 1987b; 1988; 1994). These excavations have not been published in full. Not identified as a hillfort in any historic mapping. Inner enclosing element depicted as a series of field boundaries.
Finds Summary
LBA pottery, evidence for metal and craft-working, bronze objects, animal remains, lithics, worked wood, environmental remains such as charred cereal grains.
References: Mallory, J. 1995. Haughey's Fort and the Navan Complex in the Late Bronze Age. In Waddell, J and Shee Twohig, E. (eds), *Ireland in the Bronze Age*. The Stationary Office, Dublin, 73–86. Mallory, J. and Baban, G. 2014. Excavations in Haughey's Fort East. *Emania* 22, 13–32. Ballie, M. and Brown, D. 1991. A dendro-date from Haughey's Fort. *Emania* 9, 39–40.

Aerial Photography

Fig. 11.53: Haughey's Fort hillfort, Co. Armagh (Google Earth 2015).

Catalogue Number 54: Hill of Ward (Tlachta), Co. Meath

Summary

Surrounding the low, flat summit of Ward Hill in Co. Meath, this large multiple enclosure is located in a strategic position overlooking flat terrain to the west and the Abhainn Atha Buí River, a southern tributary of the Boyne River. The hillfort was identified by Davis through analysis of LiDAR. This survey indicated that the enclosing elements comprise a pair of low, largely levelled banks approximately 60m apart and are visible only on the northern side of the hilltop. It is unknown if these defences formed a complete circuit. Recent excavation of these features revealed a more complex series of enclosures. At least three wide ditches were uncovered (some up to 15m in width) and animal bones were extracted from the lower levels of these ditches. These produced Late Bronze Age radiocarbon dates, although the actual dates have not been published. At the centre of the hillfort is a large, earthwork monument identified as an Early Medieval royal assembly site (Tlachta). This comprises four closely spaced banks and ditches with a total diameter of 149m. LiDAR results suggest possible earlier features lie underneath the Early Medieval monument. The hillfort itself is largely levelled and is currently under pasture.

Site Details	
Name	Tlachta (Hill of Ward)
County	Meath
Townland	Mullaghstones
RMP Number	ME030-038
ITM Co-ordinates	673473, 764895
Site Condition	Levelled
Land Category	Pasture

Morphology	
Class	2 (Likely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	n/a
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	0m
Do ramparts form a complete circuit	n/a

Topographical Situation	
Height in metres OD	111
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Early Medieval royal enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
Late Bronze Age radiocarbon dates (*per. comm.* Steve Davis)	
Investigations	
Geophysical survey, LiDAR survey and excavation in 2015 by Davis (unpublished)	
Finds Summary	
Animal bone.	

Aerial Photography

Fig. 11.54: Hill of Ward hillfort, Co. Meath (Bing Maps 2015).

Catalogue Number 55: Hughstown, Co. Kildare

Summary

Vegetation marks and low-relife features indicate the presence of a large, multiple enclosure surrounding the summit of Carrigeen Hill. Hughstown hillfort is one of up to nine hillforts in the Baltinglass area of Co. Wicklow. Roughly oval in plan, the hillfort has a total footprint of 8.2ha. It is situated at the southwestern edge of the Wicklow Mountains in a commanding position, with panoramic views in all directions. Geophysical survey by the author has revealed a complex system of enclosing elements. This includes an outer bank and ditch which surrounds a series of up to four closely set enclosing features. Some aerial photographs indicate associated ditch features and this was confirmed during excavation in 2015. Excavation concentrated on the innermost enclosure of the hillfort and revealed a bank approximately 3.5m wide with evidence for a small palisade or fence, and an external ditch. Radiocarbon dates reveal this enclosure dates to the Early Neolithic. Some possible hut structures were identified by the geophysical survey. No entrance features were identified. At the summit of the hillfort is an extant enclosure. The bank of this enclosure comprises a circular band of large boulders approximately 55m in diameter. Near the centre of this enclosure, a circular bank of grass covered stones 18m in diameter may be the remains of a hut structure. Geophysical survey by the author.

Site Details	
Name	Hughstown
County	Kildare
Townland	Hughstown
RMP Number	KD038-025001
ITM Co-ordinates	684012, 688926
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	298
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Likely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	3.58 hectares
Area enclosed by Enclosing Element 2	4.55 hectares
Area enclosed by Enclosing Element 3	8.22 hectares
Spacing between Enclosing Element 1 and 2	12m
Spacing between Enclosing Element 2 and 3	48m
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Hilltop enclosure?

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
Neolithic pottery. Early Neolithic dates for the inner enclosing element.	
Investigations	
Geophysical survey by the author. LiDAR survey undertaken by Ordnance Survey Ireland. The Irish Army Air Corp and Cambridge aerial photographs reveal two enclosing elements as parch-marks, separated by 23–48m. Excavation in 2015. Not visible in any historic mapping.	
Finds Summary	
Neolithic pottery.	

Aerial Photography

Fig. 11.55: Hughstown hillfort, Co. Kildare (Bing Maps 2015).

Catalogue Number 56: Kedrah, Co. Tipperary

Summary

Contour fort on summit of steep sided hilltop. Positioned at the foothills of the eastern edge of the Galty Mountains with panoramic views from summit. The site has a total footprint of 2.2ha. Possibly bivallate at south and east, with the inner enclosing elements forming a complete circuit. The enclosing elements survive well, but have been affected by quarrying at the south-east. They comprise a substantial, 3m wide internal ditch with a large external bank measuring 14m in width and up to 2.8m in height. At the west, there is evidence for a closely spaced bank, however, it remains to be confirmed if this is an original feature. There are two possible original entrances at the south-east and north-west which comprise simple breaks in the enclosing elements. Two other breaks are probably not original features. A possible structure was recorded abutting the northwestern section of the enclosing elements. There is no evidence for any other internal features on the surface. Some tree cover over enclosing elements.

Site Details	
Name	Kedrah
County	Tipperary
Townland	Kedrah
RMP Number	TS075-039
ITM Co-ordinates	606664, 627244
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	62
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	NW 18m wide
Orientation of entrance	NW, SE

Morphology	
Class	1
Shape	Circular
Internal ditch	Yes
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.21 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	2.8m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	14m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	3m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence. The layout of the enclosing elements (substantial internal ditch and external bank) may suggest that this is an Iron Age hengiform monument, similar to Tara or Navan Fort.	
Investigations	
First map identification in first edition Ordnance Survey mapping where the site is recognized as a fort. Second edition Ordnance Survey mapping was a more detailed earthwork survey.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.56: Kedrah hillfort, Co. Tipperary (Bing Maps 2015).

Catalogue Number 57: Kilcashel, Co. Wicklow

Summary

Near the village of Ballygahan, an oval hillslope fort of 1.6ha is on sloping ground with steep break of slope to north, east and south. Extensive views of the Avoca river valley from the interior. The hillfort is positioned at a major bend in the Avoca Valley. The fort is 34m from a disused copper mine. The ramparts have not been archaeologically recorded and their state is unknown. There are no recorded entrance features. No evidence for any internal features on the surface, although heavy overgrowth may obscure low relief features. A possible mound abuts the western section of the enclosing elements. This measures 25m in diameter.

Site Details	
Name	Kilcashel
County	Wicklow
Townland	Kilcashel
RMP Number	WI035-062
ITM Co-ordinates	719029, 681620
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	193
View from summit	N-E-S
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.58 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	External mound to WSW

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Earliest map detection in second edition Ordnance Survey 25 inch mapping. The hillfort is recorded as an oval boundary overgrown with scrub and is not recognized as a hillfort. The monument has not been recorded in the archaeological inventory of County Wicklow.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.57: Kilcashel hillfort Co. Wicklow (Bing Maps 2015).

Catalogue Number 58: Kill Hill, Co. Kildare

Summary

Multiple enclosure around low domed summit and western slopes of Kill Hill. The site is situated in the northeastern foothills of the Wicklow Mountains and overlooks the town of Naas to the south-west. It comprises three widely spaced (78–109m apart) concentric enclosing elements which are circular in plan, measuring 593m in maximum diameter. The site has a total footprint of 26.2ha. The outer enclosing elements comprise earthen banks topped with modern hedges and are likely to have been altered. The middle enclosing elements are apparent in the north, however, the remainder of its circuit and inner enclosing elements have been destroyed and are visible only in aerial photography. There are no recorded entrance features. The inner enclosing elements have been almost completely destroyed and are only visible in a LiDAR survey. A possible bivallate ring-barrow is located between the inner and middle enclosing elements in the east. Interior is under pasture. There is some partial scrub growth at western part of the interior.

Site Details	
Name	Kill Hill
County	Kildare
Townland	Kill Hill
RMP Number	KD020-001
ITM Co-ordinates	694990, 722858
Site Condition	Partial
Land Category	Pasture/overgrowth

Topographical Situation	
Height in metres OD	153
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Likely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	1.44 hectares
Area enclosed by Enclosing Element 2	10.11 hectares
Area enclosed by Enclosing Element 3	26.26 hectares
Spacing between Enclosing Element 1 and 2	109m
Spacing between Enclosing Element 2 and 3	78m
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Bivallate barrow

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
No archaeological investigations of hillfort. Depicted in first and second edition Ordnance Survey maps as a series of curving field boundaries. First identified as a hillfort after LiDAR survey by Ordnance Survey Ireland (courtesy of Steve Davis).	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.58: Kill Hill hillfort, Co. Kildare (Google Earth 2015).

Catalogue Number 59: Killeenadeema, Co. Roscommon

Summary

Contour fort on summit of flat hilltop. Southwestern section of hillfort is positioned at the edge of a steep incline falling into a south-west–north-east running valley. There are excellent views of this valley from hillfort. The site has a total footprint of approximately 5.4ha. The rampart does not survive at ground level but is visible in some aerial photography. There are no recorded entrance features. No evidence for any internal features on the surface.

Site Details	
Name	Killeenadeema
County	Roscommon
Townland	Killeenadeema
RMP Number	RO044-025
ITM Co-ordinates	587563, 754982
Site Condition	Partial
Land Category	Pasture/overgrowth

Morphology	
Class	1
Shape	Sub-rectangular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	5.41 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	15m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	112
View from summit	E-S-W
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by the Cambridge University Committee for Aerial Photography. The hillfort is not depicted in any historic mapping and is not apparent in most aerial or satellite imagery.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.59: Killeenadeema hillfort, Co. Roscommon (Google Earth 2015).

Catalogue Number 60: Kilranlagh, Co. Wicklow

Summary

Possible univallate contour fort in commanding positioned surrounding the domed summit of Kilranlagh Hill at southwestern edge of the Wicklow mountains. This is one of nine hillforts in the Baltinglass area. The ramparts have been heavily affected by commercial forestry plantation. GPS survey by the author has identified a curving rubble stone bank measuring 14m wide and up to 0.7m high on the western side of the hill. This may be the remains of a possible hillfort. This corresponds with a curving section of bank on the eastern side of the hilltop, depicted in first edition Ordnance Survey maps, and with aerial photography which indicates the possible presence of a large enclosure on the summit of Kilranlagh. There are no recorded entrance features. No evidence for any internal features on the surface. Three cairns, a stone circle and barrow are located on the hilltop, outside the possible hillfort. The interior is overgrown with scrub and is under light blanket bog and is in parts, covered by forestry.

Site Details	
Name	Kilranlagh
County	Wicklow
Townland	Kilranlagh
RMP Number	Unrecorded
ITM Co-ordinates	692599, 688901
Site Condition	Partial
Land Category	Overgrowth/gorse

Topographical Situation	
Height in metres OD	385
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	5.33 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.7m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	14m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by the author after GPS survey.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.60: Kilranlagh hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 61: Kilriffin, Co. Meath

Summary

Contour fort in commanding position surrounding summit of Drumran Hill, overlooking a tributary of the Garra River to the north and west. Visible as vegetation mark in aerial photography, though low level earthworks may survive on north side. The site is univallate for the entire circuit, with aerial photography indicating that it comprises an 8m wide bank with external ditch, with no apparent entrance features. It has a total site footprint of 1.3ha. A possible ring-ditch or hut structure is recorded at the centre of the hillfort. Forestry and scrub over the northern section of enclosing elements. Possible annex abutting exterior of hillfort at the north.

Site Details	
Name	Kilriffin
County	Meath
Townland	Kilriffin
RMP Number	ME006-062001
ITM Co-ordinates	687134, 789850
Site Condition	Partial
Land Category	Pasture/overgrowth

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.33 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	73
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	8m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
There have been no archaeological investigations of this hillfort. The site is not depicted in any historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.61: Kilriffin hillfort. Co. Meath (Bing Maps 2015).

Catalogue Number 62: Kilskeagh, Co. Galway

Summary

Multiple enclosure surrounding the summit of Kilskeagh Hill. The site has a total footprint of 2.7ha. It is bivallate for its entire length, with widely spaced enclosing elements separated by 21m. Enclosing elements survive well throughout their circuit. The inner enclosing elements survive as a scarp feature with an external ditch visible at the south. The external defences consist of a collapsed stone wall with external ditch. Alcock *et al.* (1999) suggest that corresponding 3m wide gap in both enclosing elements at south-east may be an original. Two other breaks in the enclosing elements at the west are probably of later date. No evidence for any internal features on the surface. The interior is heavily overgrown with partial tree cover on the banks.

Site Details	
Name	Kilskeagh
County	Galway
Townland	Kilskeagh
RMP Number	GA071-046
ITM Co-ordinates	548159, 735526
Site Condition	Extant
Land Category	Forestry

Topographical Situation	
Height in metres OD	103
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	3m
Orientation of entrance	SE

Morphology	
Class	2 (Likely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.34 hectares
Area enclosed by Enclosing Element 2	2.65 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	21m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First depicted in 1842 in first edition Ordnance Survey six inch mapping where the site is recognized as a fort. More detailed survey in second edition Ordnance Survey 25 inch mapping. Monument survey by Alcock *et al*. in 1999.	
Finds Summary	
No known finds.	
References: Alcock, O., de hÓra, K. and Gosling, P. 1995. *Archaeological Inventory of County Galway Vol. 2: North Galway*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.62: Kilskeagh hillfort, Co. Galway (Bing Maps 2015).

Catalogue Number 63: Knigh, Co. Tipperary

Summary

Multiple enclosure following natural contours of the hilltop, on southern summit of steep dome-shaped hill overlooking low-lying terrain. The hillfort overlooks Lough Eorna to east and Dromineer Bay is to the west. Geophysical survey by the author has identified that Knigh hillfort is probably bivallate. It has a total site footprint of 5.4ha. The enclosing elements are levelled and are visible on aerial photography. Manning (1985, 48) recorded the monument before its destruction. He identified a bank and external ditch best preserved at the north. Both first and second edition Ordnance Survey mapping suggest that the inner defences were partially incorporated into a field system at its south-west, which is still present today. A possible second enclosing element was identified at the north, approximately 54m from the inner enclosing element (O'Driscoll 2012d). There are no recorded entrance features. A cairn (20m in diameter, 2.5m in height) and conjoined mound (20m in diameter and 0.8m high) are positioned at the centre of the hillfort. Geophysical survey has identified a number of potential pit features throughout the interior, and two possible structures.

Site Details	
Name	Knigh
County	Tipperary
Townland	Knigh
RMP Number	TN014-033002
ITM Co-ordinates	585772, 685357
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	125
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Likely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	2.99 hectares
Area enclosed by Enclosing Element 2	5.4 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	54m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	Yes
Cairn	Yes
Other internal features	Possible

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by Manning in 1983. Geophysical survey of hillfort by O'Driscoll in 2012. Not apparent in any historic mapping.	
Finds Summary	
No known finds.	
References: Manning, C. 1985. Prehistoric sites in the neighbourhood of Ardcroney. *Eile*: *Journal of the Roscrea Heritage Society* 2, 43–55. O'Driscoll, J. 2012d. *Geophysical Survey at Knigh Hillfort, Co. Tipperary*. Unpublished geophysical survey report, University College Cork.	

Aerial Photography

Fig. 11.63: Knigh hillfort. Co. Tipperary (Ordnance Survey Ireland 1995).

Catalogue Number 64: Knockadigeen, Co. Tipperary

Summary

Univallate contour fort surrounding the summit of domed mountain at the northern edge of the Silvermines Mountains. Ballincurra hillfort is 1.4km to south-west. The enclosing elements comprise two ditches with an intervening bank and a possible outer bank at north-north-west (Farrelly and O'Brien 2002). Ramparts survive well throughout its circuit. There are no obvious entrance features recorded. Possible small enclosure on eastern side of interior, visible on aerial photography but not visible at ground level. No other features visible on the surface. Interior under dense gorse and heather growth.

Site Details	
Name	Knockadigeen
County	Tipperary
Townland	Knockadigeen
RMP Number	TN027-098001
ITM Co-ordinates	593486, 670902
Site Condition	Levelled
Land Category	Forestry

Topographical Situation	
Height in metres OD	402
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	Yes
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	4.12 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	0.2m	**Height of bank**	0.2m
Width of bank	n/a	**Width of bank**	4.8m	**Width of bank**	4m
Depth of ditch	0.6m	**Depth of ditch**	0.2m	**Depth of ditch**	n/a
Width of ditch	3.6m	**Width of ditch**	3.2m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Monument surveyed by Farrelly and O'Brien (2002). The site is not depicted in any historic mapping. Western portion of enclosing elements apparent as a field boundary in second edition Ordnance Survey maps.	
Finds Summary	
No known finds.	
References: Farrelly, J. and O'Brien, C. 2002. *Archaeological Inventory of County Tipperary Vol. 1: North Tipperary*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.64: Knockadiggeen hillfort Co. Tipperary (Bing Maps 2015).

Catalogue Number 65: Knockainy, Co. Limerick

Summary

Possible univallate contour fort surrounding the summit of Knockainy Hill in Co. Limerick. The sub-oval shaped enclosure is not visible on the ground or in any aerial photographs and was identified by Grogan (2005a). It has a total site footprint of approximately 10.4ha. There are no obvious entrance features, or structures visible on the surface or in aerial photography. A number of barrows and a mound are recorded in the interior.

Site Details	
Name	Knockainy
County	Limerick
Townland	Knockainy
RMP Number	Not recorded
ITM Co-ordinates	167703, 136450
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	155
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	Yes
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	10.37 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	Yes
Cairn	No
Other internal features	Barrow, cursus

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by Grogan (2005a) who surveyed the monument. Not identified in any historic mapping.	
Finds Summary	
No known finds.	
References: Grogan, 2005a. *The North Munster Project* Vol. 1. Wordwell, Dublin.	

Aerial Photography

Fig. 11.65: Knockainy hillfort. Co. Limerick (Bing Maps 2015).

Catalogue Number 66: Knockanacuig, Co. Kerry

Summary

Situated on the summit of a low hill on the western edge of Tralee town, a circular multivallate hillfort encloses an internal area of approximately 0.2ha, with a footprint of 1.7ha. Although at 30m OD, the site affords panoramic views in all directions, with particular emphasis on views of Tralee Bay. The site has been heavily disturbed and partially destroyed by housing developments. Excavation reveals that the outer enclosing element consists of a bank with external ditch. A single published radiocarbon sample from the basal fill of the outer enclosing elements returned a Mid–Late Iron Age date. A possible entrance was excavated by Dunne and Bartlett (2009, 227), however, no information regarding its location is available. A possible Early Medieval ringfort at the centre of the hillfort and a possible prehistoric mound have been completely destroyed. The site was described in the minutes of the County Kerry Field Club in November 1940 (Connolly 2008). A large mound, up to 5m in height, surrounded by a small enclosure was recorded. This is also depicted in first and second edition Ordnance Survey mapping. There is no surface indication of other internal features and excavation revealed only a single pit dated to the Early Medieval period. Building development and road construction have heavily disturbed the site.

Site Details	
Name	Knockanacuig
County	Kerry
Townland	Lohercannan
RMP Number	KE029-112
ITM Co-ordinates	481947, 614652
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	2 (Possibly)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	0.16 hectares
Area enclosed by Enclosing Element 2	1.67 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	32m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	30
View from summit	Panoramic
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	Yes
Cairn	No
Other internal features	Early Medieval pit

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	2.2m	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	5.2m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	V	**Shape of ditch**	n/a

History of Research	
Dating	
A single published date of 90 Cal. BC to Cal. AD 79 was obtained from the basal fill of the outer hillfort ditch. The fill of a pit located within the interior of the hillfort returned a data of Cal. AD 398–544 (Dunne and Bartlett 2009, 227).	
Investigations	
First depicted by first edition Ordnance Survey mapping where the site is recognized as a fort. More detailed earthwork survey in second edition maps. Excavated by Dunne and Bartlett (2009, 226–227) in 2006.	
Finds Summary	
No known finds.	
References: Dunne, L. and Bartlett, T. 2009. Knockanacuig/Lohercannon hillfort. In Bennett (ed.), *Excavations 2006*. Wordwell, Dublin, 226–227. Connolly, M. 2008. *The Prehistoric Settlement of the Lee Valley, Tralee, Co. Kerry: A Landscape Perspective*. Unpublished PhD thesis, University College Cork.	

Aerial Photography

Fig. 11.66: Knockanacuig hillfort, Co. Kerry (Bing Maps 2015).

Catalogue Number 67: Knockash, Co. Galway

Summary

Univallate contour fort in commanding position at the summit of a domed hilltop, 5km south-east of Loughrea town in Co. Galway. The site is sub-circular and has a footprint of 4.6ha. The site is not visible on the ground or in any available satellite or aerial photography. There are no obvious entrance features. The interior is under pasture and has some overgrowth. The site is not depicted in any historic mapping. There are no obvious archaeological features visible within the interior on the surface.

Site Details	
Name	Knockash
County	Galway
Townland	Knockash
RMP Number	GA115-042
ITM Co-ordinates	564133, 711547
Site Condition	Levelled
Land Category	Pasture/overgrowth

Morphology	
Class	1
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	4.56 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	204
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence	
Investigations	
Not depicted in any historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.67: Knockash hillfort, Co. Galway (Bing Maps 2015).

Catalogue Number 68: Knockbrack, Co. Dublin

Summary

Univallate contour fort on the domed summit of isolated hilltop overlooking low-lying terrain in all directions. Visible in aerial photography as a vegetation mark. Univallate for entire circuit, with a footprint of 9.1ha. Aerial photographs suggest there is an internal ditch. More recent aerial photographs show evidence for a possible inner palisade trench along the south-west and southeastern sections. No obvious entrance feature recorded. A barrow is positioned at the highest point of the interior. Four other barrows and a mound are recorded within the interior. There are no other features visible on the surface.

Site Details	
Name	Knockbrack
County	Dublin
Townland	Knockbrack
RMP Number	DU004-012006
ITM Co-ordinates	715350, 759428
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	176
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	9.11 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	Yes
Cairn	No
Other internal features	5 barrows, enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence	
Investigations	
Southeastern section of enclosing elements apparent as a field boundary in second edition Ordnance Survey maps. First identified by Keeling in 1983.	
Finds Summary	
No known finds.	
References: Keeling, D. 1983. A Group of tumuli and a hill-fort near Naul, County Dublin. *Journal of the Royal Society of Antiquaries of Ireland* 113, 67–74.	

Aerial Photography

Fig. 11.68: Knockbrack hillfort Co. Dublin (Google Earth 2015).

Catalogue Number 69: Knockdhu, Co. Antrim

Summary

Large, multivallate, inland promontory fort on eastern edge of the Antrim plateau. The natural promontory is an impressive and commanding feature in the landscape, with particularly impressive views of the Antrim coastline and the Irish Sea to the east. The western approach is protected by a series of three banks and two ditches. The site has a footprint of approximately 8.2ha. The ramparts survive well throughout their length. Excavation of the enclosing elements in 2008 indicate the ditch was partially rock cut and there is evidence for a palisade on one of the banks. The site is dated to the Middle–Late Bronze Age by radiocarbon dating and flint tool associations (McNeary 2012). Near the southern edge of the enclosing elements, a simple corresponding gap in both the inner and outer banks is likely to be an original entrance. Evidence of round house structures in the interior has been confirmed by excavation. Four round-houses were also excavated. Recent high-resolution LiDAR commissioned by the Built Heritage (Northern Ireland Environmental Agency), has provided further evidence for internal occupation on site. This has added up to 50 new round-house structures to the 18 discovered in 2008 (McNeary 2012).

Site Details	
Name	Knockdhu
County	Antrim
Townland	Knockdhu
RMP Number	ANT035-005
ITM Co-ordinates	734106, 906636
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	362
View from summit	N-E-S
Topographical Position	Spur of hill
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	S

Morphology	
Class	3
Shape	Sub-rectangular
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	8.21 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	0m
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
The site was dated to the Middle–Late Bronze Age by radiocarbon dating and flint tool technology (McNeary 2012).	
Investigations	
Depicted in both first and second edition Ordnance Survey maps. Excavation of the site in 2008 as part of the Time Team television series. LiDAR commissioned by the Built Heritage (Northern Ireland Environmental Agency) in 2012 (McNeary 2012).	
Finds Summary	
Lithics.	
References: McNeary, R. 2012. Archaeological applications of airborne LiDAR in Northern Ireland. Case study: Knockdhu, Co. Antrim. http://www.archaeolandscapes.eu/index.php /ro/studii-de-caz/lidar/228.html.	

Aerial Photography

Fig. 11.69: Knockdhu hillfort Co. Antrim (Bing Maps 2015).

Catalogue Number 70: Knockeen, Co. Wicklow

Summary

Possible multiple enclosure hillfort on the low-domed summit of a hilltop. This circular fort closely follows the contours of the hill and takes advantage of a steep break of slope to north. It has a total footprint of 6.2ha and is 300m to the north of the large multiple enclosure of Rathgall. Aerial photography has suggested that this is a bivallate multiple enclosure with widely spaced enclosing elements separated by approximately 50m. This has been confirmed by geophysics undertaken by the author. Ramparts survive well at the south and west, but are destroyed at the north and east. The inner example comprises a 5m wide bank of yellow earthy-clay and stands to a height of approximately 1.5m. The outer enclosing elements are partially visible in Cambridge University aerial photographs and the geophysical survey. There are three breaks through the inner enclosing elements that are probably modern. Large cairn positioned at the centre and highest point of the hillfort. Geophysical survey by the author has identified up to 20 possible hut structures within the interior. Possible pits and relict field systems have also been identified. Interior is currently under pasture.

Site Details	
Name	Knockeen
County	Wicklow
Townland	Knockeen
RMP Number	WI037-018
ITM Co-ordinates	690170, 673699
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	123
View from summit	E-N-W
Topographical Position	Spur of hill
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Likely)
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	3.14 hectares
Area enclosed by Enclosing Element 2	6.22 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	51m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	Pits

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.5m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Earlier map detection in first edition Ordnance Survey maps. More detailed depiction in second edition mapping, although both maps so not recognize the site as a fort. Instead, the hillfort is represented by a series of connecting field boundaries. Geophysical survey by the author.	
Finds Summary	
Possible round houses and pits discovered through geophysical survey.	

Aerial Photography

Fig. 11.70: Knockeen hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 71: Knocknacarragh, Co. Galway

Summary

Univallate contour fort on the domed summit of Gentian Hill, a prominent hilltop jutting out into Galway Bay and overlooking Galway City to the east. It has a total footprint of approximately 1.5ha. There are no recorded entrance features. No evidence for any internal features on the surface. The hillfort is very poorly preserved. Enclosing elements apparent at the east and south-east and are otherwise completely leveled. Interior is currently under pasture.

Site Details	
Name	Knocknacarragh
County	Galway
Townland	Knocknacarragh
RMP Number	GA093-014
ITM Co-ordinates	629773, 814975
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	28
View from summit	Panoramic
Topographical Position	Spur of hill
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.46 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified in Cambridge University aerial photographs. Monument recorded by Gosling (1993, 40). Not apparent in any historic mapping.	
Finds Summary	
No known finds.	
References: Gosling, P. 1993. *Archaeological Inventory of County Galway*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.71: Knocknacarragh hillfort, Co. Galway (Bing Maps 2015).

Catalogue Number 72: Knocknashee, Co. Sligo

Summary

Sub-oval contour fort on flat summit of Knocknashee, a steep isolated mountain in otherwise low-lying terrain. Possibly bivallate at the east and south, the hillfort has a total footprint of approximately 21.5ha. The enclosing elements comprise a stone wall 3.8m wide and up to 1.5m high. There is no obvious ditch. A possible entrance was identified at the south comprising a gap with a passage-way/corridor. Within the interior, up to 30 hut structures are visible on the surface and in aerial photographs, clustered in the more sheltered eastern half of the hillfort. Two large cairns located within the hillfort to the north are passage tombs. A D-shaped enclosure abuts the inner bank of the hillfort. Condit *et al.* (1991, 61) have suggests that various hollows and 'scoops' within the interior to the south may represent other settlement activity.

Site Details	
Name	Knocknashee
County	Sligo
Townland	Knocknashee
RMP Number	SL032-013001
ITM Co-ordinates	555592, 819076
Site Condition	Extant
Land Category	Heather

Topographical Situation	
Height in metres OD	276
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrance	1
Width of entrance	n/a
Orientation of entrance	S

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	21.5 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	Enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.5m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	3.8m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Monument survey by Condit *et al.* (1991) and Egan *et al.* (2005). Depicted in historic mapping as a series of field boundaries and cliff edges which form the edge of the townland boundary.	
Finds Summary	
No known finds.	
References: Condit, T. and Gibbons, M. 1991. A glimpse of Sligo's prehistory. *Archaeology Ireland* 5 (3), 7–10. Egan, U., Byrne, E., Sleeman, M., Ronan, S. and Murphy, C. 2005. *Archaeological Inventory of Country Sligo, Vol 1: Sligo South.* Stationary Office, Dublin.	

Aerial Photography

Fig. 11.72: Knocknashee hillfort Co. Sligo (Bing Maps 2015).

Catalogue Number 73: Knockscur, Co. Carlow

Summary

Sub-circular contour fort with a total footprint of 1ha surrounding the summit of hilltop in the north-west of the Blackstairs Mountains. The site overlooks a number of small river systems at the base of the hill. It is univallate for the entire circuit with a simple stone lined entrance break to the south. Ramparts survive well at the east where the is a single rubble bank with some stone facing. There is no obvious ditch feature. At the northern section of the hillfort, the stones forming the bank have been used to form a field boundary which follows the course of the enclosing elements. There is no evidence for any internal features on the surface.

Site Details	
Name	Knockscur
County	Carlow
Townland	Killoughterane
RMP Number	CW019-065
ITM Co-ordinates	677393, 653534
Site Condition	Extant
Land Category	Overgrowth

Topographical Situation	
Height in metres OD	265
View from summit	Panoramic
Topographical Position	Spur of hill
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	S

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.04 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in second edition Ordnance Survey mapping, where the site is apparent as a series of field boundaries; not recognized as a fort. Monument survey by Brindley and Kilfeather (1993).	
Finds Summary	
No known finds.	
References: Brindley, A. and Kilfeather, A. 1993. *Archaeological Inventory of County Carlow*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.73: Knockscur, Co. Carlow (Bing Maps 2015).

Catalogue Number 74: Knocksouna, Co. Limerick

Summary

To the west of Killmallock village, a circular contour fort surrounding the summit of an isolated hill overlooks the Loobagh River 200m to the south. The site has a total footprint of approximately 2.8ha. The enclosing elements survives as a low lying bank. No evidence for an associated ditch feature. The bank is heavily overgrown at the east with scrub and trees. There are no recorded entrance features. Immediately outside the enclosing elements to the north are a number of earthworks and terraces which may comprise hut structures and relict field divisions. There have been no archaeological investigations of this hillfort.

Site Details	
Name	Knocksouna
County	Limerick
Townland	Knocksouna
RMP Number	LI047-092
ITM Co-ordinates	556504, 627972
Site Condition	Partial
Land Category	Pasture/overgrowth

Topographical Situation	
Height in metres OD	103
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.82 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Possible remains of castle

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
There have been no archaeological investigations of this hillfort. The hillfort was not recorded in any historic mapping.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.74: Knocksouna hillfort, Co. Limerick (Bing Maps 2015).

Catalogue Number 75: Laghtea, Co. Tipperary

Summary

Irregular shaped contour fort surrounding the two summits of Laghtea Hill. The site is in a commanding position overlooking the southern fording point of Lough Derg and with panoramic views from the summit. The site has a total footprint of 7.8ha. It is bivallate for its entire perimeter. There is no separation between the inner and outer bank and a ditch separates the two features. The inner bank is approximately 2.5m wide and up to 0.9m high. The outer example measures 2.6m wide and 0.5m high. The enclosing elements are positioned at the base of a steep incline. Ramparts survive well throughout, though heavy overgrowth largely conceals the enclosing elements. There is a possible original entrance at the west (Condit 1995b, 37). A pathway breaks through enclosing elements at south and this is unlikely to have been an original feature. A low circular platform is visible within the interior to the north. There are no other features visible on the surface.

Site Details	
Name	Laghtea
County	Tipperary
Townland	Laghtea
RMP Number	TN019-047
ITM Co-ordinates	573422, 679385
Site Condition	Partial
Land Category	Overgrowth

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	7.83 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	322
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	S

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Low circular platform

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.9m	**Height of bank**	0.5m	**Height of bank**	n/a
Width of bank	2.5m	**Width of bank**	2.6m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	2.6m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
Survey and first identification of hillfort by Condit in 1995. The hillfort is not depicted in any historic mapping.
Finds Summary
No known finds.
References: Condit, T. 1995b. Hillfort discoveries near Killaloe, Co. Clare. *Archaeology Ireland* 9 (1), 34–37.

Aerial Photography

Fig. 11.75: Laghtea hillfort, Co. Tipperary (Google Earth 2015).

Catalogue Number 76: Lisbancarney, Co. Tyrone

Summary

Possible multiple enclosure surrounding the domed summit of a prominent hillock in undulating terrain. Vegetation marks suggest that the fort was probably bivallate for the entire circuit. Enclosing elements mainly survive as concentric field boundaries following the contours of the hillock separated by a maximum of 89m. A simple 16m gap in the inner enclosing elements at the north-west is probably modern. No other evidence for any internal features on the surface or possible entrances. The interior is currently under pasture. There have been no archaeological investigations of this hillfort.

Site Details	
Name	Lisbancarney
County	Tyrone
Townland	Lisbancarney
RMP Number	TYR061-027
ITM Co-ordinates	679714, 854690
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	79
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Possibly)
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1 hectares
Area enclosed by Enclosing Element 2	6.89 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	89m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
There has been no archaeological investigation of this hillfort. The fort is not identified in Ordnance Survey maps. First identified by the author in 2014.
Finds Summary
No known finds.

Aerial Photography

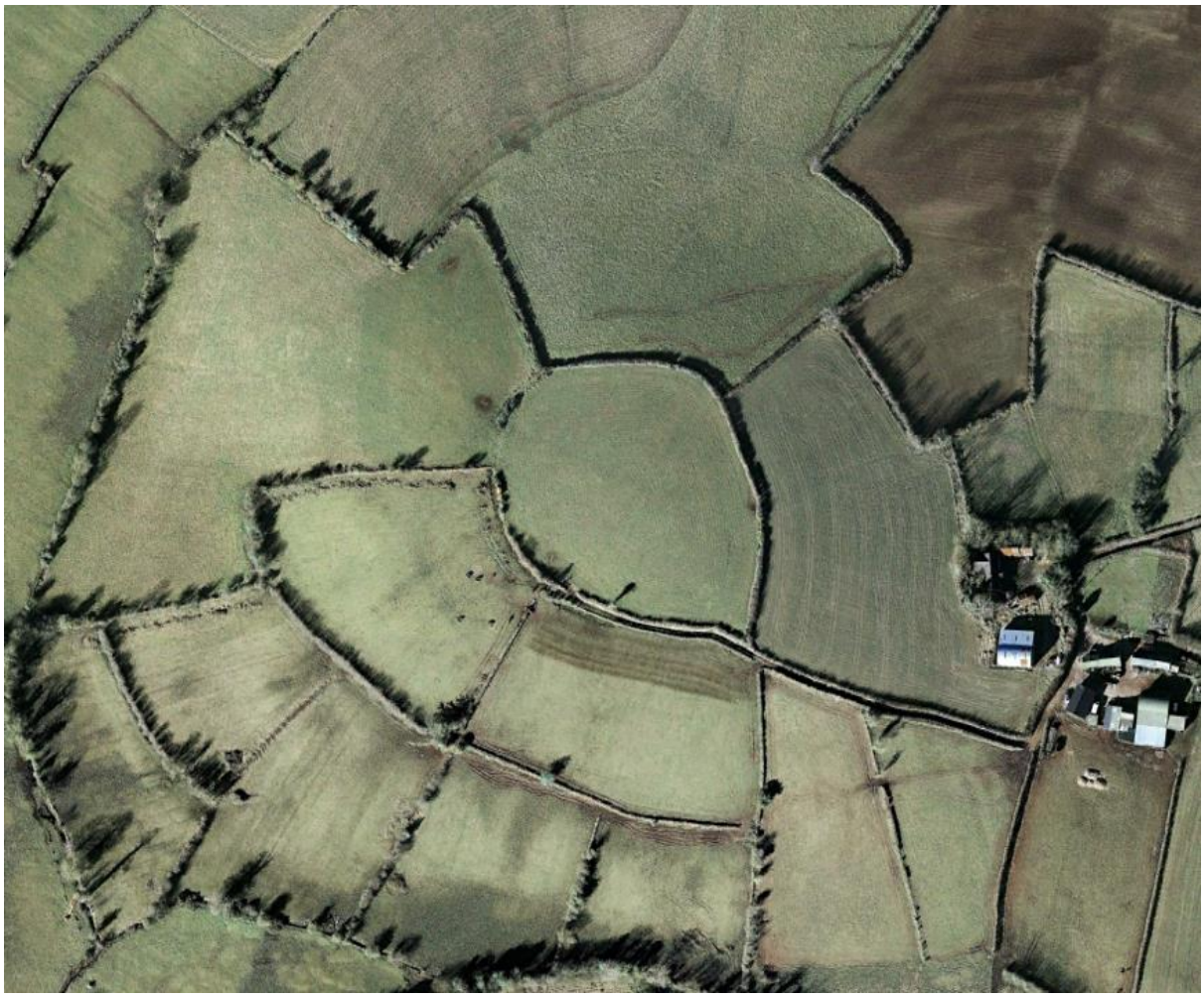

Fig. 11.76: Lisbancarney hillfort, Co. Tyrone (Google Earth 2015).

Catalogue Number 77: Lisbane, Co. Limerick

Summary

Circular contour fort on summit of Kilbradran Hill. This hilltop dominates the surrounding flat, low-lying terrain. The summit offers panoramic views of the surrounding landscape. The hillfort has a total site footprint of 0.4ha. It is bivallate for most of its circuit, the north-east and eastern section of the enclosing elements have been truncated by a post-medieval road. The inner bank comprises of earth. Westropp (1916-1917, 29) noted that both the inner and outer faces of the bank were revetted. The inner bank survives best at the north. An external ditch is heavily in-filled and measures 1.1m wide and 0.3m deep. Outer enclosing elements consist of an earthen bank, 3.1m wide and up to 2.6m in external height, with a shallow ditch, 1.3m wide and 0.1m deep. Possible annex to the north recorded by Westropp is now destroyed (1916-1917, 29). Four possible original entrances consisting of two simple gaps in the inner bank and two simple gaps in the outer enclosing elements. No evidence for any internal features on the surface. Ramparts survive well to north, south and west, with some tree cover on the banks.

Site Details	
Name	Lisbane
County	Limerick
Townland	Lisbane
RMP Number	LI019-127
ITM Co-ordinates	528828, 644136
Site Condition	Partial
Land Category	Overgrowth/pasture

Topographical Situation	
Height in metres OD	71
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	4
Width of entrance	3.5m (E), 3.5m (S), 8m (N), 6m (SE)
Orientation of entrance	E, S, N, SE

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	0.08 hectares
Area enclosed by Enclosing Element 2	0.42 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	2.6m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	3.1m	**Width of bank**	n/a
Depth of ditch	0.3m	**Depth of ditch**	0.1m	**Depth of ditch**	n/a
Width of ditch	1.1m	**Width of ditch**	1.3m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
First map depiction in first edition Ordnance Survey mapping. More detailed earthwork survey in second edition Ordnance Survey maps. Earthwork survey by Westropp in 1916.
Finds Summary
No known finds.
References: Westropp, T. 1916. On certain typical earthworks and ring-walls in Co. Limerick. *Proceedings of the Royal Irish Academy* 33. 9–42.

Aerial Photography

Fig. 11.77: Lisbane hillfort, Co. Limerick (Bing Maps 2015).

Catalogue Number 78: Lisbanoe, Co. Armagh

Summary

Multiple enclosure in commanding position surrounding the domed summit of Lisbanoe Hill, overlooking Callan River and Butler River to immediate east. The site is bivallate for its entire circuit and is just over 1ha in footprint. The ramparts survive well throughout the entire circuit. The enclosing elements comprise two widely spaced features separated by an average of 20m. The inner feature comprises a steep scarp 2m in external height. The outer enclosing element consists of a scarp 1.7m high with an external ditch feature, 3.6m wide and 0.6m deep. Some tree cover on outer ramparts.A possible original entrance gap is apparent at the eastern side of the inner enclosing elements and consists of a simple gap. A break in the outer enclosing elements to the south is probably a modern gap. No evidence for any internal features on the surface. Interior is currently under pasture.

Site Details	
Name	Lisbanoe
County	Armagh
Townland	Lisbanoe
RMP Number	ARM016-001
ITM Co-ordinates	
Site Condition	Extant
Land Category	Pasture

Morphology	
Class	2 (Possibly)
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	0.45 hectares
Area enclosed by Enclosing Element 2	1.02 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	22m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	72
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Enclosure visible at centre

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	2m	**Height of bank**	1.7m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	0.6m	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	3.6m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
First map depiction in first edition Ordnance Survey mapping and recognized as a fort. Earthwork survey by Northern Ireland Environmental Agency in 1990.
Finds Summary
No known finds.

Aerial Photography

Fig. 11.78: Lisbanoe hillfort, Co. Armagh (Bing Maps 2015).

Catalogue Number 79: Lisdarush, Co. Leitrim

Summary

Univallate contour fort in commanding position overlooking Lough Melvin to the north. The fort occupies a slight spur of sloping ground and is located at the northern entrance to a break in the Darty Mountains in Co. Sligo. The enclosing elements are defined by an earthen bank up to 0.3m high and 3m wide at the north and east. This is reduced to a scarp elsewhere. An external ditch is apparent at the east and south and this measures 4–7m wide. An external bank abutting the external face of the ditch is visible at the north and measures 3.2m wide and 1.2m in height. A modern road has truncated much of the enclosing elements at the east and north. There are no obvious entrance features. No other features visible on the surface. A ring barrow and mound are recorded approximately 100m to the north of the site. Site is depicted in the first and second edition Ordnance Survey maps.

Site Details	
Name	Lisdarush
County	Leitrim
Townland	Lisdarush
RMP Number	LE008-004001
ITM Co-ordinates	591963, 845723
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	72
View from summit	N, NE, W
Topographical Position	Hillslope ridge
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.12 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.3m	**Height of bank**	1.2m	**Height of bank**	n/a
Width of bank	3m	**Width of bank**	3.2m	**Width of bank**	n/a
Depth of ditch	7m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Apparent in first and second edition Ordnance Survey maps and recognized as a fort.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.79: Lisdarush hillfort, Co. Leitrim (Bing Maps 2015).

Catalogue Number 80: Liss, Co. Tipperary

Summary

Multiple enclosure on a low hilltop at the eastern foothills of Silvermines Mountains, overlooking Cromoge River to east with panoramic views. Possible bivallate hillfort with total footprint of 9.7ha. Inner enclosing elements are reduced to scarp and first edition Ordnance Survey mapping indicates the rampart was much more impressive than at present. Inner enclosing elements comprise a bank of earth 1.6m wide and 0.3m high with no obvious ditch feature. External drystone wall facing in some sections is likely to be of nineteenth-century date (Farrelly and O'Brien 2002). Possible outer enclosing element identified on aerial photography and first edition Ordnance Survey mapping. Apparent to the north, north-east and west as a concentric bank approximately 125m from the inner enclosing elements. These have been destroyed and are now only visible to the north. The interior is currently under pasture. There are no recorded entrance features. No evidence for any internal features on the surface. First map depiction in first edition Ordnance Survey 6 inch mapping. Monument surveyed by Farrelly and O'Brien (2002).

Site Details	
Name	Liss
County	Tipperary
Townland	Liss
RMP Number	TN034-070
ITM Co-ordinates	603219, 664661
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	101
View from summit	Panoramic
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Possibly)
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.25 hectares
Area enclosed by Enclosing Element 2	9.26 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	125m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.3m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	1.6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance Survey 6 inch mapping, where it is recognized as a fort. Also depicted in second edition Ordnance Survey maps. Monument surveyed by Farrelly and O'Brien (2002).	
Finds Summary	
No known finds.	
References: Farrelly, J. and O'Brien, C. 2002. *Archaeological Inventory of County Tipperary Vol. 1: North Tipperary*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.80: Liss hillfort, Co. Tipperary (Google Earth 2015).

Catalogue Number 81: Lurigethan, Co. Antrim

Summary

Lurigethan hillfort is a large multivallate inland promontory fort on the edge of the Antrim plateau. The natural promontory is an impressive and commanding feature in the landscape and affords panoramic views, with particularly impressive views of the Antrim coastline and the Irish Sea to the east. The site has a total footprint of approximately 9.7ha. Six closely spaced banks are visible in places, cutting off the western approach to the site. The remainder of the hillfort is protected by a sheer cliff face. The six closely spaced enclosing elements appear to merge into one another at various points throughout its length, although four banks are obvious at all times. Ramparts survive well throughout their length. There is a break through the enclosing elements at the south-west, comprising a simple gap. This probably comprises an original entrance. No evidence for any internal features on the surface. Possible roundhouse structures apparent in aerial photography inside the monument.

Site Details	
Name	Lurigethan
County	Antrim
Townland	Layd
RMP Number	ANT020-008
ITM Co-ordinates	722630, 925529
Site Condition	Extant
Land Category	Pasture

Morphology	
Class	3
Shape	Sub-rectangular
Internal ditch	No
No. of enclosing elements	6
Area enclosed by Enclosing Element 1	9.74 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	0m
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	343
View from summit	Panoramic
Topographical Position	Hill spur
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrance	1
Width of entrance	n/a
Orientation of entrance	SW

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements
Six banks are visible in places, with a gap c 5m wide as recorded in preliminary survey of the ancient monuments of northern Ireland (1940). The banks appear to merge into one another in places. Four banks are obvious at all times. The internal bank may be stone faced. The inner bank is a maximum 3.5m wide and 1.9m high. The second bank is 1.3m in maximum width and 0.8m high. The third bank is a maximum of 1.4m high and 0.8m wide. The fourth bank is 0.7m in maximum height. The fifth bank is 0.6m in maximum height and 1.4m wide. The external bank is 0.7m in maximum height (Chart 1940, 20).

History of Research	
Dating	
No dating evidence.	
Investigations	
Monument survey in 1940 (Chart 1940, 20).	
Finds Summary	
No known finds.	
References: Chart, D.A. 1940. *A Preliminary Survey of the Ancient Monuments of Northern Ireland*. Stationery Office, Belfast.	

Aerial Photography

Fig. 11.81: Lurigethan hillfort, Co. Antrim (Bing Maps 2015).

Catalogue Number 82: Lyles Hill, Co. Antrim

Summary

Pear-shaped partial contour fort surrounding the domed summit of Lyles Hill, near Belfast City. The site has a total footprint of approximately 6.3ha and is univallate for the entire circuit. The enclosing elements comprise a single bank up to 1m high with no associated ditch feature. It survives well throughout its circuit. Excavation recovered Late Bronze Age dates for the bank. There are four breaks in the enclosing elements. Two of these may be original and comprise simple breaks through the bank. A central cairn is visible on the surface near the southern part of the interior. Pits, hearths, Neolithic pottery, stone tools, small stone ornaments, Bronze Age food Vessels and urns, as well as two palisade enclosures were found within the interior (Evans 1953; Gibson and Simpson 1987; Simpson and Gibson 1989). Most of this material dates to an earlier phase before the construction of the hillfort. The interior is currently under pasture. Excavations by Evans (1953) and Gibson and Simpson (1987). Intensive Neolithic activity on the same. Iron Age reuse of the hillfort.

Site Details	
Name	Lyles Hill
County	Antrim
Townland	Ballymartin
RMP Number	ANT056-005
ITM Co-ordinates	724697, 882904
Site Condition	Extant
Land Category	Pasture/overgrowth

Topographical Situation	
Height in metres OD	219
View from summit	Panoramic
Topographical Position	Hill summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	n/a
Orientation of entrance	SSE, NNW

Morphology	
Class	1
Shape	Pear-shaped
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	6.25 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	Neolithic palisaded enclosures

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
Two radiocarbon dates from the bank suggest that Lyles Hill was constructed during the Late Bronze Age. Further radiocarbon determinations and artifacts indicate a heavy Neolithic presence associated with two large palisade enclosures (Gibson and Simpson 1987; Simpson and Gibson 1989). Evidence for the re-use in the Late Iron Age (Simpson and Gibson 1989, 215).	
Investigations	
The hillfort was first identified by aerial photography in 1927 and was later excavated by Evans in 1937, 1938, 1947 and 1951. These excavations concentrated on the central cairn and the hillfort banks. Further excavations by Gibson and Simpson (Gibson and Simpson 1987; Simpson and Gibson 1989) in 1987 excavated another section of the bank and part of the interior.	
Finds Summary	
Neolithic and Late Bronze Age pottery, human bone, lithics, pits, hearths	
References: Evans, E. 1953. *Lyles Hill: a Late Neolithic Site in County Antrim*. Stationary Office, Belfast. Gibson, A. and Simpson, D. 1987. Lyles Hill, Co. Antrim. *Archaeology Ireland* 1 (2), 72–75. Simpson, D. and Gibson, S. 1989. Lyles Hill. *Current Archarology* 114, 214–215.	

Aerial Photography

Fig. 11.82: Lyles Hill hillfort, Co. Antrim (Google Earth 2015).

Catalogue Number 83: Magherintemple, Co. Cavan

Summary

An oval contour fort with a total footprint of approximately 3.1ha on a hilltop in undulating terrain overlooking a number of small river systems to the south and the Bunnoe River to the east and north-east. The site is univallate for its entire circuit with traces of an external counter-scarp bank. The enclosing elements have been levelled from north to east and from south to south-west but are still visible on the ground and in aerial photography (O'Donovan 1995). A portion of the enclosing elements survive in the south-west and comprise a bank and external ditch with a small external counter-scarp. There are no obvious entrance features. There is a later graveyard and church within hillfort interior. No evidence for any internal features on the surface that may be contemporary with the hillfort.

Site Details	
Name	Magherintemple
County	Cavan
Townland	Magherintemple
RMP Number	CV016-099001
ITM Co-ordinates	650990, 816468
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	126
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	3.06 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Graveyard and church

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance Survey mapping where it is recognized as a fort.	
Finds Summary	
No known finds.	
References: O'Donovan, P. 1995. *Archaeological Inventory of County Cavan*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.83: Magherintemple hillfort Co. Cavan (Ordnance Survey Ireland 2005).

Catalogue Number 84: Mallabeny, Co. Tyrone

Summary

Univallate contour fort surrounding the domed summit of Mallabeny Hill, an isolated hilltop overlooking a broad valley to south. There are panoramic views from the summit. The ramparts survive as a scarp to the east, south and west, but are ploughed flat at the north, although still partially visible in aerial photographs. The enclosing elements are defined by a scarp maximum 1.8m high. A 3.3m wide bank is positioned on-top of this scarp and is approximately 0.3m in height. Remains of an internal ditch 3m wide and 0.7m deep is apparent. No obvious entrance features recorded. No evidence for any internal features on the surface. The interior is currently under pasture.

Site Details	
Name	Mallabeny
County	Tyrone
Townland	Mallabeny
RMP Number	TYR058-007
ITM Co-ordinates	650730, 854110
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	1
Shape	Oval
Internal ditch	Yes
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.91 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	176
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	0.3m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	3.3m	**Width of bank**	n/a
Depth of ditch	0.7m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	3m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Hillfort surveyed in 1972 (Warner 2009, 516).	
Finds Summary	
No known finds.	
References: Warner, R. 2009. Clogher in late prehistory. In Cooney, G., Becker, K., Coles, J., Ryan, M. and Sievers, S. (eds), *Relics of Old Decency: Archaeological Studies in Later Prehistory*. Wordwell, Dublin, 507–518.	

Aerial Photography

Fig. 11.84: Mallabeny hillfort, Co. Tyrone (Bing Maps 2015).

Catalogue Number 85: Mooghaun, Co. Clare

Summary

Near the village of Newmarket-on-Fergus, an oval multiple enclosure with a total site footprint of approximately 11.1ha is positioned in a commanding location overlooking low-lying terrain and the Shannon Estuary to the south and west. The site is trivallate for its entire circuit. The ramparts survive well throughout their circuits. They comprise three widely spaced limestone rubble banks that follow the contours of the hill, taking advantage of naturally steep slopes to make the defences seem larger from the exterior. Radiocarbon samples from underneath the banks and from material mixed with the bank material returned Late Bronze Age dates around 1250–800 BC. Grogan (2005a, 128) suggests the three enclosing elements were likely contemporary. There are two possible original entrance features in the inner and outer enclosing elements. As many as nine other breaks in the banks of the hillfort may be modern. Up to nine hut structures, six enclosures and three cairns have been identified within the interior, attesting to pre-hillfort, post-hillfort and contemporary occupation of the hilltop. A number of quarry pits may also be contemporary with the construction of the fort. There is extensive tree cover within interior. Excavation by Grogan 1992–1995.

Site Details	
Name	Mooghaun
County	Clare
Townland	Mooghaun
RMP Number	CL042-074001
ITM Co-ordinates	540742, 670568
Site Condition	Extant
Land Category	Forestry

Topographical Situation	
Height in metres OD	78
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	SE (inner) 0.9m, SW (outer) 2.4m.
Orientation of entrance	SE, SW

Morphology	
Class	2 (Definitely)
Shape	Oval
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	0.97 hectares
Area enclosed by Enclosing Element 2	3.23 hectares
Area enclosed by Enclosing Element 3	11.05 hectares
Spacing between Enclosing Element 1 and 2	35m
Spacing between Enclosing Element 2 and 3	168m
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	Cairns, Early Medieval cashels, pre hillfort enclosures

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.5m	**Height of bank**	2m	**Height of bank**	1.8m
Width of bank	6.5m	**Width of bank**	11m	**Width of bank**	15m
Depth of ditch	n/a	**Depth of ditch**	0.5m	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	3m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	U	**Shape of ditch**	n/a

History of Research	
Dating	
Ten Late Bronze Age radiocarbon dates for the construction and main occupation of the hillfort. Other radiocarbon dates and the lithics assemblage attest to pre-hillfort occupation of the hilltop. Early Medieval hut structures and ringfort monuments confirm the hillfort was reused during this period (Grogan 2005a).	
Investigations	
First map identification in the Ordnance Survey first edition maps. Thomas Westropp (1908) produced a number of papers on the monuments of in the region and commented on Mooghaun. More detailed earthwork survey in the second edition Ordnance Survey maps. Excavation by Grogan 1992-1995.	
Finds Summary	
Pottery, metal-working, animal bone, lithics.	
References: Grogan, 2005a. *The North Munster Project* Vol. 1. Wordwell, Dublin. Westropp, T. 1908. Types of the ring-forts and similar structures remaining in eastern Clare (Quin, Tulla, Bodyke). *Proceedings of the Royal Irish Academy* 27, 217–235.	

Aerial Photography

Fig. 11.85: Mooghaun hillfort, Co. Clare (Bing Maps 2015).

Catalogue Number 86: Mountfortesque, Co. Meath

Summary

Hillslope fort positioned surrounding southern summit of ridge of hills, overlooking Devlin River and its tributaries. Circular in shape, it has a total footprint of 2.3ha. It is univallate for the entire circuit. The ramparts survive well at the east and south. The enclosing elements have been destroyed at the north-east. The defences consist of a bank with a broad, rock-cut external ditch. The bank is largely composed of shale and earth from the digging of the ditch. In places, a counterscarp bank is present. The enclosing elements to the south-east and east have been altered and incorporated into modern field systems (Ó Ríordáin 1956). Ó Ríordáin has identified a possible original entrance at the north-east. A possible prehistoric burial mound is located at the highest point within the interior. No evidence for any internal features on the surface that might be contemporary with the construction or occupation of the hillfort.

Site Details	
Name	Mountfortesque
County	Meath
Townland	Mountfortesque
RMP Number	ME013-012001
ITM Co-ordinates	693809, 780031
Site Condition	Extant
Land Category	Pasture

Topographical Situation	
Height in metres OD	213
View from summit	Panoramic
Topographical Position	Ridge edge
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	NE

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.29 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	Yes
Cairn	No
Other internal features	The mound may form part of a large mound barrow

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified in first edition Ordnance Survey mapping, recorded as a circular boundary. Similarly depicted in second edition Ordnance Survey maps. Site visited and recorded by Ó Ríordáin (1956) who identified it as a hillfort.	
Finds Summary	
No known finds.	
References: Ó Ríordáin, S. 1956. Small hill-fort and tumulus on Mountfortesque. *Journal of the Royal Society of Antiquaries of Ireland* 86 (1), 106–107.	

Aerial Photography

Fig. 11.86: Mountfortesque hillfort, Co. Meath (Google Earth 2015).

Catalogue Number 87: Mullaghnashee, Co. Roscommon

Summary

Oval contour fort on the flat summit of Fairymount Hill, with panoramic views of the surrounding lowland from the summit. The site is univallate for its entire circuit with a total footprint of approximately 1.8ha. The ramparts survive well at south-east and north-west. The hillfort comprises a grass covered stone rubble stone bank 3.5m in maximum width and 0.3m in maximum height. A modern wall built on bank at the north-east. The banks and large sections of interior have been destroyed by quarrying at south-east and by the construction of a reservoir at north-west. The northern and northeastern section of the enclosing elements are visible in section edition Ordnance Survey mapping as a curving boundary. There are no recorded entrance features. No surface evidence for any internal features.

Site Details	
Name	Mullaghnashee
County	Roscommon
Townland	Mullaghnashee
RMP Number	RO014-078001
ITM Co-ordinates	567932, 788158
Site Condition	Partial
Land Category	Pasture/quarry

Morphology	
Class	1
Shape	Sub-rectangular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.77 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	179
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	3.5m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	0.3m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Northern and northeastern section visible in second edition Ordnance Survey mapping as a curving boundary. Modern development has severely impacted on the monument.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.87: Mullaghnashee hillfort, Co. Roscommon (Google Earth 2015).

Catalogue Number 88: Rahally, Co. Galway

Summary

The multiple enclosure of Rahally hillfort, Co. Galway, was discovered in 2004–5 while archaeological testing was being undertaken in advance of the N6 Galway to East Ballinasloe PPP scheme (Mullins 2008). This revealed a large trivallate hillfort with widely spaced enclosing elements, situated on the northwestern summit of a low glacial ridge. The road cut through the centre of the hillfort, necessitating excavation of over 50% of its interior and approximately 30% of the entire monument. Despite the large area excavated, there was a distinct lack of artifacts or features associated with the construction and occupation of the hillfort. There was a notable arrangement of parallel entrances running east–west through all three enclosures. The site was later re-occupied in the Early Medieval period when a number of ringforts were built within and abutting the enclosing elements of the hillfort. The site was excavated by Mullins in 2005. It revealed the enclosing elements comprised a series of banks with external ditches. Sherds of Late Bronze Age coarse-ware pottery and a damaged polished stone axe were recovered from the inner ditch, while a damaged bone needle and whetstone were found in the outer ditch (Mullins 2008, 26). Interestingly, animal bone was also recovered from the ditch fills, most notably dog bone and a complete deer skeleton (Mullins 2008). Radiocarbon samples and Late Bronze Age pottery from the ditch fills indicate the monument was built in the Late Bronze Age.

Site Details	
Name	Rahally
County	Galway
Townland	Rahally
RMP Number	GA086-211
ITM Co-ordinates	565965, 725900
Site Condition	Levelled
Land Category	Pasture

Morphology	
Class	2 (Definitely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	1.66 hectares
Area enclosed by Enclosing Element 2	5.19 hectares
Area enclosed by Enclosing Element 3	14.24 hectares
Spacing between Enclosing Element 1 and 2	60m
Spacing between Enclosing Element 2 and 3	68m
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	104
View from summit	Panoramic
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	7
Width of entrance	30m break in inner Enclosure at N
Orientation of entrance	N, E, E, E, W, W, W

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Early Medieval ringforts

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	1.5m	**Depth of ditch**	1.5m	**Depth of ditch**	2m
Width of ditch	4m	**Width of ditch**	4m	**Width of ditch**	4m
Shape of ditch	U	**Shape of ditch**	U	**Shape of ditch**	U

History of Research
Dating
Late Bronze Age pottery and a damaged polished stone axe recovered from inner ditch. A date of 994–827 BC was retrieved from charcoal found at the base of the ditch. Charcoal sample from the basal layer of the middle ditch returned a date of 790–520 BC. A charcoal sample from the base of the outer ditch returned a date of 1090–900 BC (Mullins 2008, 26).
Investigations
First identification and excavations by Mullins (2008) in 2005.
Finds Summary
Polished stone axe, La Tene iron artifact, bone needle, whet stone, pottery, canine and deer bones.
References: Mullins, G. 2008. Three thousand years of human activity at Rahally, Co. Galway. In O'Sullivan, J. and Stanley, M. *Roads, Rediscovery and Research: Proceedings of a Public Seminar on Archaeological Discoveries on National Road Schemes, August 2007*. National Roads Authority, Dublin, 25–35.

Aerial Photography

Fig. 11.88: Rahally hillfort, Co. Galway (Bing Maps 2015).

Catalogue Number 89: Rath, Co. Cork

Summary

Multiple enclosure approximately 8.5km to the west/north-west of Youghal town. The site is strategically positioned on the summit of a hilltop in Rath townland, with panoramic views from the summit. It is positioned at a bend in the Tourig River which flows along the base of the hilltop to the west and south. This river connects to Youghal Bay 7km to the east, which is also visible from the summit of the hillfort. The enclosing elements survive in varying states of preservation. The inner example survives to a height of 0.5m at the north/north-east and south/south-west and is ploughed out for the remainder of its circuit. The outer enclosing element, which is separated from the inner example by a maximum of 103m, is apparent as a series of modern earthen field boundaries at the south-west and north-west. There are no obvious entrance features recorded. There are no obvious features visible on the surface. The majority of the interior of the inner enclosing element and northwestern portion of the total enclosed area is under dense scrub and bracken growth. The remainder of the site is currently under pasture.

Site Details	
Name	Rath
County	Cork
Townland	Rath
RMP Number	CO067-001001
ITM Co-ordinates	602415, 581055
Site Condition	Partial
Land Category	Pasture/overgrowth

Morphology	
Class	2 (Possibly)
Shape	Circular
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	1.77 hectares
Area enclosed by Enclosing Element 2	4.91 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	103m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	135
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Early Medieval ringfort

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.5	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
The northern and southern sections of the inner enclosing elements and the possible west and south-west section of the outer enclosure were recorded as field boundaries in the first and second edition Ordnance Survey maps. Site survey by Power (1994).	
Finds Summary	
No known finds.	
References: Power, D. 1994. *Archaeological Inventory of County Cork Vol. 2*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.89: Rath hillfort, Co. Cork (Google Earth 2015).

Catalogue Number 90: Rathgall, Co. Wicklow

Summary

Circular multiple enclosure positioned surrounding the flat summit of a hilltop at the end of a prominent east–west shoulder of upland, overlooking tributary of Derreen River to immediate west (Raftery 1976, 339). The multiple enclosure of Knockeen is situated 300m to north. Rathgall has a total footprint of approximately 6.1ha and consists of four concentric enclosing elements. The inner enclosure is likely to be an Early Medieval ringfort and the remaining three ramparts are possibly Late Bronze Age. These consist of two closely spaced banks with an intervening ditch and an outer enclosing element positioned approximately 50m away. Two gaps are apparent in the inner enclosing elements of hillfort (not the Early Medieval ringfort). One possible original entrance at the western side consists of a simple gap through the banks and causeway over the ditch. Excavation has revealed a large number of artifacts, pits, structures and four burials within the interior. A metalworking area was also identified. This produced a large number of artifacts associated with the manufacturing of bronze objects. Occupation structures dated to the Late Bronze Age were excavated immediately outside the hillfort to the south. The ramparts survive well throughout their circuit and have recently been stripped of scrub and overgrowth. The outer enclosing element has been destroyed at the north-east. The interior is currently under pasture. First map depiction in 1842 in first edition Ordnance Survey six inch mapping.

Site Details	
Name	Rathgall
County	Cork
Townland	Rathgall
RMP Number	WI037-016
ITM Co-ordinates	690144, 673198
Site Condition	Extant
Land Category	Pasture

Morphology	
Class	2 (Definitely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	1.34 hectares
Area enclosed by Enclosing Element 2	2.14 hectares
Area enclosed by Enclosing Element 3	6.08 hectares
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	55m
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	139
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	W (inner)

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Early Medieval ringfort

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	2m	**Height of bank**	1m	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	5m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
A recent listing of 55 radiocarbon dates from Rathgall includes 47 of Late Bronze Age dates (Chapple 2013, https://sites.google.com/site/chapplearchaeology/irish-radiocarbon-dendrochronological-dates). There is no contextual information regarding these dates.	
Investigations	
First map depiction in 1842 in 1st edition Ordnance Survey mapping and recognized as a fort. Detailed survey in 2nd edition map. Survey by Orpen in 1911. Excavation by Raftery (1960's-70's).	
Finds Summary	
Saddle querns, stone rubbers, bronze bar toggle, pennannular gold ring, clay mould fragments, bracelet fragments, glass beads, amber beads, bronze conical rivits and other bronze artefacts, 4 human burials (Raftery 1976).	
References: Orpen, G. 1911. Rathgall, County Wicklow. *The Journal of the Royal Society of Antiquaries of Ireland* 1 (2), 138–150. Raftery, B. 1975-76. Rathgall. In Delaney, N. (ed.), *Excavations 1975-76: Summary Account of Archaeological Excavations in Ireland*. Association of Young Irish Archaeologists, Ulster Archaeological Society and Group for the Study of Irish Historic Settlement, 40.	

Aerial Photography

Fig. 11.90: Rathgall hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 91: Rathcannon, Co. Limerick

Summary

Sub oval multiple enclosure at the summit of an isolated hill, with excellent views overlooking the surrounding low-lands. The site has a total footprint of approximately 2.9ha. It is bivallate for its entire circuit with no recorded entrance features. The enclosing elements are widely spaced and are separated by 23–200m. This variation is due to the outer enclosing element following the contours of the natural limestone plateau. No evidence for any internal features on the surface (Grogan 2005b, 113). The central enclosing element is depicted in the first and second editions of the Ordnance Survey maps.

Site Details	
Name	Rathcannon
County	Limerick
Townland	Rathcannon
RMP Number	LI039-029
ITM Co-ordinates	558662, 634045
Site Condition	Partial
Land Category	Pasture/overgrowth

Topographical Situation	
Height in metres OD	105
View from summit	Panoramic
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	2 (Possibly)
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	0.61 hectares
Area enclosed by Enclosing Element 2	2.95 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	200m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
The central enclosing elements is depicted in the first and second editions of the Ordnance Survey maps as a fort. Condit (1995b, 36) published a basic plan of the site in 1995.	
Finds Summary	
No known finds.	
References: Grogan, 2005b. *The North Munster Project* Vol. 2. Wordwell, Dublin. Condit, T. 1995b. Hillfort discoveries near Killaloe, Co. Clare. *Archaeology Ireland* 9 (1), 34–37.	

Aerial Photography

Fig. 11.91: Rathcannon hillfort, Co. Limerick (Bing Maps 2015).

Catalogue Number 92: Rathcoran, Co. Wicklow

Summary

Multiple enclosure on the highest summit of Tuckmill Hill. Rathcoran is one of nine hillforts comprising the Baltinglass hillfort cluster. The name Rathcoran probably refers to a large prehistoric cairn at its centre (rath of the cairn). This pear-shaped bi-vallate monument has a total footprint of approximately 10.1ha. The shape is dictated by the topography of the hill to which the enclosing elements largely follow. The enclosing elements vary throughout its circuit and are most complete at the north and north-west, where the inner example is 16m in width, 1.7m high and comprises a mixture of earth and stone. The outer enclosure is up to 12m wide and 1.3m high. Geophysical survey has also identified strong magnetic anomalies at the crest of the inner bank at the north, suggestive of a possible burnt palisade. There are a large number of breaks in the enclosing elements, however, all of these are probably modern, with the exception of a gap in both enclosing elements at the north. GPS, LiDAR and geophysical survey have identified over 100 hut structures within the interior. A large Neolithic cairn was excavated within the hillfort interior (Walshe 1941). A second cairn abuts the exterior of the outer enclosing elements at the SE. Waddell (1998) and Condit (1998) have both interpreted Rathcoran as an unfinished hillfort, due to the incomplete nature of the enclosing elements and intervening quarry features. Presumably, the material from these pits was used for constructing the banks. The interior is under heavy gorse and scrub cover.

Site Details	
Name	Rathcoran
County	Wicklow
Townland	Tuckmill Hill/Pinnacle
RMP Number	WI027-026001
ITM Co-ordinates	688416, 689371
Site Condition	Extant
Land Category	Overgrowth/peat

Morphology	
Class	2 (Likely)
Shape	Pear shaped
Internal ditch	No
No. of enclosing elements	2
Area enclosed by Enclosing Element 1	7.03 hectares
Area enclosed by Enclosing Element 2	10.06 hectares
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	28m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	370
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	Possible standing stone

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.7m	**Height of bank**	1.3m	**Height of bank**	n/a
Width of bank	16m	**Width of bank**	12m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance Survey six inch mapping. More detailed survey in second edition Ordnance Survey 25 inch map. Excavation of Neolithic passage tomb within hillfort by Walshe in late 1930's (Walshe 1941). Survey by Condit in 1992 and 1998. Survey by Grogan and Kilfeather (1997, 41). Geophysical survey by O'Driscoll in 2012. LiDAR survey by UCC. GPS survey by O'Driscoll in 2014. Aerial photographs by Cambridge aerial photography unit and GSI.	
Finds Summary	
No known finds.	
References: Walshe, P. 1941. The excavation of a burial cairn on Baltinglass Hill, Co. Wicklow. Proceedings of the Royal Irish Academy 56, 221–236. Waddell, J. 1998. *The Prehistoric Archaeology of Ireland*. Wordwell, Dublin. Condit, T. 1998. Observations of the Baltinglass hillfort complex. In Corlett, C. and O'Sullivan, A. (eds), *Wicklow Archaeology and History* 1, 9–25. Grogan, E. and Kilfeather, A. 1997. *Archaeological Inventory of County Wicklow*. The Stationary Office, Dublin.	

Aerial Photography

Fig. 11.92: Rathcoran hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 93: Rathmicheal, Co. Dublin

Summary

Univallate contour fort surrounding the low domed summit of hilltop at the eastern interface of mountainous terrain and low-lying agricultural land. Univallate for the entire circuit with no obvious entrance feature recorded. Aerial photography suggests that the ramparts survive well throughout the circuit and that the bank is approximately 5m in width. Interior and enclosing elements under partial tree cover and extensive heather and scrub growth. A small central enclosure, positioned at the summit of the interior may be a later earthwork dating to the Early Medieval period. There are no other features visible on the surface.

Site Details	
Name	Rathmicheal
County	Dublin
Townland	Rathmicheal
RMP Number	DU026-048001
ITM Co-ordinates	723363, 721409
Site Condition	Partial
Land Category	Pasture/forestry

Topographical Situation	
Height in metres OD	134
View from summit	E-N-W
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.76 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Early Medieval ringfort

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	5m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance Survey maps where it is recognized as a fort. More detailed earthwork survey in second edition Ordnance Survey maps.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.93: Rathmicheal hillfort, Co. Dublin (Google Earth 2015).

Catalogue Number 94: Rathnagree, Co. Wicklow

Summary

Multiple enclosure positioned on a northern spur of Tuckmill Hill, 400m north-north-west of Rathcoran hillfort. Rathnagree is one of nine hillforts comprising the Baltinglass hillfort cluster. The name Rathnagree translates as 'rath of the king'. It has a total footprint of 5.8ha and comprises three widely spaced enclosing elements. The enclosing elements do not follow the contours of the hill. The ramparts disregard topographical variation to form three circular enclosures. The ramparts survive best at north, north-east and north-west. Commercial woodland encroaches on the enclosing elements at the north and north-east. Geophysical survey suggests that the low rise stone banks of the inner and outer enclosing elements formed the footings for timber palisades. This has been confirmed by excavation. The inner and outer enclosures comprise low stone banks which excavation reveals provided the footing for substantial palisades. The middle enclosure consists of an earthen bank and external ditch with counter-scarp, although an earlier phase of construction consisted of a timber palisade similar to the inner and outer examples. Middle Bronze Age radiocarbon dates from all three of the enclosing elements. There are two possible original entrances in the middle enclosing elements at the north-north-east and north. These comprise simple gaps in the enclosing elements. A number of possible hut structures were identified within the interior through geophysics and LiDAR surveys. The arc of a possible structure was identified by excavation.

Site Details	
Name	Rathnagree
County	Wicklow
Townland	Tuckmill Hill/Tuckmill Upper
RMP Number	WI027-010
ITM Co-ordinates	688005, 690013
Site Condition	Partial
Land Category	Forestry/pasture

Morphology	
Class	2 (Definitely)
Shape	Circular
Internal ditch	No
No. of enclosing elements	3
Area enclosed by Enclosing Element 1	0.69 hectares
Area enclosed by Enclosing Element 2	2.57 hectares
Area enclosed by Enclosing Element 3	5.78 hectares
Spacing between Enclosing Element 1 and 2	40m
Spacing between Enclosing Element 2 and 3	37m
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	326
View from summit	Panoramic
Topographical Position	Hill spur
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	2
Width of entrance	N (middle), NNE (middle)
Orientation of entrance	N, NNE

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.3m	**Height of bank**	2.4m	**Height of bank**	0.2m
Width of bank	6m	**Width of bank**	7m	**Width of bank**	7m
Depth of ditch	n/a	**Depth of ditch**	1.3m	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	7m	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	U	**Shape of ditch**	n/a

History of Research	
Dating	
Recent excavation recovered Late Bronze Age coarse ware pottery from the ditch of the middle enclosing elements. Late Bronze Age radiocarbon dates for the three enclosing elements.	
Investigations	
First map depiction in 1842 in first edition Ordnance Survey mapping. More detailed survey in second edition Ordnance Survey map. Survey by Condit in 1992 and 1998. Survey by Grogan and Kilfeather (1997, 41). Geophysical survey by the author in 2012. LiDAR survey commissioned by UCC. Aerial photography from the Cambridge aerial photographic unit in 1960's.	
Finds Summary	
Late Bronze Age pottery found in the ditch of the middle enclosing elements. Post holes also identified.	
References: Condit, T. 1992. Ireland's hillfort capital: Baltinglass, Co. Wicklow. *Archaeology Ireland* 6 (3), 16–20. Condit, T. 1998. Observations of the Baltinglass hillfort complex. In Corlett, C. and O'Sullivan, A. (eds), *Wicklow Archaeology and History* 1, 9–25. Grogan, E. and Kilfeather, A. 1997. *Archaeological Inventory of County Wicklow*. The Stationary Office, Dublin.	

Aerial Photography

Fig. 11.94: Rathnagree hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 95: Sheemore, Co. Leitrim

Summary

Univallate contour fort surrounding the domed summit of Sheemore Hill, an isolated hilltop overlooking low-lying terrain, Ballinamore and Ballyconnell canal to north-west and Dooloughan Lough immediately to the north-east. The site has a total footprint of approximately 1.8ha. The hillfort comprises a sub-oval area defined by a single enclosing element comprising a grass covered stone bank best preserved at south, where it measures 0.9m wide and 0.55m high (Moore 2003). There are no recorded entrance features. The hillfort surrounds three possible megalithic tombs, a D-shaped enclosure and a hut site. The interior is currently under pasture.

Site Details	
Name	Sheemore
County	Leitrim
Townland	Sheemore
RMP Number	LE027-054007
ITM Co-ordinates	599021, 804821
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	1
Shape	Sub-oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.75 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	178
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	Yes
Other internal features	3 cairns, field system, enclosure, hut structures

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	0.55m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	0.9m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance Survey maps. Depicted as a hachured line to indicate a possible enclosure. This was not depicted in the second edition Ordnance Survey maps. Monument survey by Moore (2003).	
Finds Summary	
No known finds.	
References: Moore, M.2003. *Archaeological Inventory of County Leitrim*. Stationary Office, Dublin.	

Aerial Photography

Fig. 11.95: Sheemore hillfort, Co. Leitrim (Bing Maps 2015).

Catalogue Number 96: Sillagh, Co. Kildare

Summary

Univallate contour fort also known as 'The Ring' on a slight rise in low-lying terrain. Panoramic views from the summit. The eastern half of the site had been completely ploughed out prior to the completion of the first edition Ordnance Survey programme. This is partially visible in some aerial photographs. The extant western portion of the enclosing elements survive well and comprise a 1.5m high, 6.4m wide bank, a 1.6m deep, 8.2m wide external ditch and an outer bank measuring 1.6m high and 8.2m wide. The entire site is under pasture, however, an extensive quarry pit abuts the site to the south. F

Site Details	
Name	Sillagh
County	Kildare
Townland	Sillagh
RMP Number	KD024-025
ITM Co-ordinates	692151, 713625
Site Condition	Partial
Land Category	Pasture

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	3.52 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	0m
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Topographical Situation	
Height in metres OD	174
View from summit	Panoramic
Topographical Position	Low rise
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1.5m	**Height of bank**	1.6m	**Height of bank**	n/a
Width of bank	6.4m	**Width of bank**	8.2m	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	3.4m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First map depiction in first edition Ordnance Survey maps where it is recognized as a fort. Second, more detailed survey in the second edition Ordnance Survey maps. Listed as an 'enclosure'.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.96: Sillagh hillfort, Co. Kildare (Bing Maps 2015).

Catalogue Number 97: Slieveboy Lower, Co. Wicklow

Summary

Possible univallate contour fort in commanding hilltop position overlooking the entrance to a slight break in the north–south extension of the southern Wicklow Mountains. The site was first identified through aerial photography by the author in 2015. The possible hillfort is under commercial forestry plantation, although a portion of the southern perimeter and a larger section of the interior at the north have recently been felled. The enclosing elements are visible as a circular area of stunted tree growth. Where felling has been completed, the enclosing elements are apparent as a vegetation mark and this probably represents a ditch feature. The site has a total footprint of approximately 7.6ha.

Site Details	
Name	Slieveboy Lower
County	Wicklow
Townland	Slieveboy Lower
RMP Number	Unrecorded
ITM Co-ordinates	702269, 687191
Site Condition	Levelled
Land Category	Forestry

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	7.56 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	391
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
No dating evidence.
Investigations
First identified through aerial photography in 2015 by the author.
Finds Summary
No known finds.

Aerial Photography

Fig. 11.97: Slieveboy Lower hillfort, Co. Wicklow (Google Earth 2015).

Catalogue Number 98: Spinans Hill 1, Co. Wicklow

Summary

Contour fort in commanding location on domed eastern summit of Spinans Hill at southwestern edge of the Wicklow mountains. Spinans Hill 1 is one of nine hillforts comprising the Baltinglass hillfort cluster. The site is univallate for its entire circuit and has a total footprint of approximately 11.1ha. The rampart forms an oval-shaped enclosure with a peat-covered earthen bank. The bank is best preserved at the north and east and is largely levelled over the remainder of its perimeter (Grogan and Kilfeather 1997, 40–41). It was identified through aerial photography by Condit (1992). Price had previously noted a section of the enclosure but did not associated it with a hillfort (in Corlett and Weaver 2002, 538–539). There are no recorded entrance features. Condit (1992, 20; 1998, 20) has recorded what he interprets as a Neolithic passage tomb cemetery within the interior of the hillfort. This comprises a large central cairn positioned at the summit of the hillfort, surrounded by five smaller examples. The interior is heavily overgrown with scrub and heather. First identified by Condit in 1992. Monument survey by Condit in 1998. GPS survey by the author in 2014.

Site Details	
Name	Spinans Hill 1
County	Wicklow
Townland	Ballyhubbock Upper
RMP Number	WI027-078002
ITM Co-ordinates	691957, 691588
Site Condition	Partial
Land Category	Peat/overgrowth

Topographical Situation	
Height in metres OD	409
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	11.11 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	Yes
Other internal features	Possible passage tomb cemetery

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
The monument was only recently discovered by Condit (1992). There is no previous map depiction. Monument survey by Condit in 1998. GPS survey by O'Driscoll in 2014.	
Finds Summary	
No known finds.	
References: Condit, T. 1992. Ireland's hillfort capital: Baltinglass, Co. Wicklow. *Archaeology Ireland* 6 (3), 16–20. Condit, T. 1998. Observations of the Baltinglass hillfort complex. In Corlett, C. and O'Sullivan, A. (eds), *Wicklow Archaeology and History* 1, 9–25. Corlett, C and Weaver, M. 2002b. *The Liam Price Notebooks: the Placenames, Antiquities and Topography of County Wicklow*, Vol. 2. Department of Arts, Heritage and the Gaeltacht, Dublin.	

Aerial Photography

Fig. 11.98: Spinans Hill 1 hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 99: Spinans Hill 2, Co. Wicklow

Summary

Contour fort surrounding all of Spinans Hill and enclosing the hillforts of Brusselstown Ring and Spinans Hill 1. Spinans Hill 2 is an extensive earthwork with a total footprint of 131ha. This is the largest hillfort in Ireland and is one of nine hillforts comprising the Baltinglass hillfort cluster. The ramparts survive well at the north and north-west where it comprises a double bank with an intervening ditch, 15m in total width. The southeastern section of Spinans Hill 2 integrates a large portion of the outer enclosing element of Brusselstown Ring. The southwestern section of Spinans Hill 2 have been destroyed. Condit (1992, 19) has noted that there are 'a number of breaches' to the north, which he believes are original entrance features. Bersu noted a possible roadway to the hillfort at the south-west corner of Brusselstown Ring (in Corlett and Weaver 2002, 504). There are up to 250 hut structures within the interior, though these may be associated with Brusselstown Ring. Condit (1992, 20; 1998, 20) has recorded a possible passage tomb cemetery within the interior of Spinans Hill 2, though these may be associated with Spinans Hill 1. Another cairn and enclosure have been recorded within the large contour fort (Condit 1992, 20). The monument was only discovered by Condit (1992).

Site Details	
Name	Spinans Hill 2
County	Wicklow
Townland	Spinans Hill
RMP Number	WI027-078001
ITM Co-ordinates	691977, 691520
Site Condition	Partial
Land Category	Forestry/overgrowth

Topographical Situation	
Height in metres OD	409
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	3
Width of entrance	n/a
Orientation of entrance	N, N, N

Morphology	
Class	1
Shape	Irregular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	131 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	Yes
Mound	Yes
Cairn	Yes
Other internal features	Possible passage tomb cemetery, hut structures, hillforts

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
The monument was recently discovered by Condit (1992). There is no previous map depiction. Monument survey by Condit in 1992 and 1998. GPS survey by the author in 2014.	
Finds Summary	
Stone axe found on Spinans Hill indicating Neolithic activity on the hill (Condit 1992 20).	
References: Condit, T. 1992. Ireland's hillfort capital: Baltinglass, Co. Wicklow. *Archaeology Ireland* 6 (3), 16–20. Condit, T. 1998. Observations of the Baltinglass hillfort complex. In Corlett, C. and O'Sullivan, A. (eds), *Wicklow Archaeology and History* 1, 9–25. Corlett, C and Weaver, M. 2002b. *The Liam Price Notebooks: the Placenames, Antiquities and Topography of County Wicklow*, Vol. 2. Department of Arts, Heritage and the Gaeltacht, Dublin.	

Aerial Photography

Fig. 11.99: Spinans Hill 2 hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 100: Sroove, Co. Roscommon

Summary

Contour fort of approximately 1.9ha enclosed area to the north west of broad low hill. The site is univallate for its entire circuit with two simple entrance gaps at the east and west. The ramparts survive well at north-east to south-west and are partially truncated by a modern road at the north-west. They comprise an earthen bank maximum 4m in width and 1m in maximum height. Outer ditch feature at north-east and north-west measuring 5m in maximum width and 0.2m deep. Possible original entrances at east and west comprising narrow simple gaps in the enclosing elements. No evidence for any internal features on the surface.

Site Details	
Name	Sroove
County	Roscommon
Townland	Sroove
RMP Number	RO028-094
ITM Co-ordinates	586280, 778809
Site Condition	Partial
Land Category	Pasture

Topographical Situation	
Height in metres OD	60
View from summit	N, W
Topographical Position	Hillslope
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	2
Width of entrance	E (3m), W (2.5m
Orientation of entrance	E, W

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.03 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	4m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	0.2m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	5m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by the Ordnance Survey in 1842 as a series of curving field boundaries. More detailed earthwork survey published in the second edition 25 inch Ordnance Survey mapping in 1906, where it is recognized as a fort.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.100: Sroove hillfort, Co. Rosscmoon (Bing Maps 2015).

Catalogue Number 101: Sruhaun, Co. Wicklow

Summary

Univallate contour fort in commanding on western ridge of Tuckmill Hill, a steep tripartite hilltop overlooking the modern town of Baltinglass to the south-west. The hillfort is located on level terrain with a steep break of slope to the west. This fort is one of nine hillforts comprising the Baltinglass hillfort cluster and was identified by LiDAR and geophysical survey. The hillfort has a total site footprint of approximately 1.4ha. The ramparts are visible in the LiDAR data as a low-rise bank feature, although this is difficult to distinguish on the ground. Geophysical survey has confirmed the presence of the hillfort and revealed that the enclosing elements consisted of a low-rise bank. This was subsequently confirmed through excavation. There is a single 4m wide entrance feature at then north-west which may be original. Geophysical survey did not reveal archaeological features within the interior. The entire monument is under pasture.

Site Details	
Name	Sruhaun
County	Wicklow
Townland	Sruhaun/Pinnacle
RMP Number	Unrecorded
ITM Co-ordinates	687806, 689205
Site Condition	Levelled
Land Category	Pasture

Topographical Situation	
Height in metres OD	322
View from summit	N, W, S
Topographical Position	Hill spur
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	4m
Orientation of entrance	NE

Morphology	
Class	1
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.43 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Pits

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identification by the author in 2012. Identified by LiDAR survey commissioned by Department of Archaeology University College Cork. Geophysical survey by O'Driscoll 2014.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.101: Sruhaun hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 102: The Doons, Co. Leitrim

Summary

Contour fort on prominent hill at the southern edge of upland terrain. The site has a total footprint of 1.3ha. The enclosing elements form a complete circuit and enclose a flat plateau. Approximately 17m outside of this, the remains of a possible outer enclosure is apparent at the north and east, although further investigation is needed to confirms this as either a field boundary or a feature related to the hillfort (Kytmannow *et al.* in 2010). There is a possible original entrance at the east and west, both of which comprise a simple break in the enclosing elements. Aerial photography has identified a possible enclosure, two hut sites and a possible kerb circle inside the hillfort (Kytmannow *et al.* 2010). The site is currently under dense scrub overgrowth.

Site Details	
Name	The Doons
County	Leitrim
Townland	Fawnlion
RMP Number	LE010-085005
ITM Co-ordinates	580516, 838826
Site Condition	Extant
Land Category	Heather/overgrowth

Topographical Situation	
Height in metres OD	255
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	1
Width of entrance	n/a
Orientation of entrance	W (inner)

Morphology	
Class	1
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.29 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	No

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Barrow, enclosure, hut structure, kerb circle

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by Kytmannow *et al*. in 2010. Not depicted in any historic mapping.	
Finds Summary	
No known finds.	
References: Kytmannow, T., Kahlert, T., Hunt, C. 2010. The Doons Hillfort. *Archaeology Ireland* 24 (3), 18–21.	

Aerial Photography

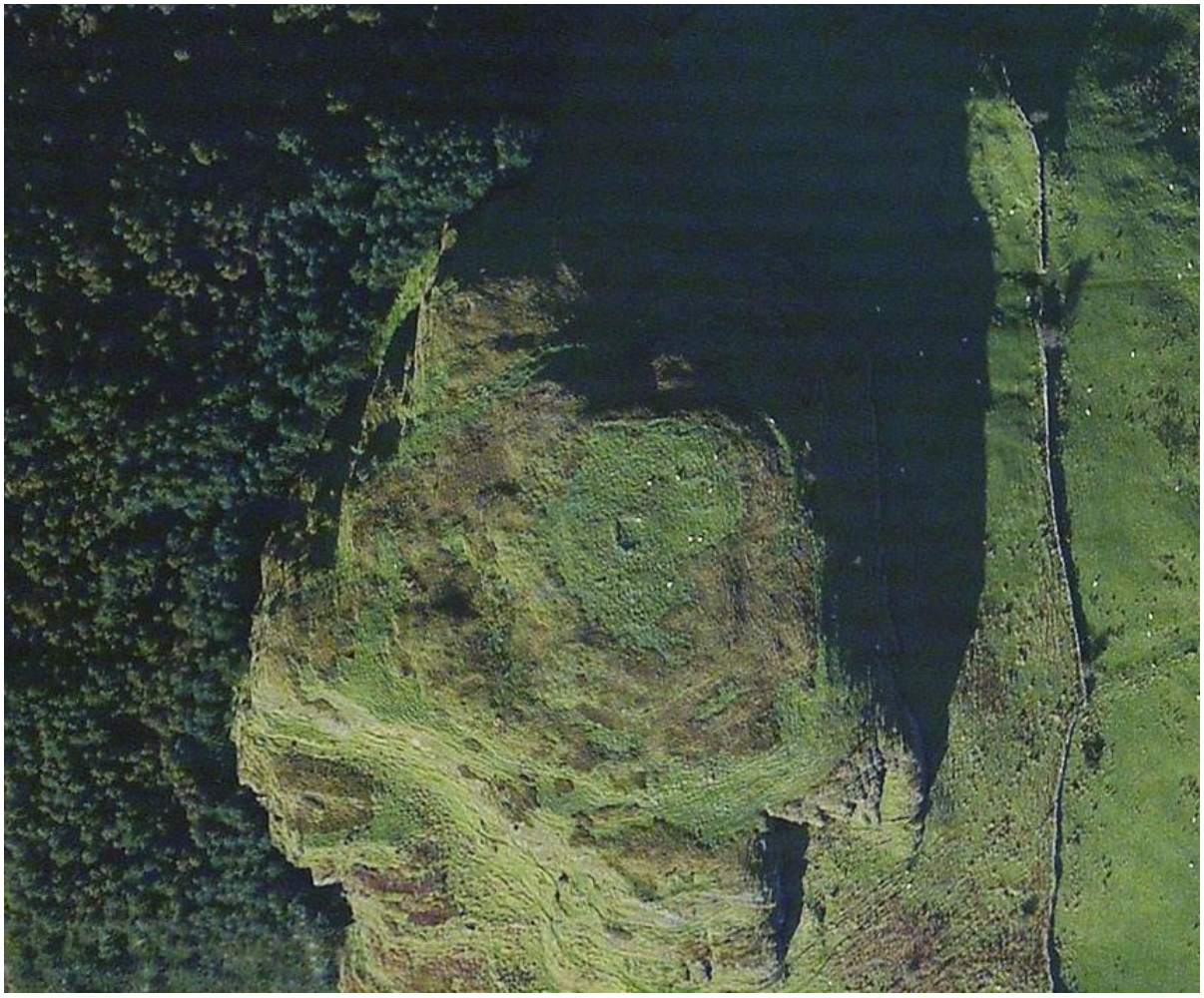

Fig. 11.102: The Doons hillfort, Co. Leitrim (Bing Maps 2015).

Catalogue Number 103: Tinoran, Co. Wicklow

Summary

Multiple enclosure in commanding position surrounding domed summit of Tinoran Hill. Tinoran hillfort is the second largest hillforts in Ireland with a total footprint of approximately 84ha. It is one of nine hillfort comprising the Baltinglass hillfort cluster. Tinoran can be translated as 'house of Odhrán'. It comprises up to four widely spaced enclosing elements and a central enclosure placed at its summit. These do not form complete circuits, however, it is likely that they once did, but have subsequently been destroyed by agricultural processes. The ramparts have been heavily disturbed by commercial forestry plantation which covers most of this large hillfort. Recent excavation has dated the two middle enclosing elements. Radiocarbon dating confirms the hillfort is Late Bronze Age, but suggests the defences were built over several phases of construction. There are no recorded entrance features. A single hut structure is located within the hillfort and a large barrow abuts the second middle enclosing element.

Site Details	
Name	Tinoran
County	Wicklow
Townland	Tinoran
RMP Number	WI026-004
ITM Co-ordinates	685167, 690577
Site Condition	Levelled
Land Category	Forestry/pasture

Topographical Situation	
Height in metres OD	312
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	No

Morphology	
Class	2 (Definitely)
Shape	Sub-circular
Internal ditch	No
No. of enclosing elements	4
Area enclosed by inner enclosing element	4.46 hectares
Area enclosed by 1st middle enclosing element	14.46 hectares
Area enclosed by 2nd middle enclosing element	55.74 hectares
Area enclosed by outer enclosing element	84.03 hectares
Spacing between inner and middle ditch	79m
Spacing between 1st middle and 2nd middle ditch	246m
Spacing between 2nd middle and outer ditch	91m
Do ramparts form a complete circuit	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Barrow

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research
Dating
Late bronze Age dates from two enclosing elements.
Investigations
First map identification in second edition Ordnance Survey mapping as a series of circular field boundaries. Monument survey by Condit in 1992 and 1998. Monument survey by Grogan and Kilfeather in 1997. LiDAR by OSI
Finds Summary
Late Bronze Age pottery.
References: Condit, T. 1992. Ireland's hillfort capital: Baltinglass, Co. Wicklow. *Archaeology Ireland* 6 (3), 16–20. Condit, T. 1998. Observations of the Baltinglass hillfort complex. In Corlett, C. and O'Sullivan, A. (eds), *Wicklow Archaeology and History* 1, 9–25. Grogan, E. and Kilfeather, A. 1997. *Archaeological Inventory of County Wicklow*. The Stationary Office, Dublin.

Aerial Photography

Fig. 11.103: Tinoran hillfort, Co. Wicklow (Bing Maps 2015).

Catalogue Number 104: Tobercurry/Clogher, Co. Tyrone

Summary

A sub-rectangular univallate contour fort surrounds the upper part of a steep drumlin (Warner 2009, 510), with a total footprint of approximately 1.6ha. The hillfort rampart comprises a 6m wide and 1m high bank with an external U-shaped ditch approximately 3m wide and 0.8m deep. It survives well at north-east, east and south-east, but is partially levelled at the west. Excavation revealed that the ditch may have comprised a much wider and shallower feature, measureing about 20m wide and 2m deep (Warner 2009, 510). Coarse-ware pottery from the bank may date the hillfort to the Late Bronze Age, and more specifically, to the Dowris phase c. 1000–600 BC (Waddell 1998, 270). Radiocarbon dates confirm occupation of the hilltop during this period (Waddell 1998, 270; 277), although there is considerable evidence for later activity. A recent publication by Warner (2009) suggests that the hillfort is Iron Age, despite the author conceding that dating evidence for the earthwork itself is poor and consists of a single ambiguous artifact and an Early Medieval radiocarbon sample that dates the primary slippage of the bank material into the ditch (Warner 2009, 510).There is some tree cover in interior and over enclosing elements. There are up to eight breaks in the enclosing elements. It is unknown if these are original. A large ringfort and associated earthworks take up much of the interior. A well-preserved ring barrow is positioned at the north-east of the interior. Pits and postholes were revealed through excavation of the interior. Interior under pasture. Excavations by Warner in 1970's.

Site Details	
Name	Clogher
County	Tyrone
Townland	Tobercurry
RMP Number	TYR058-033
ITM Co-ordinates	653789, 851306
Site Condition	Extant
Land Category	Pasture/forestry

Morphology	
Class	1
Shape	Sub-rectangular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.6 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	98
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	8
Width of entrance	5 in the NE, E a SE, 3 in the W, WNW and N
Orientation of entrance	NE, E, SE, W, W N

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Barrow, Early Medieval ringfort

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	6m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	0.8m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	3m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	U	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
Coarse-ware pottery dates the univallate hillfort at Clogher to the Late Bronze Age, and more specifically, to the Dowris phase c. 1000–600 BC (Waddell 1998, 270). Radiocarbon dates confirms occupation during this period, although there is considerable evidence for later activity.	
Investigations	
Earliest written reference suggesting the site is a hillfort by Evans (1966). Excavations by Warner.	
Finds Summary	
Pottery, metal objects and evidence for metalworking, pits, postholes.	
References: Waddell, J. 1998. *The Prehistoric Archaeology of Ireland*. Wordwell, Dublin. Warner, R. 2009. Clogher in late prehistory. In Cooney, G., Becker, K., Coles, J., Ryan, M. and Sievers, S. (eds), *Relics of Old Decency: Archaeological Studies in Later Prehistory*. Wordwell, Dublin, 507–518. Evans, E. 1966. *Prehistoric and Early Christian Ireland: A Guide*. Batsworth, London.	

Aerial Photography

Fig. 11.104: Clogher hillfort, Co. Tyrone (Bing Maps 2015).

Catalogue Number 105: Toberdornan, Co. Antrim

Summary

Partial contour fort surrounding the flat-topped summit and eastern facing slopes of Dunmill Hill. The site has a total footprint of approximately 1.4ha and is univallate for the entire circuit. Aerial and satellite images suggest that the ramparts survive well, although there are no published record of their state. There are no obvious entrance features recorded. There are two enclosures partly visible on the surface within the interior of the fort and a number of possible hut sites visible in aerial photography. There is dense tree cover over the enclosing elements and the interior is currently under pasture. Monument survey in 1940 (Chart 1940, 9). The site is traditionally known as a pre-twelfth Century stronghold of the O'Flynns. References to a chair and footprint stone suggest it may be an inaugural site rather than a hillfort.

Site Details	
Name	Toberdornan
County	Antrim
Townland	Ballywillin
RMP Number	ANT006-004
ITM Co-ordinates	688867, 937089
Site Condition	Partial
Land Category	Pasture/forestry

Topographical Situation	
Height in metres OD	125
View from summit	N-E-S
Topographical Position	Edge of spur
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.43 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	Church,associated structures, hut sites, bullaun stone, enclosure

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Monument survey in 1940 (Chart 1940, 9).	
Finds Summary	
No known finds.	
References: Chart, D.A. 1940. *A Preliminary Survey of the Ancient Monuments of Northern Ireland*. Stationery Office, Belfast.	

Aerial Photography

Fig. 11.105: Toberdornan hillfort, Co. Antrim (Bing Maps 2015).

Catalogue Number 106: Tory Hill, Co. Limerick

Summary

Possible contour fort surrounding the summit of Tory Hill, an isolated hilltop situated in low-lying terrain, with extensive views from the summit. Possible hillfort overlooks a river to east. There is no available information regarding the enclosing elements. No obvious entrance features recorded. No evidence for any internal features on the surface (Grogan 2005b, 113). There has been no archaeological investigation of this hillfort and further information is not available.

Site Details	
Name	Tory Hill
County	Limerick
Townland	Tory Hill
RMP Number	LI022-111001
ITM Co-ordinates	553170, 642877
Site Condition	Partial
Land Category	Forestry

Morphology	
Class	1
Shape	Oval
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	2.27 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	113
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	n/a
Width of entrance	n/a
Orientation of entrance	n/a

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	Ogham stone

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
First identified by Grogan (2005b, 113). There have been no archaeological investigations of this hillfort. The hillfort is not depicted in any historic mapping.	
Finds Summary	
Ogham stone found within interior.	
References: Grogan, 2005b. *The North Munster Project* Vol. 2. Wordwell, Dublin.	

Aerial Photography

Fig. 11.106: Tory Hill hillfort, Co. Limerick (Bing Maps 2015).

Catalogue Number 107: Turlough Hill, Co. Clare

Summary

Circular contour fort positioned on the eastern summit of Turlough Hill in Co. Clare. The hillfort is strategically positioned overlooking low-lying terrain to the east and north-east with excellent views of Galway Bay to the north. The fort comprises a single stone wall of thin slabs stacked up to 1m in height. It is 4.5m in maximum width. There are up to 16 evenly spaced breaks in the enclosing elements. These comprise simple narrow gaps in the stone wall and are evenly distributed around the perimeter. A large hilltop settlement on the western summit of Turlough Hill, comprising over 100 circular hut structures, may be somewhat contemporary with the hillfort. Recorded in the first and second edition Ordnance Survey maps. Photogrammetry survey in 2012 by NUIG.

Site Details	
Name	Turlough Hill
County	Clare
Townland	Oughtmama
RMP Number	CL003-036001
ITM Co-ordinates	531366, 707352
Site Condition	Extant
Land Category	Bare outcrop

Morphology	
Class	1
Shape	Circular
Internal ditch	No
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	3.54 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	248
View from summit	N-E-S
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	Yes

Entrances	
No. of original entrances	16
Width of entrance	n/a
Orientation of entrance	Evenly spaced

Site Interior	
Hut Structures	Yes
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	1m	**Height of bank**	n/a	**Height of bank**	n/a
Width of bank	4.5m	**Width of bank**	n/a	**Width of bank**	n/a
Depth of ditch	n/a	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	n/a	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Recorded in the first and second edition Ordnance Survey maps. Photogrammetry survey in 2012 by NUIG.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.107: Turlough Hill hillfort, Co. Clare (Google Earth 2015).

Catalogue Number 108: Tycanny, Co. Tyrone

Summary

Partial contour fort surrounding the summit of Tycanny Hill with panoramic views from the summit. Univallate for the entire circuit, the hillfort has a total footprint of approximately 1.4ha. Oval-shaped hillfort comprising a bank and internal ditch. A modern track has truncated much of the bank. Where best preserved, the bank is 5m wide and approximately 2m high. The internal ditch is 2.3m in maximum width and 1.3m deep. The internal ditch survives well throughout the circuit. There are a number of breaks in the enclosing elements. A simple 2m wide gap in the bank and ditch at the east is likely to be the only original entrance. No evidence for any internal features on the surface. Some tree cover and dense scrub growth in interior.

Site Details	
Name	Tycanny
County	Tyrone
Townland	Tycanny
RMP Number	TYR052-029
ITM Co-ordinates	656149, 858039
Site Condition	Partial
Land Category	Overgrowth

Morphology	
Class	1
Shape	Oval
Internal ditch	Yes
No. of enclosing elements	1
Area enclosed by Enclosing Element 1	1.38 hectares
Area enclosed by Enclosing Element 2	n/a
Area enclosed by Enclosing Element 3	n/a
Spacing between Enclosing Element 1 and 2	n/a
Spacing between Enclosing Element 2 and 3	n/a
Do ramparts form a complete circuit	Yes

Topographical Situation	
Height in metres OD	210
View from summit	Panoramic
Topographical Position	Hilltop summit
Do the enclosing features follow the contours of the hilltop	No

Entrances	
No. of original entrances	1
Width of entrance	2m
Orientation of entrance	E

Site Interior	
Hut Structures	No
Mound	No
Cairn	No
Other internal features	No

Enclosing Elements					
Enclosing Element 1		**Enclosing Element 2**		**Enclosing Element 3**	
Height of bank	n/a	**Height of bank**	2m	**Height of bank**	n/a
Width of bank	n/a	**Width of bank**	5m	**Width of bank**	n/a
Depth of ditch	1.3m	**Depth of ditch**	n/a	**Depth of ditch**	n/a
Width of ditch	2.3m	**Width of ditch**	n/a	**Width of ditch**	n/a
Shape of ditch	n/a	**Shape of ditch**	n/a	**Shape of ditch**	n/a

History of Research	
Dating	
No dating evidence.	
Investigations	
Monument survey by the Northern Ireland Environment Agency.	
Finds Summary	
No known finds.	

Aerial Photography

Fig. 11.108 Tycanny hillfort, Co. Tyrone (Bing Maps 2015).

APPENDIX: 1

GEOPHYSICAL SURVEY AT GLANBANE, CO. KERRY

A geophysical survey was undertaken within Glanbane townland in Co. Kerry, **IG** 492292 608540, from the 13th of February to 15th of March 2012, to investigate a large, multivallate enclosure of likely prehistoric origin (RMP–KE039-065). The survey at Glanbane was undertaken to define the enclosing elements for targeted excavation, and to identify archaeological features within the interior. The survey was successful, identifying two large enclosing elements with a possible third more tentative example, as well as a concentration of previously unidentified features of likely archaeological significance within the hillfort itself.

11.1 INTRODUCTION

Glanbane hillfort is a large, possibly trivallate monument, located on the eastern end of the Sliabh Mis, on a prominent hilltop at 89 O.D., overlooking large tracts of land to the north, east and south (Fig. 12.1). The hillfort is the largest known monument in the immediate landscape and would have occupied an area of approximately 6.43ha. The site was partially levelled prior to the completion of first edition Ordnance Survey mapping (Fig. 12.2). The inner enclosing element was preserved in a series of field systems beyond the completion of the second edition Ordnance Survey mapping, but has since been levelled (Fig. 12.3). A 75m stretch of the southern portion of the outer enclosing element has been preserved in the modern earthen field system.

Today, the site is occupied by pasture, within which the southern section of the inner enclosing bank is visible as a subtle rise measuring up to 0.3m in height and 10m in maximum width. A slight exterior hollow running adjacent to this feature likely represents an outer ditch. The north and north-eastern sections of this enclosing element are also visible as a crop mark on Ordnance Survey and Google Earth aerial photos (Fig. 12.1). This enclosure is sub-ovidal in shape and measures approximately 237m North-South and 227m East-West. Outside of the inner enclosing element, a second, sub-circular crop mark is visible, measuring 286m North-South and 291m East-West. This is visible intermittently in aerial photographs and conforms to the modern townland boundary between Glanbane and Garraundarragh. Within this enclosure, aerial photography show a number of substantial crop marks which may represent

Fig. 12.1: Glanbane hillfort, Co. Kerry (Bing Maps 2015).

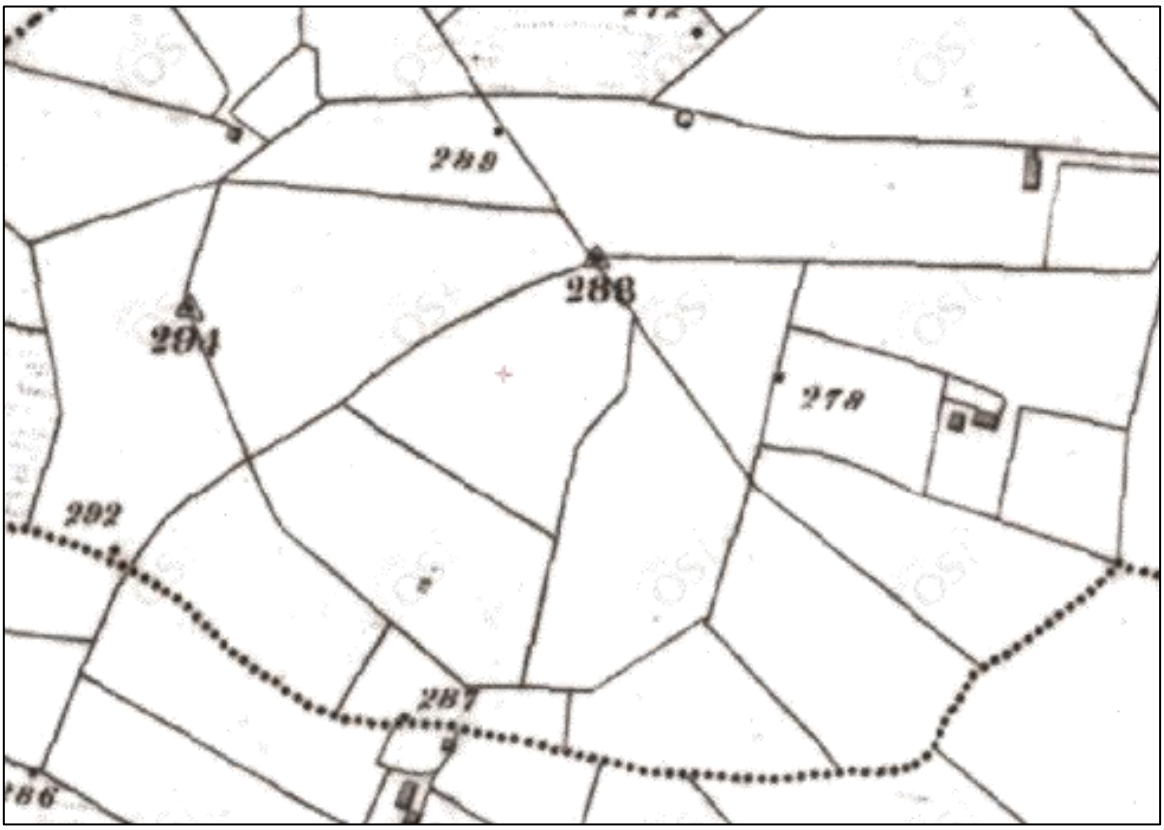

Fig. 12.2: First Edition Ordnance Survey mapping.

archaeological features. The interior of the hillfort rises gently to the summit of the interior which is positioned north of the centre of the hillfort, upon which two conjoined circular hollows are visible. Connolly (2008 118) has suggested a hilltop enclosure is present 20m south-west of the outer enclosure, however, this has not been confirmed either through aerial photography or geophysical surveying.

11.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

Glanbane hillfort is situated on a formation of Cappagh sandstone, a purple cross-bedded bedrock deriving from the Old Red Sandstone grouping (www.gsi.ie). Rock outcrops are uncommon in this area and it is therefore unlikely that this has affected the collected geophysical data. Excavation at the site revealed that bedrock lies at a minimum depth of 0.3m and maximum depth of 0.8m below the present ground surface, and that substantial archaeological features such as the ditches of the enclosing elements are rock cut.

Sandstone is a 'magnetically quite' rock type and it is unlikely to have affected the magnetic data. Ground water levels are approximately 1.5m-12m below ground level and generally follow the topography (www.gsi.ie). Again, this is unlikely to have affected the geophysical data, other than in areas where large, subsurface features such as ditches, retain water after heavy rain.

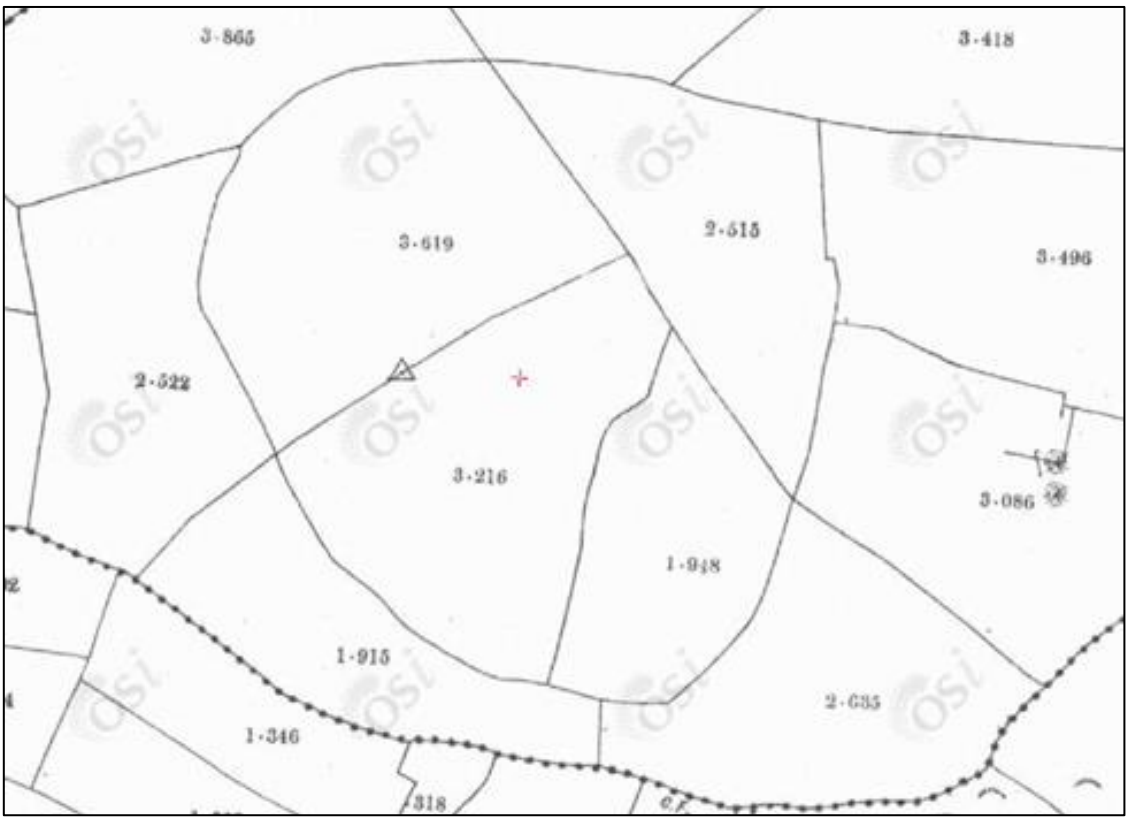

Fig. 12.3: Second Edition Ordnance Survey mapping.

This is not an uncommon problem in the ditches of both the inner and outer defences on the western side, where surface water is retained for up to 24 hours after heavy rainfall.

The survey area comprises a single field 24.5ha in size, divided at its centre by two electric wire fences. The hillfort sits at the edge of a relatively flat area of land, taking advantage of the more pronounced slopes to the north and east. This, coupled with the low grass levels during the time of survey, facilitated more accurate in-field data capture.

Overcast weather conditions and moderate temperatures throughout the majority of the survey facilitated data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations. Partial buffeting of the machine was experienced due to windy conditions, however, this has not affected the survey data to a large degree.

11.3 ARCHAEOLOGICAL BACKGROUND

The name Glanbane or Gleann bán, meaning the white glen of valley, is given to the monument and townland and seems to have little archaeological significance. Excavations undertaken immediately east of Glanbane in 2004, in lieu of the N22 Farrinfore to Tralee road revealed numerous sites dating from the early prehistoric to Early medieval periods. This has added to a landscape already rich in archaeology, and suggests far more monuments, not visible today, exist in these environs. A concentration of burnt spreads dating to the Late Mesolithic and Middle and Late Bronze Age may prove to be significant, particularly the latter, considering secure Late bronze Age dates were obtained from the lower ditch fills of the enclosing elements at Glanbane.

Ordnance survey mapping reveal that the hillfort defences were incorporated into later field systems, and the interior of the monument was divided into seven. By 1914, internal fields were expanded and the hillfort comprised of four fields. These were subsequently levelled allowing the entire hillfort located in a single field. Clearly agricultural practices have causes considerable damage to the monuments, not least destroying the defences of the hillfort, but also contributing to the destruction of internal features through ploughing.

11.4 SURVEY PROGRAM

The proposed survey extent is highlighted in Fig. 12.4, incorporating the remains the levelled hillfort. High resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the

hillfort in order to ascertain information about internal layout of the monument, to identify possible internal occupation and assess the number, form and composition of the defensive features. An area of 7.2ha was surveyed, using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

11.5 GEOPHYSICAL SURVEY RESULTS

Hillfort Defences and Related Features

The defences of Glanbane hillfort are partially visible on OSI and Google Earth aerial photographic data sets. However, no discernible entrance features are identifiable. The outer-most defence **(G1)** is apparent within the magnetic results as a large, sub-ovoid band of positive/negative responses (Fig. 12.5 and Fig. 12.6). These responses are weakest at its eastern side, and correspond with a substantial drop in ground level. Therefore, the increased soil processes and water peculation which likely takes place here, may have caused these less intense responses. Similarly, the inner enclosing element **(G2)**, which is again visible as a band of positive/negative magnetism, is less apparent on the eastern side. **G1** encloses an area of6.43ha and **G2** encloses 4.74ha. Targeted excavation of these anomalies has indicated they

Fig. 12.4: Aerial photograph of Glanbane hillfort (Google Earth) with survey area highlighted in red.

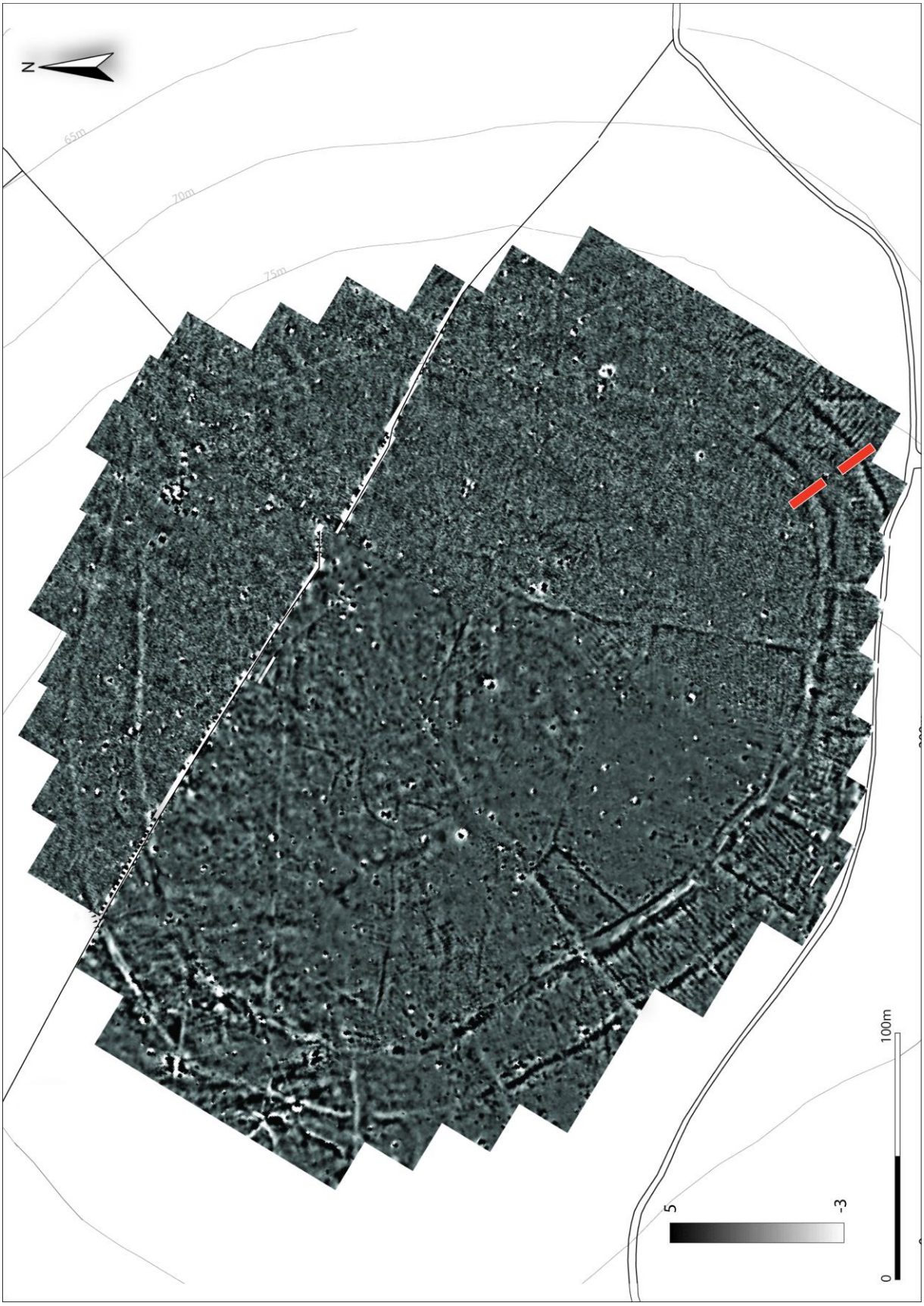

Fig. 12.5: Glanbane hillfort gradiometry survey results.

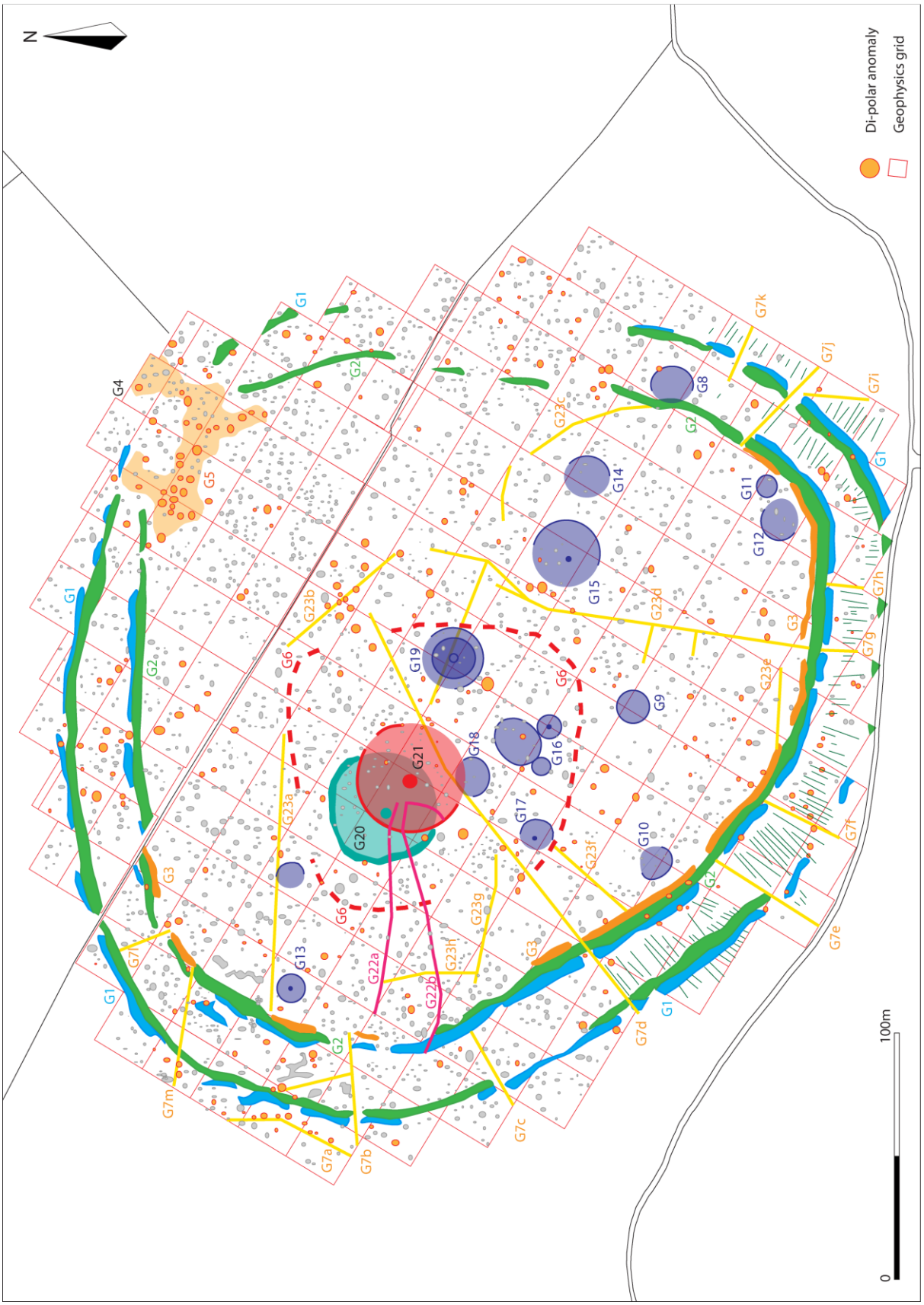

Fig. 12.6: Glanbane hillfort gradiometry survey interpretation.

are rock-cut ditch features with internal banks which were wide but relatively small in height. Excavation also incorporated anomaly **G3**, a positive magnetic feature that shadows the inner enclosing element along its south to north-north-east side. This may have been interpreted as a palisade feature, however, excavation has revealed this to be a drain comprising a dark brown sediment with no charcoal inclusions. This sediment is possibly the cause of the response. This feature partially truncated the internal edge of the bank base, and therefore is unlikely to be contemporary with the occupation of the hillfort.

G1 and **G2** are placed approximately 25m apart, before narrowing considerably to the north, forming what is most likely the entrance to the monument (**G4**). This area is positioned on a northerly facing slope and is the only internal area of the hillfort to be placed on such sloping topography. This notably limits the view of the interior and may have been a factor in positioning the entrance. The entrance is unusually wide, being more elaborate than other identified examples in Ireland. Notable concentrations of di-polar responses (**G5**) are placed at the entrance. These types of responses are generated from ferrous objects, and due to their location, they may be of archaeological significance. This would suggest that the entrance area was afforded some form of significance, although no structures or other entrance features are discernible.

The anomaly **G6** is a positive magnetic annular feature which occupies the highest point within the hillfort and is the largest of the unrecorded structural features. This may comprise a third enclosing element which Connelly (2008, 118) has identified, but not mapped, through use of aerial photography. The size of this enclosing element is consistent with that identified by Connelly (*ibid.*). The geophysical response, however, is not conclusive. It does not form a complete enclosing element and may comprise part of the numerous field systems identifiable within the data set. However, a notable concentration of possible built structures are confined within this anomaly.

Modern and relict field systems intersect the defensive elements of the hillfort and therefore interact heavily with these archaeological features. While the incorporation of the defences into these field boundaries has helped these features to survive decades of destructive agricultural processes, it causes complications with regard to interpretation (such as anomaly **G3**). These modern features have been given the same identification number (**G7a**, **G7b, G7c** *etc.*). Within these boundaries, numerous cultivation marks are visible, suggesting considerable damage has truncated features both between **G1** and **G2**, and outside the hillfort itself.

Hillfort Interior and Habitation Features

A considerable number of possible hut structures are apparent within the defences of the hillfort. Intensive occupation of this monument type within Ireland is unusual, particularly in the south-west. Occupation evidence within Glanbane hillfort is clearly identifiable on two scales: (1) small to medium sized structures which were likely used to for domestic habitation and (2) large sized structures which may have been used for ritual purposes.

G8 represents a curvilinear band of positive magnetism positioned between the two outer defences **G1** and **G2** and abutting **G2**. This anomaly measures 15m North–South and 11m East–West. Mooghaun hillfort has produced Early Medieval dates from cashels in a similar position to **G8**. Rathgall hillfort, Co. Wicklow and Rahally Hillfort Co. Galway experience a similar period of re-use in the Early Medieval period, with particular emphasis on placing later monuments abutting the hillfort defences. Although it cannot be confirmed without C-14 dating, both a prehistoric and an Early Medieval date are possible.

The anomaly **G9** is a circular band of positive magnetism measuring 13m North – South and 11m East –West. Positioned between **G2** and the possible inner defensive element **G6**, **G9** likely represents the burnt postholes of a hut structure.

G10 comprises a hemispherical band of positive magnetism which may be interpreted as the partial remains of a burnt hut structure. This has a maximum width of 14m.

G11 and **G12** are two closely placed positive circular anomalies that abut the interior of the hillfort defences **G2**. **G11** measures 8m in diameter and **G12** 13m in diameter. Similar to **G8**, these abut the hillfort defences and an Early Medieval date cannot be disregarded.

G13 represents a circular band of positive magnetism placed to the far west of the hillfort interior. This measures 11m North – South and 8m East –West. Stronger pit-like responses are apparent within the circular band and these may represent the burnt posts of the structure. At its centre, a strong anomaly is visible which may represent a hearth or burnt central support post.

The partial remains of a possible hut structure may be present (**G14**) at the eastern side of the hillfort interior. Immediately to the west of this is a large, positive, curvilinear anomaly (**G15**) which likely represents the remains of a burnt structure. When projected, this occupies an area 27m in diameter. At its centre is a strong di-polar. These responses represent ferrous

material. While this is a very common response found within almost all gradiometery surveys, the placement of this feature at the centre of this possible structure, where one would expect to find a support post (particularly for bigger structures like this) is curious. This is a feature which repeats itself within the structures within Glanbane hillfort).

A concentration of likely structures are located within **G6**. An abutting group (**G16**) of these is visible to the south. The largest of these measures 19m x 16m and is defined by a faint circular band of positive magnetics with stronger pit like responses possibly indicating the presence of burnt post-holes. Abutting this to the south-east and south-west are two smaller features of a similar composition to their larger counterpart. These measure 7m in diameter and 9m in diameter respectively.

G17 represents a strong circular band of positive magnetics abutting the southern interior of **G6**. This measures 12m in diameter. At its centre, a strong, positive magnetic anomaly may represent a hearth or a burnt central support post.

A circular positive band of magnetism (**G18**) with a strong central anomaly may represent another built structure with a central hearth or burnt support post.
A complex arrangement of circular pit features (**G19**) to the east of **G6** may represent a large built structure measuring 22m in diameter. This is intersected by a number of possible later field boundaries which is likely the cause of instrument disruption in this area. Further possible structures are likely to be present within **G6**, however, these are less conclusive and therefore have not been numbered.

Located at the highest point within the hillfort are two large circular anomalies **G20** and **G21**. **G20** is visible as a wide, curvilinear band of positive magnetism, surrounded by faint negative readings. This likely represents a cut feature such as a ditch. This measures 46m in diameter. Placed at its centre is a strong positive/negative response. This is not a typical di-polar response. While it likely represents a large, burnt central support post, the strength of the anomaly may suggest that there is deeply buried ferrous material incorporated into this feature.

Truncating the south-eastern section of **G20** is another large circular feature (**G21**). This possible structure however, is likely to have been post built, the large individual burnt posts-holes being visible running along a circular band of positive magnetism. This anomaly (**G21**) measures 38m in diameter. Similar to **G20**, **G21** has a strong positive/negative response positioned at its centre. Again, this is not a typical di-polar response. In contrast to the anomaly

at the centre of **G20**, the response does clearly indicate ferrous material. This feature may comprise both a large post-hole and a ferrous object.

A small break at the western side of **G21** is visible. This gap correlates with further linear magnetic trends extending through and beyond this gap. **G22a** represents a curvilinear band of magnetism which is confined within the interior of **G21** at its south, extending to the north before abruptly ending. At this point, a faint, straight band of positive magnetism extends towards southern edge of the gap in **G21**. This is mirrored 4m to the north, where a positive magnetic band extends East – West towards the northern edge of the entrance gap. Both of the features extend (**G22b**) and widen beyond **G21,** creating a funnel type avenue narrowing towards the entrance gap of the possible structure. While it is tempting to interpret this as an elaborate entrance feature, the presence of numerous linear field boundaries (**G23a**, **G23b**, **G23c**) truncating the possible enclosure and hillfort is problematic.

The size of both **G20** and **G21** is of particular interest. Being placed at the highest point within the hillfort, these structures would have been the central focus of the monument, and would have been visible from a considerable distance. Therefore, one must question the practicality of building, and in particular, roofing this structure, for purely domestic use. While this may infer a ritual nature, the idea that these structures were a further projection (in addition to the hillfort itself) of the status of the occupants is equally possible. Without further, intrusive means of examination, this cannot be assessed with certainty.

Targeted high resolution geophysical survey was undertaken over two large structures (**G20** and **G21**) at the highest point of the interior (Fig. 12.7 and Fig. 12.8). This revealed that G20 comprises a series of pit-like features, probably large post-holes, separated approximate 2.5m apart. This has an approximate diameter of 40m. At its centre, a group of dipolar responses (**G20a**) are indicative of metal objects. Although it is impossible to interpret these as ancient (they could equally be modern ferrous litter), it is compelling that this cluster is positioned at the centre of the large post structure. **G21** comprises a broad, faint band of magnetics which might suggest this feature comprised an earthen bank. However, the high resolution magnetics reveals that on the western side of **G21**, a series of possible post-holes may exist, suggesting some form of wooden element. This feature may comprise a number of phases where the post settings were later replaced by an earthen monument, however, excavation is needed to clarify this. At the centre of **G21**, a number of dipolar anomalies are evident. Again, it is impossible to clarify the nature of these anomalies without excavation,

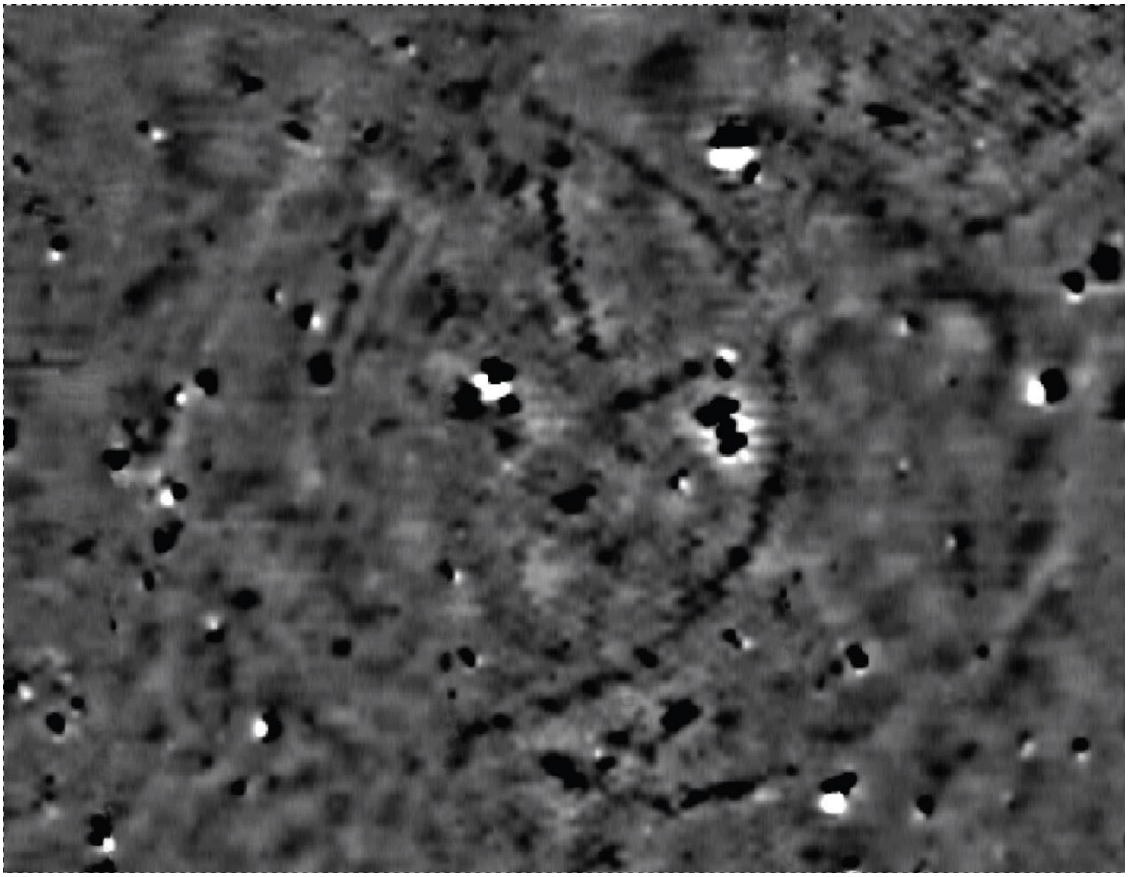

Fig. 12.7: Glanbane hillfort high resolution gradiometry survey results.

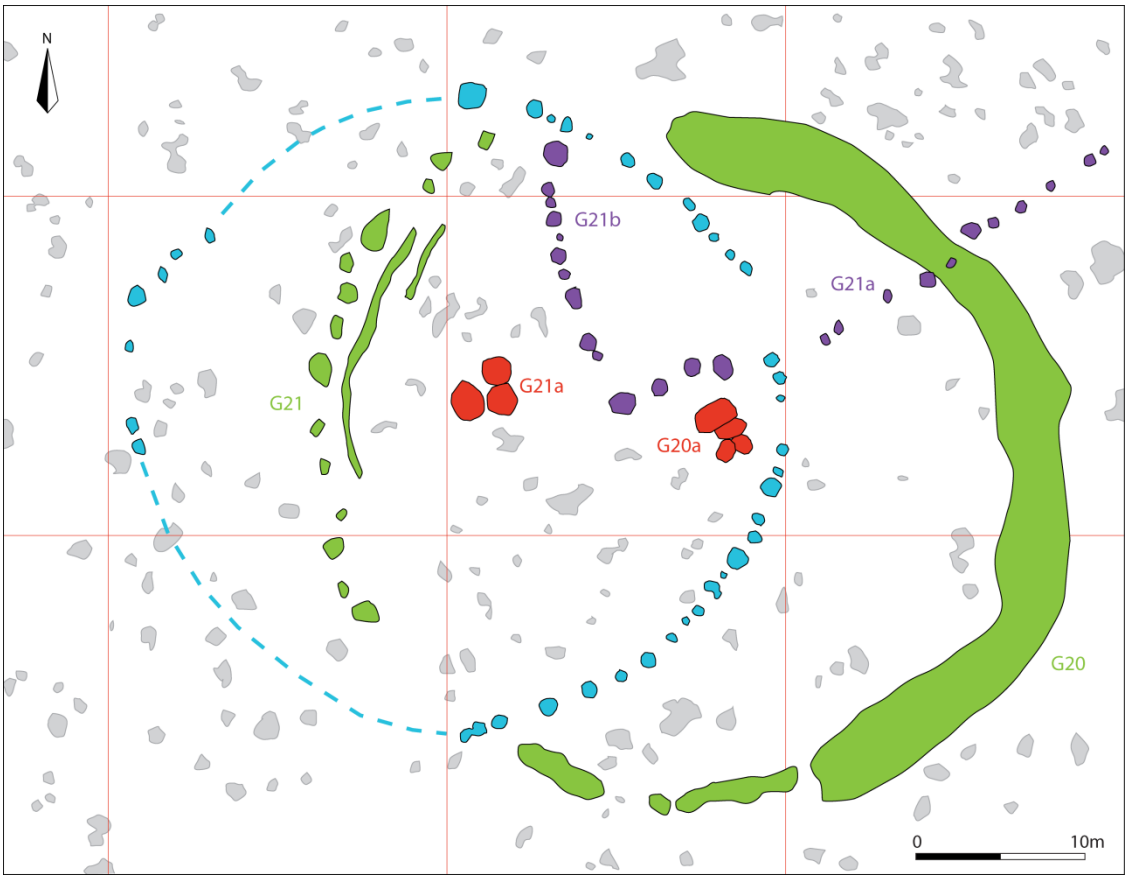

Fig. 12.8: Glanbane hillfort high resolution gradiometry survey interpretation.

however, its central position, and the clear parallels with the other larger structure **G20** hints that these are archaeologically significant anomalies.

Discussion of Results

Geophysical survey of the large multivallate hillfort at Glanbane has produced evidence for a densely occupied settlement with large, elaborate buildings as a central focus. While settlement evidence within Irish hillforts is not unique, it is rare. The large amount of occupation within the interior of the monument parallels the large Multivallate hillfort at Rathcoran, Co. Wicklow. This monument, although unfinished, has a similarly dense amount of occupation, and can also be paralleled with the size and morphology of Glanbane. Both are approximately 6.5Ha in size and have moderately spaced multivallation (set approximately 25m – 30m apart). The spacing of the defensive elements is generally much wider, particularly on bigger hillforts. This may be seen as a defensive feature, as more closely spaced multivallation is more defendable. Excavation at Glanbane has provided evidence that the outer enclosing element was smaller than its inner counterpart, although, not so small as to suggest it was not a defensible feature. Geophysical survey has also identified the entrance to the north of the monument. At this point, the two outer defences narrow (which again, may be seen as a defensive) and extend in a funnel shape narrowing to the north. Irish hillforts are renowned for their lack of an elaborate entrance, which commonly comprises a simple 3–4 meter break in the defences. A possible third enclosure was identified by the survey. This encloses the larger structures at the centre of the hillfort and in turn, encloses the highest point within the monument.

Further geophysical surveying may help to define particularly anomalies such as **G6** and the larger built structures **G20** and **G21**. In particular, the application of electrical resistance may prove useful. However, excavation may prove the only definitive way asses the function of the hillfort and in particular, the function of **G20** and **G21**.

APPENDIX: 2

GEOPHYSICAL SURVEY AT TOOR MORE, CO. KILKENNY

A geophysical survey (licence number 12R41) was undertaken within Toor More/Donaghmore townland Co. Kilkenny, **IG** 647564, 671017 from the 26th of April to 17th of May 2012, to investigate a large, multivallate enclosure of likely prehistoric origin (RMP – KK010-007001). The survey was successful in identifying defensive palisades running along the crest of both sets of defences, an entrance to hillfort and evidence for small scale occupation of the interior.

12.1 INTRODUCTION

Toor More hillfort is a large bivallate monument, located at the centre of a ridge of high land extending North–South. This monument overlooks large tracts of land to the north, south and west, at 242 O.D. (Fig. 13.1). The hillfort is one of a number of this monument type within the county. Clonmantagh, a univallate hillfort to the south-west and Toor More are inter-visible, and may have formed a defensive group which would have protected the area surrounding Kilkenny town. Both of these monuments are placed in deliberately strategic locations which overlook all of the major natural route-ways leading to this area. Hillfort groupings (and particularly pairings of hillforts) are not uncommon, although without secure dating evidence, this is conjecture. Toor More hillfort occupies an approximate area of 8.94ha. The site was partially levelled prior to the completion of first edition Ordnance Survey mapping (Fig. 13.2). The inner enclosing element is placed, on average, 103m from the outer example, and surrounds the highest point within the hillfort, occupying an area of 1.72ha. A 'burial' (KK010-007002) is recorded at the highest point of the interior, although no further information is available. The western portion of the monument has been planted with forestry, while the remaining area is largely under pasture. Sections of these banks may be preserved in modern field boundaries (Fig. 13.2 and Fig. 13.3). The low relief remains of the hillfort banks are intermittently visible, particularly to the east (inner defences) and south (outer defences) (Fig. 13.4). The inner defences measure 0.2m (maximum) in height and 3.5–4m in width. A southern section of the outer bank has been protected from agricultural erosion (a post and wire fence is placed here) and is the most extant section of the hillfort (excluding the possible sections incorporated in modern field boundaries). This measures 0.35m in height and is approximately 3m wide. Modern field clearance cairns located near the outer defences to the north-west, may imply the defences were composed of,

or faced with stone. No evidence for an external ditch or an entrance was apparent prior to geophysical surveying. The defences form a distinctly circular shape from the air (Fig. 13.4) and notably do not follow the contours of the hill. This results in an issue with visibility within the hillfort, where a comprehensive line of site of all of the defences is not attainable from any one position.

12.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

The majority of Toor Moor hillfort is situated on a formation of Namurian shale, sandstone, siltstone and coal (gsi.ie). A visean limestone and calcareous formation running North–South sits on the western edge of the hillfort, comprising not more than 20% of the monument. Both of these formations are magnetically 'quite' and therefore are unlikely to have had an effect on the collected data.

The bedrock within the hillfort is extremely high (on average 0.1m–0.15m from the surface). There seems to be a reasonably consistent depth to this formation, which resulted in relatively clear data. A number of inferences can be made from this. The majority of

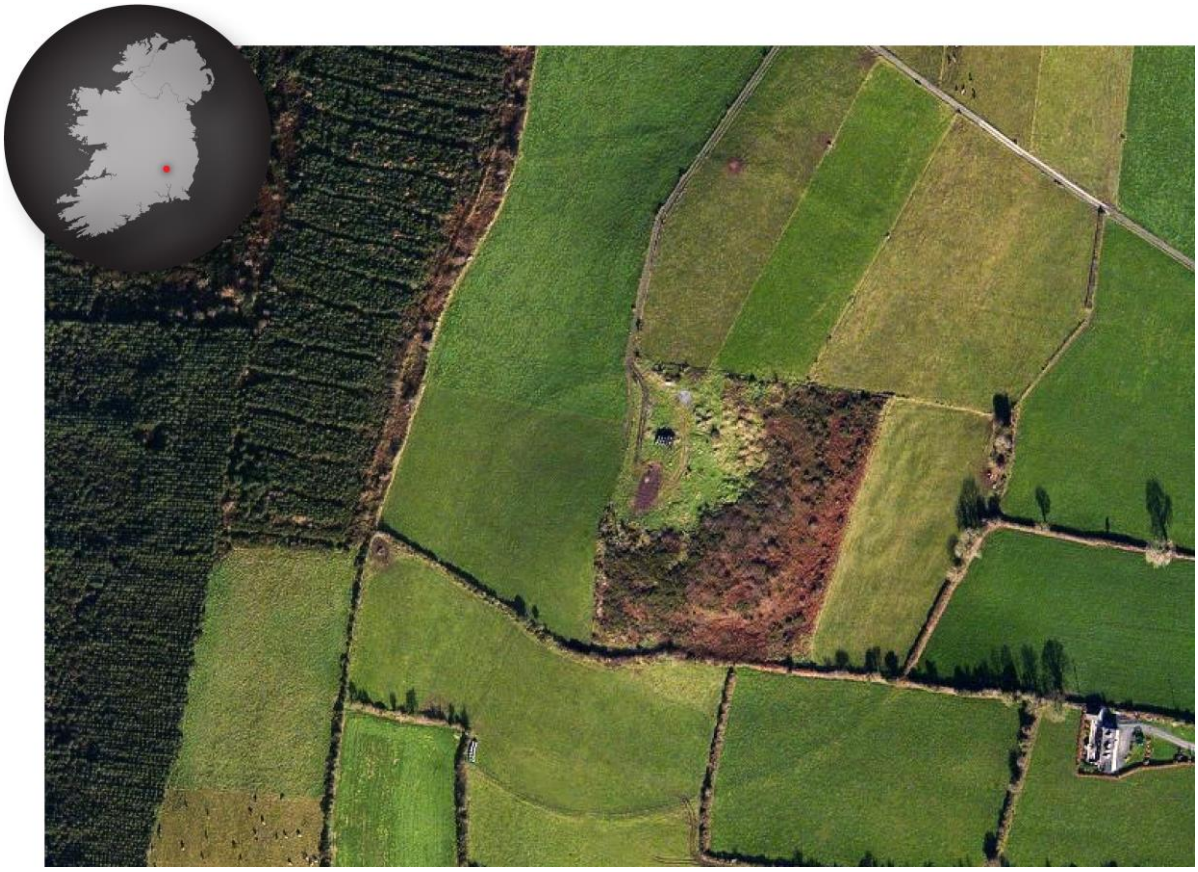

Fig. 13.1: Toor More hillfort (Bing Maps 2015).

Fig. 13.2: First Edition Ordnance Survey mapping.

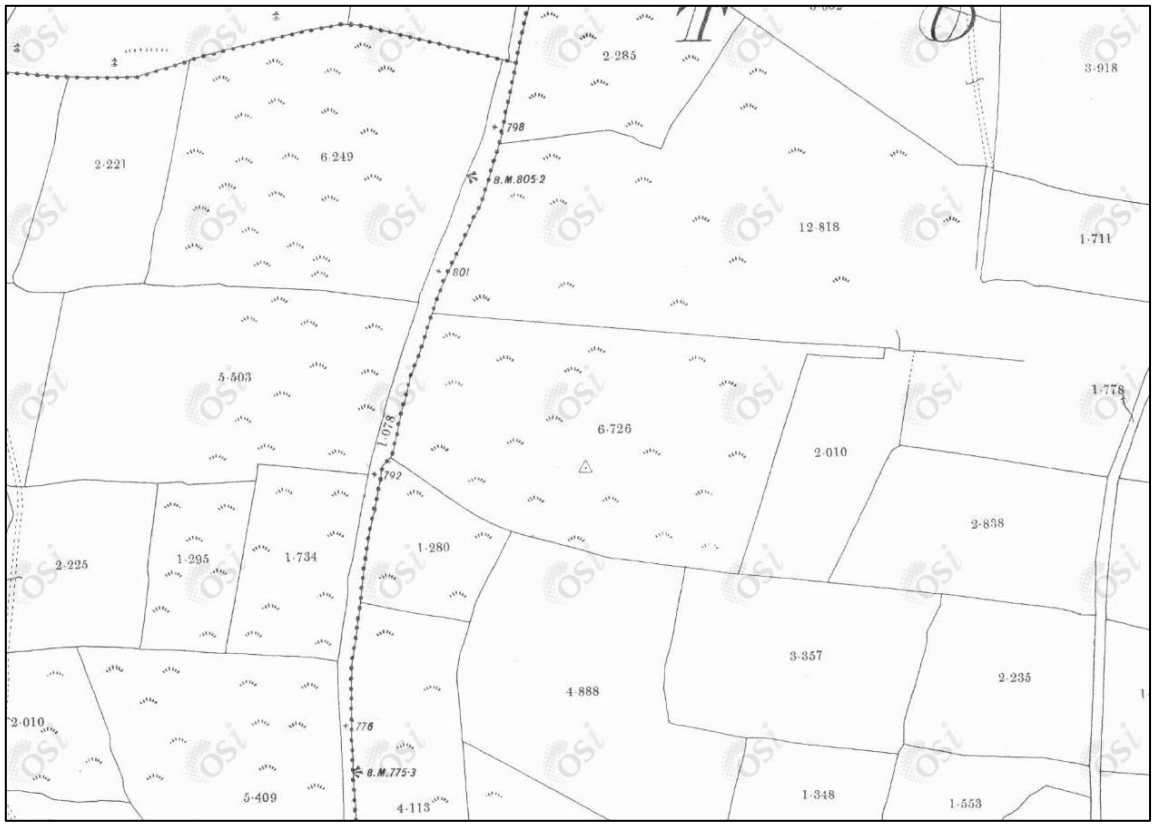

Fig. 13.3: Second edition Ordnance Survey mapping.

archaeological features, such as pits, postholes or ditch features could be rock cut, and, the defences must have comprised a ditch, if there is enough material to form a bank. The presence of a bank has subsequently been confirmed by excavation. Due to the height of the bedrock, the majority stakeholder of the land informs that no ploughing is, or was undertaken within living memory. This would suggest that the *in-situ* preservation on site is substantial, resulting in secure dating material. This has been confirmed by excavation. Surface water retention was a problem on the western interior of the hillfort until modern times, when a small drainage system was built. The landowner also informs of a substantial pond to the north of the exterior of the monument, which forms during heavy rainfall.

12.3 ARCHAEOLOGICAL BACKGROUND

Limited archaeological excavation has taken place in the vicinity of Toor More hillfort. A considerable amount of potentially contemporary monuments surround the hillfort, particularly to the west. A substantial number of ring-ditches (likely to be levelled barrows) lie 1km to the east and south-east. These may be somewhat contemporary monuments, which were used to bury cremated human remains. These are clustered in two groups and may be the remains of

Fig. 13.4: Low relief bank of the inner defences at Toor More hillfort in Co. Kilkenny.

barrow cemeteries. Further examples may exist, however, these low lying areas are heavily farmed, and intensive agricultural processes may have affect their visibility above ground.

Two unrecorded *fulacht fiadh* (Fig. 13.5) immediately to the east of the hillfort further highlight the use of this landscape during the prehistoric era. Again, generally date to the Bronze Age, and therefore, may be contemporary with the hillfort.

Ordnance survey mapping (Fig. 13.3 and Fig. 13.4) show a limited number of field systems within and surrounding the hillfort. This diminutive amount suggest this area has not been extensively farmed, a presupposition which geophysical survey confirmed.

12.4 SURVEY PROGRAM

The proposed survey extent is highlighted in (Fig. 13.6), incorporating the remains of the hillfort which are possible to survey. High resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the hillfort, to identify possible internal occupation and assess the number, form and composition of the defensive features. An area of 7.1ha was surveyed, using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

Fig. 13.5: Unrecorded *fulacht fiadh* comprising a grass covered low-rise mound.

12.5 GEOPHYSICAL SURVEY RESULTS

Hillfort Defences and Related Features

The defences of Toor Moor hillfort are distinctly visible within the gradiometry results (Fig. 13**.**7 and Fig. 13.8) as curvilinear bands of high/low readings. A similar set of readings comprise both the inner and outer enclosure, inferring a similar process has affected the natural magnetic signature of the surrounding soils and bedrock, over a similar time period. This in turn suggests that both sets of defences were contemporary and this has subsequently been confirmed by excavation, which place the construction of the hillfort around the beginning of the Late Bronze Age.

The inner element is comprised of a curvilinear band of positive magnetism surrounded by a negative response (**G1**). This anomaly is positioned on the crest of the partially levelled bank and may be interpreted as a burnt palisade. The strength of the readings (maximum 204.1nT, minimum -75.3nT) would infer that this is not the fill of a large cut feature such as a ditch. The

Fig. 13.6: Aerial photography of Toor More (Google Earth 2012) with survey area outlined in red.

Fig. 13.7: Toor More gradiometry survey results.

Fig. 13.7: Toor More gradiometry survey interpretation.

readings themselves are abnormally high (but not so high as to suggest this is a ferrous response) and may represent the remains of a burnt features such as a bank and palisade.

A notable gap in the centre of this feature is likely to have been caused by the aforementioned drainage ditch, which was dug to drain the land of surface water. The geophysical effect of this trapped surface water is visible as an area of disturbance (**G2**) to the east of the inner defences. Abutting these responses to their west is an area of strong magnetic disturbance (**G3**) and a more defined positive response (**G4**) to its south. Both of these responses likely represent an exterior cut feature such as a ditch. The 'cleaner' response, **G4**, is likely naturally in-filled sediment material, while **G3** may represent a mixture of natural sediment and burnt stone. A similar response is produced from *fulacht fiadh*.

A second, larger gap (**G5**), unrecorded prior to this survey, may be evidence for an entrance feature. Both **G1** and **G3** terminate, creating a gap up to 14m in width, although this may be wider as only the western section of this features has been recorded. Two pit-like features are positioned within this gap (**G6**). These responses are strong (maximum 26.45nT) and could represent burnt post features. However, the defensiveness of these, if they are to be interpreted as gate features, is negated by the 3m gap between the eastern example and the supposed terminal of **G1**. The nature of hillforts is an outstanding debate and their defensiveness has continually been questioned. Irish examples of hillfort entrances tend to be short (3-5m) gaps within the defences. This affords greater defence of what is generally perceived as being the weakest area of these monuments. While the possible example (**G6**) at Toor Moor may not be excessively big, it is more elaborate than most recorded Irish examples. Recent excavation at Ballylin hillfort has highlighted the need to formally define some hillfort entrances. These stand-alone posts (**G6**) may have acted in such a way. Conversely, they may also have been central gate-posts.

The outer defences (**G7**) comprise a similar set of features, a curvilinear band of positive magnetism surrounded by a negative response. Again, this anomaly is positioned on the crest of the partially levelled bank and may be interpreted as a burnt bank and palisade. Similar to the inner defences, an area of strong magnetic disturbance (**G8**) abuts the exterior of **G7**. A more defined band of this is present to the north-north-west (**G9**). Again, these can be interpreted as a rock cut ditch feature. The outer defences exhibit signs of repair (**G10**), where, running adjacent to parts of **G7** are similar bands of high magnetic readings.

The outer defences incorporate a field boundary to the east and may be partially preserved in this area. To the south-east, the anomaly continues before a 7m wide gap (**G11**) is visible. A central pit feature may suggest that a formal double gate was present, although this is not in-line with the possible entrance feature (**G6**) in the inner defences. It is not uncommon for Irish hillforts to have multiple entrances, although this does not seem to be the case at Toor Moor. Having entrance features opposing each other can be seen as a defensive trait, one which, combined with what may have been substantial palisade features, would have proved a major obstacle to overcome.

Hillfort Interior and Habitation Features

There is a limited amount of activity within the hillfort. While there are a number of possible structures visible, it is apparent that the monument was not intensively inhabited, and may have been occupied periodically. In addition, there is a lack of field divisions within the data set (**G12** – **G15**), which implies the area has not been intensely farmed until the modern period. This is further intimated by 2nd edition Ordnance Survey mapping which depicts the area within the hillfort as a bog or water retentive area.

The largest of these potential structures, **G16**, is located approximately 22m from the possible entrance (**G6**) of the inner defences. Measuring 14m in diameter, **G16** comprises a circular setting of pit-like anomalies, with no internal features. The location of this possible structure (**G16**) with regard to the potential entrance (**G6**), may imply it was a defensive building, a disarticulated gatehouse. Immediately to the north, two series of curvilinear pit-like features (**G17** and **G18**) may be the remains of built hut structures.

G19, **G20** and **G21** represent a number of more tentative hut structures. These are smaller in scale (6-8m in diameter) than the aforementioned examples and may represent domestic structures. These are located on a flat area of land immediately to the west of a considerable drop in topography. A similar topographical location is taken advantage of for habitation purposes to the south of the hillfort. **G22** represents a 9m diameter anomaly with a central di-polar feature. This possible hut structure is located in an area which is considerably damaged by cultivation features. Therefore, more hut features may have been truncated and masked by these more recent activities. **G23** represents two linear, high magnetic features placed at right angles. These anomaly may be part of a field system. However, the strength of these readings (maximum 18nT) may suggest it is a burnt features, possible the remains of a

rectangular structure. While such structures are more prevalent in the Neolithic and the end of the Early Medieval period, they are also found in the intervening periods on a more limited scale.

Inside the inner defences there is a marked increase in the number and concentration of pit-like anomalies. These may form some arrangement of overlapping or truncated structural features, but may also be storage pits. Large concentrations of pits are not uncommon on excavated British hillforts. Whatever the nature of these features, it is clear that this enclosure was more intensely occupied than the intervening areas between the inner and outer defences. Unfortunately, the eastern half of the interior is covered in thick gorse and could not be surveyed. Situated near the summit of the interior is a circular series of pit-like features (**G24**) 8m in diameter. To the east of this is another circular anomaly truncated by a modern track (**G25**). Both of these features may be interpreted as the burnt remains of a hut structure.

Discussion of Results

Geophysical survey of the large multivallate hillfort a Toor Moor has produced evidence for a series of wooden palisade fences positioned at the top of circular banks, with exterior ditch features. This has subsequently been confirmed by excavation. This would have comprised a formidable defence to attackers and provided a highly defensible site to the occupants. The presence of a palisade would have negated the inability of the occupants to see the entire circumference of the hillfort, as this feature would have added considerably to the height of the defences. However, if defensiveness was of primary concern, why do the hillfort defences not follow the contours of the hill, particularly when there are such steep slopes to the east and west of the monument? Instead, the hillfort forms a circular shape in plan. This leads to further questions on how such monuments were laid out and built.

The identification of two possible entrance features is also an important aspect of the survey. The current 'Hillforts, Warfare and Society in Late Bronze Age Ireland' project has added considerably to the previously limited amount of information we have on entrances of Irish hillforts. While these were considered to be simplistic in design, the current project has established that these were often formalised areas which added to the defensiveness of the site (eg. Glanbane hillfort, Ballylin hillfort). While the examples at Toor Moor, particularly **G5**, at first seem to be lacking in a defensive capacity, their location in respect to one another, and the large structure **G16** located close to **G6**, infer these were considerably well protected areas.

The lack of structural features and a limited amount of internal habitation at Toor Moor is a common characteristic shared by most Irish hillforts. However, the possible identification of a large concentration of pit-like features within the eastern half of the inner enclosing element, recalls British examples rather than Irish examples. Excavated British hillforts were often found to be storage pits sealed by clay material to form an air tight seal, however, the true nature of these features at Toor Moor cannot be assessed without excavation.

The strength of the readings at Toor Moor and the lack of intensive agricultural marks have aided in the identification of geophysical features at the site. Approximately 7.1ha was surveyed, covering about 80% of the monument. It is though that potential structures may be present in the central areas of the hillfort not surveyed, however, thick gorse and vegetation prevents further investigation. Excavation is recommended to date the monument, although its similarities to the large bivallate hillfort of Clashanimud, Co. Cork would intimate a Late Bronze Age date. Due to the high bedrock on site, securely stratified material may be present.

APPENDIX: 3

GEOPHYSICAL SURVEY AT RATHCORAN, CO. WICKLOW

A geophysical survey was undertaken within Tuckmill Upper townland, Co. Wicklow, **IG** 288485 189335, from the 8th of May to the 29th of May, to investigate a large, multivallate enclosure of likely prehistoric date (WI027-026001). This was undertaken under the licence number 12R42. This particular area comprises a cluster of up to nine hillforts, the largest grouping of this monument type in Ireland. While it is not uncommon for hillforts to be found in groups (predominantly in pairs), the positioning of nine large monuments of this class in such close proximity is curious. The geophysical survey at Rathcoran hillfort was undertaken to assess the potential for internal settlement activity and evaluate the defences. In this respect the survey was successful, revealing evidence for extensive settlement and a possible palisade feature associated with the inner enclosing element.

13.1 INTRODUCTION

Rathcoran hillfort is located at the highest point of Tuckmill Hill at 370m OD (Fig. 14.1), on a prominent ridge overlooking Baltinglass town 1.5km to the south–west. The fort overlooks two other enclosures, Sruhaun and Rathnagree, on the northern and southwestern summits, as well as extensive tracts of downland to the south and west.

Rathcoran is composed of two closely spaced (25–15m) stone built banks which form a large oval enclosure. These banks vary in width (8–16m) and height (0.4m–3.2m) and are best preserved at the northern side of the monument. Substantial quarry pits and associated rubble is visible between the two banks. These are apparent throughout the length of the defences, and are more sizable to the north, where the corresponding banks are also larger. This has led to suggestions that the hillfort was unfinished when abandoned. The fort is depicted in detail in both the first and second edition Ordnance Survey maps (Fig. 14.2 and Fig. 14.3). These maps suggest the interior was divided into three before the 1840's and that the interior was under heather and bog growth prior to this period.

13.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

Tuckmill Hill is situated on a north–south running formation of Lower-Middle Ordovician slate, sandstone, greywacke and conglomerate (www.gsi.ie). Sandstone and its associated formations are considered a magnetically quite geological formation and it is unlikely to have affected the magnetic data. A narrow formation of granite is surrounded by Rathcoran and this may explain the large amounts of granite boulders and stone in the local area.

The survey area comprises a number of fields which subdivide Rathcoran. The interior is covered in thick heather and gorse, making survey difficult. A thin layer of blanket bog covers the interior. The relative inaccessibility of Rathcoran has largely prevented its destruction through agricultural processes. It is unlikely that the interior has been subjected to ploughing, allowing geophysical anomalies to be identified more clearly.

Overcast weather conditions and moderate temperatures throughout the majority of the survey facilitated data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations. Strong gust of wind may have caused periodic buffeting of the instrument, although the effects of this within the geophysical data are minimal.

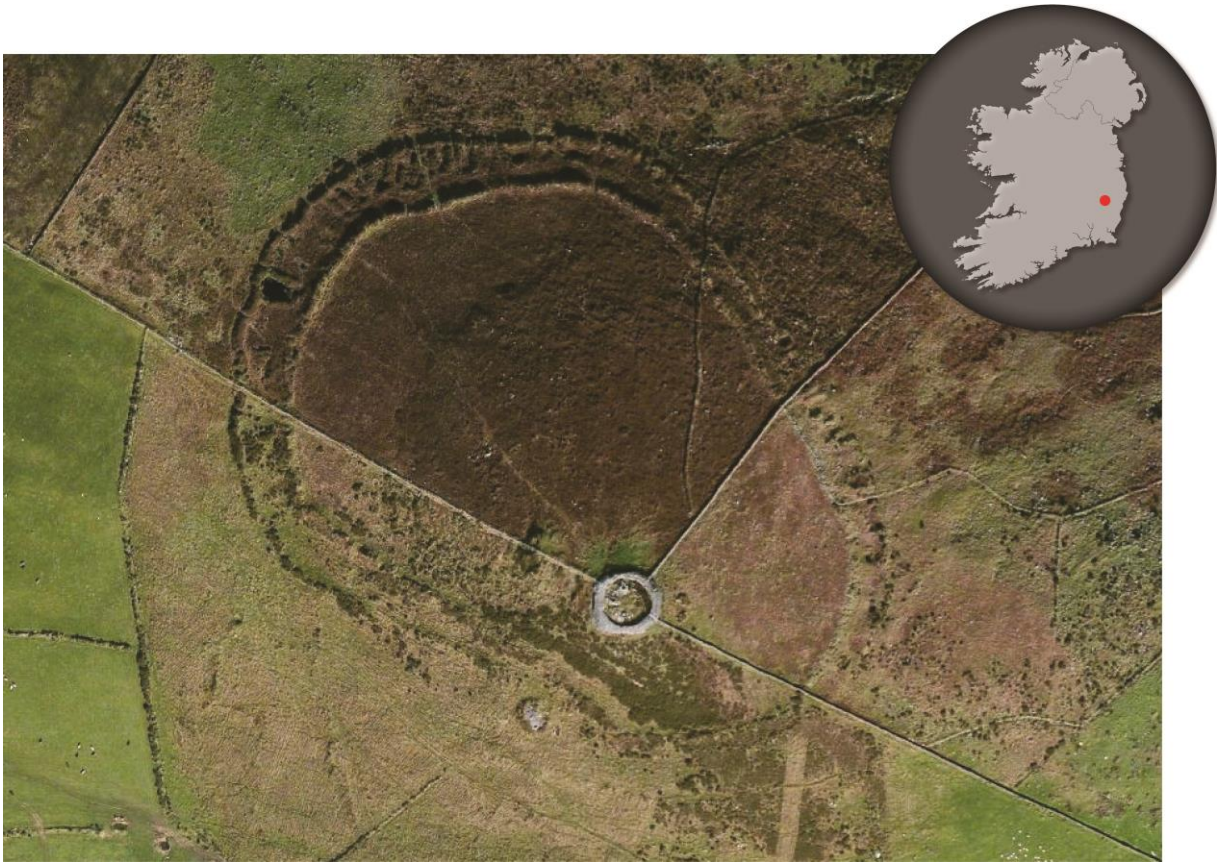

Fig. 14.1: Rathcoran hillfort, Co. Wicklow (Bing Maps 2015).

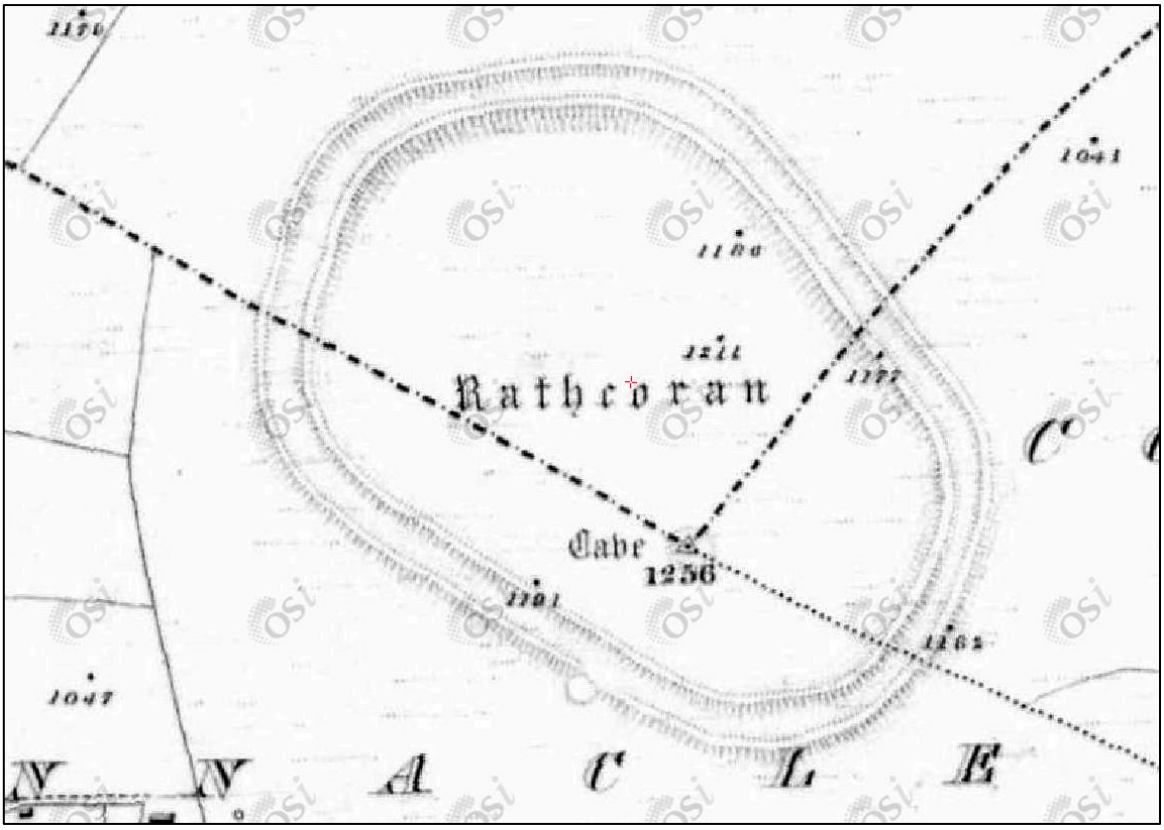

Fig. 14.2: First Edition Ordnance Survey mapping.

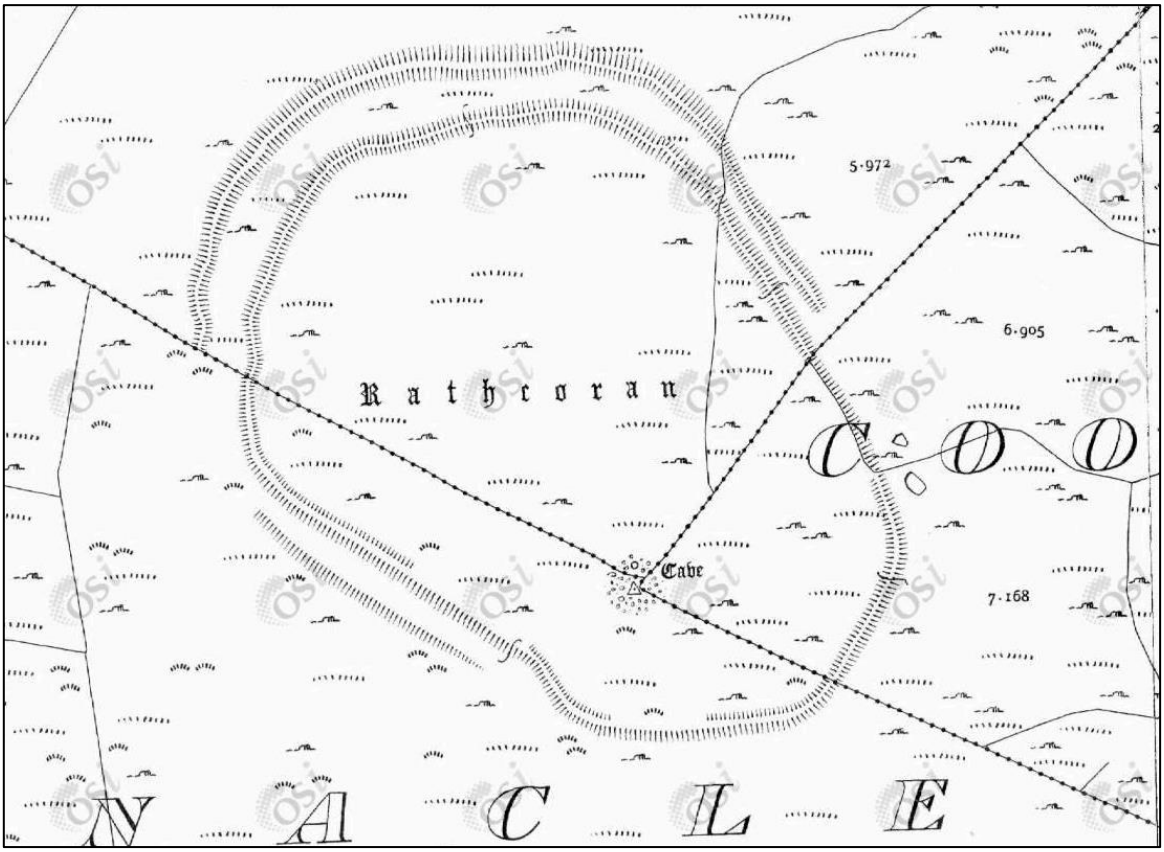

Fig. 14.3: Second Edition Ordnance Survey mapping.

13.3 ARCHAEOLOGICAL BACKGROUND

Positioned at the highest point within Rathcoran is a Megalithic passage tomb (WI027-026001) which was excavated in 1934-6 by Walshe (1941, 221-236). The monument was found to consist of a multi-period kerbed cairn (diam. *c.* 27m) underneath which five structures were identified. The cairn material was subsequently used to create a protective wall around the monument. Surrounding the cairn was a kerb of large stones, three of which were identified with rock art. The main tomb within the cairn was revealed as a 2m diameter chamber with a short passage (3.2m) leading towards it. Three shallow recesses contained a stone basin with a pecked ornament. A second tomb with a chamber divided into three compartments revealed two stones with rock art. Three other, less-substantial tombs, were identified. The finds from the site include the cremations of at least three adults and one child, flint scrapers, Carrowkeel pottery, and bone pins. Finds from beneath the cairn included a stone axe, a flint javelin-head, scrapers, an egg-shaped stone, carbonised wheat grains and hazelnuts. A saddle quern was also found in the cairn material (Cooney 1981). Positioned immediately outside the outer defences of Rathcoran is a second cairn (WI027-026001), approximately 25m in diameter.

Other archaeological features have been identified within the interior, such as four hut sites, all of which lie close to the inner stone bank of the hillfort. Upon field inspection, the number of unrecorded hut structures within the interior was significant. These were subsequently recorded by LiDAR and GPS. The amount of recorded activity within the interior is interesting, as many hillforts exhibit little evidence for permanent occupation in the form of hut structures. Immediately outside the hillfort to its south is a further cluster of possible hut structures and a smaller cairn.

On the lower western slopes of Tuckmill Hill, a mound barrow comprising a low circular mound 19m in diameter (0.45m in height) is visible. In the 1920's, a cist containing an inhumation was found within the mound. Cist monuments generally date to the Bronze Age and Early Iron Age, therefore, a date contemporary with the occupation of the hillforts is plausible. A second cist burial was found on the eastern slopes of Tuckmill Hill. Sherds of two food vessels and a quantity of cremated bones were recovered from this feature in 1969, and a pit containing cremated bone was bone was reportedly found a few years before. To the north of this, a large circular mound, 50m in diameter and 2.4m in height overlooks the River Slaney. While it is difficult to assess the date of such monuments, mounds are categorised as prehistoric monuments, and may comprise a grass covered cairn.

13.4 SURVEY PROGRAM

The proposed survey extent is highlighted in (Fig. 14.4), incorporating the interior of the hillfort which is possible to survey, as well as some of the inner enclosing elements. High resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the hillfort, to identify possible internal occupation and assess the number, form and composition of the defensive features. In total, 5.8ha at Rathcoran was surveyed using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

13.5 GEOPHYSICAL SURVEY RESULTS

Hillfort Defences and Related Features

The defences at Rathcoran have been interpreted as being incomplete, due in part to the variable size of the banks and positioning of quarry pits and associated rubble in-between the two defensive elements. Geophysical survey somewhat corroborates this theory, and reveals

Fig. 14.4: Aerial photography of Rathcoran and Rathnagree (Google Earth 2012) with survey area outlined in red.

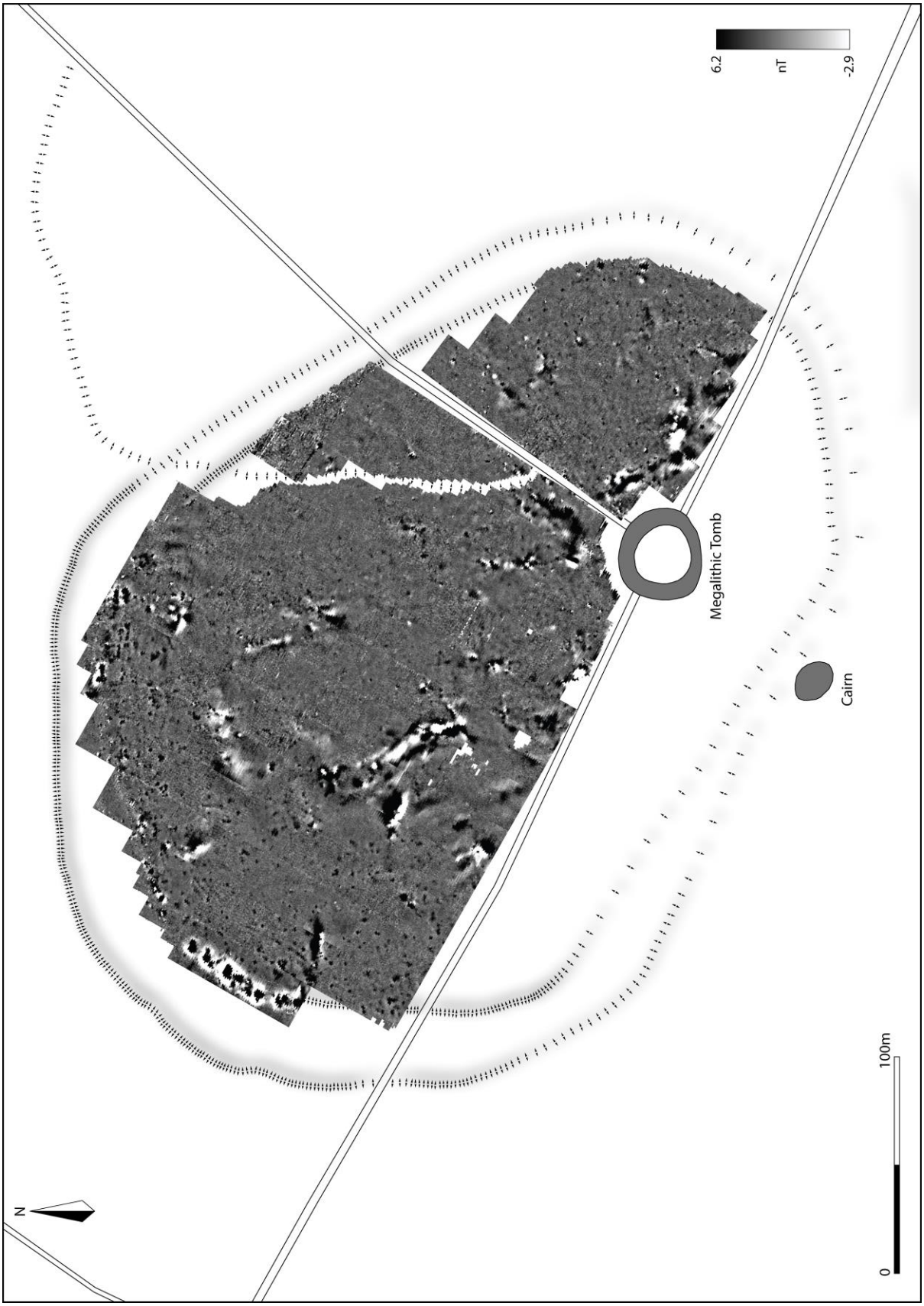

Fig. 14.5: Rathcoran geophysical survey results.

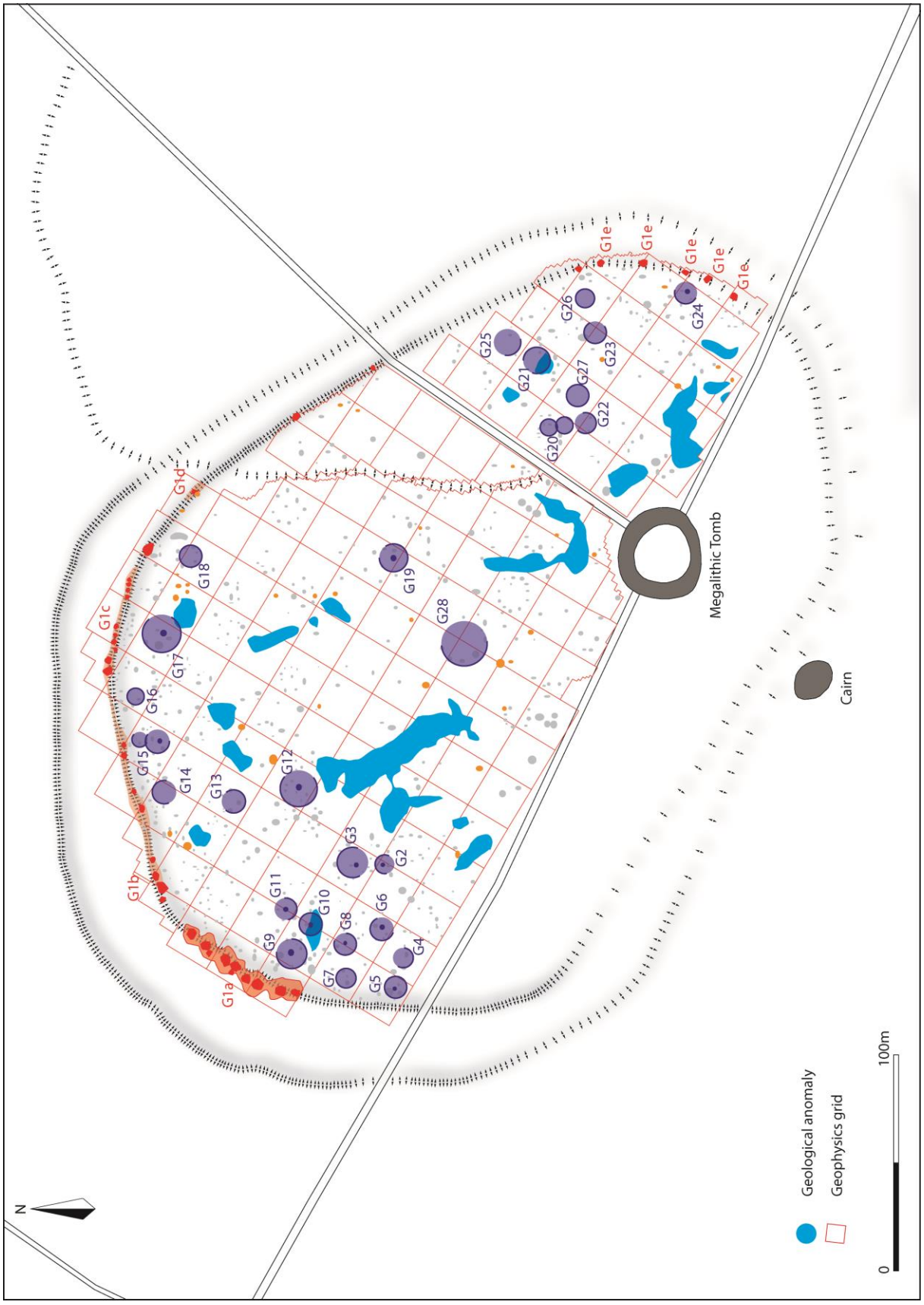

Fig. 14.6: Rathcoran geophysical survey interpretation.

important information regarding the potential construction techniques involved in building this large fort (Fig. 14.5 and Fig. 14.6).

G1a–G1e comprises a series of strong positive anomalies surrounded by negative readings. These responses are positioned at the crest of the inner bank, and likely represent the geophysical remains of a partially constructed wooden palisade. **G1a** is visible as a series of up to eight strong (50nT–70nT) circular responses and represent the most defined section of this potential palisade. This corresponds with the remains of the bank which is more substantial here. As the bank becomes less sizable to the east, the responses (**G1b**, **G1c**, **G1d**) become less concentrated and less intense. This may suggest that the palisade was built in stages corresponding with the building of the bank. The less intense responses likely represent large post-holes. However, with less material surrounding the base of the post-hole (as suggested by the less substantial banks), less *in-situ* material has been affected by the burning and therefore, the magnetic enhancement is significantly reduced. **G1e** represents a series of evenly spaced pit-like features. These are placed at the centre of the low-rise bank which forms the inner defensive element at the south of the hillfort. Placed approximately 15m apart, these may represent post-hole features. These may have marked out the perimeter of the site prior to the building of the bank proper. Substantial gorse growth prevented the use of geophysical instruments over the outer defences of the hillfort.

Hillfort Interior and Habitation Features

A considerable number of possible hut structures are apparent within the geophysical results. These are visible as circular/curvilinear sets of pit-like features which often correspond with levelled circular platforms cut into the sloping topography. There are examples visible throughout the interior of the monument (Fig. 14.5 and Fig. 14.6). Geological responses from protruding bedrock are also visible in the recorded data and these anomalies may mask the weaker signals from other possible structures. There is less magnetic 'noise' within the remainder of the interior and this is likely due to the layer of overlying peat.

G2 represents a circular setting of pit-like features with a central response. This may be interpreted as the partial remains of a hut structure which, when projected, would have measured 6m in diameter.

G3 is visible as a curvilinear series of pit-like features with a central response. This measures 12m in diameter when projected. This is likely to represent the remains of a circular hut structure with a central support post or hearth.

G4 represents the partial remains of a hut structure measuring 8m in diameter. It comprises a series of pit-like features set in a circular fashion.

A circular setting of pit-like features (**G5**) with a central circular anomaly may represent the geophysical remains of a hut structure measuring 8m in diameter. This corresponds with a circular setting of stones built around a level platform.

G6 is apparent as a circular setting of pit-like features 8m in diameter, with a central positive response. This likely represents the remains of a burnt hut structure.

Abutting the inner bank of the hillfort is a circular setting of pit-like features measuring 7m in diameter (**G7**). This represents a potential hut structure.

G8 represents a potential hut structure measuring 8.5m in diameter. This is apparent as a circular setting of pit-like features with a central positive magnetic response.

Abutting the inner defences of the hillfort is a potential hut structure measuring 11m in diameter (**G9**). This is apparent as a circular setting of pit-like features with a central positive response which may be interpreted as the remains of a support post or central hearth.

The partial remains of a potential built structure is visible as a circular setting of pit-like features 8.5m in diameter (**G10**).

G11 represents the remains of a possible hut structure. This is apparent as a circular setting of pit-like features that, when projected, would comprise a structure 7.5m in diameter. A central positive magnetic response may be interpreted as a central support post or hearth.

G12 is apparent as a large circular setting of pit-like features measuring 12m in diameter. Again, this has a central magnetic response which may be interpreted as a potential support post of central hearth.

Measuring 7m in diameter is a circular setting of pit-like features (**G13**) which likely represents the remains of a hut structure.

Abutting the inner bank of the hillfort is a circular setting of pit-like features measuring 8.5m in diameter (**G14**). This likely represents the remains of a circular hut structure.

G15 represents the partial remains of a possible figure of 8 coin-joined structure, comprising two circular settings of pit-like features measuring 8m and 5m in diameter respectively.

G16 is apparent as a complete circular setting of pit-like features measuring 6m in diameter. This likely represents the remains of a hut structure.

Measuring 11m in diameter are the potential remains of a large circular structure with a central positive magnetic anomaly (**G17**). This likely represents the remains of a large hut structure with a central support post.

A circular series of pit-like features (**G18**) measuring 7m in diameter represents the potential remains of a hut structure.

G19 is apparent as a circular setting of pit-like features measuring 10m in diameter. A central positive magnetic anomaly may represent the remains of central support post of central hearth placed with as structure.

G20 represents the possible remains of a figure of eight hut structure, visible as two oval settings of pit-like features measuring 7 x 4 and 8 x 6 meters.

G21 represents a circular series of pit-like features measuring 10m in diameter. This may represent the remains of a circular hut structure.

G22 is apparent as the partial remains of a curving setting a pit-like features which, when projected, measures 7m in diameter. This may represent the remains of hut structure.

Measuring 8m in diameter, **G23** is apparent as a circular setting of pit-like features which may represent the remains of a hut structure.

A partial arc of pit-like features to the east of the interior of the hillfort, may represent the remains of a hut structure (**G24**). When projected, this measures 7m in diameter.

G25 measures approximately 8m in diameter when projected and is defined by a partial arc of pit-like features on its south-western side. This may represent the remains of a possible hut structure.

Measuring approximately 6m in diameter, **G26** is apparent as a circular setting of pit-like features which. This may represent the remains of a hut structure.

G27 is approximately 7m in overall diameter. It comprises a circular setting of pit like features that may represent a hut structure. This feature corresponds with a circular terrace cut into the natural slope visible on the surface.

G28 is positioned centrally in within the interior. It comprises a partially completed circular setting of pit-like features that would have measured approximately 14m in diameter if projected. This corresponds with a circular setting of boulders visible on the surface.

Discussion of Results

Geophysical survey at Rathcoran has produced evidence to suggest the hillfort would have been an effective defensive fort. Its topographical position on Tuckmill Hill, in addition to the two other hillfort on the remains summits of Tuckmill Hill, would have effectively defended all of the potential access routes to the summit. Their defensive features would have provided a potent deterrent to attackers, while also creating a significant central focus in the landscape from which to portray the builders status and power.

The survey has specifically shown that Rathcoran hillfort, originally presumed to be an abandoned, unfinished monument, a premise which has been largely confirmed by the geophysics, would have had a large palisade on top of its already sizable western bank. Although this was unfinished, the potential remains of other sections of this palisade have been identified, as have a number of potential posts which could have been used during the marking out of the monument defences. Geophysical survey would imply Rathcoran was a highly defensive monument.

A substantial population is likely to have existed considering the size of Rathcoran and other hillforts in the Baltinglass area. A considerable number of potential hut structures have been identified within the interior of the Rathcoran hillfort which further implies this. These may have housed the workforce needed to build the monument. When completed, this monument may not have been intended to be occupied extensively, similar to Rathnagree.

APPENDIX: 4

GEOPHYSICAL SURVEY AT RATHNAGREE, CO. WICKLOW

A geophysical survey was undertaken within Tuckmill Upper townland, Co. Wicklow, **IG** 288074 189977, from the 2th of June to the 7th of June, to investigate a large, multivallate enclosure of likely prehistoric date (RMP WI027-010). This was undertaken under the licence number 12R42. This particular area comprises a cluster of up to nine hillforts, the largest grouping of this monument type in Ireland. While it is not uncommon for hillforts to be found in groups (predominantly in pairs), the positioning of nine large monuments of this class in such close proximity is curious. The geophysical survey at Rathnagree hillfort was undertaken to assess the potential for internal settlement activity and evaluate the defences. In this respect the survey was successful, revealing limited evidence for settlement and elaborate defensive elements incorporating wood which may have been destroyed by fire.

14.1 INTRODUCTION

Rathnagree hillfort is located at the northern spur of Tuckmill Hill at 326m OD, less than 400m from Rathcoran and Sruhaun hillforts (Fig. 15.1). It has extensive visibility of the surrounding landscape with particularly excellent views of the river Slaney to the north.

Rathnagree comprises two enclosing elements, with a possible third, outer element. The interior is largely overgrown, although a number of areas are free of gorse and shrubbery, allowing for geophysical survey. The inner defences are visible on ground inspection, although they are heavily denuded. They seem to be largely composed of stone and are approximately 0.3m in maximum height and 4m in maximum width. This encloses an area of 0.71ha. The second set of defences are extant (37m from the inner enclosure), being composed of a mixture of stone and earth (width *c.* 6.5m, height *c.* 0.8–2.3m), with an exterior ditch (width *c.* 4.5m, depth *c.* 0.9m) and counter-scarp bank (width *c.* 3.5m, height *c.* 0.6m), enclosing an area of 2.43ha. There are numerous breaks in this enclosure, the majority of which seem to be modern. A possible original entrance is located to the north of the second enclosing element. This measures 2.3m across. The outer defensives are positioned 42m from this and comprise a low relief band of grass covered stone approximately 2.8m in width. This is best preserved at the south, although recent LiDAR survey reveals this is still topographically present for the majority of its length. Rahtnagree is depicted in the first and second edition Ordnance Survey maps as a

widely spaced bivallate hillfort (Fig. 15.2 and Fig. 15.3). The third, outer enclosing element is not recorded. There are no ancient field systems visible in these maps and they suggest the hilltop was under bog by at least 1900.

14.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

Tuckmill Hill is situated on a north–south running formation of Lower-Middle Ordovician slate, sandstone, greywacke and conglomerate (www.gsi.ie). Sandstone and its associated formations are considered a magnetically quite geological formation and it is unlikely to have affected the magnetic data.

The survey area comprises a single field which is defined on its eastern side by a post and wire fence. A thin layer of blanket bog covers the interior, as well as thick heather and gorse. The latter had been partially burnt prior to the survey for clearance purposes. The relative inaccessibility of the monument has largely prevented its destruction through agricultural processes. It is unlikely that the interior has been subjected to ploughing, allowing geophysical anomalies to be identified more clearly.

Fig. 15.1: Rathnagree hillfort, Co. Wicklow (Bing Maps 2015).

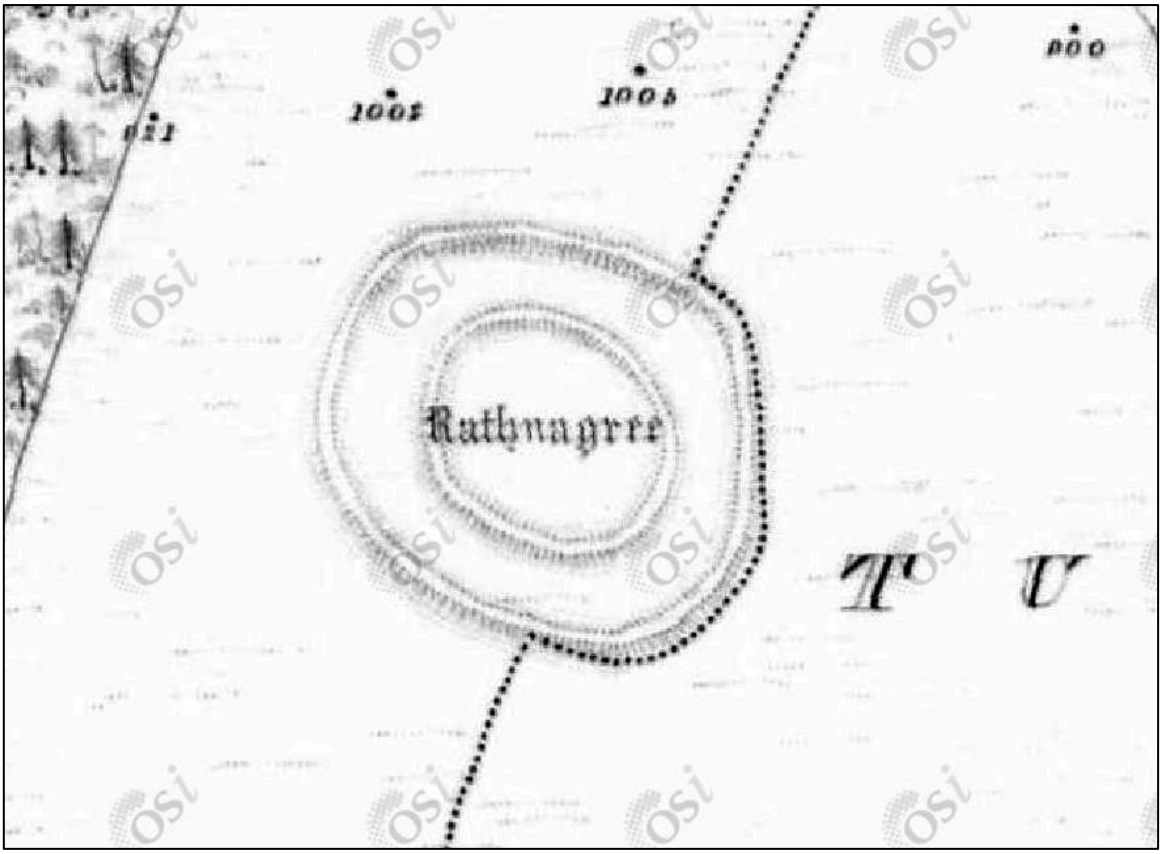

Fig. 15.2: First Edition Ordnance Survey mapping.

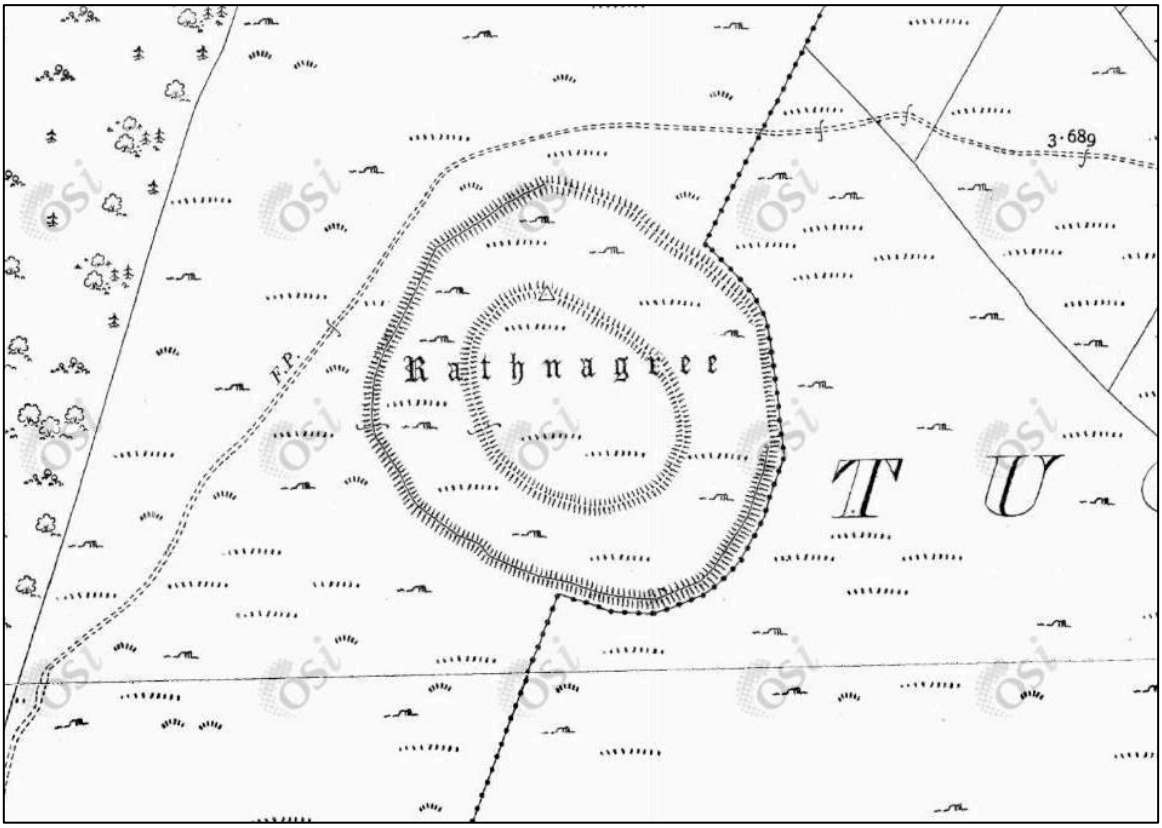

Fig. 15.3: Second Edition Ordnance Survey mapping.

Overcast weather conditions and moderate temperatures throughout the majority of the survey facilitated data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations.

14.3 ARCHAEOLOGICAL BACKGROUND

Positioned at the highest point within Rathcoran hillfort, just under 400m to the south of Rathnagree is a Megalithic passage tomb (WI027-026001) which was excavated in 1934-6 by Walshe (1941, 221-236). The monument was found to consist of a multi-period kerbed cairn (diam. *c.* 27m) underneath which five structures were identified. The cairn material was subsequently used to create a protective wall around the monument. Surrounding the cairn was a kerb of large stones, three of which were identified with rock art. The main tomb within the cairn was revealed as a 2m diameter chamber with a short passage (3.2m) leading towards it. Three shallow recesses contained a stone basin with a pecked ornament. A second tomb with a chamber divided into three compartments revealed two stones with rock art. Three other, less-substantial tombs, were identified. The finds from the site include the cremations of at least three adults and one child, flint scrapers, Carrowkeel pottery, and bone pins. Finds from beneath the cairn included a stone axe, a flint javelin-head, scrapers, an egg-shaped stone, carbonised wheat grains and hazelnuts. A saddle quern was also found in the cairn material (Cooney 1981). Positioned immediately outside the outer defences of Rathcoran is a second cairn (WI027-026001), approximately 25m in diameter.

On the lower western slopes of Tuckmill Hill, a mound barrow comprising a low circular mound 19m in diameter (0.45m in height) is visible. In the 1920's, a cist containing an inhumation was found within the mound. Cist monuments generally date to the Bronze Age and Early Iron Age, therefore, a date contemporary with the occupation of the hillforts is plausible. A second cist burial was found on the eastern slopes of Tuckmill Hill. Sherds of two food vessels and a quantity of cremated bones were recovered from this feature in 1969, and a pit containing cremated bone was bone was reportedly found a few years before. To the north of this, a large circular mound, 50m in diameter and 2.4m in height overlooks the River Slaney. While it is difficult to assess the date of such monuments, mounds are categorised as prehistoric monuments, and may comprise a grass covered cairn.

14.4 SURVEY PROGRAM

The proposed survey extent is highlighted in (Fig. 15.4), incorporating the interior of the hillfort which are possible to survey, as well sections of the inner, middle and outer enclosures. High resolution magnetic gradiometry (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the hillfort, to identify possible internal occupation and assess the number, form and composition of the defensive features. In total, 1.7ha at Rathcoran was surveyed using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

14.5 GEOPHYSICAL SURVEY RESULTS

Hillfort Defences and Related Features

Rathnagree hillfort comprises three sets of enclosing features. These are considered to be complete, although the inner and outer examples are thought to be heavily damaged. Geophysical survey has intimated that these features may not be damaged, rather, these enclosing elements may form less substantial banks and this was subsequently confirmed by excavation (Fig. 15.5 and Fig. 15.6).

Fig. 15.4: Aerial photography of Rathcoran and Rathnagree (Google Earth 2012) with survey area outlined in red.

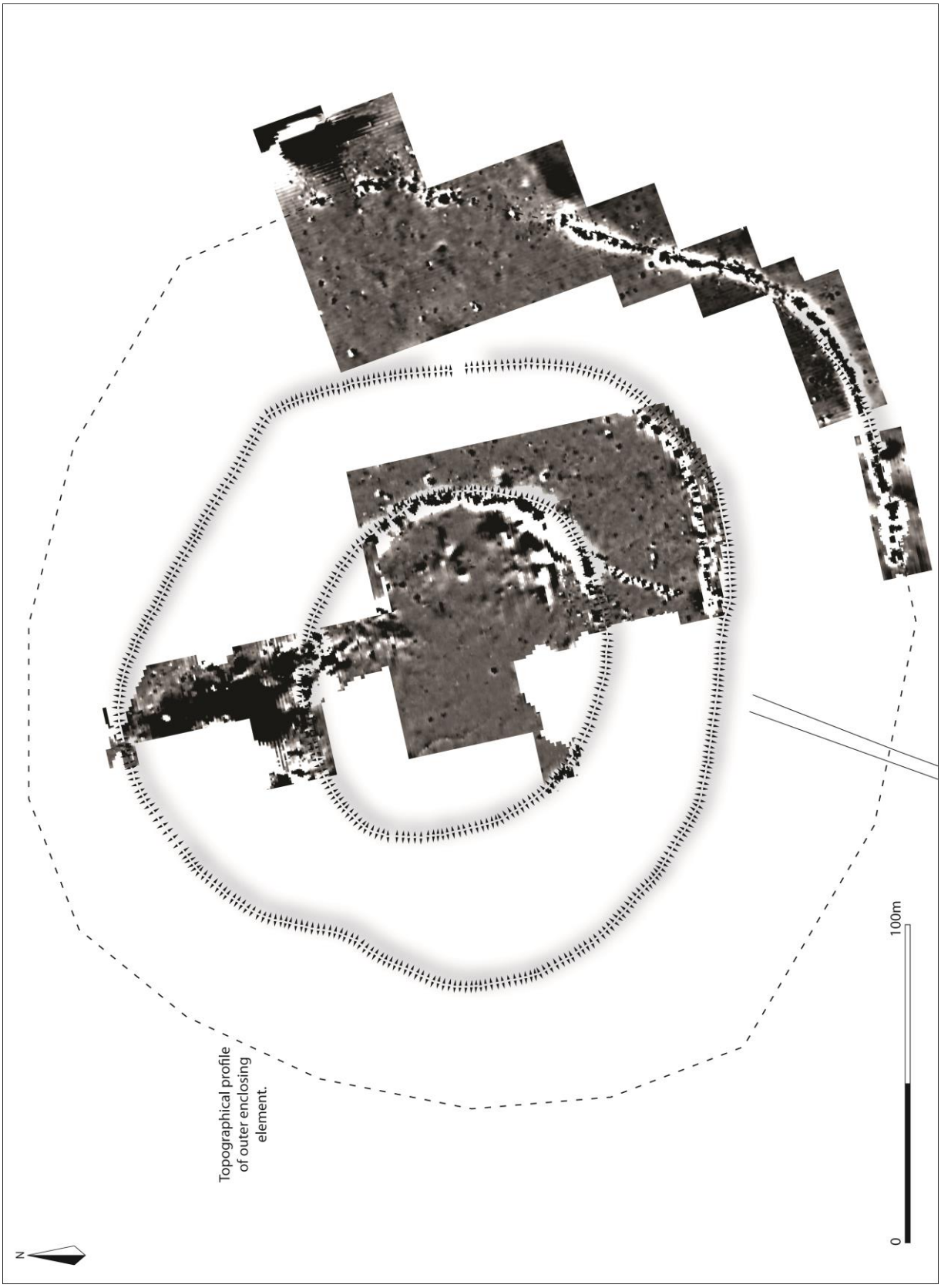

Fig. 15.5: Rathnagree geophysical survey results.

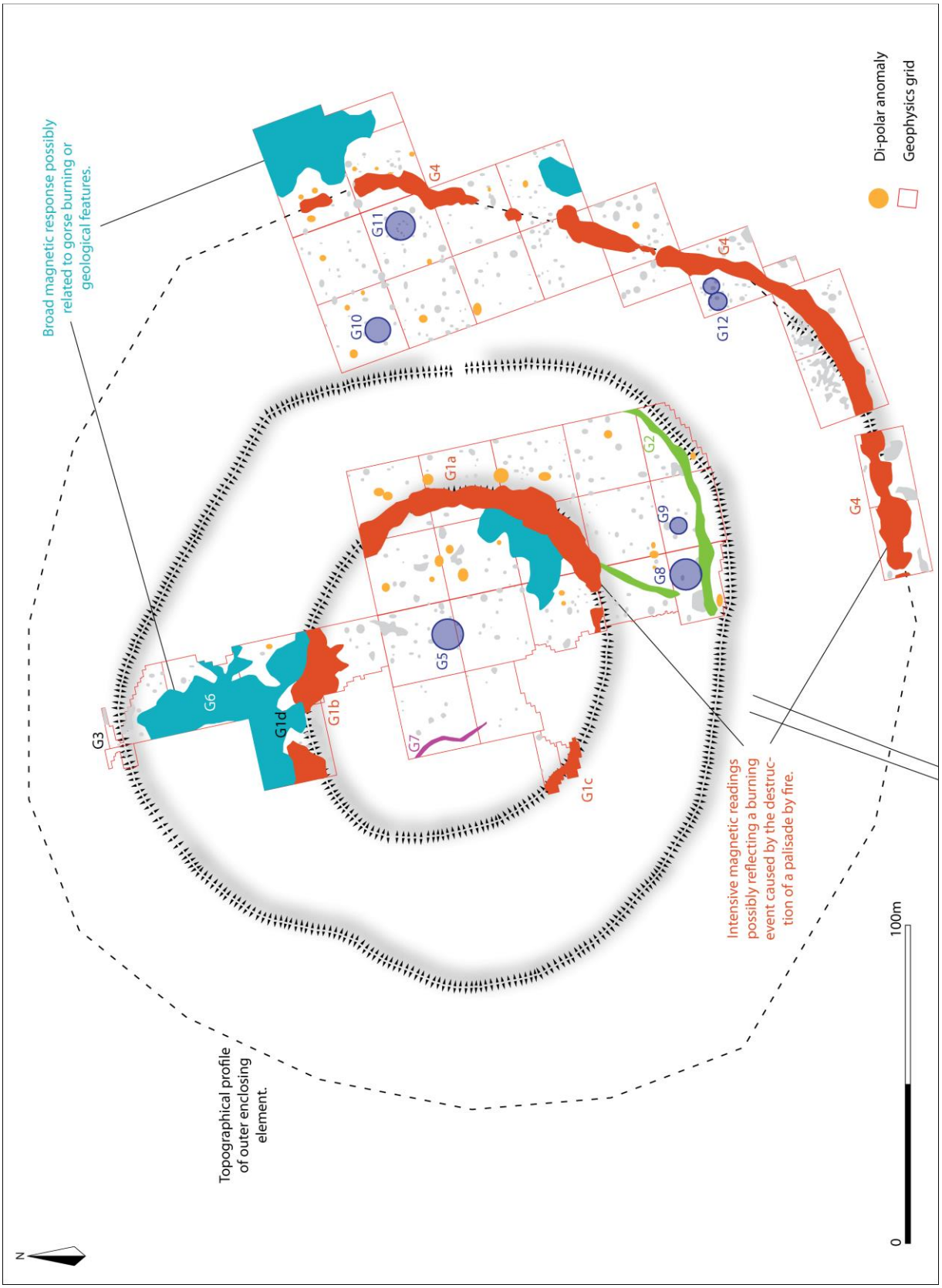

Fig. 15.6: Rathcoran geophysical survey interpretation.

G1a represents the eastern portion of the inner defences of Rathnagree. This band of strong magnetic readings, similar in strength and composition to the anomalies found on the crest of the inner bank at Rathcoran, likely represents the remains of a burnt wooden feature. This would correspond with the low-rise stone bank (which has no ditch), which could have formed the footings for such a feature. This type of response continues along the bank (**G1b** and **G1c**) to the north and west. A possible entrance is apparent to the north of this enclosing element (**G1d**). This comprises a gap in the extant bank and a corresponding break in the geophysical results. This measures 12m in width.

The middle enclosing element is largely extant, comprising a substantial bank and exterior ditch, with the partial remains of a counter-scarp bank. Geophysical survey undertaken over these elements suggest that there is no palisade feature or associated archaeological anomaly upon the bank. The anomaly **G2**, which runs adjacent to the middle bank represents the response associated with a post and barbed wire fence. A possible entrance is apparent to the north, comprising a gap 2.3m in width. There is no associated geophysical response (**G3**), although this potential entrance does correspond with a possible northern entrance in the inner defences.

The outer defences are similar in composition to the inner example, comprising a low-rise stone bank. A similar geophysical response is apparent over this bank (**G4**), consisting of a strong band of magnetic readings surrounded by a negative response. Again, this may be interpreted as a burnt palisade feature, with the low-rise stone bank forming the foundations.

Hillfort Interior and Habitation Features

There is limited evidence to suggest that the hillfort was extensively settled, although, similar to Rathoran hillfort, these remains may be masked by the build-up of peat. It must also be noted that such features may be present within the areas of the hillfort which have not been surveyed.

A faint circular setting of pit-like features measuring 12m in diameter (**G5**) is apparent near the centre of the hillfort. This may represent the remains of a circular hut structure. This is positioned directly in-line with the potential entrances of the inner and middle defences (**G1d** and **G3**). Considering it is the only potential structure within the interior, and considering its location, it may be suggested that this would have functioned in a defensive manner.

In the intervening area between the potential entrance gaps (**G1d** and **G3**), there is a large area of magnetic disturbance. It has been noted that there has been recent gorse burning within the hillfort, with the remains of the burnt branches of this still visible. Although this may have affected the collected data, the strength and confined area of these readings (**G6**) would suggest that this is not the cause of this anomaly. Instead, due to its positioning, it may be suggested that this was a feature relating to the entrance.

To the west of **G5**, an irregular band of positive/negative readings is apparent (**G7**). This has only been partially surveyed due to thick over-growth in this area, and therefore, it cannot be discounted that this represents a potential structural feature.

G8 consists of a faint circular band of positive magnetics with a central positive anomaly. It abuts the inside of the middle enclosing elements at the southern end and measures approximately 7.5m in diameter. This may represent the remains of a hut structure.

Approximately 8m to the east of **G8** is **G9**, a circular setting of pit-like features connected by a faint band of positive magnetics. It measures approximately 6m in diameter and may represent a hut structure.

G10 is positioned in-between the middle and outer enclosing elements. It comprises a faint circular setting of pit-like features measuring approximately 7m in diameter and may represent a structure.

Approximately 25m to the east of **G10**, **G11** represents a circular setting of pit-like features with a series of smaller anomalies at its centre. It measures approximately 8.5m in diameter and could represent a hut structure.

G12 consists of a figure of 8 setting of pit-like features that both measure approximately 5m in diameter. Again, this may represent some form of structure.

Discussion of Results

Geophysical survey at Rathnagree has produced evidence to suggest the hillfort was an effective defensive monument. Its topographical positioning on Tuckmill Hill, in addition to the two other hillfort on the southern and southwestern summits of Tuckmill Hill, would have effectively defended all of the potential access routes to the hilltop. The elaborate and highly visible wooden palisades that comprised the inner and outer enclosing elements were identified by

geophysical survey and confirmed through targeted excavation. These impressive features would have added to the practical defensive needs of the builders as well visibly portraying this defensibility to others in the landscape. The survey also infers that these palisades were comprehensively destroyed by fire, possibly in an act of warfare by a rival community. This is particularly striking, as substantial amounts of resources and people would have been needed to undertake this destruction and this suggests it was a communal event. Such destruction has been noted at other hillfort sites in Ireland, such as Toor More hillfort in Co. Kilkenny and Clashanimud hillfort in Co. Cork.

A limited number of possible hut structures were identified in the geophysical survey. These were of moderate size and correspond in dimensions with an average sized Bronze Age structure. Other structures may be present and are simply not being identified by the gradiometer and this has been supported by the discovery of a possible structure abutting the inside of the middle bank during excavation.

APPENDIX: 5

EXCAVATIONS AT RATHNAGREE, CO. WICKLOW

By Professor William O'Brien

This report presents the results of an archaeological investigation undertaken in July 2014 at a multiple enclosure hillfort in the townland of Tuckmill Upper, near Baltinglass, Co. Wicklow. The three enclosing elements of this prehistoric hillfort were trenched, to recover information on how and when they were built and their subsequent history. This excavation uncovered evidence of post-built palisades supported by low stone walling along all three enclosing lines. These fence lines were subsequently burnt down, after which only the middle enclosure was re-built, this time with a bank/ditch/counterscarp bank arrangement. Sherds of coarse ware pottery of Middle Bronze Age type were recovered at the base of that ditch. Radiocarbon dates are available for the inner (1414–1135 BC), middle (1395–1208 BC), and outer palisaded enclosures (1397–1131 BC) at Rathnagree. This indicates the hillfort was built between 1400–1200 BC.

15.1 INTRODUCTION

Rathnagree is one of three hillforts on Tuckmill Hill, a prominent hill (365m OD) overlooking the modern town of Baltinglass to the south (Fig. 16.1). The site is located on the northern spur of the hill (315m OD; Plate 16.1). It is overlooked by Rathcoran hillfort located 400m to the south/south-east on the main summit of Tuckmill Hill. Rathnagree hillfort is listed in the Record of Monuments and Places for Co. Wicklow (WI027-010; Fig. 16.2). The site comprises three concentric circular enclosures, measuring 294 m by 273 m in total, over an area of 5.59ha (Fig. 16.3; Plate 16.2). Unlike the nearby hillfort at Rathcoran, the enclosing elements at Rathnagree do not follow the contours of the hill. The inner and middle enclosing lines are 37m apart, while the middle and outer examples are 35m apart. There are no recorded archaeological features in the interior. The overall diameter of the hillfort is 294m (N–S) by 273m (E–W).

The inner enclosure measures 104m (N–S) by 93m (E–W), a perimeter of 296m and a total area of 0.63ha. It is surrounded by low bank of loose stones, some of which are exposed. The bank averages 0.2m in height and 6m in width. There are no indications of an accompanying

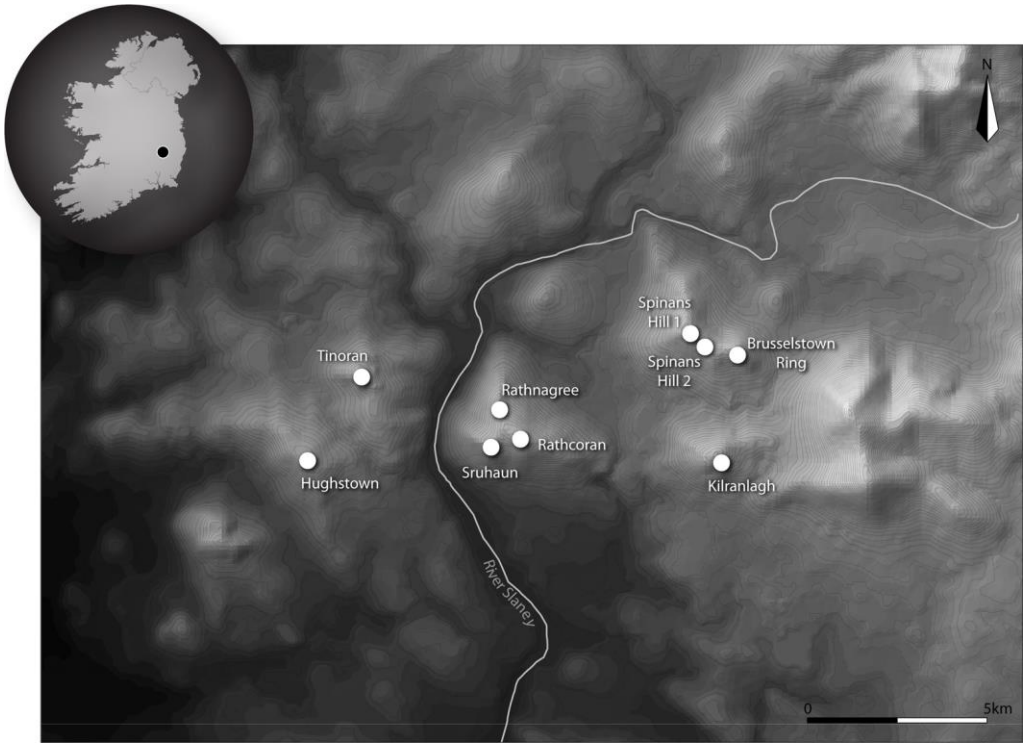

Fig. 16.1: The Baltinglass hillfort complex, Co. Wicklow.

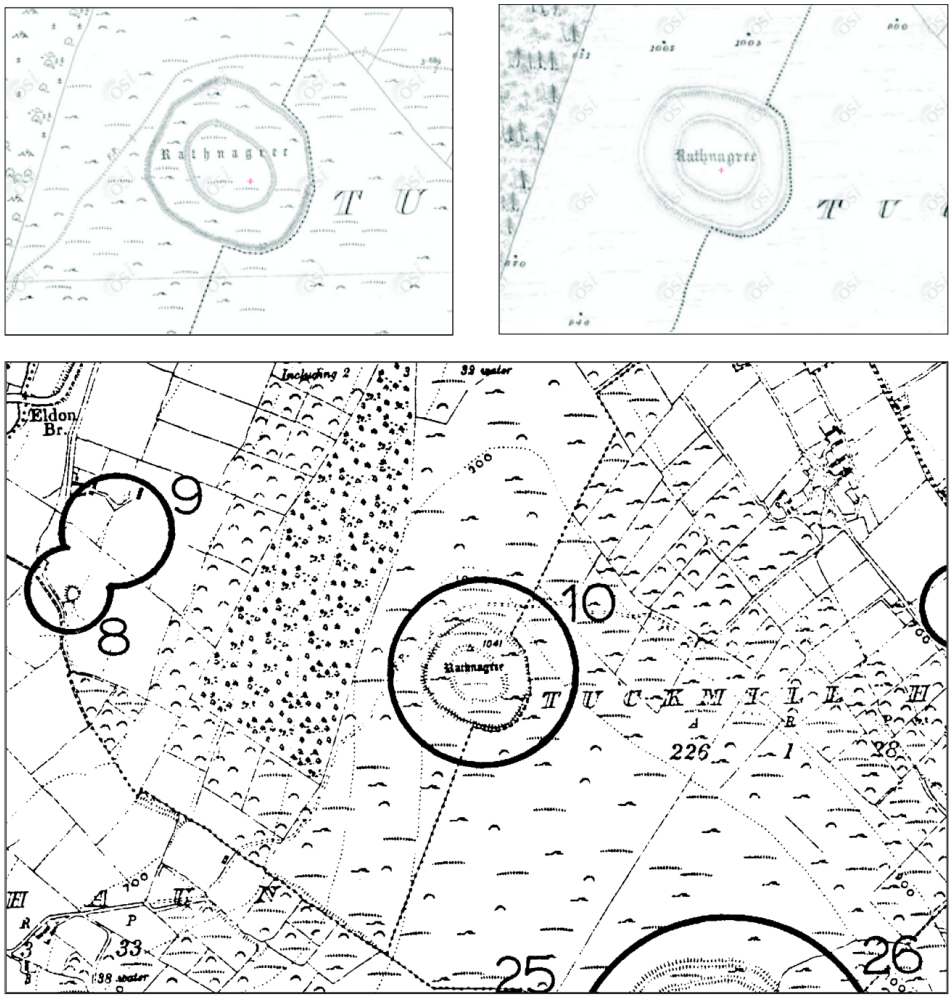

Fig. 16.2: Rathnagree hillfort on historic OS mapping and RMP for Co. Wicklow.

ditch. There are small gaps in the stone bank on the north/north-east and northern sides, however it is not certain if these are original entrances. There are no features to suggest habitation in the interior, where thin peat growth supports grassy vegetation, ferns and sporadic gorse.

The middle enclosure measures 198m (N–S) by 182m (E–W), a perimeter of 549m and a total area of 2.27ha. The defences are the most impressive of the three enclosures, comprising a prominent inner bank with an outer ditch and counterscarp bank. Field survey suggests that both banks were built of earth, however there are also large stones exposed in places. The internal height of the inner bank is 0.3–0.5m with an average (denuded) width of 4–5m. The ditch ranges 0.9–1.3m in depth, with an upper width of 7m reducing to *c.*3m wide at the bottom, which has a rounded profile. The counterscarp bank has an external height of around 1m and an average width of 3m width. It has a flat-topped profile and external stone facing, which suggests re-building in modern times for agricultural purposes. There are several small breaks along the middle enclosure, most of which are modern. A possible original entrance is visible on the eastern side close to where excavation Trench 2 was located.

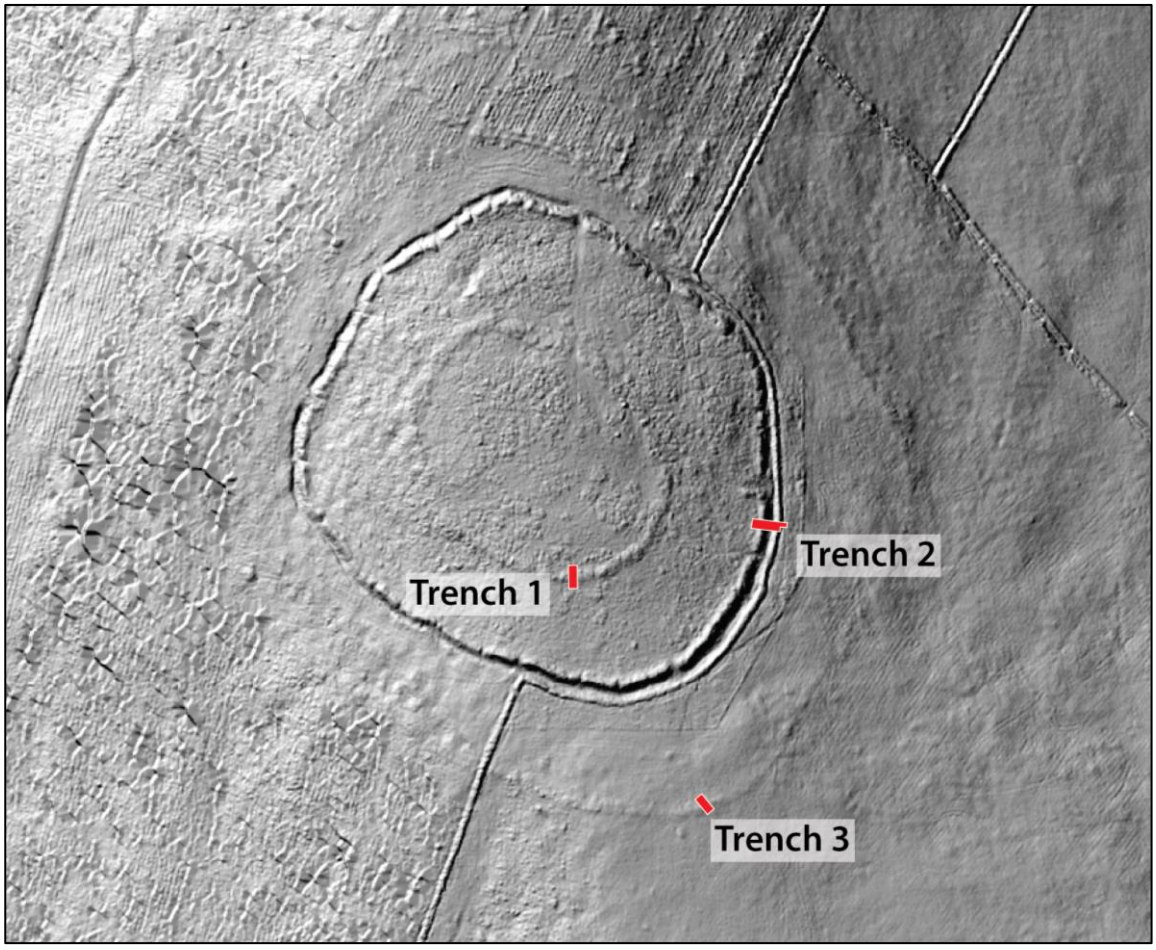

Fig. 16.3: Lidar image of Rathnagree hillfort showing location of three excavation trenches.

The outer enclosure measures 294m (N–S) by 273m (E–W), a perimeter of 873m and a total area of 2.69ha. The enclosing element has a similar appearance to the inner enclosure, comprising a low denuded bank of stones, some of which are exposed. The bank is most visible on the southern side where it is approximately 0.1–0.3m high and 3m wide. The northern side has been damaged by forestry on modern times. There are no indications of an accompanying ditch, nor any original entrance openings.

15.2 ARCHAEOLOGICAL EXCAVATION

The main purpose of the Rathnagree excavation was to obtain information on the defences of the hillfort. This included details of the physical form of the enclosing elements, and the methods and materials employed in their construction. It was also intended to obtain evidence for the date(s) of construction, and the chronology of site occupation and abandonment. Finally, it was hoped to recover artifacts and environmental evidence relating to the history of the hillfort.

The proposed excavation is part of a wider investigation of Irish hillforts, based in UCC and part-funded by the Irish Research Council. This research includes a programme of sample excavation designed to create a new chronology for Irish hillforts. Excavations have already been conducted at the hillforts of Clashanimud, Co. Cork; Glanbane, Co. Kerry; Ballylin, Co. Limerick, Formoyle, Co. Clare and Toor More, Co. Kilkenny. The results from Rathnagree add to this work, to help create a fuller understanding of the chronology and other aspects of Class II hillforts in Ireland.

This excavation also supports a PhD study of hillforts in east Leinster, and specifically the Baltinglass complex, which is currently being undertaken by Mr James O'Driscoll in the Department of Archaeology, UCC. Prior to this excavation, Mr O'Driscoll carried out a geophysical survey at Rathnagree, using magnetic gradiometry to examine areas of the monument free of dense vegetation. The results of that survey do not reveal any occupation-related features in the interior of the hillfort. The enclosures themselves are well recorded, and include indications of burning along the line of both the inner and outer enclosing banks.

Three trenches were excavated at Rathnagree hillfort over a four-week period in July 2014 (Fig. 16.3). Trench 1 was located across the line of the inner enclosure on the southern side; Trench 2 across the middle enclosure on the eastern side, while Trench 3 was placed on the southern side of the outer enclosure. All three trenches were de-turfed by spade. Subsequent excavation was carried out by hand using small digging equipment. This involved detailed

stratigraphic excavation and context-based recording, with full written descriptions, photography and scale drawings. On completion of work the trenches were back-filled by hand and the ground surface restored (Plates 16.14, 16.33, 16.34 and 16.44).

The project team consisted of Professor William O'Brien (director), Mr Nick Hogan MA (Site supervisor and surveyor) and site archaeologists Mr James O'Driscoll, Mr Alan Hawkes and Mr Jim Lineen, all postgraduate students in the Department of Archaeology, UCC. The landowner, Mr David Edwards, supported of the project.

15.2.1 Inner enclosure

A 8m (N–S) by 2m (E–W) trench was excavated across a low stone bank forming the line of the inner enclosure on its southern side (Fig. 16.3; Plate 16.3). Trench 1 was excavated to a depth of 0.2–0.3m down to natural subsoil. This revealed a thin growth of blanket peat across Trench 1, ranging in thickness from 0.2–0.23m at the northern end to 0.08–0.12m over the inner bank. The removal of this peat exposed a podzol profile, with a thin leached E-horizon (C.05) overlying an iron-enriched Bs-horizon (C20). This podzolization was less developed at the southern end of the trench, where there was no visible leaching and considerably less iron precipitation on the B-horizon surface.

Archaeological features: Stone bank

De-sodding revealed a 2.8m wide bank of stone across the central part of the trench (Fig. 16.4). This consists of a loose deposit of small-to-large stones within a matrix of dark brown/black humic silt, having a maximum thickness of *c.*0.25m at the centre (Plate 16.4). The stones range <0.05–0.32m in size, with most in the 0.1–0.2m range. These were angular in appearance with light-to-strong reddening, both the result of fire shattering. A number of larger stones were shattered *in situ*, though there was little charcoal within the bank itself.

The excavation of heat-shattered stone on the bank surface exposed a tightly packed arrangement of large stones, set in a vertical to steeply inclined position along the outer (southern) side of the bank (Plate 16.6). These stones ranged 0.2–0.35m in size, had a blocky form, with some fire reddening evident. They were placed on the natural subsoil (C.20) as part of an exterior facing to the bank.

The removal of this stone deposit exposed a spread of charcoal-rich sediment (C.10) on the northern (inner) side of the bank (Fig. 16.4; Plate 16.5). The underlying subsoil surface was fire-reddened in places, confirming a large fire at this location. The excavation of C.10 exposed two lengths of burnt branch (contexts 08 and 09; Plates 16.7–16.8), one of which was sampled for radiocarbon dating (sample RNG2014-05).

Archaeological features: Postholes

The removal of the stone bank exposed two postholes on the subsoil surface (Figs 5 and 6; Plate 16.9). These were large pits placed *c*.0.5m apart, in which vertical posts were secured with packing stones. The eastern posthole (C.14) measured 0.59m (E–W) by 0.56m (N–S), narrowing to 0.28m (E–W) by 0.25m (N–S) at the base, with a depth of 0.71m. There was a rim of intense fire-reddending on the northern side of this posthole (Plate 16.10). The western example measured 0.58m (E–W) by 0.54m (N–S), narrowing to 0.25m (E–W) by 0.34m (N–S) at base, with a depth of 0.77m (Plate 16.11).

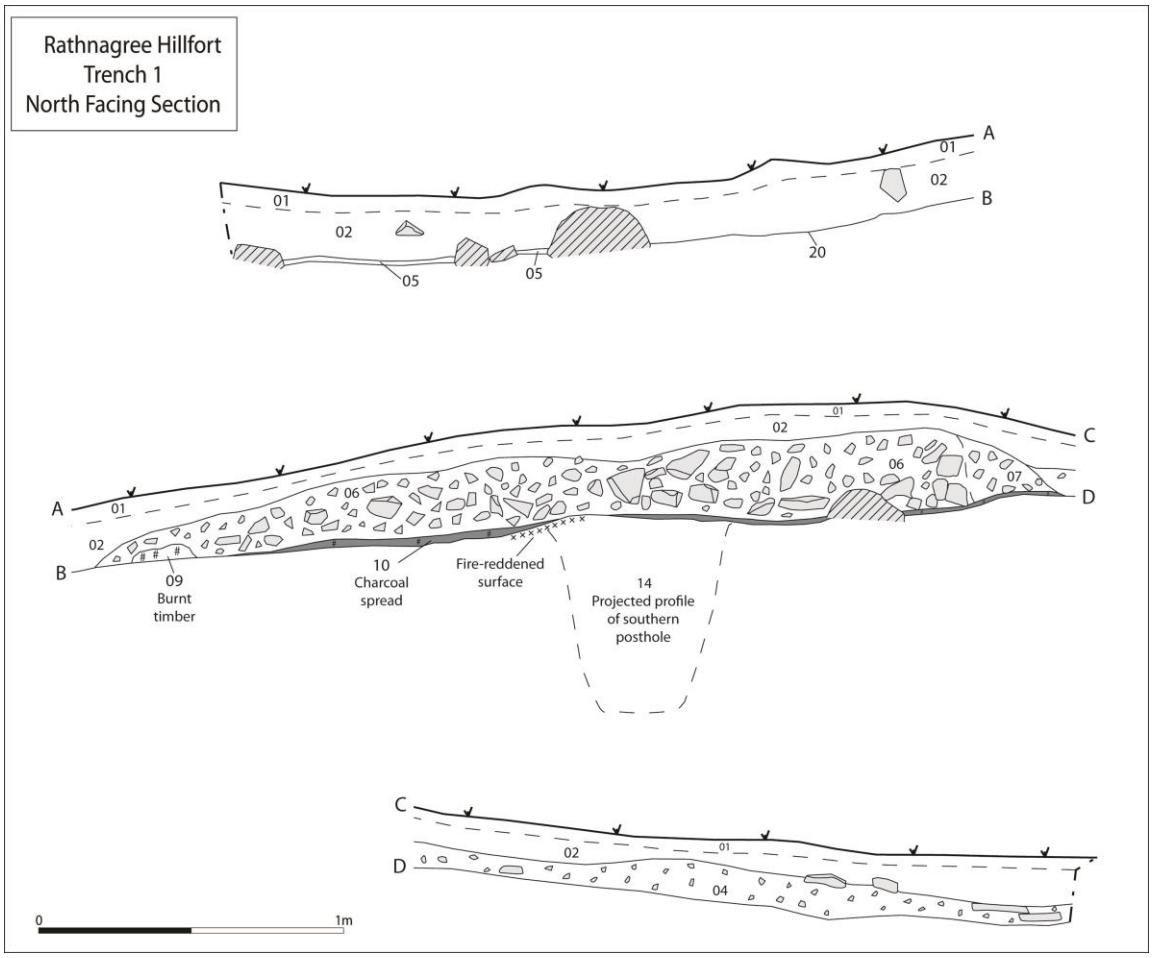

Fig. 16.4: North-facing section, Trench 1.

Trench 1 finds

A single flint flake (14E227:01) was found near the base of the lower A-horizon (C.02) at northern end of trench. This is a primary flake, measuring 23mm by 13mm, with no cortex or obvious retouch. It may have been produced using a bipolar technique, but cannot be dated or connected to any flint-working activity on the hill.

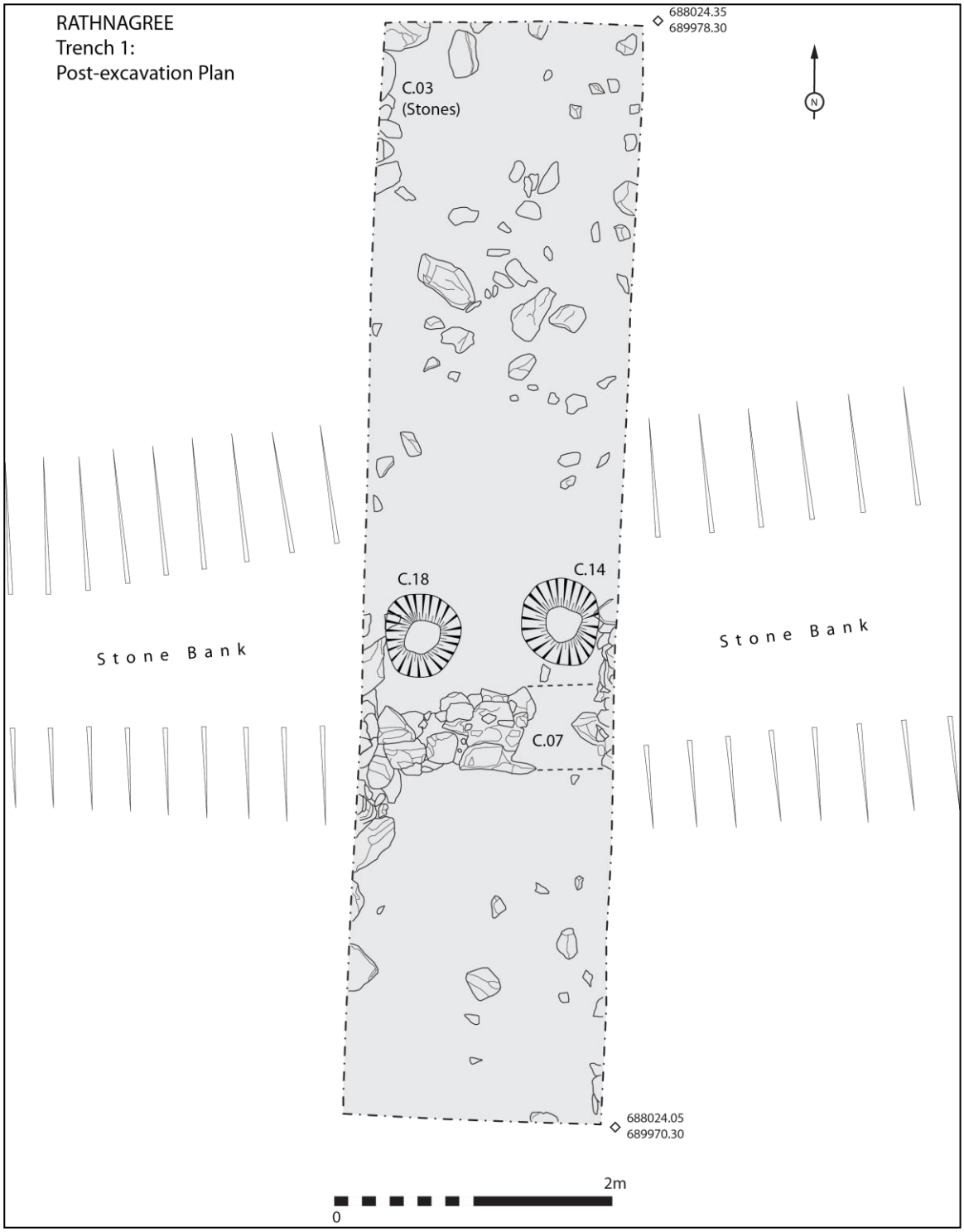

Fig. 16.5: Post-excavation plan of Trench 1, inner hillfort enclosure.

Trench 1: summary

Excavation confirmed that the inner enclosure of the hillfort was originally surrounded by a wooden palisade, supported at the base by a low stone wall. This fence was probably constructed using large roundwood posts of 0.2–0.25m diameter, set upright in individual pits dug to a depth of 0.7–0.8m, and secured with stone packing. Further support was provided by the building of a stone revetment against the front of this palisade (Plates 16.12 and 16.13).

With the evidence from Trench 1 indicating a spacing of *c*.0.5m, it is possible that some 592 main posts were used in the perimeter of the enclosure. There was no indication of any slot trench or other post/stake-holes between these posts. This suggests that horizontal timbers may have been used to complete the fence.

The evidence of intense burning discovered in the bank, in the form of charcoal spreads and heat-shattered stone, confirms that the wooden fence was burnt down some time after its construction. The posthole evidence does not indicate burning of the wooden uprights *in situ*, but more likely a partial dismantling followed by fires. There is no evidence of any attempt to re-build the palisade or stone bank following its destruction.

Fig. 16.6: Post-excavation oblique rectified of Trench 1, inner hillfort enclosure.

Table 15.1: Archaeological contexts in Trench 1, Rathnagree hillfort.

Context	Description
01	Sod layer; mid brown, root-matted peaty soil, 4–5cm in thickness; free of stones, with grassy vegetation.
02	Lower A-horizon. Black fibrous peat under sod at northern end of trench thinning over the bank (C.06) surface.
03	Deposit of loose stones within C.02 peat at northern end of trench (Plate 16.3). This is a haphazard arrangement of large stones over 1.8 square metres, part of which extends into the north-east corner of Trench 1. The largest stones were in the 0.35–0.45m range, with smaller stones of 0.15–0.25m. This deposit has no obvious connection to the hillfort bank, particularly as none of the stones were fire-reddened. It may instead be derive from later field clearance.
04	Lower A-horizon at southern end of trench. Layer of grey-brown humic sediment with small-medium stones, as well as some larger examples that slipped off the bank (C.06).
05	E-horizon; natural leached surface. Thin (<2–3cm) spread of compact grey-white silt beneath A-horizon at eastern end of trench.
06	Stone bank. Compact root-matted surface overlying a loose deposit of small-large angular stones (Plates 16.3–16.4). Most of these stones were heat-shattered with light-to-strong fire reddening. The occurrence of burnt stone decreased with depth, with more intact examples in dark brown humic silt and occasional charcoal in the lower part of the bank.
07	A rough line of large stones set vertically along outer (south) side of bank (Plate 16.6). These stones range 0.24–0.4m in size, with some examples as small as 0.18m.
08	Burnt timber/stake on western side of trench (Plate 16.7). Radiocarbon sample RNG2014-01. This piece of burnt wood, 0.43m in length and 0.12m in diameter, extended into the excavation section. It was exposed at a depth of 0.32m below the modern ground surface, on removal of a 0.21m thickness of fire-reddened stone (C.06) that slipped from the original bank.
09	Burnt timber/stake on eastern side of trench (Plate 16.8). This piece of burnt wood measured 0.24m in length and extended into the excavation section. It was exposed at a depth of 0.22m below the modern ground surface, on removal of a 0.11m thickness of fire-reddened bank stone (C.06).
10	Thin deposit of charcoal-rich black silt on 0inner (north) side of stone bank (Plate 16.5). This spread measured 0.95m (N–S) by 0.6m (E–W), and contained much fine charcoal and several concentrations of lump charcoal within a silty

	deposit.
11	Small concentration of charcoal on upper east side of C.14 posthole. Part of C.10 burnt spread.
12	Upper fill of C.14 posthole. Very loose stony sediment, similar to burnt bank stone (C.06). The stones were 0.1–0.15m in size within a brown humic silt with numerous rootlets.
13	Lower fill of C.14, exposed at a depth of 0.4m in this posthole. A loose deposit of orange-brown silt, probably redeposited B-horizon subsoil. Some large stones in the 0.14–0.2m size range, which may be displaced post packing. Unlike the upper fill (C.12), this context did not contain any fire-reddened stones, but did have some pockets of charcoal.
14	Cut of eastern posthole in Trench 1 (Plate 16.10). A sub-circular cut measuring 0.59m (E–W) by 0.56m (N–S), narrowing to 0.48m (E–W) by 0.36m (N–S) in the centre and 0.28m (E–W) by 0.25m (N–S) at the base. This vertical cut had a central depth of 0.71m, with a slightly rounded base in greenish grey subsoil (C-horizon)
15	Upper fill of C.18 posthole. Deposit of loose burnt stone with humic silt and rare charcoal. Similar to upper fill (C.12) of southern posthole.
16	Lower fill of C.18 posthole. Loose deposit of orange-yellow brown silt, very similar to lower fill (C.13) of southern posthole. Redeposited subsoil used as primary fill of posthole. As with C.13, this fill contains pockets of charcoal. A few large stones, the largest measuring 0.22m by 0.12m by 0.08m, represent displaced post packing.
17	*In situ* arrangement of large packing stones around upper edges of C.18 posthole. The removal of loose, fire-shattered, bank stone (C.06) revealed a rectangular slab, measuring 0.31m by 0.17m by 0.11m, set on edge against western side of the posthole. A number of smaller stones were found set on edge adjacent to this stone.
18	Cut of western posthole in Trench 1 (Plate 16.10). A sub-circular cut measuring 0.58m (E–W) by 0.54m (N–S), narrowing to 0.47m (E–W) by 0.52m (N–S) in the centre and 0.25m (E–W) by 0.34m (N–S) at the base. This vertical cut had a central depth of 0.77m, with a rounded base in C-horizon subsoil.
19	Old ground surface. Thin spread of brown silt under stone bank.
20	Bs-horizon subsoil. A compact surface of bright orange to orange-brown silt at eastern end of trench, with occasional pebbles, some stones up to 0.2–0.3m, and patches of reddish-brown iron pan. The same subsoil on west side of trench has fewer stones and is more yellow due to less iron.

15.2.2 Middle enclosure

This is the most visible of the hillfort defences, consisting of a *c.*3m wide bank with an internal height of only 0.1–0.3m and external height of *c.*2m to the bottom of the adjacent ditch (Plate 16.15). The inner side is gently sloping to a rounded top, while the exterior falls steeply into a round-bottomed ditch with a maximum width of 2.9–3.1m. The depth of this ditch was accentuated by the presence of a *c.*1m high (external) counterscarp bank with stone facing. This was necessary as the main bank and ditch were built on a slope at this eastern side of the hillfort.

Trench 2 consisted of a 9m (E–W) by 2.5m (N–S) trench, with a 3m (E–W) by 1m (N–S) extension, across the middle enclosure defences on the eastern side of the hillfort. Excavation revealed a natural soil profile similar to that in Trench 1. A thin peaty A-horizon (C.01 sod over C.02 peat/humus) overlay Bs-horizon with iron enrichment (no obvious E-horizon). Excavation at the base of the ditch revealed pockets of a grey-white silt (C.25) representing a thin C-horizon subsoil on bedrock. Though not exposed on the modern ground surface, excavation confirmed that bedrock occurs at a depth of 0.3–0.4m in the area of this trench.

There were five distinct areas of excavation within Trench 1 (from west to east): directly inside the main bank; the bank itself, the external ditch; a counterscarp bank on the edge of that ditch; and finally, the area outside that bank

Archaeological features: inner bank area

Excavation at the western end of Trench 1 exposed a spread of large stones (C.26) within a thin layer of peat (C.02; Plate 16.16) These stones probably represent slip from stone walling placed on the top of the Phase 2 bank (see below). The removal of these stones revealed grey-brown, root-matted, humic silt (C.27) extending on to the adjacent bank. This overlay a slip of orange-brown stony silt (C.27) off the same bank. The removal of this bank slip exposed a spread of compact yellow-brown silt with heavy charcoal flecking (C,31) across the south-western corner of the trench. The Bs-horizon adjacent to this spread in the north-west corner was also flecked with charcoal at the same level (C.32).

Further excavation revealed two postholes, the cuts of which were partly surrounded by the C.31 charcoal-flecked silt. It is not clear from excavation whether the latter built up around the standing posts, or instead pre-dates the postholes.

Archaeological features: bank

The removal of a thin peaty sod (C.01) exposed the surface of the inner bank (Figs 7 and 8). This consisted of a compacted layer of grey-brown, root-matted, silt (C.27). This was removed to expose a deposit of orange-brown stony silt (C.28; Plate 16.17). This is redeposited subsoil from the digging of adjacent ditch, which overlay the top and inner slope of the bank to a maximum thickness of 0.5m (Plate 16.17). The removal of this orange soil revealed the core of the bank to be made up almost entirely of medium to large stones with numerous voids (C.29) and rootlets, as well as some inwash of grey-brown humic silt (Plates 16.18 and 16.19). These bank stones had a sub-rounded form, suggestive of gathered field stone rather than quarried material. It is notable that they were not fire-reddened or heat-shattered, with no charcoal recorded in the core of the bank. The external (eastern) side of the bank was supported by a line of large boulders packed together with smaller stones. While the upper portion of this bank revetment had collapsed into the ditch, the lower part was largely intact.

Archaeological features: pre bank features

The stone core (C.29), and the overlying orange bank sediment (C.28) on its inner side, were removed to expose a thin spread of dark brown/black silt with charcoal (C.30) under the bank (Figs 7 and 8; Plate 16.18). This was more or less continuous, except where interrupted by large stones in or on the underlying subsoil surface (Plate 16.19). This charcoal spread represents a burning event that pre-dates the overlying bank, which had no indications of fire. Excavation of the C.30 burnt layer revealed the underlying surface and some of surface stones to be fire-reddened. Context 30 extended as far as the outer edge of the bank, where it seems to have been truncated by the later ditch. The burnt layer thinned considerably on the western side, where it can be connected to a spread of charcoal-flecked silt (C.31) in the south-west corner of the trench, and possibly to charcoal flecking (C.32) on the Bs-horizon surface in the north-west corner.

The removal of C.30 burnt layer exposed a thin layer of orange sandy silt (C.34). This was excavated to reveal the stony fill of a foundation trench (C.39) extending in a north–south direction beneath the core of the later bank (Plate 16.20). The upper fill (C.35) of this trench was a loose deposit of small-to-large rounded/sub-rounded stones in grey-brown sandy silt with voids. The removal of that stony fill exposed a dark silt (C.36) at the base of the slot, which contained only a few flecks of charcoal. The removal of this fill at the southern end revealed

several thin slabs placed against both sides of the C.39 slot as packing stones (Plate 16.22). Excavation at the northern end of C.39 revealed a small post-setting (C.38), filled with grey brown sandy silt with charcoal flecks (C.37; Plate 16.21).

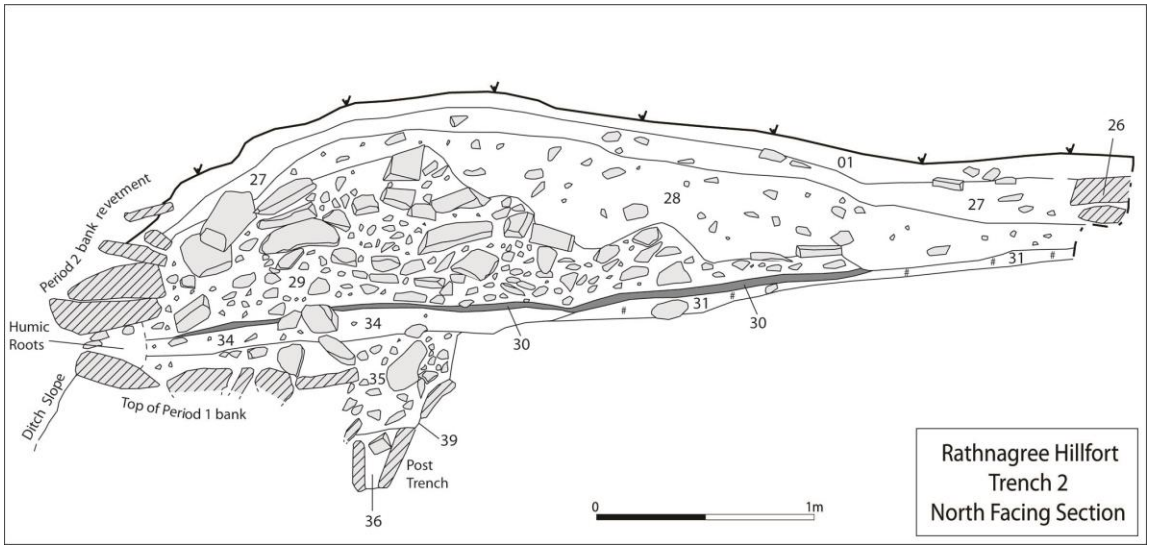

Fig. 16.7: North-facing section, Trench 2.

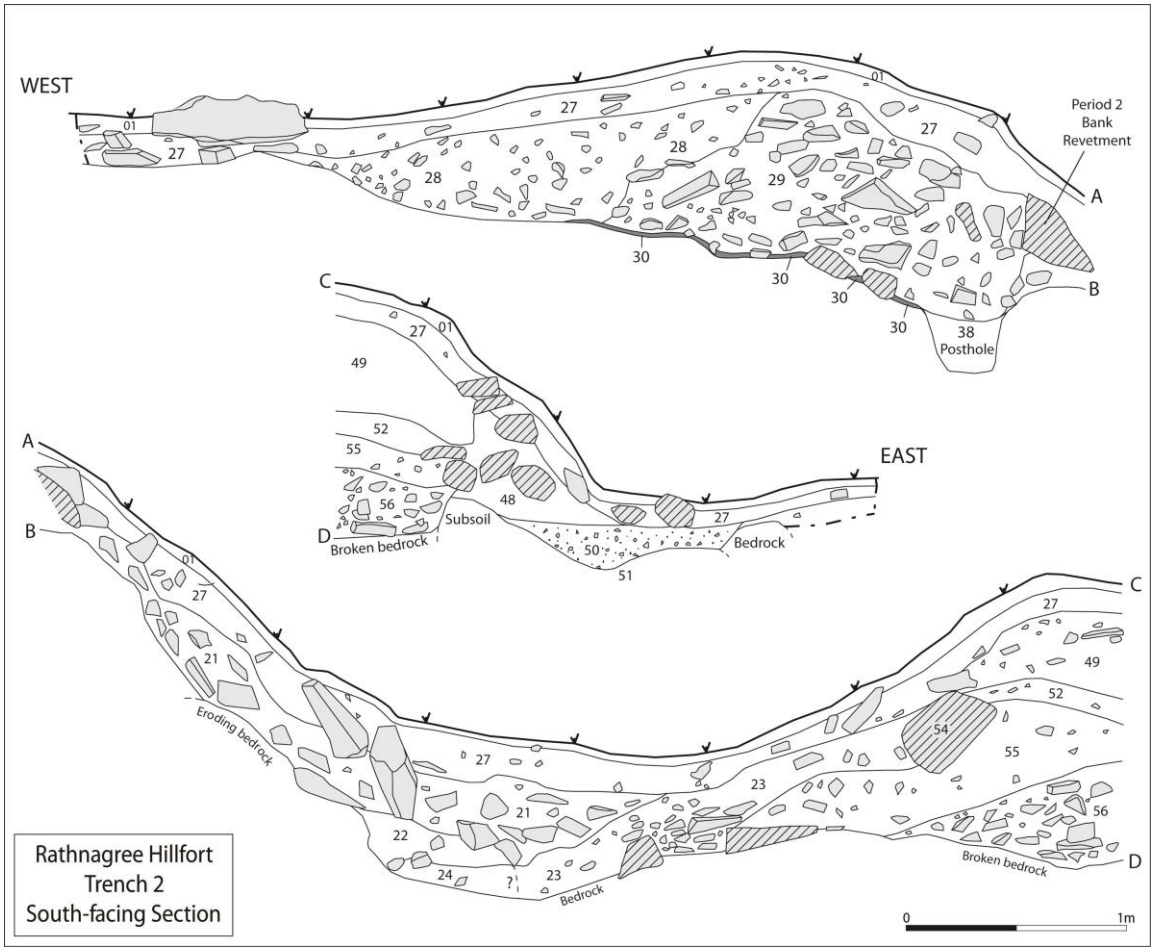

Fig. 16.8: South-facing section, Trench 2.

Further excavation identified four postholes and a single stakehole on the ground surface west of the C.39 slot (Fig. 16.9). Two of these postholes (contexts 41 and 43) were parallel to the C.39 slot trench, and so may be connected to the Period 1 palisade (Plate 16.23). This may also apply to the C.57 stakehole found on the western edge of the slot trench. Two other postholes (contexts 45 and 47) were discovered at the western end of Trench 2 on a different orientation (Plate 16.24). This may indicate a built structure comprising all four postholes, and possibly others outside the area of excavation, close to the inner edge of the Period 1 palisade. While the two western postholes (contexts 45 and 47) were covered by slip from the bank (context 28), their stratigraphic position is unclear due to their uncertain relationship to a spread of charcoal-flecked silt (C.31) from the Period 1 activity in the same area. The two easterly postholes (contexts 41 and 43) were both beneath the C.30 burnt spread, which in turn was overlain by the Period 2 bank. If all four postholes were part of the same structure, this indicates that the two western examples (contexts 45 and 47) also date to Period 1. This cannot be confirmed without further excavation to reveal the nature of this putative structure.

Archaeological features: ditch

The removal of a thin sod (C.01) exposed the upper fill of the ditch (Fig. 16.8). This consisted of a 0.12–0.2m thick layer of humic silt (C.27), which was heavily root-matted and contained a few small to large stones. This context represents the development of A-horizon organic soil in the ditch following the collapse of the bank revetment (Plate 16.26). The latter is represented by a deposit of large stones (C.21) within the lower ditch area at the base of the main bank. This deposit had a maximum thickness of 0.4m, and comprised large stones in a brown sandy silt with numerous voids. This represents the collapse of stone walling from the Phase 2 bank into the open ditch. The stones had a blocky appearance in a 0.3–4m size range, as well as slab-like stones measuring 0.15–0.7m. They are the same lithology as the bedrock exposed at base of ditch, where these stones had been quarried. The position of the stones in the upper ditch fill indicates the collapse of a stone wall that formerly existed on top of the adjacent bank. Some of the C.21 stones on the eastern (outer) side of the ditch may derive from partial collapse of the internal revetment of the counterscarp bank.

The removal of this C.21 stone deposit exposed a thin layer of dark brown silt (C.22) on the inner slope of the ditch. This overlay a deposit of orange silt (C.24), that was removed to reveal grey mottled silt (C.25) on quarried bedrock. The stony deposit (C.21) was removed to expose a thick layer of orange silt (C.23) on the lower exterior slope of the ditch. This overlay

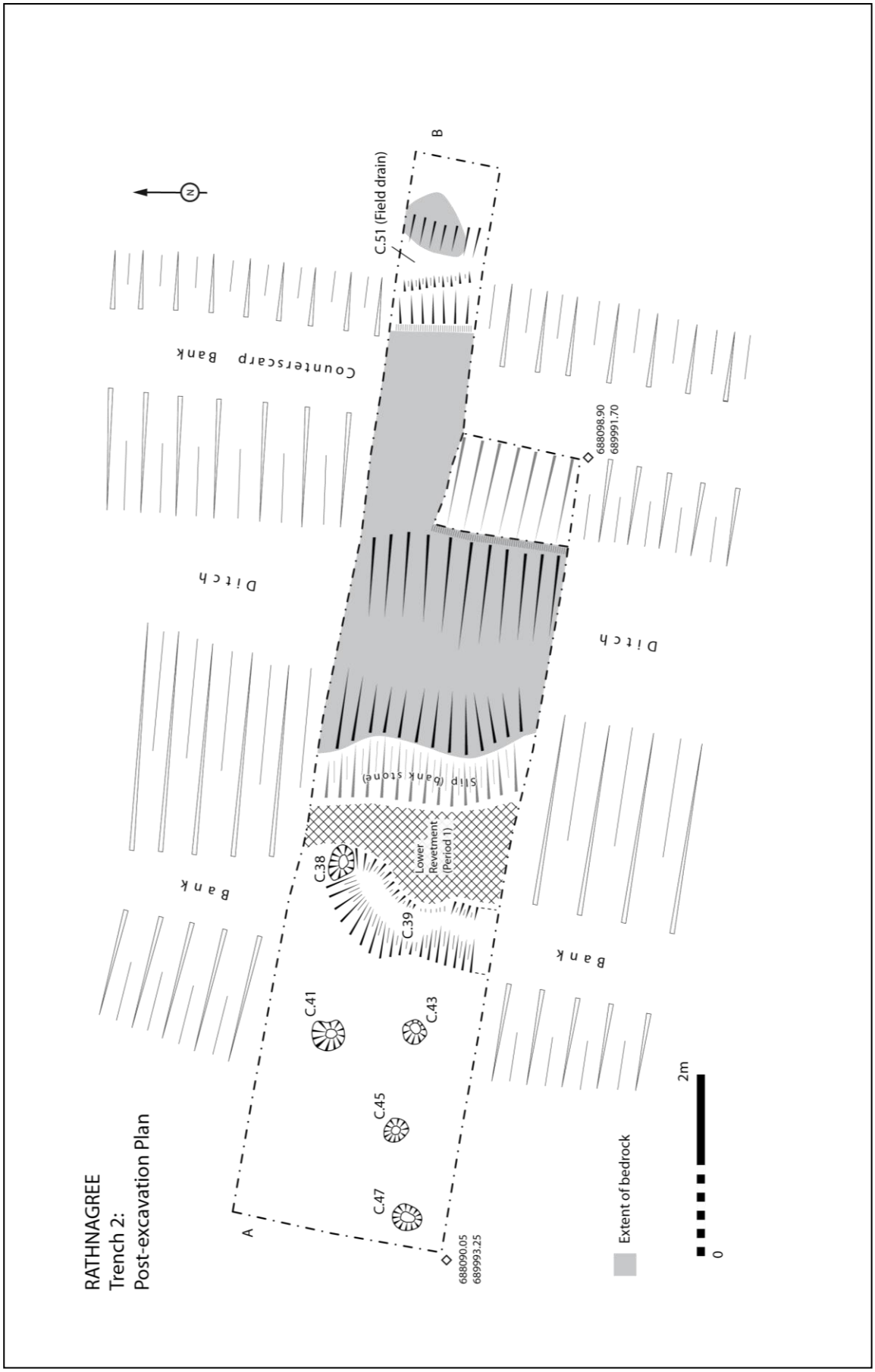

Fig. 16.9: Post-excavation plan, Trench 2.

mid-brown orange silt (C.33) on top of mottled silt (C.25) on bedrock (Plate 16.27). The lower part of C.23, as well as the underlying C.33, contained 18 sherds of coarse ware pottery of later Bronze Age type (see below).

The removal of these lower sediments exposed the base of the ditch (Fig. 16.10; Plate 16.28). This has an irregularly rounded profile, with exposed ribs of bedrock separated by pockets of compact sterile silt (C.25). The upper width of the ditch was 2.6–2.7m, with a lower width of 1.1–1.2m, and a central depth of 0.7–0.8m below modern grass surface.

Archaeological features: counterscarp and external area

The outer edge of the ditch is raised today by a flat-topped earthen bank, which ranges 1.2m (top) to 1.7m (base) in width (Figs 9 and 10). The central height of the bank after rebuilding is 1.35m, while the original height was around 0.7m. Excavation of a thin sod (C.01) and peaty layer (C.27) on the immediate exterior of this bank revealed a deposit of large stones (C.48) within lower A-horizon soil (Fig. 16.8; Plate 16.29). This represent the collapse of stone facing, the lower part of which survives in the bank (Plate 16.30). The removal of these stones exposed a shallow trench (C.51) at the base of the bank. This was filled with dark brown silt (C.50), with no cultural material or samples for dating. It is mostly probably a field drain dug when the counterscarp bank was re-built in the early modern era.

Excavation revealed a deposit of orange-brown sandy silt (C.49) forming the upper part of counterscarp bank (Plate 16.31). Some of this soil is probably upcast from digging of the C.51 drain, when the counterscarp bank was re-built. This re-building is confirmed by the discovery of a 0.04–0.15m thick buried sod layer (C.52) separating the original bank material from the overlying C.49 soil. Excavation of this buried sod exposed a loose deposit of bright orange silt (C.55) piled to a thickness of 0.25m to form the primary counterscarp bank. This was retained on both sides by large stones forming a roughly coursed revetment (C.53 exterior facing; C.54 inner facing). The inner stone facing was built on the lower edge of this C.55 deposit, some of which extened into the adjacent ditch. This inner stone facing had partly collapsed into the open ditch. Some lower stones of the external bank facing (C.53) survived *in situ*, while the upper portion was re-built (and subsequently collapsed; C.48) in modern times.

Context 55 represents redeposited suboil forming the upper part of the primary counterscarp bank (Plate 16.31). It overlay a deposit of broken stones with numerous voids (C.56)

at the base of the bank. This broken stone was piled up on a shattered bedrock surface that was created during digging of the adjacent ditch. No dating material or artifacts were recovered from the primary counterscarp bank, however the stratigraphy indicates it was built at the same time as the adjacent ditch. As previously stated, this was necessary because the counterscarp bank was necessary to raise the depth of that ditch given the slope on this eastern side of the hillfort.

Fig. 16.10: Rectified oblique photography of Trench 2.

Trench 2 finds

The following 19 sherds of definite or possible pottery were discovered in Trench 2, all but one coming from the lower fill of the ditch. This includes two rim sherds, some definite body sherds and a collection of crumbs/possible sherds. These sherds may have come from the same vessel, a large coarse ware pot of later Bronze Age type (to be confirmed).

14E227-02 Rim sherd. From C.23 sediment in lower ditch.
14E227-03 Tiny possible sherd. From C.23 sediment in lower ditch.
14E227-04 Tiny possible sherd. From C.23 sediment in lower ditch.
14E227-05 Tiny possible sherd. From C.23 sediment in lower ditch.
14E227-06 Tiny possible sherd. From C.23 sediment in lower ditch.
14E227-07 Body sherd. From C.23 sediment in lower ditch.
14E227-08 Tiny possible sherd. From C.23 sediment in lower ditch.
14E227-09 Body sherd. From C.23 sediment in lower ditch.
14E227-10 Body sherd. From C.23 sediment in lower ditch.
14E227-11 Tiny possible sherd. From C.23 sediment in lower ditch.
14E227-12 Body sherd. From C.23 sediment in lower ditch.
14E227-13 Body sherd. From C.23 sediment in lower ditch.
14E227-14 Body sherd. From C.23 sediment in lower ditch.
14E227-15 Body sherd. From C.23 sediment in lower ditch.
14E227-16 Tiny possible sherd. From C.23 sediment in lower ditch.
14E227-17 Rim sherd. From C.33 sediment in lower ditch.
14E227-18 Body sherd. From C.33 sediment in lower ditch.
14E227-19 Body sherd. From C.33 sediment in lower ditch.
14E227-20 Body sherd. Sieved from C.30 burnt spread beneath bank.

There are no other artifact finds from Trench 2.

Trench 2: summary

The excavation of Trench 2 identified three separate periods of construction in the defences of the middle enclosure:

Period 1 (prehistoric): post palisade with revetment wall; possible timber structure on inside.

Period 2 (prehistoric): earthen/stone bank topped with stone walling, with an external ditch and a counterscarp bank.
Period 3 (early modern): Rebuilding of the counterscarp bank.

Period 1: Palisade

The discovery of a slot trench (C.39) with post settings underneath the bank indicates an earlier enclosure on this side of the hillfort. This slot trench seems to have held upright posts, spaced approximately 1.5m apart, which were secured with packing and by a low revetment of large stones on the immediate outside (Plates 16.25 and 16.32). The discovery of four postholes (contexts 41, 43, 45 and 47) inside this slot trench may indicate a post-built structure on the immediate inside of the palisade. It is, however, possible that two of these postholes (contexts 41 and 43) were also part of the palisade, along with a single stakehole (C.57) in the vicinity.

This arrangement of a post-built fence supported by low stone walling is similar to that in the inner enclosure (Trench 1), and also the outer enclosure (see Trench 3 below), the main difference being the use of a slot trench rather than individual postholes to hold the main posts. With a perimeter of 549m and a 1.2m main post spacing, the middle enclosure required as many as 458 such posts to construct this palisade, in addition to a considerable amount of smaller roundwood necessary to complete the fencing. Also similar is the destruction of the palisade by fire, represented in the case of the middle enclosure by a burnt layer (C.30) beneath the later bank. This burning event probably included the posts held in the four postholes inside the slot trench. Radiocarbon dating of this destruction level should reveal the approximate age of the Period 1 defences.

Period 2: Walled bank-and-ditch

Unlike the other two hillfort enclosures, the middle enclosure was restored probably soon after it was burnt. This took a different form to the earlier palisade, with the building of an earth and stone bank, on top of which was a wall of coursed stone. The material used came from an external ditch, the lower part of which was in bedrock. The soil (C.28) and drift stones (C.29) used in the bank core came from the upper part of the ditch. The blocky stone used in the bank wall was quarried at the base of the ditch. The fact that this bank and ditch were constructed on a slope required the building of a low earthen and stone bank on the immediate outside of the ditch so as to deepen the latter.

With no radiocarbon samples available for the Period 2 defences, their dating relies on sherds of coarse ware found in the lower ditch fill. The subsequent collapse of the stone wall on the main bank into the ditch (C.21) does not seem to have been a deliberate act.

Period 3: re-building of counterscarp bank

Excavation confirmed that the eroded counterscarp bank was re-built for agricultural purposes some time in the early modern era. This involved the digging of an external field drain, soil from which was piled to raise the Period 2 bank, with additional stones added to the external revetment. Though there has been some collapse of this revetment, this re-building explains the regular, flat-topped, profile of the counterscarp bank today.

Table 15.2: Archaeological contexts in Trench 2, Rathnagree hillfort.

Context	Description
01	Sod layer, consisting of mid brown, root-matted peat, free of stones, supporting grassy vegetation.
02	Thin layer of stony peat at base of C.01 sod, best developed inside bank at western end of Trench 1. Root-matted, peaty texture with frequent small-to-medium stones. Occasional charcoal flecks, possibly connected to hill burning.
21	Central fill of ditch. Deposit of large stones in dark brown humic silt, with lenses of grey brown silt and numerous voids. Stones have angular blocky form, 0.15–0.7m in length. Some have a thin slab-like apearance, while others were rectangular blocks in 0.3–0.4m range. Same rock type as bedrock exposed at base of ditch.
22	Compact deposit of dark brown silt with charcoal flecks on inner slope of ditch. Contains occasional small and large stones, but mostly free of clasts.
23	Compact deposit of bright orange sandy silt on lower exterior slope of ditch. Similar to C.24, but with more stones and a less silty texture. Contained sherds of pottery. The interface with C.22 in the lower ditch was difficult to establish. Both contexts are probably connected to early erosion of adjacent banks.
24	Deposit of orange silt under C.22 on inner side of ditch; mostly free of stones apart from some small boulders slipped from bank revetment. No charcoal content.
25	Thin deposit of grey-white mottled silt occurring in pockets within exposed bedrock at base of ditch. Some charcoal flecks, but not secure enough for

	radiocarbon samples.
26	Spread of large stones inside main bank at western end of Trench 2 (Plate 16.16). Sub-rounded to sub-angular stones in 0.15–0.4m size range.
27	Grey-brown humic silt exposed on removal of sod layer (Plate 16.17). Extends into adjacent ditch to a maximum thickness of 0.2m. Root-matted with occasional small to large stones; no charcoal.
28	Deposit of orange-brown stony silt forming upper part of main bank. Frequent pebbles and small stones, but mostly free of large clasts.
29	Deposit of large stones forming core of main bank. Numerous voids, with some inwash of grey-brown humic silt.
30	Burnt layer beneath bank (Plates 16.18–16.19; 16.22). Spread of dark brown/black silt containing finely divided charcoal with concentrations of lump charcoal.
31	Spread of yellow-brown silt with charcoal flecking at south-west end of trench. Possible continuation of C.30 burnt layer inside the inner slope of bank.
32	Charcoal-flecked surface of compact subsoil consisting of orange stony silt (Bs-horizon) at north-west end of trench.
33	Pockets of mid brown silt with reddish tinge under orange layer (C.23) over bedrock on lower exterior side of ditch. Contains pottery.
34	Bright orange sandy silt under C.30 burnt spread on southern side of Trench 2. This compact layer measured 0.08–0.1m in thickness and contained small pebbles, but no larger clasts; no charcoal. It overlay the upper fill (C.35) of the C.39 slot trench.
35	Stony upper fill of C.39 trench. Loose mix of small stones (<0.05m), with stones in 0.05–0.15m range, and occasional larger stones up to 0.36m within a grey-brown sandy silt matrix with voids. Mostly sub-rounded field stones, some of which were broken, but no angular examples indicating a quarry source, nor any fire-reddened stone or charcoal. Includes a number of large thin slabs placed against sides of C.39 as packing stones.
36	Lower fill of C.39 trench. Similar stone content to upper fill (C.35), but occurring within loose deposit of dark brown, humic silt; no charcoal.
37	Fill of posthole (C.38) at northern end of C.39 trench. A loose deposit of grey-brown sandy silt with occasional small–medium stones, rootlets and charcoal flecks. A 0.18m long thin slab was placed vertically as a packing stone against the southern edge of the posthole.

38	Cut of posthole at northern end of C.39 trench. Sub-circular cut measuring 0.42m (E–W) by 0.3m (N–S), partly extending into the trench section. The pit is 0.22m deep, with steeply sloping sides and an irregularly rounded base.
39	Cut of irregular slot trench under bank (Plate 16.22). The western side was a near-vertical to steeply inclined cut in the natural subsoil, whereas the eastern side was formed by large stones forming an exterior revetment. The exposed slot trench ranged 0.5m (north end), 0.55m (centre) and 0.65m (south end) in width, with a corresponding depth of 0.3m, 0.45m and 0.68m. There was a circular post setting at the northern end (C.38), whereas the southern end was V-shaped in profile, with some thin stones placed against the western side as post packing. The central area of the exposed trench, between this V-shaped slot and the C.38 posthole, had a rounded profile. This suggests the trench may have held upright posts spaced *c.*1.5m apart.
40	Fill of posthole (C.41) exposed as a pocket of loose silt, partly overlain by the C.30 burnt spread. The fill consisted of loose grey-brown silt with several large stones (probably displaced packing) and occasional small stones; no charcoal.
41	Cut of posthole containing C.40 fill, 0.85m north of C.43 posthole (Plate 16.23). Oval cut measuring 0.47m by 0.4m, with near-vertical sides and a central depth of 0.31m to an irregularly flat base. There were three small boulders close to the edge of this posthole. The upper east side of the posthole was formed by a 0.48m by 0.26m by 0.2m stone, the western side by a 0.48m by 0.3m by 0.13m example, with a third stone measuring 0.4m by 0.26m by 0.24m on the south side. The posthole was dug between these stones, all three of which were set in the natural subsoil.
42	Fill of posthole (C.43). Exposed as a pocket of stony brown silt that was partly overlain by the C.30 burnt layer. Excavation revealed a loose fill of grey-brown silt with medium-large stones; no charcoal. There was an arrangement of five stones, ranging 0.16–0.22m in size, set vertically as packing stones around the eastern edge of the posthole.
43	Cut of posthole containing C.42 fill, 0.8m east of C.45 posthole (Plate 16.23). A sub-circular cut measuring 0.42m by 0.4m, which narrowed half way down into the shape of a circular post, 0.18m in diameter. The posthole had a central depth of 0.38m with vertical sides extending to a rounded point.
44	Fill of posthole (C.45). First exposed as pocket of loose silt with small–medium stones, surrounded on east and west sides by a charcoal-flecked silt spread (C.31). Excavation revealed a loose fill of grey-brown sandy silt containing small to large stones, including examples on edge suggestive of packing. No charcoal.
45	Cut of posthole containing C.44 fill, 0.7m east of C.47 posthole (Plate 16.24). Sub-oval cut measuring 0.48m (N–S) by 0.3m (E–W), with some stones in 0.1–0.19m size range set around upper edges. The cut has steeply sloping sides to a

	depth of 0.16m, at which point the cut is circular and 0.17m in diameter. The posthole was slightly inclined to east with a depth of 0.41m to a rounded point.
46	Fill of posthole (C.47). Exposed as pocket of loose silt and stones surrounded by a charcoal-flecked silt spread (C.31), 0.2m inside western end of Trench 1. A loose deposit of grey brown silt with occasional large stones. No charcoal in fill.
47	Cut of posthole containing C.46 fill (Plate 16.47). Sub-circular cut measuring 0.3m (N–S) by 0.28m (E–W), with vertical sides 0.45m deep to a rounded base. The upper edge of the posthole is formed by charcoal-flecked silt (C.31).
48	Collapsed exterior revetment stones of re-built counterscarp bank within A-horizon topsoil (Plate 16.29). Stones are mostly blocky in appearance, ranging 0.12–0.5m in maximum length.
49	Deposit of orange-brown sandy silt forming upper part of counterscarp bank (Plate 16.31). Loose stony sediment wth some larger stones, no charcoal.
50	Fill of field drain at base of re-built counterscarp bank. Dark brown silt with orange tinge with numerous pebbles to give a gravelly texture.
51	Cut of field drain at base of counterscarp bank. A shallow trench with rounded profile, 0.7m wide with a depth of 0.2m Cut into orange Bs-horizon (C.58), with eroding bedrock exposed on lower outer edge
52	Buried sod layer beneath C.49 in conterscarp bank (Plate 16.31). A dark brown, sandy silt, layer, 0.04–0.15m in thickness, with numerous roots. This layer slopes west to east between the extant revetment stones (contexts 53 and 54) of the lower counterscarp bank.
53	External stone revetment of primary counterscarp bank (Plate 16.30). Consists of large stones in 0.2–0.55m size range, with indications of rough horizontal coursing. The stones had an angular blocky appearance similar to stones in the upper ditch fill (C.21), suggesting they were also quarried from the ditch. This revetment survives to a height of 0.5m, but seems to have been re-built in the modern era, some stones of which have collapsed (C.48).
54	Internal stone revetment of primary counterscarp bank. Exposed along the upper exterior slope of the ditch beneath the buried sod layer (C.52). The surviving stones were blocky in appearance in 0.2–0.55m size range. The partial collapse of this revetment is represented by a number of large stones along the upper slope of the adjacent ditch.
55	Upper part of primary counterscarp bank (Plate 16.31). Compact deposit of bright orange silt with frequent small stones, but few large clasts. This deposit of soil probably derived from the upper part of the ditch, and was piled to a maximum thickness of 0.25m to form the primary counterscarp bank.

56	Deposit of loose stone at base of primary counterscarp bank. A 0.5m thick deposit of very loose angular stone and some orange sandy silt. The stones were mostly in the <0.05–0.2m size range, with some up to 0.3–0.5m. They were removed to expose a shattered bedrock surface, probably created during the digging of the adjacent ditch.
57	Stakehole on western side of C.39 slot trench beneath main bank. Filled with grey-brown silt containing charcoal flecks and some lump charcoal (radiocarbon sample RNG2014-04), with orange silt containing no charcoal at the base. Oval cut, measuring 0.1m by 0.0-7m, with vertical sides, 0.28m deep, to a rounded point.
58	Natural Bs-horizon outside counterscarp bank. Orange sandy silt with occasional small-to-large stones; iron-enriched but no obvious panning,

15.2.3 Outer enclosure

The outer enclosure of the hillfort was delimited by a low bank of stones, averaging 0.15–0.3m in maximum height and up to 3m in width, with no indication of an accompanying ditch. This bank is best exposed on a lidar survey commissioned for the project (Fig. 16.3). A 7m (N–S) by 2m (E–W) trench was excavated across the line of this bank on the southern side of the enclosure (Plate 16.35). Trench 3 was excavated to a depth of 0.1–0.16m down to natural subsoil.

Excavation at the northern end of the trench (inside the hillfort bank) revealed a 0.1–0.15m thick A-horizon, consisting of a thin sod (C.01) over black fibrous peat (C.02; Fig. 16.11). A number of large stones (C.58) at the base of this peat represent tumble off the bank. The removal of this peat at the southern end of the trench exposed a compact layer of grey-brown, root-matted silt (C.59). This overlay an iron-panned surface (C.69) on bright orange subsoil (C.70) that forms the Bs-horizon (Plate 16.36).

Excavation revealed the main elements of the outer enclosure defences, namely a low bank of stones and large postholes connected to a palisade fence.

Archaeological features: stone bank

The removal of a thin peaty sod exposed a band of small-to-large stones across the centre of Trench 3 (Plate 16.37). The surface was heavily root-matted and compacted (C.59). The underlying stone bank had an overall width of 2.35–2.45m, with a maximum thickness of 0.3m on

the eastern side and 0.35m on the western side. None of the bank stone had the angular profile of quarried rock, with the prevalence of sub-rounded forms indicating the use of gathered drift stone. Most were in the 0.1–0.2m size range, with the largest up to 0.43m long and fewer intact stones under 0.1m. There was no obvious fire-reddening on the surface stones, however numerous heat-shattered stones were exposed in the lower part of the bank. This was particularly evident on the northern (inner) side of the bank where the lower stones overlay a spread of charcoal-rich sediment (C.61; Plates 16.38–16.39) in which a burnt branch was discovered (radiocarbon sample RNG2014-05).

The absence of fire reddening on the surface of the bank suggest that some of this stone may have been added after the burning event. This is also suggested by the fill of the western posthole (C.67), which contained a tightly packed arrangement of four large stones, placed side by side in a vertical position. It is not certain whether these were original packing or a possible re-building of the stone bank. The former seems more likely, and so any evidence for the re-building of this bank is tenuous.

Archaeological features: postholes

Excavation of the C.61 burnt surface revealed the position of two postholes placed 0.7m apart on the outer side of the stone bank (Figs 12 and 13; Plate 16.40). The eastern posthole (C.64) measured 0.51m (N–S) by 0.38m (E–W), with a vertical depth of 0.72m (Plate 16.41). When excavated this posthole was filled with stony silt (C.62) containing a small amount of charcoal, but not enough to indicate the burning of this post *in situ*. The removal of this fill revealed an arrangement of large packing stones (C.63) to the base.

The western posthole (C.67) was circular in shape, narrowing from 0.66m (N–S) at the surface to 0.34–0.4m at the base, with a central depth of 0.48m (Plate 16.42). The upper part was filled with heat-shattered bank stone (C.60), beneath which there was a silty fill containing charcoal (C.65). Several vertically placed packing stones (C.66) were identified in this fill, including 0.59m long example that was pointed deliberately for this purpose (Plate 16.43). As with the eastern posthole, there is no indication the original post burnt *in situ*, and so the palisade may have been dismantled when these fires took place.

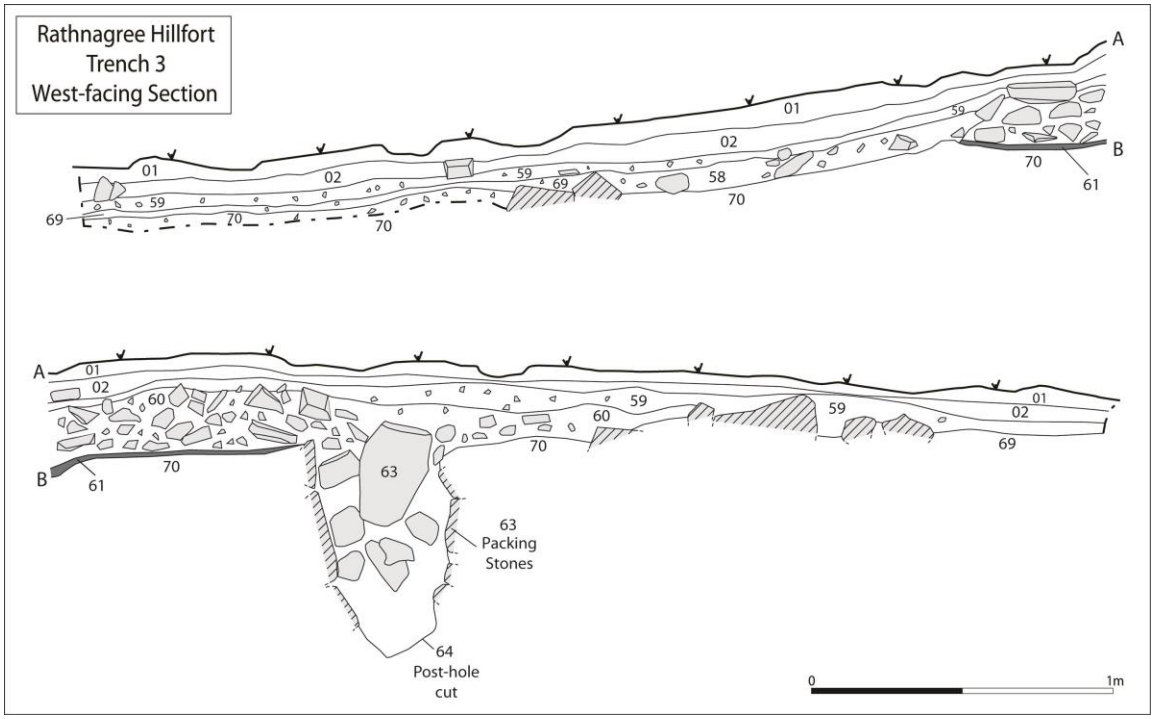

Fig. 16.11: West-facing section, Trench 3.

Fig. 16.12: Rectified oblique image of trench 3.

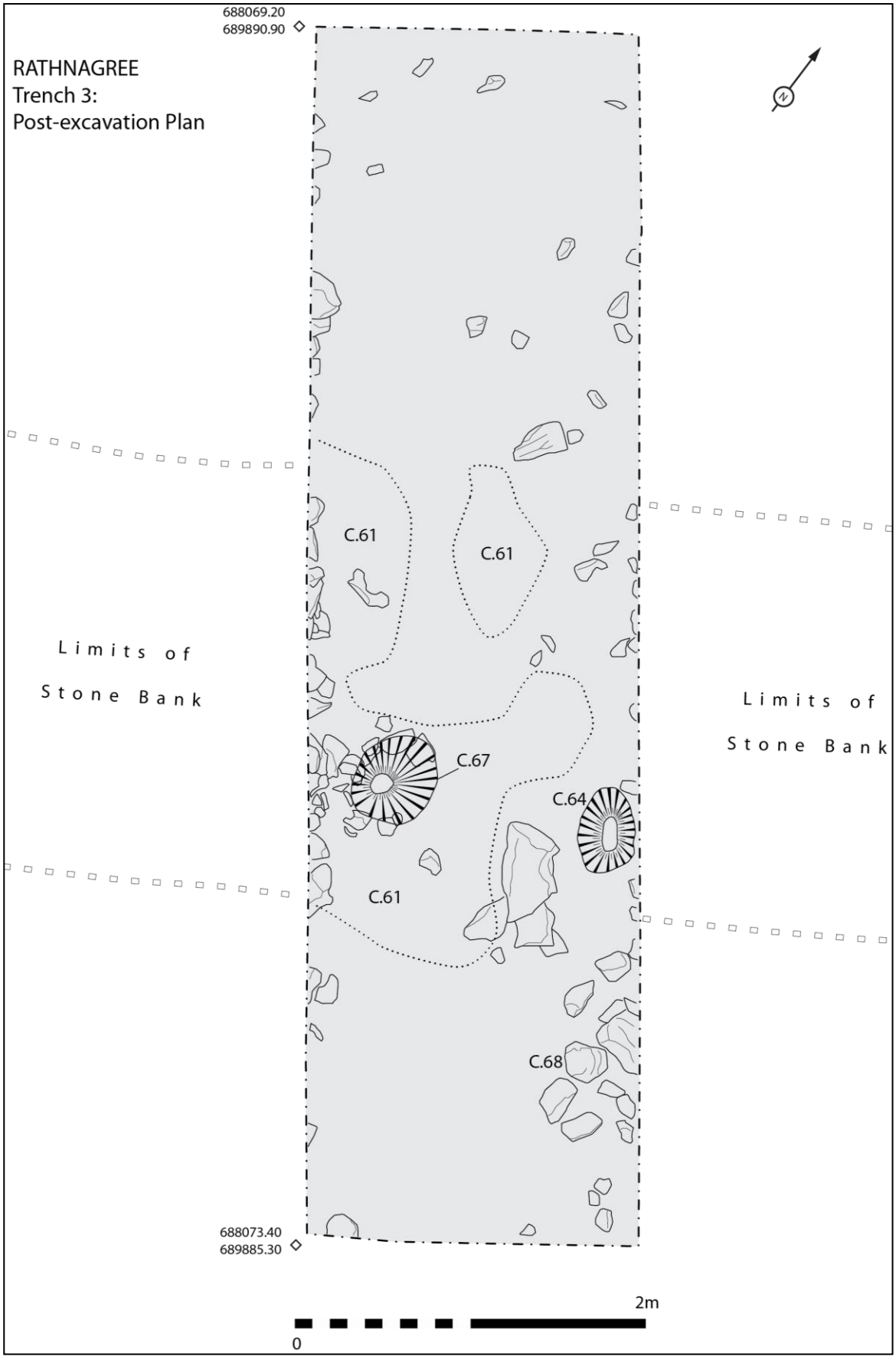

Fig. 16.13: Post-excavation plan of Trench 3, outer hillfort enclosure.

Trench 3: summary

This excavation confirmed that a wooden palisade supported by a low bank of stones delimited the outer enclosure of the hillfort. The palisade consisted of upright posts, probably complete roundwood of 0.2–0.25m diameter, spaced 0.7m apart. With a perimeter of 873m, the outer enclosure required as many as 1247 such posts to construct this palisade, in addition to a large amount of smaller roundwood necessary to complete the work. This is no evidence for a slot trench between the main posts, suggesting that any intervening posts were either set into the surface of the stone bank and/or lashed horizontally or obliquely to form the palisade. The size of this post fence is unknown, but given the depth of the excavated postholes (0.48m and 0.72m) it must have been at least 2–3m in height. The stone piled at the base of these posts probably did not exceed 1m in height, and so should be considered a fence revetment rather than an actual wall.

The discovery of fire-reddened, heat-shattered, stone in the lower bank deposit, together with a spread of charcoal overlying an oxidised surface around the postholes, confirms that a significant burning event took place some time after the palisade was built. The latter may have been partly dismantled when this occurred. There is no firm evidence to suggest the defences were ever re-built, though the absence of fire-shattered stone on the bank surface is notable.

Table 15.3: Archaeological contexts in Trench 3, Rathnagree hillfort.

Context	**Description**
01	Sod layer, 3–5cm in thickness, root-matted peat, free of stones, supporting grassy vegetation.
02	Thin layer of stony peat at base of C.01 peat, inside bank at northern end of Trench 1. Root-matted, peaty texture with frequent small-to-medium stones. Numerous charcoal flecks.
58	Stone tumble off bank at northern end of Trench 3 (Plate 16.35). Sub-rounded to sub-angular in shape, mostly field stones in 0.15–0.38m size range.
59	Compact layer of grey-brown, root-matted, stony silt under A-horizon (Plate 16.36).
60	Deposit of burnt and unburnt field stones forming low bank (Plate 16.37).
61	Spread of dark brown silt, with much finely divided charcoal and some lump

	charcoal, overlying fire-reddened stones (Plates 16.38–16.39).
62	Fill of eastern posthole (C.63). The overlying bank stone (C.60), including fire-shattered and reddened stone, extended into the upper part of the posthole. This overlay a reddish brown silt with numerous stones down to a depth of 0.25m. The lower fill consisted of mid brown/orange silt with numerous stones in the <0.05–0.2m size range. The incidence of charcoal increased with depth, but was not significant throughout the fill, with no evidence of *in situ* burning.
63	Packing stones in eastern posthole (Plate 16.41). The sides of the posthole were lined with at least 14 thin slabs in the 0.2–0.3m range. This included an arrangment of six stones in the upper 0.25m, beneath which there there were at least eight slabs down to the base. These stones were jammed down the sides of the posthole once the post was erected, and remained in this position following its removal.
64	Cut of eastern posthole (Plate 16.40). Oval subsoil cut measuring 0.51m (N–S) by 0.38m (E–W), with a central vertical depth of 0.72m to a rounded point. The width of the lower cut suggests that the original post had a diameter of approximately 0.25m.
65	Fill of western posthole (C.66). The upper half of the posthole was filled with loose broken stone, some of it fire-reddened, from the adjacent bank (C.60). There was very little charcoal in this upper fill, however some of the C.61 burnt spread did extend into the cut along the southern and northern sides. The removal of this bank stone revealed a lower fill of dark brown/reddish silt, becoming blacker in colour towards the base where there was also a significant amount of charcoal. The removal of a horizontal stone, measuring 0.33m by 0.28m by 0.13m, exposed a 0.1m thick deposit of charcoal-rich silt at the base of the posthole (radiocarbon sample RNG2014-06). There was not enough charcoal in the fill to indicate the original post was burnt *in situ*.
66	Packing stones of western posthole (Plate 16.42). The largest of these stones (C.66a), measuring 0.59m by 0.16m by 0.11m, was placed vertically down to the base of the posthole. The lower half of this stone had been deliberately pointed for use as a packing stone (Plate 16.43). This stone was part of a tightly packed arrangement of five other stones, ranging 0.19–0.29m in length.
67	Cut of western posthole (Plate 16.40). A circular cut measuring 0.66m (N–S) by 0.65m, with steeply sloping sides to a 0.34m (N–S) by 0.4m (E–W) wide irregularly flat base. The posthole had a vertical depth of 0.48m into subsoil.
68	Cluster of large stones in subsoil (C.70), adjacent to eastern posthole (C.64). Sub-rounded stones ranging 0.2–0.34m in size. Natural in origin.
69	Patches of hard, reddish-brown, iron pan on C.70 surface (Plate 16.36).
70	Bright orange subsoil, Bs-horizon

15.3: RADIOCARBON DATES FROM RATHNAGREE

A total of eight radiocarbon dates are available from the 2014 excavation season at Rathnagree hillfort. These include two samples from the enclosing elements of the inner enclosure (Trench 1); four from those of the middle enclosure (Trench 2); and two from those of the outer enclosure (Trench 3). The results are as follows (Calibration to 95.4% confidence, Oxcal v4.2.4).

Trench 1 (inner enclosure)

Sample RNG2014-01: Charcoal from burnt timber (C.08) next to palisade posts. 7.9g. Not water-sieved; sampled in field. Identified as Ash (*fraxinus excelsior*) with wide growth ring pattern.

GrA-60925; 3045 ± 40 BP (1414–1135 BC)

Sample RNG2014-02: Charcoal from basal fill (C.16) of posthole (C.18). 16.8g. Water-sieved and hand-picked from field sample. Identified as Sessile Oak (*quercus cf petraea*).

GrA-60927; 3055 ± 40 BP (1417–1213 BC)

Trench 2 (middle enclosure)

Sample RNG2014-03: Charcoal from burnt spread (C.30) under Period 2 bank. 11.7g. Water-sieved and hand-picked from field sample. Mix of hazel, sessile oak, willow and ash.

GrA-60929; 3050 ± 40 BP (1417–1208 BC)

Sample RNG2014-04: Charcoal from fill of stakehole (C.57) under Period 2 bank. 2.3g. Water-sieved and hand-picked from field sample. Not identified to wood genus.

GrA-60930; 3015 ± 40 BP (1395–1126 BC)

Sample RNG2014-07: Charcoal from burnt spread (C.30) under Period 2 bank. 11.7g. Water-sieved and hand-picked from field sample. Identified as fragment of Hazel wood (corylus avellana); twig with less that 10 growth rings and some sapwood adhering. 0.59g

GrA-63007; 3240 ± 35 BP (1535–1450 BC)

Sample RNG2014-08: Pottery sherd residue. From one of the pot sherds found at base of ditch of middle hillfort enclosure, Trench 2. 0.11g.

GrA-63008; 3170 ± 35 BP (1495–1415 BC)

Trench 3 (outer enclosure)

Sample RNG2014-05: Charcoal from burnt timber (within C.61) next to palisade posts. 14.4g. Water-sieved and hand-picked from field sample. Identified as Sessile Oak (*quercus cf petraea*) with wide growth ring pattern.

GrA-60931; 3020 ± 40 BP (1397–1128 BC)

Sample RNG2014-06: Charcoal from lower fill (C.65) of posthole (C.67). 16g. Water-sieved and hand-picked from field sample. Identified as Sessile Oak (*quercus cf petraea*).

GrA-60932; 3035 ± 40 BP (1411–1131 BC)

15.4: DISCUSSION

The major aims of the 2014 excavation at Rathnagree hillfort were achieved, namely to investigate the form and construction of the hillfort defences and recover samples for radiocarbon dating. Radiocarbon dates are available for the inner (1414–1135 BC), middle (1395–1208 BC), and outer palisaded enclosures (1397–1131 BC) at Rathnagree. This indicates the hillfort was built between 1400–1200 BC. The results do not clarify its occupation history except perhaps to indicate when it may have been abandoned. No evidence was discovered of any human activity pre-dating the hillfort, nor is there any information as to later activity on the hill before the early modern era.

15.4.1: Hillfort construction

The most significant results relate to the original hillfort defences. The excavation confirmed the antiquity of all three enclosing elements, with the likelihood that these were contemporary. The physical form of all three enclosing elements were similar, as were the methods used in their construction. This involved the construction of three widely spaced lines of strong wooden palisade, the main posts of which were set in individual postholes (inne and outer enclosures) or

a slot trench (middle enclosure). This fencing was support in all these cases by a low bank of stones. It is estimated that as many as 2297 large roundwood posts were required for these palisades, as well as several thousand smaller posts and lashing. All together, this represents a substandial work effort in the clearance of woodland and preparation of the palsiade timbers.

15.4.2: Hillfort occupation

The excavation of the inner (Trench 1) and outer (Trench 3) defences did not uncover any evidence for occupation of this hillfort. No artifacts, food residues or structural remains were uncovered. Magnetic gradiometry survey also inconclusive in respect of built structures in the interior, though it should be noted that only a small portion of the interior was surveyed due to vegetation cover. The paucity of occupation evidence may also be explained by the limited extent of excavation. There was some occupation, as traces of a post structure were found inside the early palisade of the middle enclosure, along with a broken coarseware vessel from the base of the later ditch at that location.

15.4.3: Abandonment

The excavation at Rathnagree did not yield information on the final occupation of the hillfort nor its subsequent history. The abandonment of the site is marked archaeologically by the deliberate removal of the stakes used to fence off the inner and outer enclosures. It is also represented by an apparently uninterrupted growth of blanket peat over the defences.

Acknowledgements

I wish to thank the project team, including the site supervisor and surveyor: Mr Nick Hogan MA, and site archaeologists Alan Hawkes, James O'Driscoll and Jim Lineen. Thanks to James and Nick for producing the final excavation drawings. The landowner, Mr David Edwards, gave permission for the excavation and is supportive of the project.

Plate 16.1: General view of Rathnagree, looking north from below Rathcoran hillfort.

Plate 16.2: Satellite image of Rathnagree hillfort (source: Bing Maps).

Plate 16.3: Surface exposed beneath peaty A-horizon in Trench 1; stone deposit (C.03; bottom right) and stony bank (C.06; centre).

Plate 16.4: Excavation of C.06 bank deposit exposes B-horizon surface (C.20).

Plate 16.5: Charcoal spread (C.10) on inner side of bank.

Plate 16.6: Part of stone facing (C.07) on exterior face of bank (C.06).

Plate 16.7: Burnt branch (C.08) in C.10 spread. Radiocarbon sample RNG2014-01.

Plate 16.8: Burnt branch (C.09) within C.10 spread.

Plate 16.9: Excavation of postholes, Trench 1.

Plate 16.10: Two postholes (C.14 left; C.18 right). Note burnt surface around C.14.

Plate 16.11: Overhead view of two postholes in relation to part of C.07 bank facing.

Plate 16.12: Reconstruction of stone bank around C.18 posthole.

Plate 16.13: Post-excavation view of Trench 1 (looking south). Stony B-horizon (C.20) in foreground.

Plate 16.14: Trench 1 surface after back-filling.

Plate 16.15: Location of Trench 2 along defences of middle enclosure (looking north-east).

Plate 16.16: Deposit of large stones (C.26) inside bank slope, western end Trench 2.

Plate 16.17: Excavation of root-matted surface (C.27) to expose orange bank material (C.28).

Plate 16.18: First exposure of burnt spread (C.30) beneath bank, Trench 2.

Plate 16.19: North-facing section of main bank, with underlying postholes (C.41 and C.43) and part of pre-bank burnt spread (C.30; far left)

Plate 16.20: Excavation in progress of trench (C.39; centre left) under main bank.

Plate 16.21: South-facing section of main bank, showing southern end of C.39 slot (far right) with postholes (C.41 and 43; centre).

Plate 16.22: Detail of slot trench (C.39) under main bank. Note continuation of C.30 burnt spread over the trench fill at base of bank.

Plate 16.23: North-facing section of bank, with underlying postholes (C.41-bottom and C.43 - top).

Plate 16.24: Post-excavation view of slot trench (C.39; centre left) under bank. Four postholes (contexts 41, 43, 45 and 47) to right of slot trench).

Plate 16.25: Part of re-built revetment on exterior side of main bank.

Plate 16.26: Excavation of ditch, showing *in situ* revetment stones of bank (top).

Plate 16.27: Excavation of lower ditch; white tags mark find locations of sherds of coarse ware in contexts 23 and 33.

Plate 16.28: Post-excavation view of ditch, with exposed bedrock at base.

Plate 16.29: Collapsed exterior revetment stones (C.48) of counterscarp bank.

Plate 16.30: *In-situ* exterior revetment stones (C.53) of counterscarp bank.

Plate 16.31: South-facing section of counterscarp bank, showing upper re-built portion (C.49) overlying a buried sod (C.52) above primary bank deposit (C.55).

Plate 16.32: Restoration of main bank during backfilling with stone core.

Plate 16.33: Trench 2 bank surface after back-filling.

Plate 16.34: Trench 2 ditch surface after back-filling.

Plate 16.35: Surface exposed beneath thin peat in Trench 3, outer enclosure. Note tumble of bank stones (C.58) in foreground.

Plate 16.36: Excavation of lower A-horizon (C.59) exposes iron-pan surface (C.69) at southern end of Trench 3.

Plate 16.37: Surface of stone bank (C.60), central area of Trench 3.

Plate 16.38: Charcoal spread and fire-reddened surface (C.61) under bank, Trench 3.

Plate 16.39: General view of Bs-horizon surface in Trench 3 on removal of C.60 bank.

Plate 16.40: Two postholes excavated in Trench 3 (C.64 right; C.67 left). Note packing stone arrangement in C.67.

Plate 16.41: Detail of C.64 posthole, showing arrangement of packing stones.

Plate 16.42: Excavation of C.67 posthole with large packing stone *in situ* (Plate 43).

Plate 16.43: Large, deliberately pointed, packing stone found in C.67 posthole, Trench 3.

Plate 16.44: Trench 3 surface after back-filling.

APPENDIX: 6

GEOPHYSICAL SURVEY AT SRUHAUN, CO. WICKLOW

A geophysical survey was undertaken within Sruhaun townland, Co. Wicklow, **IG** 288485 189335, from the 2th of February to the 6th of February, to investigate a levelled enclosure that was identified by LiDAR commissioned for this project (WI029-090). This was undertaken under the licence number 12R42. This particular area comprises a cluster of up to nine hillforts, the largest grouping of this monument type in Ireland. While it is not uncommon for hillforts to be found in groups (predominantly in pairs), the positioning of nine large monuments of this class in such close proximity is curious. The geophysical survey at Sruhaun hillfort was undertaken to confirm the presence of an enclosure, as well as assess the potential for internal settlement activity and evaluate the defences. In this respect the survey was successful, confirming the presence of a single enclosure that may have been destroyed by fire. There is no obvious evidence for internal settlement or activity of any kind directly associated with the enclosure.

16.1 INTRODUCTION

Sruhaun hillfort is located at the southwestern summit of Tuckmill Hill at 322m OD (Fig. 17.1), on a prominent ridge overlooking Baltinglass town. The fort is positioned less than 350m from Rathcoran to the northeast and Rathnagree to the north-west and has extensive views of downland to the west.

Positioned on a level terrace with steep slopes to the south and east, the enclosure comprises as single low-rise bank approximately 4.5m wide and up to 0.2m high, occupying a total area of 1.43ha. The slight nature of the bank makes it difficult to identify at ground level. There is a single 10m wide break in the enclosing elements at the north-east. Here, the defences extend outwards toward the summit of Tuckmill Hill and Rathcoran hillfort, 375m to the north-east. A modern field bank runs through the eastern portion of the interior. There are no obvious internal features visible on the surface or in the LiDAR data. Some surface outcrop indicates that the underlying bedrock is close to the surface in some areas of the interior. The fort is not visible in any historic mapping or in aerial or satellite imagery (Fig. 17.2 and Fig. 16.3).

16.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

Tuckmill Hill is situated on a north–south running formation of Lower-Middle Ordovician slate, sandstone, greywacke and conglomerate (www.gsi.ie). Sandstone and its associated formations are considered a magnetically quite geological formation and it is unlikely to have affected the magnetic data. The survey area comprises two fields sub-dividing Sruhaun. The interior is under pasture making ideal conditions for geophysical survey. Overcast and wet weather conditions and cold temperatures throughout the majority of the survey facilitated data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations.

16.3 ARCHAEOLOGICAL BACKGROUND

The Megalithic passage tomb (WI027-026001) at the centre of Rathcoran approximately 400m to the north-east of Sruhaun was excavated in 1934-6 by Walshe (1941, 221-236). The monument was found to consist of a multi-period kerbed cairn (diam. *c.* 27m) underneath which five structures were identified. The cairn material was subsequently used to create a protective

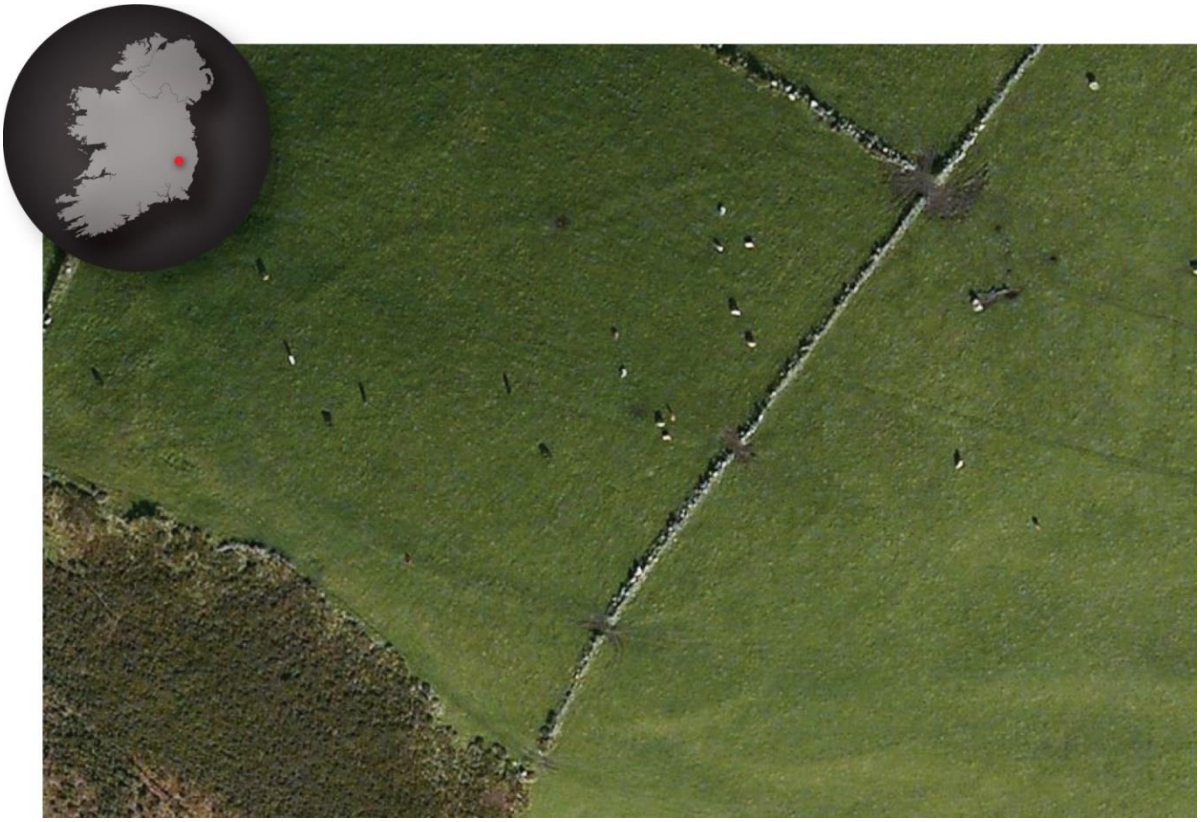

Fig. 17.1: Sruhaun hillfort, Co. Wicklow (Bing Maps 2015).

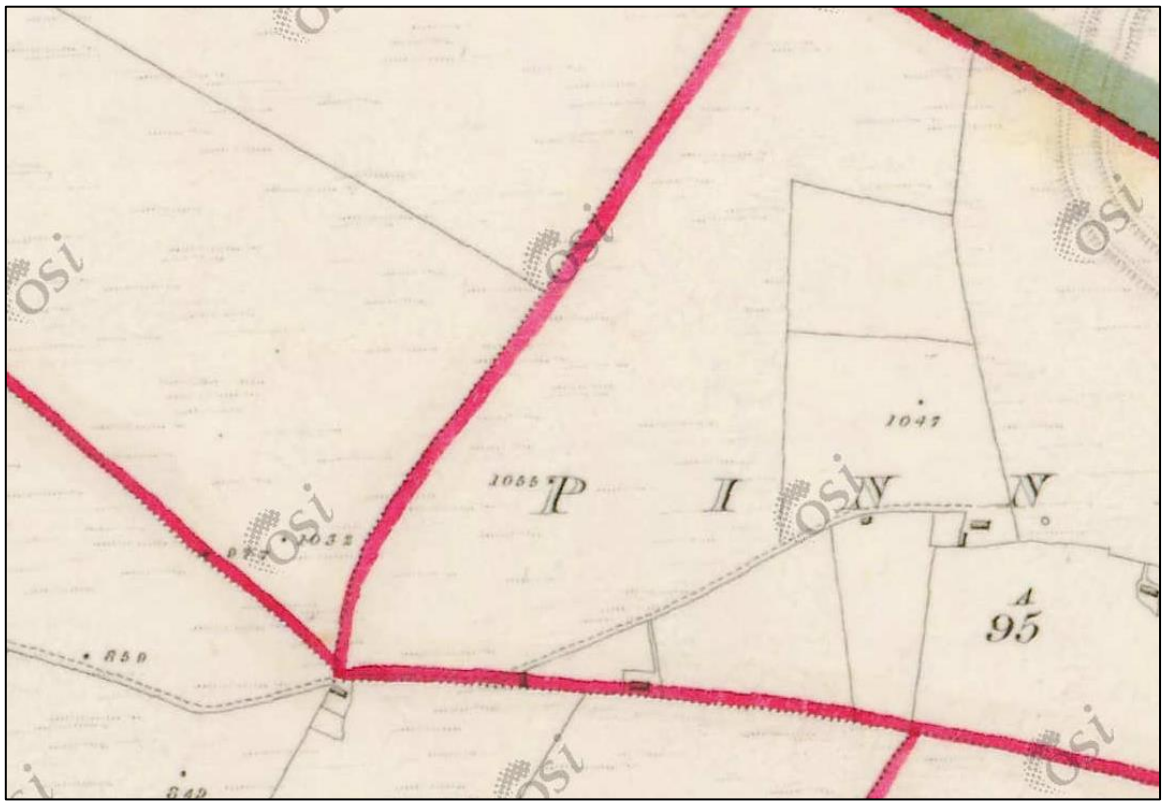

Fig. 17.2: First Edition Ordnance Survey mapping.

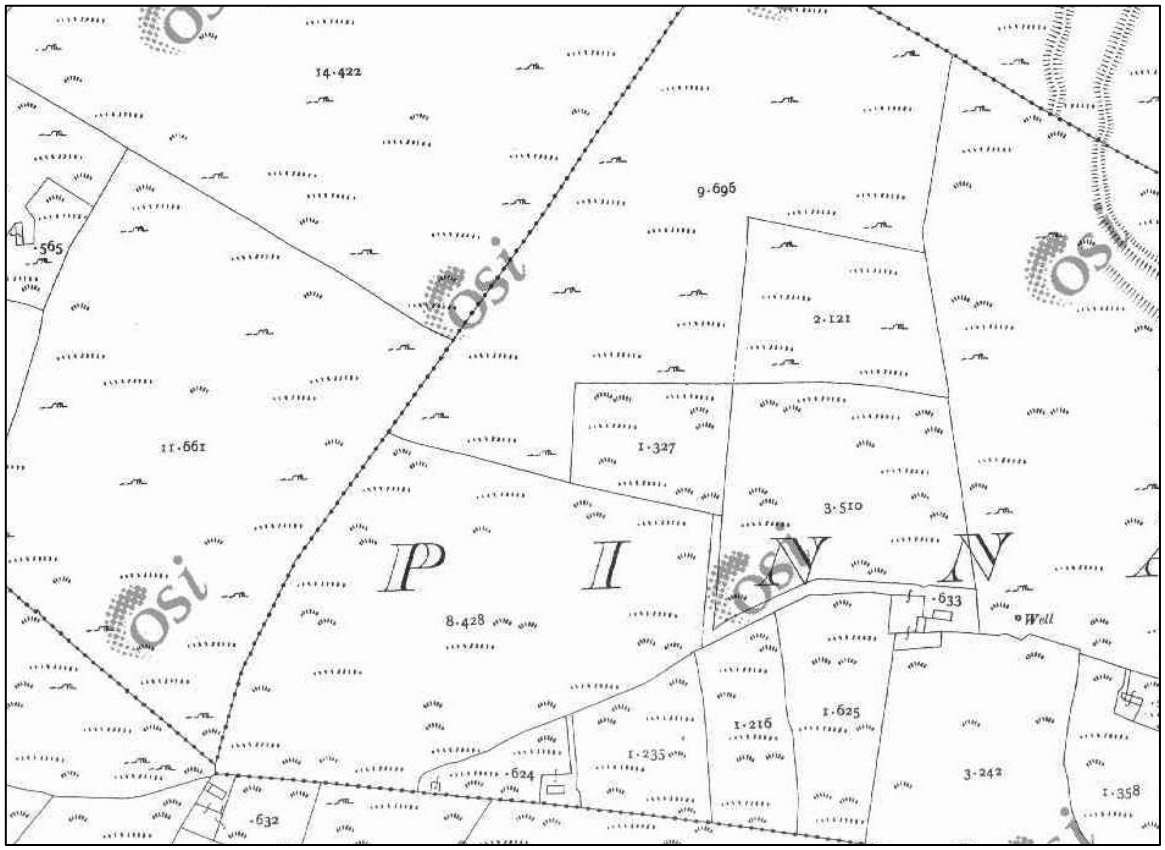

Fig. 17.3: Second Edition Ordnance Survey mapping.

wall around the monument. Surrounding the cairn was a kerb of large stones, three of which were identified with rock art. The main tomb within the cairn was revealed as a 2m diameter chamber with a short passage (3.2m) leading towards it. Three shallow recesses contained a stone basin with a peckedornament. A second tomb with a chamber divided into three compartments revealed two stones with rock art. Three other, less-substantial tombs, were identified. The finds from the site include the cremations of at least three adults and one child, flint scrapers, Carrowkeel pottery, and bone pins. Finds from beneath the cairn included a stone axe, a flint javelin-head, scrapers, an egg-shaped stone, carbonised wheat grains and hazelnuts. A saddle quern was also found in the cairn material (Cooney 1981). Positioned immediately outside the outer defences of Rathcoran is a second cairn (WI027-026001), approximately 25m in diameter.

Other archaeological features have been identified within the interior, such as four hut sites, all of which lie close to the inner stone bank of the hillfort. Upon field inspection, the number of unrecorded hut structures within the interior was significant. These were subsequently recorded by LiDAR and GPS. The amount of recorded activity within the interior is interesting, as many hillforts exhibit little evidence for permanent occupation in the form of hut structures. Immediately outside the hillfort to its south is a further cluster of possible hut structures and a smaller cairn.

On the lower western slopes of Tuckmill Hill, a mound barrow comprising a low circular mound 19m in diameter (0.45m in height) is visible. In the 1920's, a cist containing an inhumation was found within the mound. Cist monuments generally date to the Bronze Age and Early Iron Age, therefore, a date contemporary with the occupation of the hillforts is plausible. A second cist burial was found on the eastern slopes of Tuckmill Hill. Sherds of two food vessels and a quantity of cremated bones were recovered from this feature in 1969, and a pit containing cremated bone was bone was reportedly found a few years before. To the north of this, a large circular mound, 50m in diameter and 2.4m in height overlooks the River Slaney. While it is difficult to assess the date of such monuments, mounds are categorised as prehistoric monuments, and may comprise a grass covered cairn.

16.4 SURVEY PROGRAM

The proposed survey extent is highlighted in (Fig. 17.4), incorporating the interior of the hillfort which is possible to survey, as well as some of the inner enclosing elements. High

resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the hillfort, to identify possible internal occupation and assess the number, form and composition of the defensive features. In total, 1.8ha was surveyed using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

16.5 GEOPHYSICAL SURVEY RESULTS

Hillfort Defences and Related Features

The perimeter of the enclosure is apparent in the geophysical survey as **G2**, an intense band of positive magnetism flanked on either side by a residual negative response (Fig. 17.5 and Fig. 17.6). This corresponds with the low-rise bank detected in the LiDAR survey. The results are similar to those found at Rathcoran and Rathnagree and tentatively suggest a prolonged burning event. The entire 436m perimeter of the enclosure may have been comprehensively burnt. The 'noise' extending beyond some of responses comprising **G2** are similar to that found at Toor More or at *fulacht fiadh*, suggesting this represents heat affected stone. This, in turn, implies that the enclosing elements comprised a low stone wall with wooden elements that were destroyed by fire.

Fig. 17.4: Aerial photography of Rathcoran, Rathnagree and Sruhaun (Google Earth 2012) with survey area outlined in red.

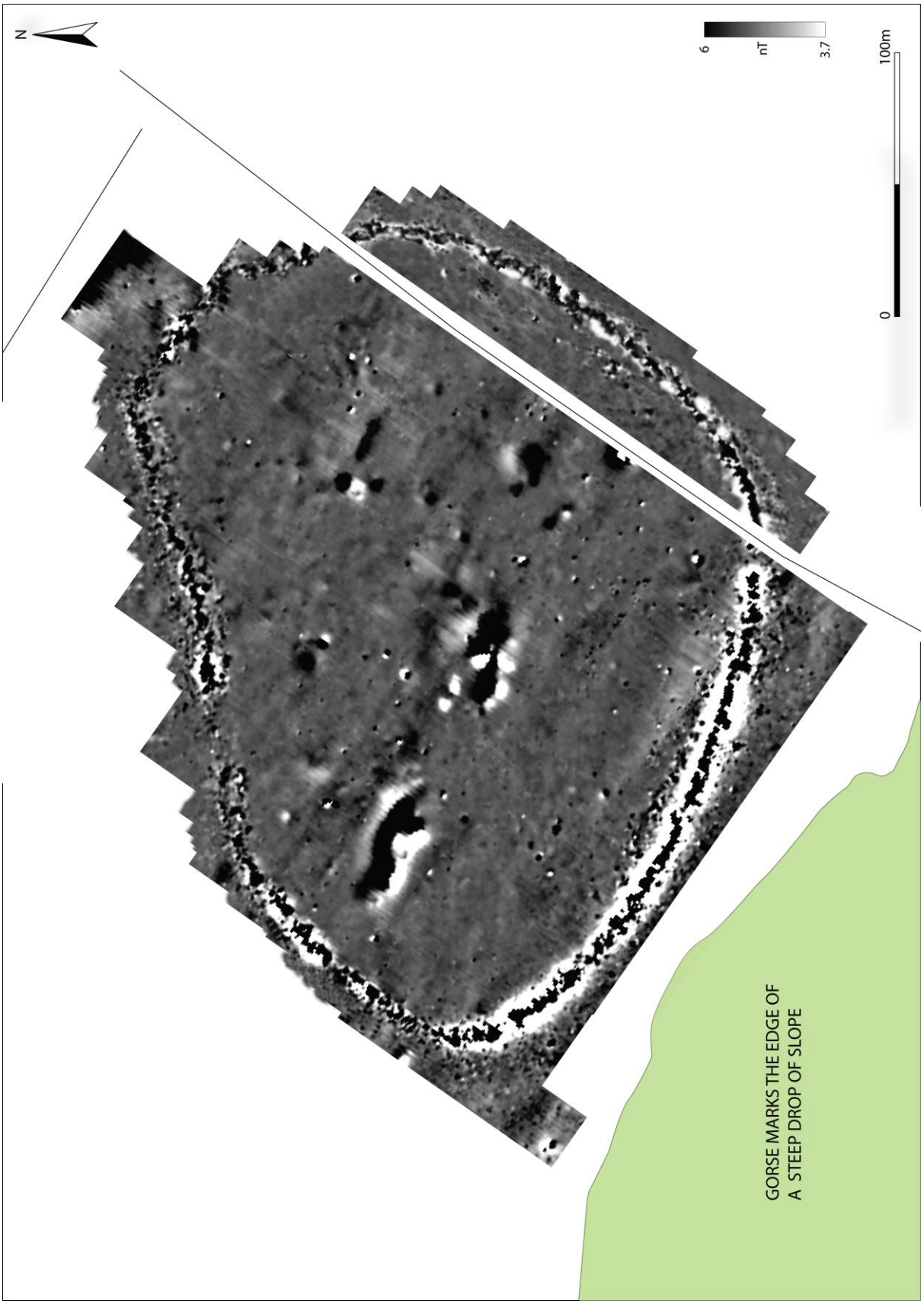

Fig. 17.5: Rathcoran geophysical survey results.

Fig. 17.6: Rathcoran geophysical survey interpretation.

G3 represents a 6m wide break in the enclosing elements at the northwestern side and this could represent an original entrance feature. There are no obvious pit-like features that might represent stake- or post-holes indicative of a gate feature, although these may be masked by the collapse of the wall terminal.

Hillfort Interior and Habitation Features

There are no obvious internal features that might represent structures or other settlement features. **G1** represents a series of broad magnetic anomalies that likely represent geological features such as close to surface rock outcrop. There is a notable lack of pit-like features (these can sometimes be archaeological features, as well as geological or modern) suggesting this enclosure may not have been built for settlement, unlike Rathcoran or, to a lesser extent, Rathnagree. This is an important outcome, as it has a significant impact on how we interpret the function of this enclosure. Considering the lack of internal features, the enclosure may have had a practical function as a cattle corral. Conversely, considering its strategic topographic position at the edge of a hillspur in a highly visible location, the enclosure may have been positioned to overlook routes to the summit of Tuckmill Hill, as well as acting as a defensive-looking enclosure from afar.

Discussion of Results

The identification of a third large enclosure on a hillspur overlooked of Tuckmill is a significant archaeological discovery, particularly in context of the already unique concentration of large forts in the Baltinglass area. Geophysical survey confirmed its presence and suggested that the enclosing elements comprised a low-stone wall with some form of timber elements that was subsequently destroyed by fire and never re-built. Its close association with the two other hillfort on Tuckmill Hill, Rathcoran and Rathnagree, might suggest they are broadly contemporary. Excavation has subsequently confirmed that Sruhaun and Rathnagree are contemporary. Interestingly, the geophysical survey suggest the interior of Sruhaun is largely devoid of occupation activity, although a lack of identification in the geophysical survey does not necessarily mean such features do not exist, rather, they may not be detectable to the gradiometer. This has important implications for interpreting the function of Sruhaun. The lack of occupation may suggest the enclosure acted as a cattle corral or had other, non-domestic functions.

APPENDIX: 7

EXCAVATIONS AT SRUHAUN, CO. WICKLOW

By Professor William O'Brien

In July 2015 a sample excavation was conducted at a hill-top enclosure of probable prehistoric date on Tuckmill Hill, Baltinglass, Co. Wicklow. This work was undertaken as part of a research project on prehistoric hillforts in Ireland, based in University College Cork with funding from the Irish Research Council. The investigation at Sruhaun involved trenching the enclosing element of this site. These features are best viewed on aerial lidar survey, and as high magnetic responses in gradiometry survey, being barely visible on the ground. Excavation confirmed the presence of two ditches directly inside the remains of a low bank of stones. There are indications of intense burning at the base of this bank, from where a charcoal sample is radiocarbon dated 1375–1225 BC. This indicates a broad contemporaneity between this site and the nearby hillfort of Rathnagree on Tuckmill Hill, raising interesting questions as to their functional relationship.

17.1 INTRODUCTION

This site is located in the townland of Sruhaun, partly extending into the adjacent townland of Pinnacle, *c.*1km north of Baltinglass town, Co. Wicklow (Fig. 18.1; ITM 687824, 689216). It is one of three prehistoric enclosures on Tuckmill Hill, which include the well-known bivallate hillfort of Rathcoran on the eastern summit (365m OD), and the trivallate hillfort of Rathnagree (315m OD) on the northern spur of the hill (Plate 18.1). The Sruhaun monument lies on the southern spur of Tuckmill Hill, at an altitude of 310m OD. It encloses an area of 1.43 hectares of fairly level ground, with steep slopes to the south and west, and rising ground to the north and east. The location is striking, directly overlooking the town of Baltinglass (Plate 18.2), with extensive views of the lowland of south Wicklow, east Kildare and Carlow, as far as the Castlecomer Mountains of Kilkenny.

The Sruhaun enclosure is not recorded in the historic mapping of the Ordnance Survey. The site was first identified by James O'Driscoll (UCC) during analysis of LiDAR data undertaken during the current project (O'Driscoll 2013). The entire site area was investigated by magnetic gradiometry survey in 2012, as part of an ongoing landscape study of the Baltinglass hillforts

(Fig. 18.2). The site was recently listed in the *Record of Monuments and Places* for Co. Wicklow (WI027-090), using site information by James O'Driscoll.

The Sruhaun excavation is part of a wider investigation of Irish hillforts, based in UCC and funded by the Irish Research Council. This research includes a programme of sample excavation designed to create a new chronology for Irish hillforts. Excavations have already been conducted at the hillforts of Clashanimud, Co. Cork; Glanbane, Co. Kerry; Ballylin, Co. Limerick; Formoyle, Co. Clare; Toor More, Co. Kilkenny; Rathnagree, Co. Wicklow; Tinoran, Co. Wicklow, and Hughstown, Co. Kildare (reports on these excavations have been submitted to the National Monuments Service). The results from Sruhaun will add to this work, to create a fuller understanding of the chronology and other features of hillforts and hill-top enclosures in Ireland.

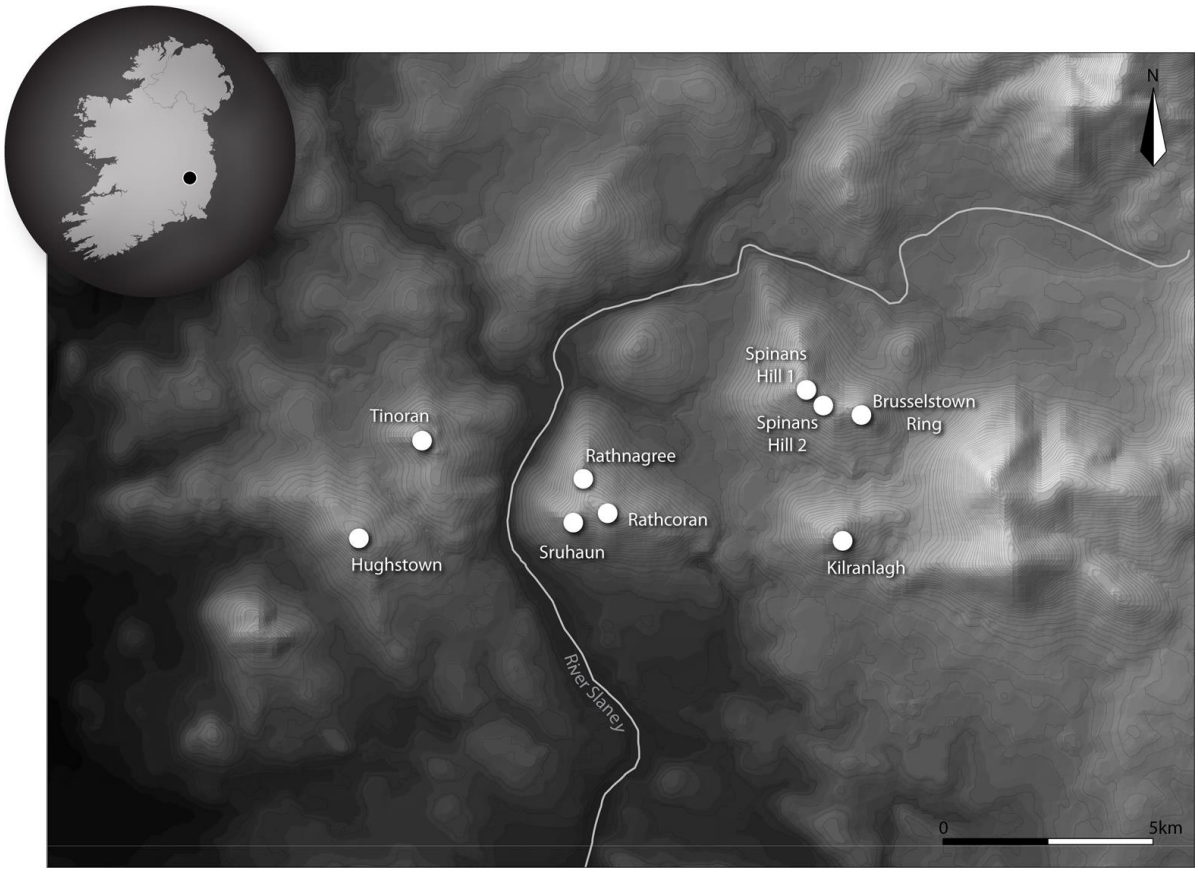

Fig. 18.1: Prehistoric hillforts and hill-top enclosures in the Baltinglass area, Co. Wicklow, showing location of Sruhaun enclosure on Tuckmill Hill.

17.2 SITE MORPHOLOGY

LiDAR survey and geophysical prospection revealed a levelled univallate enclosure, measuring approximately 129m (north-east/south-west) by 152m (north-west/south-east). The site is sub-circular in plan, with a rounded profile coming to a point on the north-east side, facing the summit of Tuckmill Hill and Rathcoran hillfort, 375m in the distance. The enclosing element is

visible today as a low-relief bank, approximately 4.5m wide and up to 0.2m high, surrounding a total area of 1.43ha. The slight nature of the bank makes it difficult to identify this feature at ground level. There are indications of an internal ditch, visible as a shallow depression inside this bank. The magnetic gradiometry survey does not clearly differentiate the bank and ditch, but instead indicates a continuous line of strong magnetic readings indicative of burning (Fig. 18.2).

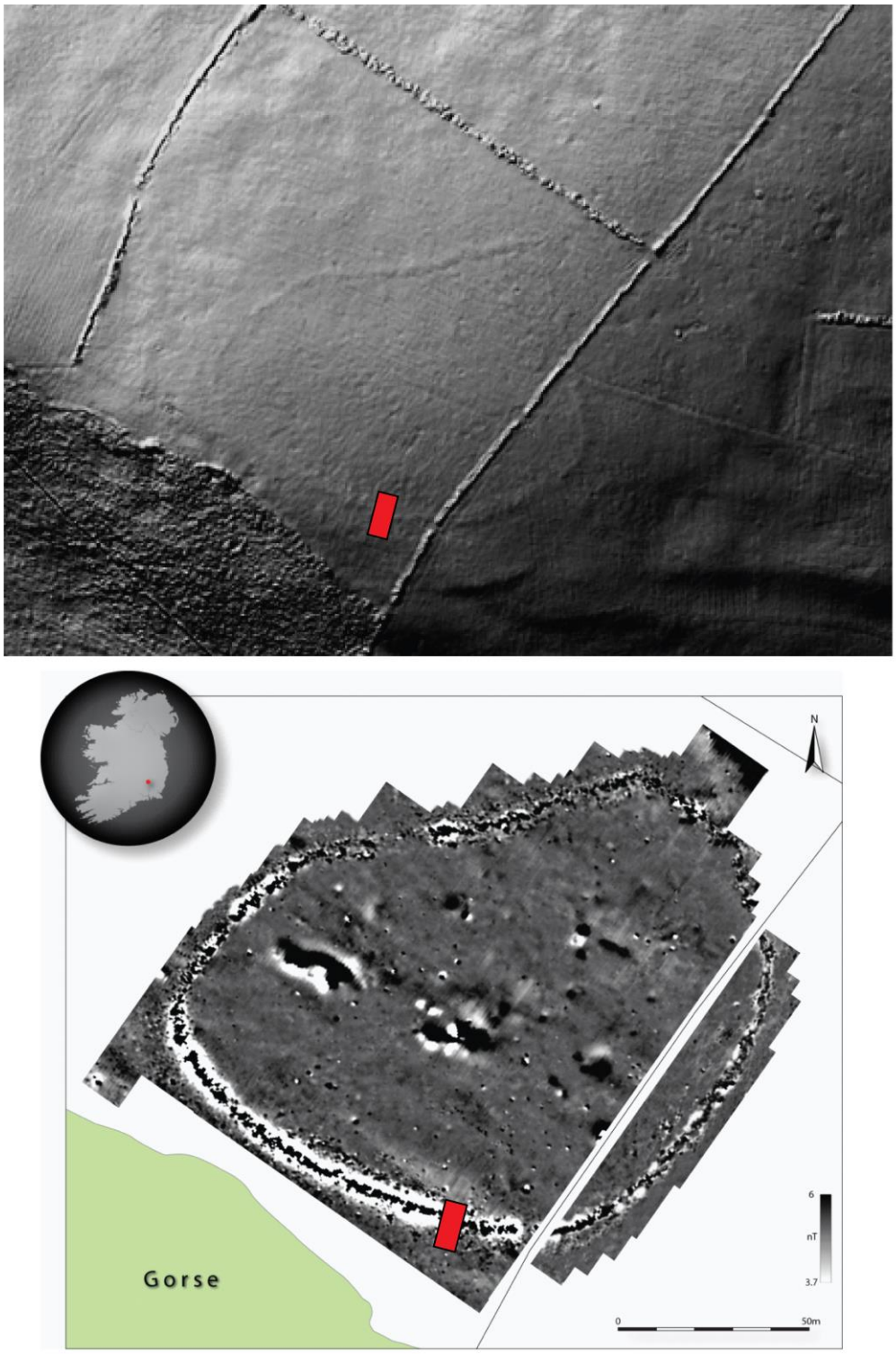

Fig. 18.2: LiDAR image (upper) and magnetic gradiometry survey (lower) of Sruhaun enclosure, showing location of excavation trench.

The geophysical survey revealed a 10m wide opening on the northern side of the enclosure. It may be an original entrance, but this remains to be confirmed. The eastern side of the enclosure is crossed by a modern field boundary, comprising an older wall of smaller stones now covered by boulders from recent field clearance.

There are no features in the interior of the Sruhaun enclosure, apart from a few large boulders. There are no obvious internal features visible in either the geophysical results or the LiDAR data. The landowner, Henry Moore, confirmed he cleared the site some years ago, removing all surface and protruding stones. As a consequence, the interior is mostly level, with a slight rise to the north. This area is used today for cattle and sheep grazing, as part of extensive open-field pasture across the southern slopes of Tuckmill Hill.

17.3 ARCHAEOLOGICAL INVESTIGATIONS

The main purpose of the Sruhaun excavation was to obtain information on the design of the enclosing element(s) and the methods and materials employed in construction. It was hoped to obtain dating evidence for the construction and abandonment of the enclosure, and to recover artifacts and environmental evidence relating to any site occupation.

A single excavation trench was excavated across the enclosing elements on the southern side of Sruhaun hillfort (Fig. 18.2; Plate 18.3). This 8m by 2m trench was aligned north north-east/south south-west across the line of the enclosure. The trench was de-turfed by spade with subsequent excavation undertaken by trowel (Plate 18.4). This included context-based recording, with full written descriptions, photography and scale drawings. On completion of work the trench was back-filled by hand and the ground surface restored (Plate 18.22).

The project team consisted of the excavation director and licence holder, Professor William O'Brien; the site supervisor and surveyor, Nick Hogan MA; and site archaeologists, James O'Driscoll MPhil and Dr Alan Hawkes.

17.4 EXCAVATION RESULTS

Excavation commenced with the removal of a thin grass sod (C.01), 0.07–0.12m in thickness, which overlay an A-horizon of grey-brown humic silt with occasional stones. This organic soil

overlay a thin layer of red-brown iron pan (C.14) in the southern third of the trench (Plate 18.5), which was removed to an iron-enriched subsoil (C.25; Bs-horizon).

17.4.1 Archaeological Features

There were three areas of archaeology in this excavation (Figs 18.3 and 18.4):

1. A double ditch feature in the northern third of the trench.
2. The remains of a stone bank/wall in the central area
3. A number of structural features, including a pre-enclosure slot, in the southern area.

The removal of A-horizon topsoil exposed a spread of yellow-brown sandy silt (C.03) across the northern third of the trench (Plate 18.6). This sediment derived from the natural Bs-horizon, and was deposited to a maximum thickness of 0.3m, thinning southwards over the central bank area. The cleaning of this C.03 surface exposed several patches of dark brown silt (C.05) at the northern end of the trench (Plate 18.7). These were initially investigated as possible pits or postholes. Further excavation revealed the presence of two parallel ditches placed close together (Plate 18.8).

Inner ditch (C.15)

This feature was cut into the Bs-horizon subsoil (C.25), approximately 1.8m inside the parallel enclosure bank (Figs 18.3 and 18.4). It had a U-shaped profile, ranging in depth from 0.8m on the eastern side, rising to only 0.2m on the western side (Plates 18.8 and 18.9). The top of the ditch was 1.6–1.65m wide, narrowing to 1.3–1.4m at the base. The latter was irregularly smooth and free of protruding stones, apart from three flat slabs, 0.4–0.7m in length, embedded in the base of the ditch on the eastern side. The presence of these natural boulders may explain the variation in the depth of the ditch.

The infilling of the inner ditch began with an accumulation of peat accompanied by an influx of large stones (Fig. 18.5; Plate 18.10). Excavation revealed a deposit of black peat (C.08) at the base of the ditch, ranging in thickness from 0.55m on the eastern side to 0.08m on the western side. This peat was well humified with no obvious banding. It was waterlogged at the base, with visible plant fibres and rootlets, but no fine minerogenic content.

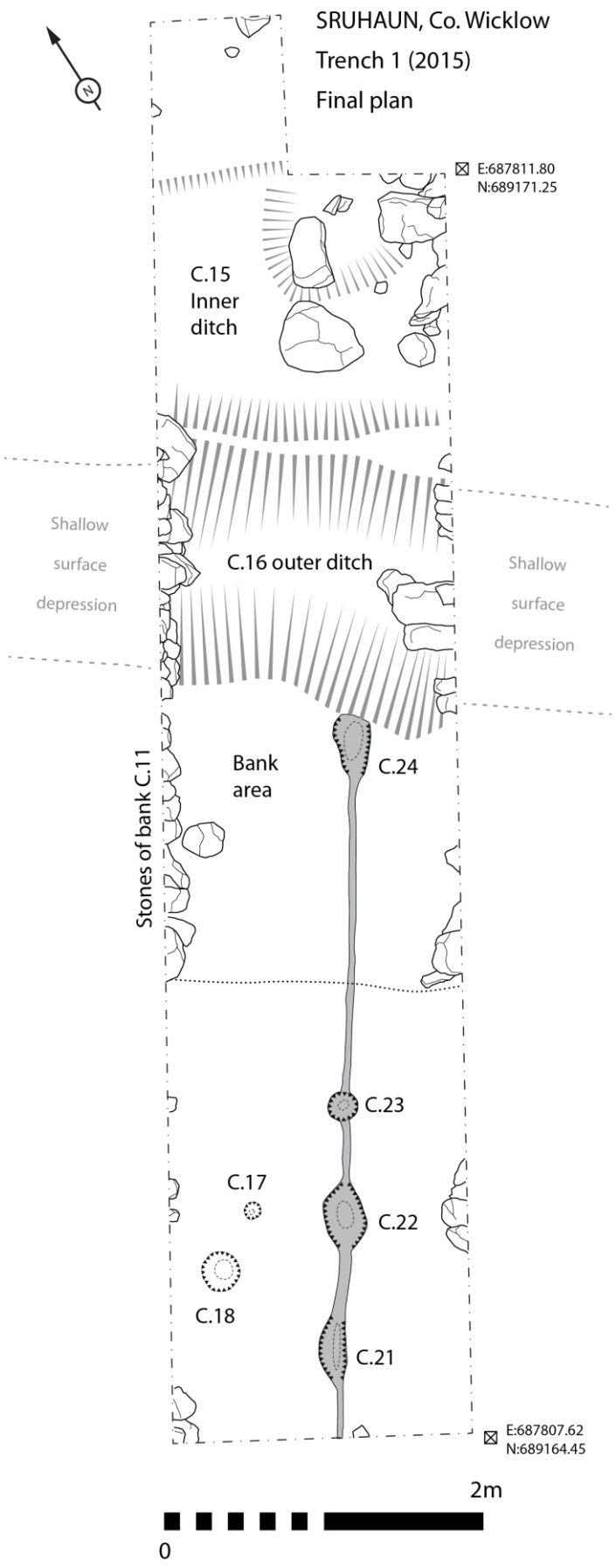

Fig. 18.3: Post-excavation plan of cut features in Sruhaun trench.

Fig. 18.4: Post-excavation photogrammetry of cut features in Sruhaun trench.

This peat contained numerous large stones (C.07) infilling the upper part of the ditch (Plate 18.11). There was no obvious arrangement to these stones, with some lying on edge, while others were inclined or flat. They seem to have been thrown into the open ditch, with heavier examples sinking into the lower peat formation. Peat continued to accumulate around the uppermost stones, with voids forming in several places.

The C.07 stones were mostly angular to sub-angular in shape, with only a few sub-rounded examples. Most were fractured to some degree, and approximately half of the stones were fire-reddened. The majority were 0.3–0.45m in length, with some examples as large as 0.6–0.7m. There was a significant number in the 0.15–0.3m size range, but very few under 0.15m.

This stone/peat deposit in the inner ditch was overlain on the northern side by a deposit of orange-brown silt (C.06). The entire ditch fill was sealed by a 0.05–0.08m thick layer of peaty silt (C.05). This represents a buried sod that formed in the ditch depression prior to the main spread of redeposited subsoil (C.03) across that area.

Outer ditch (C.16)

Excavation confirmed the presence of a parallel ditch on the immediate southern side of the inner ditch, separated by a narrow ridge of Bs-horizon subsoil (Figs 18.3 and 18.4; Plates 18.8 and 18.12). This ditch was dug into the latter to a depth of 0.38–0.42m (0.58–0.74m from modern ground surface). It had a V-shaped profile, ranging in upper width from 1.62m (east side), 1.5m (centre) to 1.65m (west side). The sides were smooth, with few exposed stones.

Excavation revealed a similar fill sequence to the inner ditch (Fig. 18.5). The primary sediment was a well-humified peat (C.10), 0.2–0.4m in thickness and slightly waterlogged at the base. There was no visible banding and no fine mineral content. As with the inner ditch, there was a deposit of large stones (C.09) within this peat formation (Plates 18.13 and 18.14). These were mostly angular to sub-angular in shape, often fractured and reddened (Plate 18.11). These stones seem to have been part of the same deposition as the C.07 stones in the outer ditch. This probably represents collapse from the adjacent bank. The C.09 stones and C.10 peat deposit were overlain by the C.03 spread of redeposited subsoil that also covered the inner ditch.

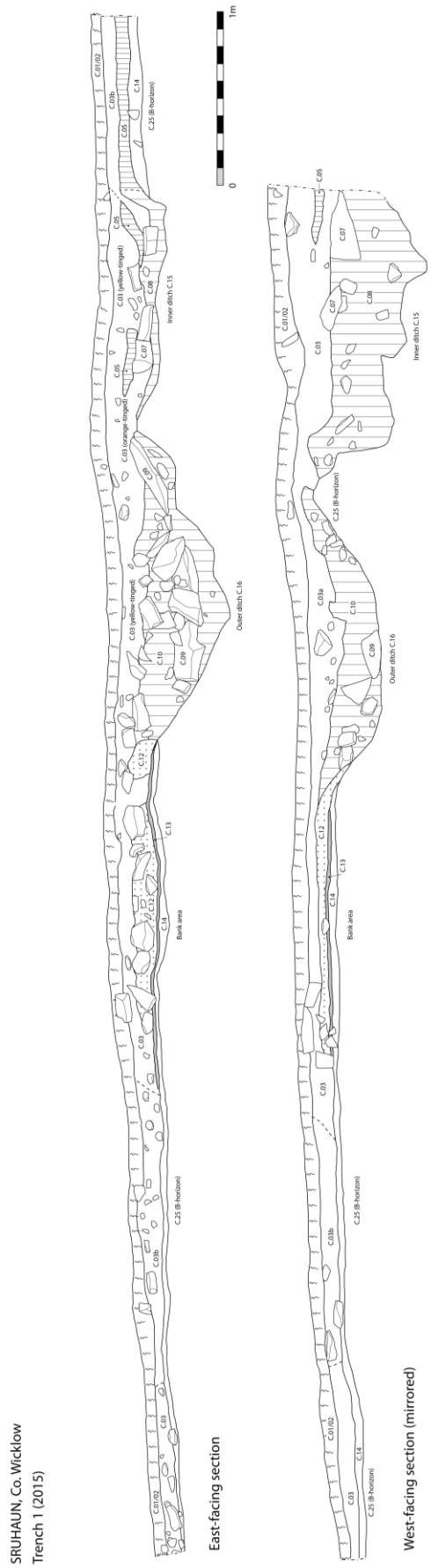

Fig. 18.5: Stratification of Sruhaun trench (west-facing section).

Bank

Prior to excavation this feature was visible as a low rise in the field, with indications of an internal ditch. While this area had been levelled in modern times, excavation was able to uncover the base of the original bank.

The removal of A-horizon topsoil exposed a 2.6m wide spread of medium–large stones (C.11) across the central area of the trench, extending from the cut of the outer ditch, with no intervening berm (Figs 18.3 and 18.4; Plate 18.15). These stones were arranged loosely with no obvious coursing. While the surface stones were loose, the base of this deposit was very compact. The individual stones were angular to sub-angular, with very few examples having rounded surfaces. The majority were 0.15–0.25m in length, with some up to 0.3m, and numerous examples as small as 0.07–0.15m. The deposit was 0.12–0.18m in overall thickness, with the uppermost stones only 0.1m or less beneath the modern ground surface.

Excavation revealed a thin deposit of black silt (C.12) between the lower stones in the C.11 deposit. This probably represents rainwash through these stones. This was removed to expose a spread of compact black silt (C.13) with heavy charcoal flecking (Plate 18.16). This C.13 spread extended over most of the bank area, and included several concentrations of charcoal (Fig. 18.5; Plate 18.17).

The excavation of C.13 exposed a hard stony surface (C.14), red-brown in colour, which extended to the southern end of the trench. This thin layer represents iron pan on top of the natural Bs-horizon.

Southern end of trench

The removal of the A-horizon topsoil exposed a dark brown mottled sediment (C.04) within a shallow depression in the south-east corner of the trench. Elsewhere, the stratigraphic sequence at this end of the trench consisted of A-horizon (C.01/C.02) over a thin layer of redeposited subsoil (C.03 and C.03b), over the iron pan (C.14) on top of Bs-horizon (C.25).

The removal of iron pan at this end of the trench revealed a number of cut features in the Bs-horizon subsoil (Figs 18.3 and 18.4). These include a possible stakehole (C.17) that contained small fragments of burnt stone and flecks of charcoal. A small pit (C.18), possibly a

large stakehole, to the south-west of C.17 also contained fragments of burnt stone as well as charcoal flecks (Plate 18.18).

Pre-bank feature

The excavation of iron pan (C.14) at the southern end of the trench exposed a narrow slot (C.20) cut into the Bs-horizon subsoil (Figs 18.3 and 18.4; Plate 18.19). This perfectly straight feature extended north-west (aligned 030–210°) from the southern end of the trench for a distance of 4.5m (Plate 18.20). It continued under the spread of bank stones (C.11) as far as the edge of the outer ditch (C.16), which cut across the slot (Plate 18.21). The latter was 4–5cm in upper width, with a depth variation of 2–12cm, The fill of this feature consisted of tightly packed burnt stones (C.19), many of which were set upright and appear to have fractured *in situ*.

Excavation revealed four possible stake settings (contexts 21–24) along the line of this slot. These represent a widening of the slot. They had a similar fill to the slot, consisting of light brown silt, fragments of burnt stone and flecks of charcoal. This slot may derive from a fence structure that pre-dated the enclosing bank and ditches.

Table 18.1: Archaeological contexts, Sruhaun excavation.

Context	Description
01	Sod layer; 7–9cm thick at southern end of trench; 8–10cm in centre and 9–12cm at northern end. Rare small stones.
02	A-horizon topsoil; grey-brown humic silt with occasional pebbles and small stones.
03	Spread of redeposited subsoil, thinning from north to south across entire trench area. Yellow-brown silty sand, with frequent pebbles and occasional small–medium stones. Variable colour in places, from yellow to reddish brown, depending on iron oxide content. This deposit is thickest over the inner ditch area (15–24cm), thinning to north (5–6cm over extension trench) and south (6–8cm over bank). Contains a lense of orange-brown silty sand (C.03a), which is more iron-enriched and mottled than C.03; as well as a grey-brown/orange tinge lense (C.03b).
04	Discrete deposit of dark brown organic silt in south-east corner of trench. Soft and mottled, with frequent small to medium stones and a few large stones. Contained in a shallow depression in Bs-horizon, measuring 0.9m out from southern section and 0.95m from eastern section. This sediment overlay the C.20 slot.
05	Upper organic silt on northern side of inner ditch. Dark brown sediment with peaty texture, mostly free of clasts apart from some thin lenses of granular quartz. This is an buried sod, sealed by the influx of C.03 sediment in that area.

06	Thin deposit of orange silt in north-west corner of trench, occurring along outer edge of inner ditch. Contains numerous pebbles and small stones. This sediment represents slip off the upper edge of the ditch cut.
07	Stone fill of inner ditch. A loose deposit of small to large stones contained within a peat deposit (C.08). There was no obvious arrangement to these stones, with many on edge, while others were inclined or horizontal. The majority were 0.3–0.45m in lengthg, with three examples 0.6–0.7m, and many others 0.15–0.3m, but very few under 0.05m. Most were angular to sub-angular, with only a few having sub-rounded surfaces. The majority were fractured to some degree, with a few examples appearing to have been deliberately pointed. Approximately half of these stones had a reddened appearance, possibly connected to fire, which would explain why so many were broken. This is not certain, however, as the reddening of this stone may be a weathering feature with iron oxide induration. These stones seem to have been thrown into the open ditch.
08	Peat deposit in inner ditch. Black peat, well humified with no banding; occasional lenses of plant fibres/rootlets. No visible minerogenic content, and the only clasts were the large ones of C.07. Maximum thickness of 0.55m at east end of ditch, thinning to only 0.08m on eastern side. Voids occurring between C.07 stones, which is why some of the peat was loose.
09	Stone fill of outer ditch. A loose deposit of small to large stones contained within a peat deposit (C.10). There was no obvious arrangement to these stones, with many on edge, others inclined and flat. The majority were in 0.15–0.25m size range, with some 0.3–0.45m and a few 0.1–0.15m. Most were angular to sub-angular, with only a few sub-rounded surfaces. The majority were fractured to some degree, and were also reddened. As with C07 in the inner ditch, these stones seem to have been thrown into an open ditch.
10	Peat deposit in outer ditch. Black peat, well humified with no banding. No visible minerogenic content, and the only clasts were the large ones of C.07. This peat was 0.2–0.45m in thickness, with the lower part waterlogged. Voids occurring between C.09 stones, which is why some of the peat was loose.
11	Reddened stones at base of bank. A 2.6m wide band of large stones across the centre of the trench. These stones were arranged loosely with no obvious coursing, though some examples were piled two or three high. These stones ranged 0.15–0.25m in length, with some up to 0.3m and numerous examples as small as 0.07–0.15m. The overall thickness of this stone deposit was 0.12–0.18m. Most were angular to sub-angular, with very few rounded examples. A large proportion of these stones had reddened surfaces. Geological examination must be conducted to establish whether this is the result of burning or iron oxide weathering.
12	Thin spread of black silt, with lenses of granular quartz, between the stones of the C.11 bank deposit. Possibly a rainwash sediment through this stony material. No charcoal content.
13	Spread of black silt at base of bank, under the C.12 silt. Very few stones, but frequent flecks and occasional small lumps of oak charcoal (radiocarbon sample

	SR2015-01). The latter might be linked to reddening of the C.11 stones, however the possibility must also be considered that this charcoal derived from burning of the pre-bank slot (C.20).
14	Thin layer of iron pan across southern part of trench. Red-brown in colour, hard and stony; 1–3cm in thickness.
15	Cut of inner ditch in Bs-horizon subsoil. U-shaped profile, averaging 1.6m wide on top and 1.3–1.4m at base. The ditch varies considerably in depth, from 0.2m on west side sloping downwards to 0.8m. This is probably due to the presence of three large slabs embedded in the Bs-horizon subsoil at base of ditch. The presence of these large stones, 0.4m, 0.5m and 0.7m in length respectively, explains the rise in this part of the ditch.
16	Cut of outer ditch in Bs-horizon subsoil. V-shaped profile with gently sloping sides, ranging 1.5–1.65m in upper width, with a depth from the modern ground surface of 0.58m on east side to 0.74m on west side (0.42m and 0.38m respectively from top of Bs-horizon).
17	Possible stakehole at southern end of trench. Circular cut in Bs-horizon, 0.13m in diameter, with a depth of 0.06m. Sides steep to moderately sloping to a 0.04m wide base. Contained a compact light brown silt, with small fragments of reddened stone, as well as flecks of charcoal confined to upper part of fill.
18	Small pit at south-west end of trench, 0.23m west of C.17 stakehole. Sub-circular cut in Bs-horizon, measuring 0.29m (north–south) by 0.27m (east–west) on top and 0.16m (north–south) by 0.14m (east–west) at base with a central depth of 0.23m. Near-vertical sides to a slightly rounded base. Filled with loose light brown silt with small fragments of reddened stone and some flecks of charcoal. Possible large stakehole.
19	Fill of pre-bank slot feature (C.20), consisting of small angular fragments of heat-shattered stone, 3–5cm in average length, many of which were set on edge. This stone was tightly packed in the slot, along with some fine black silt (but no charcoal).
20	Narrow slot exposed over a total length of 4.5m from the southern end of the trench, extending under the bank as far as the edge of the double-ditch feature. Perfectly straight slot, aligned 030–210º, that widened in four areas to form possible stakeholes (contexts 21–24). The slot is best preserved under the bank (between stake position C.23 and C.24), where it averages 4–5cm in width and 6–9cm in depth. The sides were vertical to a 1–2cm wide, slightly pointed, base. The slot was not as well preserved south of the bank area.
21	Possible stake setting at southern excavated end of C.20 slot, where latter widened to form a 0.4m long by 0.24m wide (top) depression, narrowing to 0.1m at base with a depth of 0.1m. Filled with light brown silt containing small fragments of burnt stone and a few flecks of charcoal (not enough to sample).
22	Possible stake setting within C.20 slot, 0.45m east of C.21. Oval depression where slot widened to form a 0.4m long by 0.3m wide (top) depression, narrowing to 0.16m at base with a depth of 0.25m. Filled with light brown silt containing small fragments of burnt stone and a few flecks of charcoal

	(sampled). This fill was very similar to that in C.21, and to that in the possible stakeholes (contexts 17 and 18).
23	Possible stake setting within C.20 slot, 0.4m east of C.22. Circular depression where slot widened to form a 0.23m wide depression that narrowed to 0.08m at base. Slightly sloping sides to a rounded base, 0.17m in depth. Filled with yellow/light brown silt that contained a few pebbles, but no burnt stone or charcoal.
24	Possible stake setting within C.20 slot, 2.05m east of C.23, on edge of outer ditch. Irregular feature where slot widened to form a 0.3m long depression, 0.25m wide narrowing to 0.13m at base with a depth of 0.09–0.11m. Slightly sloping sides to a rounded base, 0.17m in depth. Filled with loose black silt with frequent fragments of burnt stone, but no charcoal
25	Bs-horizon subsoil. Bright orange silt, very compact with obvious iron oxide enrichment. Occasional pebbles, but mostly free of stones apart of some large slabs (examples at base of inner ditch).

17.5 FINDS

No artifacts were found in the Sruhaun excavation.

17.6 RADIOCARBON DATES FROM SRUHAUN

The following samples were selected for radiocarbon dating from Sruhaun:

SR2015-01 Two lumps of oak charcoal with sapwood rings, from spread of charcoal (C.13) beneath the outer bank (wood identification: Susan Lyons).
GrA-64430; 3030 ± 35 BP (1375–1225 BC)

SR2015-02 Sample of peat (C.08) from base of infill of inner ditch.
GrA-64432; 126.73 ± 0.39 BP (1959–1982 AD). Modern peat growth.

These samples will be submitted to the University of Groningen for AMS-radiocarbon dating. The charcoal sample (SR2015-01) is derived from burning of the pre-enclosure fence (C.20), and so should provide a *terminus post quem* for the outer bank of the enclosure. The fact that this charcoal was only preserved underneath the spread of bank material (C.11) suggests that the latter was deposited soon after the burning of that fence. The peat sample (SR2015-02) should provide a *terminus ante quem* for the digging of the inner ditch.

17.7 DISCUSSION

The objectives of the excavation at Sruhaun enclosure were to investigate the form and construction of the hillfort defences and recover samples for radiocarbon dating. The GrA-64430 result is the only dating evidence available for the Sruhaun enclosure, particularly as a peat sample from the adjavent ditch is of modern date. The stratigraphic position of this charcoal sample is not entirely secure as it may derive from the burning of the pre-bank field fence. The stratigraphic evidence does not indicate a significant interval of time between the two events, making making this result a useful *terminus post-quem* of 1375–1225 BC for the construction of the enclosure.

17.7.1 Pre-enclosure activity

This relates to the discovery of a narrow slot (C.20) extending 4.5m from the southern end of the excavation trench under the C.11 bank as far as the edge of the cross-cutting ditches. This perfectly straight slot widened in four areas to four possible stake settings. The most likely interpretation is a fence structure connected to an animal stockade on that side of Tuckmill Hill, which was later replaced by an embanked enclosure. The presence of fire-shattered stone in the slot indicates the fence was burnt down prior to construction of the enclosure. A spread of charcoal (C.13) built up on either side of this slot is connected to the burning of that fence (Plate 18.17).

17.7.2 Enclosure

The results from this excavation indicate four closely spaced enclosing elements at Sruhaun. These include:

1. A now-destroyed *outer bank* of stones with no soil component. The base of this feature survives as a spread of broken stone (C.11). Some of the original stones may be present in the adjacent ditches (contexts 07 and 09), but this is not certain.
2. An *outer ditch* (C.16) directly inside the C.11 bank.
3. An *inner ditch* (C.15) directly inside the C.16 ditch.
4. A now-destroyed *inner bank* of earth and possible some stone, located on the inside of the C.15 ditch. The existence of such a bank, built using soil upcast from the ditches, is indicated by a spread of redeposited subsoil (C.03) over the latter.

Radiocarbon dating confirms that these were not contemporary features, and so some re-building of the enclosure must have occurred on one or more occasions. The inner bank is likely to be contemporary with one or both of the ditches. The two ditches seem to be much later than the outer bank, as they do not contain any fine sediment derived from erosion of the latter.

The original height of the inner and inner banks is uncertain. Based on the amount of soil extracted from both ditches, and the amount of stone dumped there subsequently, neither bank/wall is likely to have exceeded one metre in height.

17.7.3 Occupation

The excavation did not produce any evidence for the occupation of this hillfort. No artifacts, food residues or structural remains were uncovered, mainly due to the limited area of excavation. It should be noted that geophysical survey does not indicate the presence of built structures inside the Sruhaun enclosure. This, together with the slight nature of the outer bank, suggests the site should not be regarded as a hillfort as there is no evidence of fortification. One interpretation is that that was an enclosure for livestock, probably associated with the adjacent hillforts of Rathcoran and/or Rathnagree.

17.7.4 Abandonment

The Sruhaun excavation did not yield much information on the final use of this enclosure. While the geophysical survey records high magnetic gradiometry readings along the enclosing element (Fig. 18.2), there is no definite evidence for deliberate destruction by fire. The status of reddened stone recovered from the ditches is uncertain. The total absence of charcoal in the basal ditch sediment does not support the idea that these stones are fire-reddened. In the absence of postholes or stake settings associated with the bank, there is no evidence of any wooden fencing that might have been destroyed by fire.

The *outer bank/wall* may have been built using large stones gathered from the surrounding terrain. These were subsequently dumped into the outer and inner ditches. This means that both ditches must have been open when the outer bank/wall was destroyed. The destruction of the proposed *inner bank* occurred some time after this, as the soil from that feature was deposited over ditches that were already partially infilled with peat and stone from the outer bank. This occured during agricultural clearance in the modern era; however, the destruction of the outer bank/wall must have been an much earlier event.

17.7.5 Summary

The excavation yielded important information on the construction and history of the Sruhaun enclosure. The remains of an external bank of stones were found on the outer side of two shallow ditches, the soil from which was used to build a now-destroyed inner bank. This unusual arrangement of stone bank/double ditch/earthen bank can be explained by the re-building of this enclosure on one or more occasions. The following sequence can be proposed:

Pre-enclosure

- A light wooden fence, probably one of many such examples, was used in land division on this side of Tuckmill Hill
- This fence was eventually burnt down, probably *c.*1375–1225 BC.

Enclosure

- An outer bank of stones was built soon afterwards, preserving charcoal from the burnt fence
- One or both ditches were dug inside this bank at a much later date
- The soil from these ditches was used to build an inner bank.

Destruction

- Peat started to form in the two waterlogged ditches
- The outer bank was levelled, and large stones thrown into the adjacent ditches
- Peat formation continued in ditches
- The inner bank of soil was levelled over the aforementioned features.

Further detail on the site sequence must await the results of radiocarbon dating of charcoal taken from beneath the C.11 bank, and peat sampled from the base of the inner ditch.

Acknowledgements

I wish to thank the site supervisor, Nick Hogan, and site archaeologists, James O'Driscoll and Alan Hawkes. James carried out the geophysical survey of this site, while Nick prepared the excavation drawings. We are grateful to the landowner, Mr Henry Moore, for permission to excavate.

Plate 18.1: Aerial view of Tuckmill Hill, showing location of the large enclosures of Rathcoran, Rathnagree and Sruhaun (source: Google Earth).

Plate 18.2: View of Tuckmill Hill looking north-east, with Baltinglass town visible at foot of hill.

Plate 18.3: Pre-excavation view of Sruhaun trench (looking south-west). Hughstown hillfort visible in distance (right of background).

Plate 18.4: Post-excavation view of Sruhaun trench (looking north-west), showing piles of bank/wall stones removed from the two ditches (vertical 2m pole).

Plate 18.5: Excavation surface in Sruhaun trench, following removal of A-horizon topsoil (looking north).

Plate 18.6: Excavation of Sruhaun trench, following removal of A-horizon topsoil (looking south). The yellow-brown surface is a spread of redeposited subsoil (C.03) resulting from leveling of the inner bank.

Plate 18.7: Excavation of north-east corner of trench. Removal of areas of dark brown silt (C.05) within the C.03 redeposited subsoil exposed large stones in a peaty sediment. This was later confirmed as the lower fill of the inner ditch.

Plate 18.8: Post-excavation view of inner (left) and outer (right) ditches, northern end of Sruhaun trench.

Plate 18.9: Stratification of inner ditch, east-facing section. The ditch was very shallow on this side of trench.

Plate 18.10: Stratification of inner ditch, west-facing section, showing large stones (C.07) in lower peaty fill (C.08), overlain by spread of redeposited subsoil (C.03).

Plate 18.11: Large stones (C.07 and 09) from inner and outer ditches, Sruhaun. The stones were originally part of the bank/wall on exterior side of outer ditch.

Plate 18.12: Post-excavation view of outer ditch (C.16; left) and inner ditch (C.15; right), looking north-west.

Plate 18.13: Fill of outer ditch, west-facing section. Deposit of large stones (C.09) from destroyed outer bank/wall, occurring within peat (C.10), overlain by redeposited subsoil (C.03) from levelled inner bank.

Plate 18.14: Fill of outer ditch, east-facing section. Large stones (C.09) within peat (C.10), overlain by redeposited subsoil (C.03) from levelled inner bank.

Plate 18.15: Spread of reddened stones (C.11) within spread of black silt (C.12), representing base of bank/wall on exterior of outer ditch.

Plate 18.16: Spread of charcoal-rich sediment (C13) under C.11/C.12 bank material.

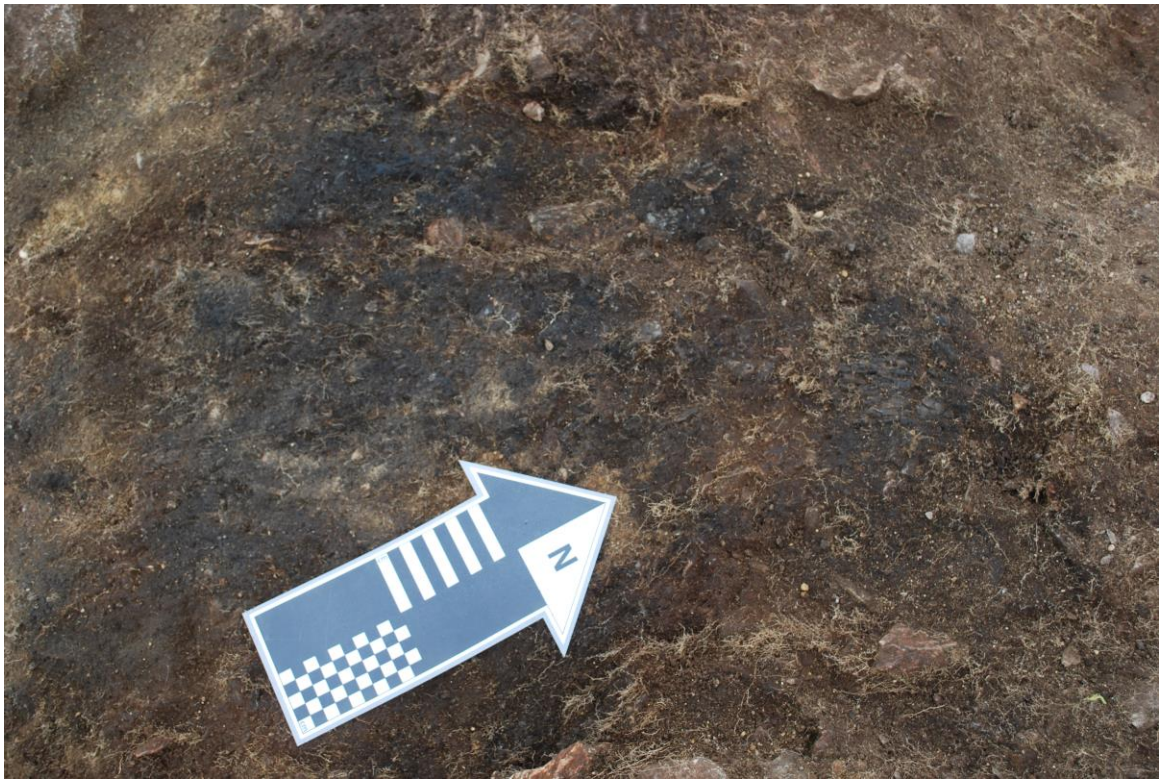

Plate 18.17: Detail of charcoal-rich sediment (C13) under C.11/C.12 bank material. Charcoal sampled from this context for radiocarbon dating (SN201501). Note the narrow slot trench (C.20) that cuts across this spread (top left to right).

Plate 18.18: Excavation of narrow slot (C.20), and small pit (C.18; bottom centre).

Plate 18.19: Excavation of narrow slot (C.20) with stakeholes, southern side of trench.

Plate 18.20: Post-excavation view of C.20 slot (looking north).

Plate 18.21: Post-excavation view of Sruhaun trench, showing C.20 slot truncated by ditches at northern end of trench.

Plate 18.22: Back-filling of Sruhaun trench after excavation after excavation.

APPENDIX: 8

Tinoran Excavation

By Professor William O'Brien

In August 2015 sample excavation was conducted at a prehistoric hillfort at Tinoran, Co. Wicklow. This is the largest known single hillfort in Ireland, with four or possibly five concentric enclosures surrounding an area estimated at 84ha. It is one of a cluster of hillforts in the Baltinglass area of Co. Wicklow, close to the county boundary with Kildare. The excavation was undertaken as part of a research project on prehistoric hillforts in Ireland, based in University College Cork and funded by the Irish Research Council. The investigation at Tinoran consisted of a single trench excavated across the defences of both the third and fourth enclosures of this hillfort. This confirmed the presence of a substantial stone bank around the third enclosure, inside which evidence of occupation in the form of burnt spreads and coarseware pottery. The defences of the fourth enclosure are somewhat different, represented by the remains of an earthen bank and ditch that was levelled in modern times. A series of radiocarbon dates are available from the excavation of the third enclosure. These indicate a date range of 1155–980 BC for construction of the stone bank, with later occupation at that location dated 890–795 BC. Radiocarbon dating provides a terminus ante quem of 805–785 BC for the ditch of the fourth enclosure.

18.1 INTRODUCTION

This multiple enclosure hillfort is located in the townlands of Tinoranhill North and Tinoranhill South in the south-west corner of Co. Wicklow, 2km north/north-west of the town of Baltinglass, Co. Wicklow (Fig. 19.1; ITM 685175, 690581). The hillfort lies on the highest point of a prominent hill (312m OD) on the eastern side of a narrow valley. It encloses an area of 84.03ha of steeply rising ground, much of which is today covered by coniferous forest (Plate 19.2). The location is striking, with extensive views of the lowland of south Wicklow, east Kildare and Carlow.

Tinoran is arguably the largest hillfort in Ireland (see below). It was first recorded by Tom Condit (National Monuments Service) who identified four enclosures on this hill (Condit

1992). Two of these, the innermost and the third enclosure, are marked on historic mapping of the Ordnance Survey. A recent examination by James O'Driscioll (UCC) revealed a possible fifth enclosure (Fig. 19.2). The hillfort is listed as WI026-004 in the *Record of Monuments and Places* (RMP) for Co. Wicklow. The entire site was forested in the modern era, with the exception of a small area in the south-west quadrant that is now in modern farm pasture (Plate 19.2). This afforestation has resulted in serious ground destruction across large parts of the interior, and seems to have been carried out with little/no archaeological supervision. Some intervention seems to have been undertaken by the State in recent years, leading to the preservation of a small portion of the second and third enclosures on their south-west side. Some of this forestry was recently been cut on the south-west slope, with indications of re-planting in several areas.

The innermost enclosure of the hillfort is depicted on the historic mapping (first and second edition six-inch survey) of the Ordnance Survey as the 'Round O', a name still used by the local people. Recent survey by James O'Driscoll (UCC) confirmed an earthen bank, 2.2m in average width, and 0.9–1.2m in height, with a possible stone revetment, and an external ditch, 1.6m wide and 0.8m deep. This bank and ditch enclose an area of 0.062ha, which is now planted with young conifers in contravention of the RMP protection status.

The second enclosing element at Tinoran is oval in shape and surrounds an area of 4.67ha. This enclosing element follows the 300m contour as a low bank of stone, with no

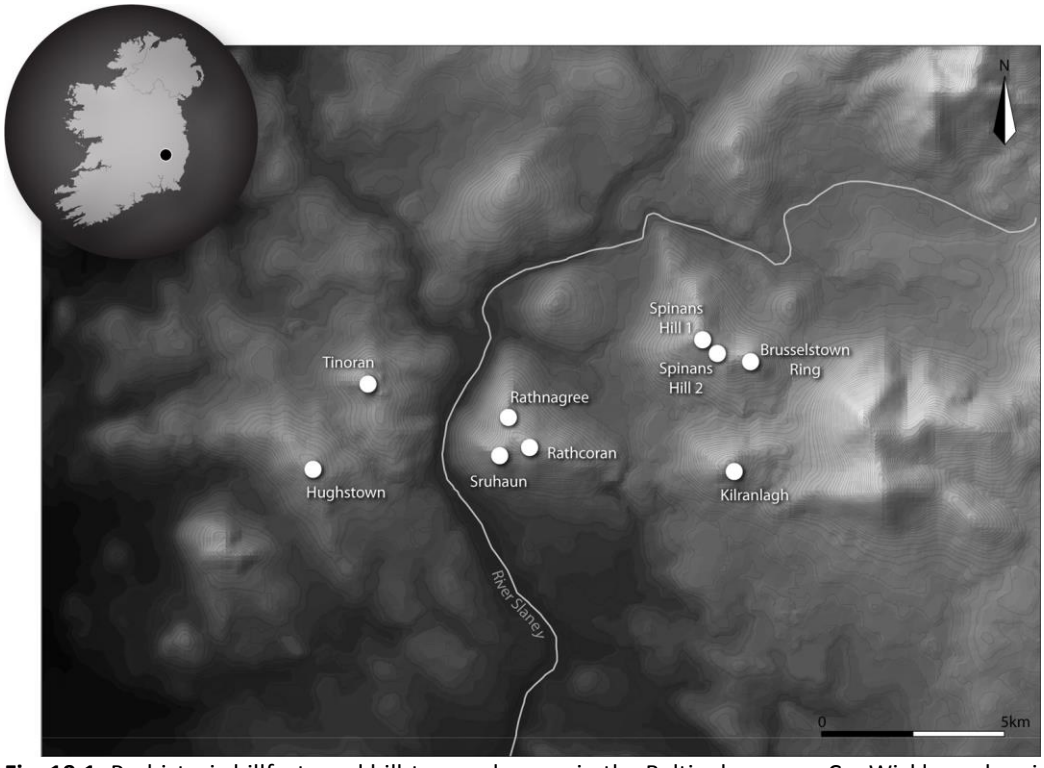

Fig. 19.1: Prehistoric hillforts and hill-top enclosures in the Baltinglass area, Co. Wicklow, showing location of Tinoran hillfort.

indication of an associated ditch. This bank is partly incorporated into modern field systems. The third enclosure is located 65–127m outside of the second enclosure. It is somewhat oval in shape, enclosing a total area of 14.46m. It comprises a low bank of stones (no visible ditch) following the 280m contour (276–284m OD range) over a perimeter of 1.37km. This enclosure is also depicted on the historic mapping of the Ordnance Survey.

The partial remains of a fourth enclosing element have been identified through aerial photography (Condit 1998, 15). Much of this lies within forestry, either as a levelled bank or sections that were re-built in the modern era. The former also includes a low slope visible in a large field on the south/south-east side of the hillfort where the bank was levelled (Plate 19.3). A continuation of the same bank was re-built in the modern era in an adjacent field (now under forestry) to the east (Plate 19.4). When projected, the bank of the fourth enclosure surrounds an area of 55.74ha at an altitude range of 221–244m OD.

Using LiDAR mapping, James O'Driscoll (UCC) identified a possible fifth enclosure at Tinoran, located some 50m from the fourth enclosing bank. This is best preserved at the southern side where it is visible as a low-rise bank up to 11.6m wide. When the full extent is calculated, this bank may enclose a total hillfort area of 84.03ha. As stated previously, this makes Tinoran the largest prehistoric hillfort in Ireland, depending on whether one views the larger enclosure on nearby Spinan's Hill (130ha) as a hillfort (*cf*. Condit 1992).

18.2 TINORAN EXCAVATION

The main purpose of this excavation is to obtain information on the hillfort defences. The specific aims are to record the physical form of the original defences of the third and fourth enclosures of this hillfort, and examine the methods and materials used in their construction. It was also hoped to obtain dating evidence for the construction, use and abandonment of the defences, as well as indications of contemporary occupation.

The excavation was conducted over a two-week period in early August 2015. The project team consisted of the excavation director and licence holder, Professor William O'Brien; the site supervisor and surveyor, Nick Hogan MA; and site archaeologists, James O'Driscoll MPhil and Dr Alan Hawkes. Two trenches were excavated on the southern side of the hillfort, across the defences of the third and fourth enclosures respectively (Fig. 19.2; Plate 19.2). Both trenches were de-turfed by spade with subsequent excavation undertaken by trowel. This included

Fig. 19.2: Survey and aerial photograph of Tinoran hillfort, showing location of excavation trenches (James O'Driscoll).

context-based recording, with full written descriptions, photography and scale drawings. On completion of work these trenches was back-filled by hand and the ground surface restored (Plate 19.26).

The Tinoran excavation is part of a wider investigation of Irish hillforts, based in UCC and funded by the Irish Research Council. This research includes a programme of sample excavation designed to create a new chronology for Irish hillforts. Excavations have already been conducted at the hillforts of Clashanimud, Co. Cork; Glanbane, Co. Kerry; Ballylin, Co. Limerick; Formoyle, Co. Clare; Toor More, Co. Kilkenny; Rathnagree, Co. Wicklow; Sruhaun, Co. Wicklow, and Hughstown, Co. Kildare (reports on these excavations have now been submitted to the National Monuments Service). Along with these projects, the results from Tinoran will add significantly to an understanding of the chronology and defensive features of prehistoric hillforts in Ireland.

18.3 TRENCH 1 (FOURTH ENCLOSURE)

A single trench, measuring 10m by 2m, was excavated across the line of a levelled bank on the south-east side of the hillfort (Fig. 19.2; Plates 19.5–19.7). This trench was located on the eastern side of a large pasture field, which was cultivated at various times in the modern era. The bank is visible as a low slope over a distance of 4m, with no exposed stones or visible ditch. The trench was de-turfed by spade with subsequent excavation undertaken by trowel. This included context-based recording (Tables 19.1 and 19.2), with full written descriptions, photography and scale drawings. On completion of work the trench was back-filled by hand and the ground surface restored (Plate 19.26).

Natural Soil

Excavation confirmed the natural soil at this location is a brown podzol, with the following profile:

O-horizon. Sod layer (C.01), 0.1m average thickness, with no stones.

A-horizon. Dark brown organic silt with some stones (C.02), with a greater depth and mid brown colour (C.06) over the central part of the ditch.

Iron pan. Thin hard layer of red-brown sediment (C.26) overlying the Bs-horizon inside the bank area.

Bs-horizon. Iron-enriched bright orange silt with stones (C.27).

C-horizon. Hard grey/light brown silt with numerous stones (C.28).

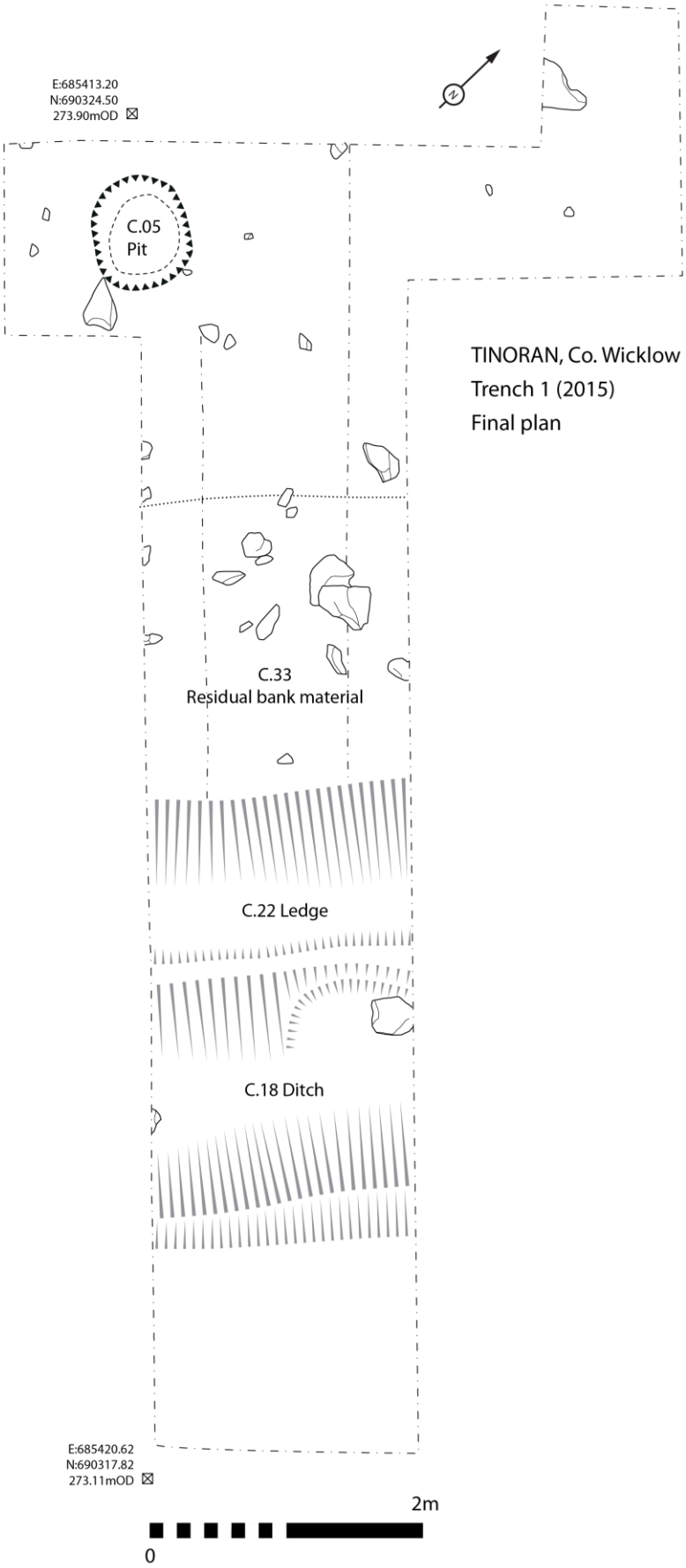

Fig. 19.3: Post-excavation plan, Trench 1, Tinoran.

Fig. 19.4: Post-excavation photogrammetry, Trench 1, Tinoran.

The absence of a leached layer (E-horizon) at the base of the organic soil may be explained by modern cultivation in this field. The landowner confirmed there was cultivation of oats in this field some decades ago. The former existence of a leached layer is indicated by the degree of iron oxide precipitation (C.26) on the Bs-horizon surface (C.27; Plates 19.5 and 19.6). This is confirmed by the discovery of a thin layer of light brown/grey silt (C.25) beneath the remaining bank material, which represents a pre-bank E-horizon (Plate 19.17).

Organic soil
Context 01. Sod layer
C.02 A-horizon topsoil

Pit feature on inner side of bank
C.03 Upper fill of C.05 pit
C.04 Lower fill of C.05 pit
C.05 Cut of pit inside bank

Levelling of bank into ditch
C.06 and C.07 Organic soil over infilled ditch (lighter in colour than C.02)
C.08 Redeposited bank subsoil, upper fill of ditch
C.09 Redeposited upper organic soil from levelled bank in upper fill of ditch

Break in ditch infill
C.10 Buried sod layer

Ditch stratification
C.11 Sediment deposit in mid ditch fill
C.12 Sediment deposit in mid ditch fill
C.13 Sediment deposit in mid ditch fill
C.14 Sediment deposit in mid ditch fill
C.15 Sediment deposit in lower ditch fill
C.16 Sediment deposit in lower ditch fill
C.17 Sediment deposit at base of ditch
C.18 Cut of main ditch

Fill of ledge feature on inner side of ditch
C.19 Upper fill of ledge
C.20 Central fill of ledge
C.21 Basal sediment in ledge
C.22 Cut of ledge feature (part of C.18 cut)

Residual bank material
C.23 Spread of stony sediment on inner side of ditch.

Pre-bank/ditch soil profile
C.24 Buried sod layer beneath bank
C.25 Leached soil (E-horizon) beneath bank
C.26 Iron pan formation on top of Bs-horizon
C.27 Bs-horizon
C.28 C-horizon.

Table 19.1: Summary of stratification, Trench 1, Tinoran hillfort.

18.3.1 Archaeological Features

There were two major features in this trench, namely the base of a levelled bank and an external earth-cut ditch.

Ditch

Excavation revealed a ditch (C.18) with a U-shaped profile cut into natural subsoil (Fig. 19.3; Plates 19.8 and 19.9). The top of the ditch was 1.7–1.8 wide, narrowing to 0.4–0.5m at the base, with a cut depth of 0.6–0.8m (maximum depth of 0.9m from modern ground level). The sides were gently sloping (45º) and smooth, with the upper portion formed in Bs-horizon (C.27) and the base in C-horizon (C.28).

The lower inner slope of the ditch was broken by a narrow flat-bottomed ledge (C.22) that contain separate fills from the main ditch (Plates 19.10 and 19.11). This channel-like feature was approximately 0.4–0.5m wide and 0.1–0.15m in depth. It was part of the primary ditch cut, though it precise purpose is unknown.

When both the above are considered together, the overall width of the ditch was approximately 3.3m, with a central cut depth of 0.8m.

Fill sequence

There were four stages in the infilling of this ditch (Fig. 19.4; Plates 19.11–19.14):

- Early fill sequence (contexts 11–17)
- Fill of ledge on lower inner slope of ditch (contexts 19–21)
- Break in ditch fill (C.10)
- Levelling of bank into ditch (contexts 06–09).

Early fill sequence

The filling of the ditch commenced with a thin deposit of bright orange silt (C.17), derived from primary erosion of the ditch cut (Plate 19.14). The basal sediment contained numerous flecks of charcoal (radiocarbon sample TN2015-01) of unknown origin. This was overlain by a thin deposit of mottled orange/brown silt (C.16), also with flecks of charcoal. It was followed by deposition of compact mid brown silt (C.15), again with flecks of charcoal. The next layer was a compact grey silt (C.14) containing lenses of red-orange iron pan, overlain by a deposit of mid brown silt (C.13) with flecks of charcoal forming the upper fill of the ditch. The latter included a lens of black compact silt (C.12) overlain by a small deposit of grey/brown silt (C.11) on the western side of ditch. There are no artifact finds from these ditch sediments.

Fill of ledge on lower inner slope of ditch (contexts 19–21)

Excavation revealed a thin deposit of yellow/dark brown mottled silt (C.21) at the base of the narrow ledge on lower inner side of ditch (Plate 19.11). This sediment contained flecks and small lumps of charcoal. The upper fill of the ledge consisted of orange/brown sandy silt (C.20), overlain on eastern side of the trench by a lens of mid brown silt (C.19).

Break in ditch fill

The infilling of the main ditch cut was interrupted by the formation of a sod layer that separates early deposits from those created by the levelling of the adjacent bank (Plates 19.13 and 19.14). This buried sod is represented by a 0.05–0.09m thick layer of grey/brown organic silt (C.10). There are no charcoal or artifact finds from this buried sod layer.

Levelling of bank into ditch (contexts 06–09)

The final stage in the ditch fill is represented by a deposit of dark brown sandy silt (C.09) over the inner side of ditch (Plate 19.13). This sediment derived from the levelling of the adjacent bank *c.*1955 (landowner information). The original subsoil core of that bank may in part be represented by a thin deposit of yellow/light brown silt (C.08) on the eastern side of the trench. This was overlain by a thickness of up to 0.3m of organic soil (contexts 06 and 07) beneath the modern sod.

Bank

The excavation results point to the former presence of a bank on the inner side of the ditch (Fig. 19.3). The landowner, Mr Victor O'Neill, confirmed that this bank was levelled by agriculture in the modern period. He recalled that his father employed a local man *c.*1955 to level by spade a 'three foot high bank' into an adjacent ditch depression.

The removal of a 0.15–0.18m thickness of organic soil (contexts 01 and 02) exposed a spread of residual bank material (C.23), the southern limit of which was approximately 0.7m inside the ditch (Fig. 19.4; Plate 19.15). This compact deposit of orange sandy silt measured 1.2–1.4m wide by 0.02–0.05m thick (up to 0.09m in places), contained only a few small stones (Plate 19.16). None of the latter had a reddened appearance, and there was no occurrence of charcoal in the spread.

The residual bank material overlay a thin layer of black organic silt containing few clasts (C.24). This 0.02–0.04m thick layer extended 1.8–2.2m from the inner edge of the ditch. It represents a sod layer buried beneath the former bank (Plate 19.17). This old ground surface contained a few flecks of charcoal, but no archaeological material to indicate pre-enclosure activity at that location. Excavation revealed a grey leached layer (C.25), averaging 0.05–0.08m in thickness, which respected the width of the buried sod layer (C.24) and formed part of the pre-bank natural soil.

Pit

Excavation revealed a small circular pit (C.05), 0.86m in diameter and 0.46m deep, located inside the bank area in the north-west corner of the excavation trench (Fig. 19.3; Plates 19.18–19.19; 19.23–19.24). The sides and base of the pit were covered by a thin layer of red iron pan of natural origin (Plate 19.20). Two separate fills were excavated in this pit (Plate 19.21). The upper fill (C.03) consisted of black organic silt with occasional small stones and some flecks of charcoal on the surface. The lower fill (C.04) consisted of grey/light brown sandy silt, which did not contain any charcoal or archaeological material (Plate 19.22).

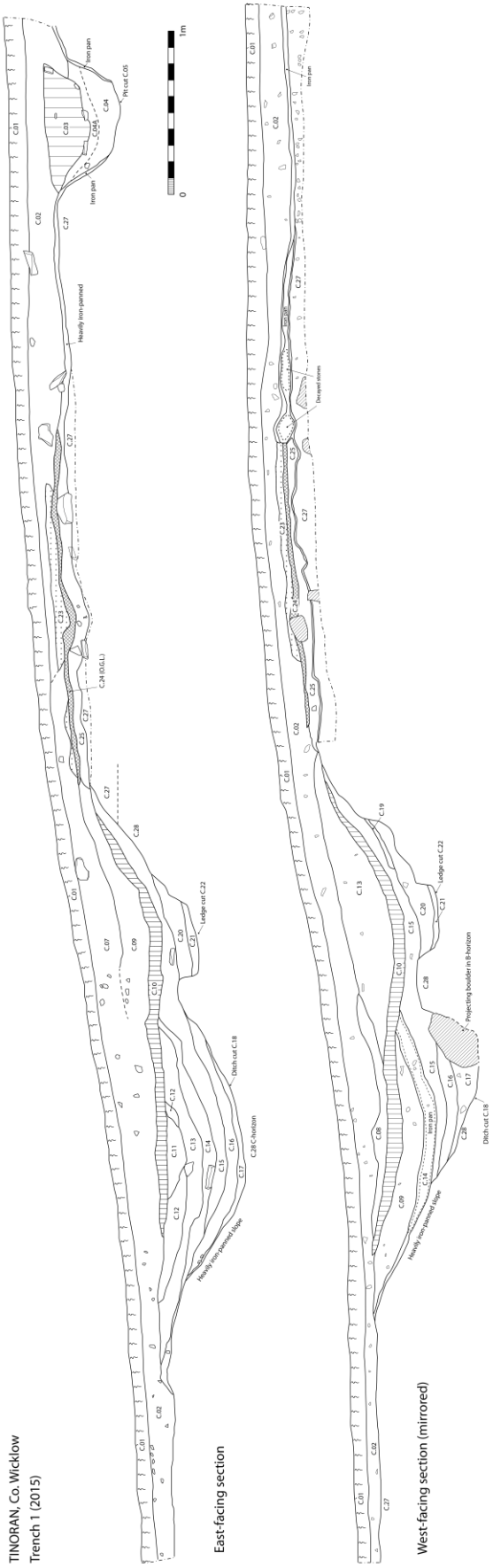

Fig. 19.5: Stratigraphic sections across, Trench 1, fourth enclosure, Tinoran hillfort.

Table 19.2: Archaeological contexts, Trench 1, Tinoran hillfort.

Context	***Description***
01	Sod layer, averaging 0.1m in thickness across trench; no stones.
02	A-horizon topsoil. Dark brown organic silt, friable with a low sand content, and a few pebbles and small stones
03	Upper fill of C.05 pit. Black organic silt, no sand or pebbles, and only occasional small stones. Some flecks of charcoal in upper part.
04	Lower fill of C.05 pit. Grey/light brown sandy silt, some iron oxide mottles and occasional pebbles and small stones. The upper 5cm is darker in contact with upper fill (C.03) of pit.
05	Cut of pit inside bank in north-west corner of trench. Circular in plan, measuring 0.87m (north–south) by 0.85m (east–west) on top and 0.6m (north–south) by 0.55m (east–west) at base. Steeply sloping sides to irregularly flat base, with a central depth of 0.46m. The sides and base of the pit were covered by a thin layer of red iron pan of natural origin. A large stone, 0.4m by 0.22m by 0.1m, on the southern edge of the pit was probably of natural origin, as it was embedded in the Bs-horizon subsoil.
06	A-horizon topsoil over central area of ditch. Mid brown organic silt (lighter in colour than C.02, but essentially the same), with numerous pebbles and some small stones.
07	A-horizon topsoil over inner side of ditch (not shown in sections). Light brown sandy silt with frequent pebbles and occasional small stones. Connected to levelling of bank in modern era.
08	Lens of yellow/light brown silt with rare clasts over central area of ditch on eastern side. Redeposited subsoil connected to levelling of bank in modern era.
09	Layer of dark brown sandy silt over inner side of ditch. Frequent pebbles and some small stones. Connected to levelling of bank in modern era.
10	Buried sod within upper fill of ditch. Grey/brown organic silt, compact with no clasts. Separates early infilling of ditch from upper deposits created by levelling of bank in modern era.
11	Deposit of grey/brown silt with orange (iron oxide) mottles in upper fill on western side of ditch.
12	Deposit of black compact silt with no clasts in upper fill on western side of ditch.
13	Layer of mid brown silt in upper part of ditch; numerous pebbles and small stones, and some flecks of charcoal.
14	Layer of compact grey silt in central fill of ditch. Thin lenses of red-orange iron pan on upper surface and base of this deposit.
15	Layer of mid brown silt in lower fill of ditch; compact with rare clasts, and some flecks of charcoal.
16	Lower fill of ditch. Thin deposit of orange/brown silt with grey mottles and flecks of charcoal.
17	Basal sediment in ditch. Bright orange silt with very few clasts. Derived from primary erosion of ditch cut. Numerous flecks of charcoal (radiocarbon sample

	TN2015-01) of unknown origin.
18	Cut of ditch (see main text).
19	Lens of mid brown silt in upper fill of ledge on inner side of ditch.
20	Deposit of orange/brown sandy silt in fill of ledge on inner side of ditch.
21	Thin deposit of yellow/dark brown mottled silt at base of ledge on inner side of ditch. Contains flecks and small lumps of charcoal (sampled).
22	Cut of ledge in inner side of ditch (see main text).
23	Residual bank material. Thin spread of orange sandy silt with numerous pebbles and occasional small stones. No charcoal.
24	Buried sod. Thin spread of black organic silt under C.23 bank material; no clasts or charcoal.
25	Thin layer of light brown/grey silt with occasional pebbles. Represents a pre-bank leached subsoil (E-horizon|).
26	Iron pan formation on top of Bs-horizon (C.27) under and inside bank. Thin layer, 1–3cm in thickness, with red-brown colour.
27	Natural Bs-horizon. Compact bright orange silt, with occasional pebbles and small to large stones.
28	Natural C-horizon. Hard grey/light brown silt with numerous small to large stones, including some small boulders.

18.2 Finds

The only artifacts from Tinoran Trench 1 are a sherd of white china and a sherd of brown glazed china, neither of which was retained. These sherds of modern pottery were found in agricultural topsoil (C.02) inside the bank area.

18.3 RADIOCARBON DATES FROM TINORAN TRENCE 1

A single sample of charcoal was selected from Tinoran Trench 1 for AMS radiocarbon dating (wood identification: Susan Lyons, UCC):

TN2015-01: Sample of oak charcoal from sediment (Context 17) at base of ditch of fourth enclosure.
GrA-64438; 2600 ± 30 BP (805–785 BC)

18.4 TRENCE 1 SUMMARY

Excavation confirmed that the fourth enclosure of this hillfort was surrounded by a single bank and ditch, which was levelled in the modern era. No evidence of pre-enclosure activity was found. The enclosing element consisted of a shallow earth-cut ditch, the soil from which was dumped on the inside to form a low bank. No stone was used in the construction of this bank, nor is there any evidence of wooden fencing. Based on the ditch size, the original height of the bank is unlikely to have exceeded 1.5m, with a combined bank/ditch height of around 2–2.5m.

There are few details as to the occupation or abandonment of the hillfort. The ditch remained open for a long period, with primary erosion of the cut accompanied by an influx of organic silt, as well as eroded sediment from the bank. A small amount of charcoal was found in the basal fill of the ditch. Radiocarbon dating suggests this can be linked to continued occupation of the hillfort into the Late Bronze Age (see below). There is no evidence of any deliberate destruction of the defences.

The only other archaeological feature in this trench was a large pit (C.05) inside the bank. The excavation trench was extended 1m to the east to investigate the possibility that this feature was one of a line of similar pits connected to a wooden palisade inside the bank. No other pits were identified in this 3m wide space east of the C.05 pit (Plate 19.25). Magnetic gradiometry survey was also undertaken over a 20m distance to the west of this pit in search of similar examples. The results were negative, and so the excavated pit remains an isolated feature of uncertain significance.

18.5 TRENCH 2 (THIRD ENCLOSURE)

A single trench was excavated across the visible bank on the south-west side of the third hillfort enclosure (Fig. 19.2; Plate 19.2). Prior to excavation the bank was visible as 4–5m wide band of ferns crossing an area of heavy gorse growth (Plate 19.27). The excavation trench measured 4m (NW–SE) by 3m (NE–SW), with a 5m by 1m extension cutting across the bank on the southern side (Figs 19.6 and 19.7; Plates 19.28 and 19.29). The trench was de-turfed by spade with subsequent excavation undertaken by trowel. This included context-based recording (Tables 19.3 and 19.4), with full written descriptions, photography and scale drawings. On completion of work the trench was back-filled by hand and the ground surface restored (Plate 19.42).

Natural soil

Excavation began with the removal of a thin grassy sod (C.01) across the hillfort bank. The tops of some large stones in the bank were visible before excavation; otherwise, this sod was intact across the trench area. The underlying A-horizon on the inner side of the bank consisted of a dark brown organic silt (C.03) with numerous small stones (Plate 19.30). On the bank itself there were pockets of organic peat (C.02) among the uppermost stones. The A-horizon along the lower exterior slope of the bank was a dark brown organic silt (C.15), which contained stones (C.10) tumbled from the bank (Plate 19.29). The natural Bs-horizon subsoil across the trench area was a bright orange compact silt containing numerous stones (C.17; Plate 19.28). Pockets of white silt (C.16) overlying this Bs-horizon on the inner side of the bank may represent the remains of a former leached layer (E-horizon).

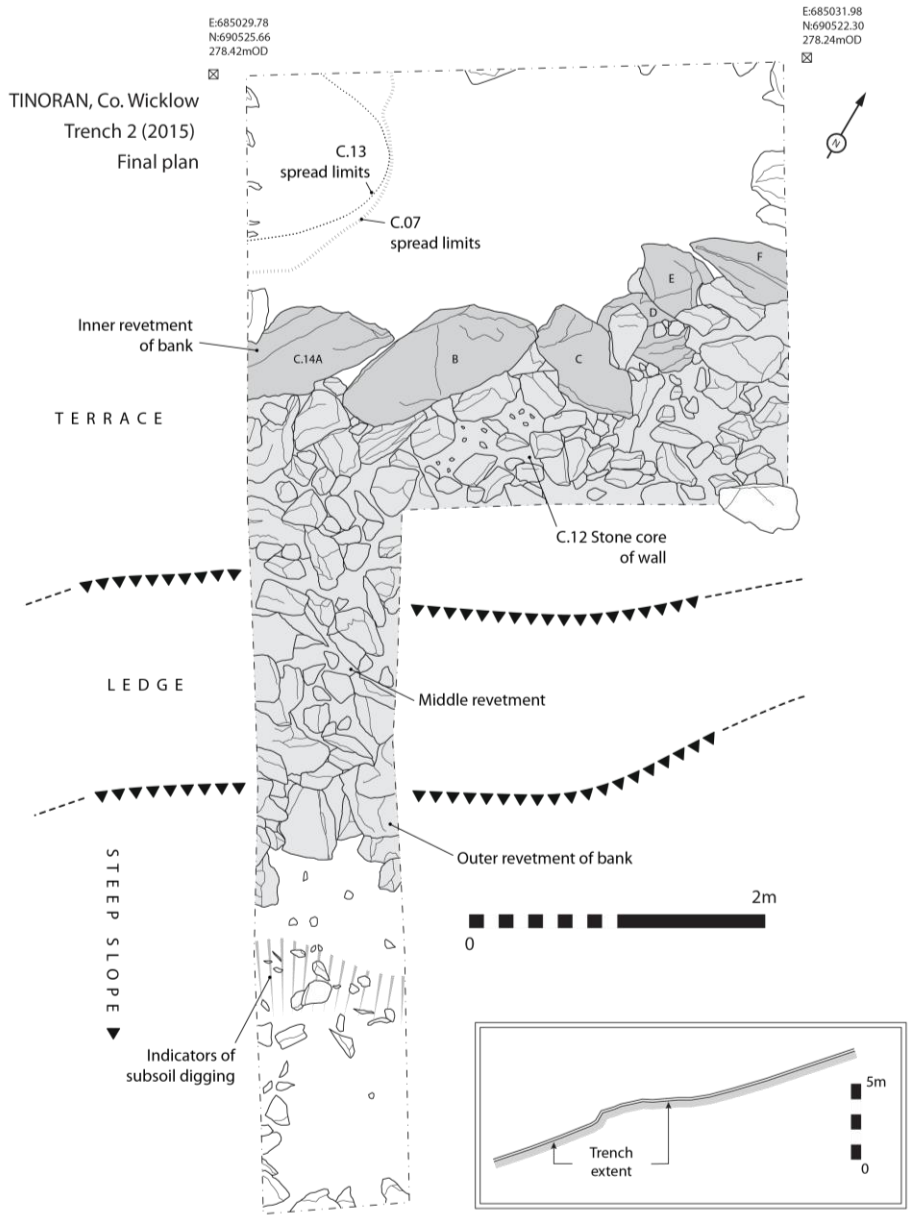

Fig. 19.6: Post-excavation plan (overleaf), Trench 2, Tinoran.

Fig. 19.7: Post-excavation photogrammetry, Trench 2, Tinoran.

Natural soil
Sod layer (C.01) inside and outside bank
Peat accumulation between bank stones (C.02)
Pre-bank activity
C.16 silt on Bs-horizon (C.17)
C.13 hearth under C.09
Bank construction or pre-bank?
C.09 grey-brown silt and pottery, under C.08
C.08 orange-brown stony sediment (introduced layer)
Bank construction
C.14 boulder kerb
C.12 stone core of bank
Outer kerbs?
C.11 redeposited subsoil against lower exterior side of bank
Post-construction activity
C.07 hearth
Natural slopewash deposits on inner side of wall
C.06 and C.05 sediments
Bank erosion/collapse
C.04 stone tumble within C.03 organic silt on inner side of bank
C.10 stone tumble within C.15 organic silt on outer side of bank
Subsoil
C.17 Bs-horizon

Table 19.3: Summary of stratification, Trench 2, Tinoran hillfort.

18.5.1 ARCHAEOLOGICAL FEATURES

Pre-bank activity

Excavation revealed a thin spread of dark brown/black fine silt (C.13) in the north-east corner of the trench (Plates 19.31 and 19.32). This sediment contained a large amount of charcoal, as well as small fragments of burnt bone (radiocarbon sample TN2015-03). It represents the remains of

a cooking fire near this location on the inner side of the bank. The C.13 sediment was overlain by a stony layer (C.09) on which the hillfort bank was constructed. This indicates that the hearth pre-dates the bank construction, though by how much remains to be established by radiocarbon dating.

Bank construction or pre-bank?

Excavation revealed two layers of sediment on the inner side of the bank and also continuing under this feature (Figs 19.8 and 19.9). This material seems to have been deliberately deposited to create a terrace along this slope as a level surface for construction of the bank. This dumping began with a deposit of grey-brown silt (C.09) that contained some charcoal (radiocarbon sample TN2015-04). Finds include a collection of coarseware sherds (15E0321:02–106), probably from a single vessel, which were trampled into the upper surface of C.09 on the inner side of the bank. A whetstone (15E0321:01) was also discovered in the upper part of this deposit, close to where the pottery was found.

Context 09 was overlain by a layer of orange-brown stony sediment (C.08), also occurring on the inner side and beneath the hillfort bank (Plate 19.33). This sediment contained numerous small stones of slaty form, possibly derived from soil dug from the slope below and outside the bank (Plate 19.34). This material was spread on top of the C.09 deposit to further level the slope for bank construction.

Bank construction

The bank itself was built entirely of large boulders and smaller stones, with no soil component. The inner side comprised a line of large boulders (C.14), mostly placed in a recumbent position, either contiguously or with a slight overlap (Figs 19.5 and 19.6; Plate 19.35). The excavation trench revealed six large boulders of grey sandstone lying on the pre-bank levelled surface (contexts 08 and 09), These boulders ranged 0.72–1.47m in maximum length, and were sub-rectangular to sub-ovoid in cross section. They had a weathered appearance with no fractured surfaces. They were mostly placed horizontally, and in some cases were propped underneath by smaller stones.

The core of the bank consisted of grey sandstone clasts (C.12) of weathered appearance, having an average length of 0.33m (Figs 19.5–19.7). These stones were piled loosely inside the

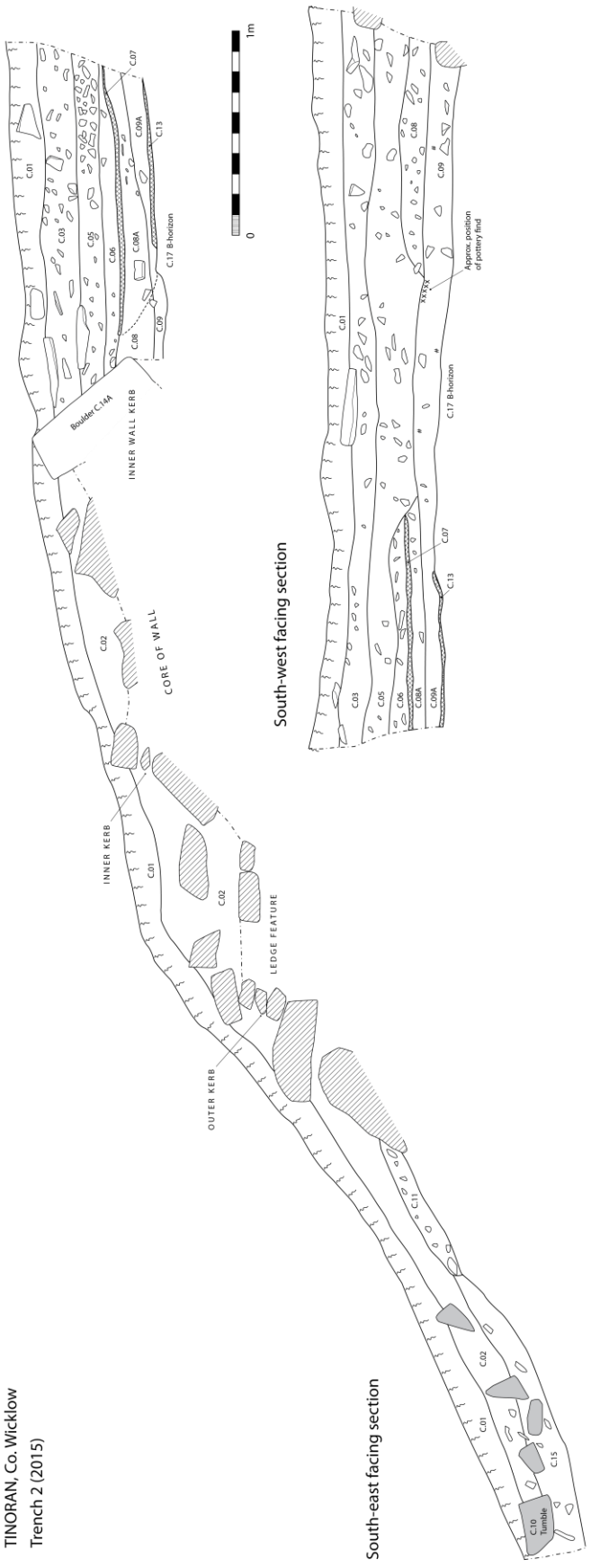

Fig. 19.8: Stratification of trench sections, Trench 2, Tinoran.

boulder kerb with no obvious coursing. They were retained by two possible kerbs of small boulders within the centre and outer side of the bank (Plate 19.36). This seems likely, but is difficult to confirm given that the excavation trench was only a metre wide at this point. Excavation also revealed a small amount of redeposited subsoil (C.11) against the lower exterior side of bank, probably placed there as part of the construction process.

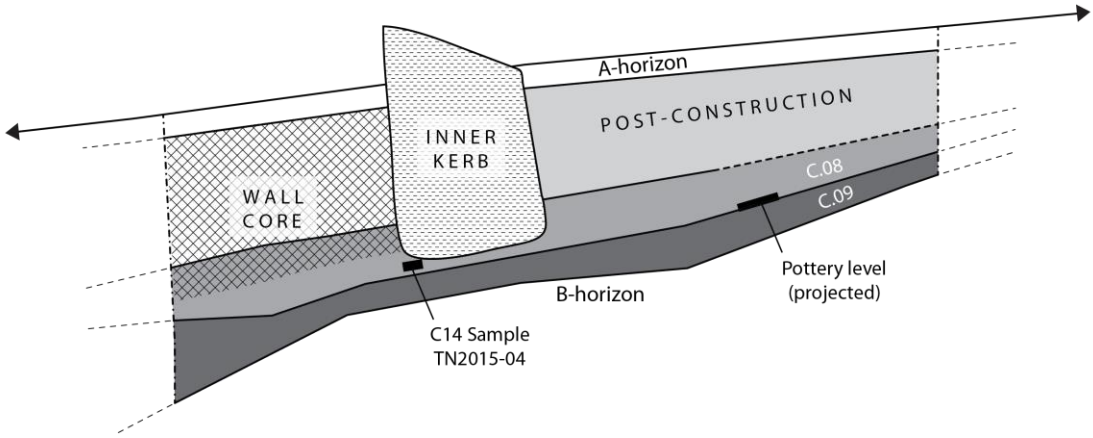

Fig. 19.9: Schematic section across hillfort bank, Trench 2, Tinoran.

Post-construction activity

Excavation uncovered a thin spread of dark silt (C.07) inside the bank in the north-east corner of the excavation trench (Plates 19.37 and 19.38). This burnt sediment contained charcoal and fragments of burnt bone (radiocarbon sample TN2015-02), which derived from a small hearth in the vicinity where some cooking may have occurred. The C.07 sediment directly overlay a layer of orange-brown stony sediment (C.08) on which the bank was built. It was stratigraphically later the pre-bank hearth (C.13) discovered in the same corner of the excavation trench (Plate 19.39). We must await the results of radiocarbon dating to establish if both fires date to the construction period or whether there is a significant interval separating both events.

Early slopewash deposits on inner side of wall

The C.07 fire was followed by a prolonged period of natural slopewash on the inner side of the hillfort bank. A layer of light brown silt (C.06), overlain by a layer of mid brown silt (C.05), were deposited to a combined thickness of 0.15–0.28m (Plate 19.40). There was no archaeological material in this sediment.

Bank erosion/collapse

The processes of natural sedimentation continued with the build-up of organic silt (C.03) representing A-horizon on the inner side of the bank. This organic soil contained a number of large stones (C.04) that represent tumble from the bank (Plate 19.41). A similar tumble of large stones (C.10) was excavated in organic soil (C.15) along the lower slope on the outer side of the bank (Plate 19.29).

Table 19.4: Archaeological contexts, Trench 2, Tinoran hillfort.

Context	***Description***
01	Sod layer, 0.08–0.18m in thickness across trench; no stones.
02	Peaty sediment between upper stones of enclosure wall. Loose dark brown/black humic sediment; no clasts.
03	A-horizon inside wall on eastern side of trench. Dark brown organic silt with numerous pebbles and small stones, and occasional medium stones. Slopewash sediment.
04	Tumble of stones within A-horizon (C.03) on inner side stone wall. Same size range as C.12 (below).
05	Layer of mid brown silt under C.03 and C.04 stone tumble, inner (eastern) side of wall. Contained numerous slaty stones of small to medium size range.
06	Layer of light brown silt under C.05 on inner (eastern) side of wall. Compact with frequent pebbles and small stones, but no charcoal.
07	Hearth deposit. A 1–5cm thick spread of dark brown/black fine silt in north-east corner of trench. This burnt sediment extended 1.32m out from east section and 1.14m from north section. Occasional small to medium pebbles, but no large clasts. High charcoal content (sampled); occasional small fragments of burnt bone (radiocarbon sample TN2015-02).
08	Spread of orange/mid brown sediment on inner side and under stone wall. Silty texture with coarse sand content, numerous pebbles and small stones, including many slaty examples. This sediment continued under the C.12 stones of wall. The origin of this sediment is uncertain, but could have been introduced to level the slope for wall construction, using soil dug from the slope below/outside the wall.
08a	Very similar to C.08; less compacted.
09	Spread of grey/light brown sediment on inner side and under stone wall. This layer was 0.12m in thickness at eastern end of trench thinning to 0.08m under the hillfort wall. Fine silty texture with occasional pebbles but very few larger stones. Contained occasional flecks and small lumps of charcoal (radiocarbon sample TN2015-04). Concentration of coarseware sherds (15E0321:02–106) trampled into upper surface of C.09 layer. A whetstone (15E0321:01) was found in the upper part of this deposit in the south-east corner of the trench, close to where the pottery was found.

09a	Very similar to C.09; less compacted.
10	Loose stones on upper and lower exterior slope representing tumble from bank. Similar size range as C.12 wall stones (see below). Numerous voids with rooty peat (C.02) on upper slope; these stones occur within dark brown silt (C.15) on lower slope.
11	Build-up of orange silt with numerous stones against base of lower stones on exterior side of wall. Redeposited Bs-horizon as part of construction process.
12	Stone core of hillfort wall, exposed on removal of C.02 peaty sediment. Loose deposit of stones with no obvious coursing. Grey coarse sandstone clasts, 0.18–0.56m in length (average length 0.33m; n = 70). Weathered appearance, mostly sub-angular in shape, with few rounded or fractured surfaces.
13	Hearth deposit. A 1–3cm thick spread of dark brown/black fine silt under C.09 in north-east corner of trench. This burnt sediment extended 0.87m out from east section and 0.83m from north section. Occasional small to medium pebbles, but no large clasts. High charcoal content (sampled); occasional small fragments of burnt bone (radiocarbon sample TN2015-03).
14	Line of contiguous boulders forming inner side of hillfort wall. Six large grey sandstone boulders lying horizontal on pre-bank levelled surface (contexts 08 and 09), some of which were propped by smaller stones. These boulders are described as follows (north to south): Boulder A: 1.1m by 0.54m by 0.3m; sub-rectangular in cross-section, projecting into west section, placed on side with slight incline to west. Boulder B: 1.47m by 0.48m by 0.4m; sub-rectangular in cross-section placed on side. Boulder C: 0.94m by 0.38m by 0.3m; irregular stone originally set upright, but now leaning heavily to west. Boulder D: 0.72m by 0.41m by 0.29m; sub-oval stone lying recumbent with slight lean to west. Boulder E: 0.89m by 0.47m by 0.16m; flattish pointed stone leaning to west, with two overlying smaller boulders. Boulder F: 0.79m by 0.52m by 0.18m; sub-triangular stone projecting into east section.
15	A-horizon at lower end of trench outside hillfort wall. Dark brown silt with roots, containing C.10 wall stone tumble.
16	Thin deposit of white silt under grey/light brown silt (C.09) and on top of Bs-horizon (C.17) on inner side of wall.
17	Natural Bs-horizon. Bright orange compact silt with numerous small-medium stones.

18.6 FINDS

A collection of prehistoric pottery was recovered from the upper surface of the C.09 layer, concentrated within an area of 0.24m by 0.3m inside the hillfort bank. The assemblage comprises a single vessel that represents about 20% of an entire pot. The sherds are from the rim (9), base and lower body (11) and body sherds (85) as well as crumbs (museum registration 15E0321:02–106). The pot is bucket-shaped with a flat rim and footed base. A row of perforations *c.* 7mm below the rim are 3mm in diameter externally and taper to 1mm in diameter internally. The estimated dimensions are rim diameter 20cm, base diameter 14cm and height 19cm. The wall thickness is 8–11mm, being thickest at the base. The vessel can be considered as 'fine' ware in that it is thin-walled with medium amounts of temper.

The vessel fabric has granitic temper and the surface is tactilely slightly grainy as the clay has shrunk during firing leaving some of the temper grains in relief. The vessel is fired buff externally and has a black core and internal surface indicating rapid firing. The fracture pattern shows coil construction using the 'N'-technique.

The surface condition shows little abrasion from the elements and the interior surface is very well-preserved. It is likely that part of the vessel was deposited where it was found, the fractures are fresh and it may have been further broken *in situ* and subsequently covered over with soil.

Internal residues are relatively substantial and very well-preserved and appear to occur around the rim and upper body rather than at the base. An explanation for the residue around the rim needs to be explored.

Whetstone

The only other artifact found in Tinoran Trench 2 is a whetstone (15E0321:01). This object is a rectangular cuboid, measuring 127mm by 41mm by 38mm, with flat ends and very smooth surfaces. The lithology is a grey, fine-grained, micaceous sandstone (tbc). Three of the four sides are slightly concave, suggestive of wear connected to use as a sharpening stone.

18.7 RADIOCARBON DATES FROM TINORAN TRENCH 2

Four samples were selected from Trench 2, Tinoran, for AMS radiocarbon dating (wood identifications: Susan Lyons, UCC):

TN2015-02: Sample of burnt bone from burnt spread (Context 07) inside bank of third enclosure.
GrA-64571; 2685 ± 30 BP (890–805 BC)

TN2015-03: Sample of burnt bone from burnt spread (Context 13) inside bank of third enclosure.
GrA-64572; 2640 ± 30 BP (825–795 BC)

TN2015-04: Sample of oak charcoal from sediment (Context 09) from under Boulder B of bank of third enclosure.
GrA-64439; 2865 ± 35 BP (1110–980 BC)

TN2015-05: Sample of organic sediment from inner surface of pottery sherd from occupation surface inside the bank of third enclosure.
GrA-64440; 2905 ± 35 BP (1155–1020 BC)

18.8 Trench 2: summary

18.8.1 Pre-bank activity

There are no definite indications of activity at this location prior to construction of the hillfort bank.

18.8.2 Bank construction

Excavation confirmed that the third enclosure at Tinoran hillfort was surrounded by a single bank of stones. This was built on a slight break of slope along the steeply inclined south-west slope of the hill. The steepness of this slope required a level platform on which the bank could be constructed. This was achieved by digging into the slope to create a shallow ledge approximately 1.3m in width. The soil/subsoil and broken rock removed in this way was piled on the upslope side of the ledge, to create a 3–4m wide stretch of reasonably level ground. The wall was then built on this platform in the following sequence:

1. A contiguous line of massive boulders (C.14) was arranged on top of the introduced layers on the platform. This formed the inner kerb of the bank, with the aim of reducing slopewash erosion of this structure.
2. A central facing of large stones and some small boulders was stacked against the inner side of the ledge. This served to consolidate the loose stony core of the bank.
3. A facing of similarly sized stones was stacked on the outside of the ledge to form the outer kerb of the bank. A small amount of redeposited subsoil (C.11) was piled against the base of these facing stones.
4. The spaces between these three structures were then filled with medium to large stones (C.12). These stones were packed tightly together, but were not coursed. The end result was a stone bank measuring 3.5–3.7m in width, with an internal height of 0.6–0.8m that was probably 1m so originally.

All of stones used were surface drift material, probably gathered from the surrounding hill slope, with no evidence of any quarried material. The large boulders of the inner kerb were probably rolled downslope into position, a process that required considerable effort. No soil was used in the bank, which is also consistent with the absence of an associated ditch.

Radiocarbon dating indicates a date of 1155–980 BC for construction of the third enclosure of Tinoran hillfort. This is based on the dating of pottery residues from the construction surface (sample TN2015-05), and charcoal from construction sediment dircetly below the stone bank (sample TN2015-04).

18.8.3 Post-bank activity

A small fire connected to the cooking of food was lit directly inside the stone bank at some stage during the early occupation of this hillfort. This is represented by two spreads of charcoal and burnt bone overlying each other in the northern corner of the trench. The lower spread (C.13) lay directly on the natural Bs-horizon, which was fire-reddened in places indicating *in situ* fire. This C.13 burnt spread was overlain in the northern corner of the trench by a spread of grey silt (C.09a), covered in turn by a thin spread of orange-brown silt (C.08a). The latter was then covered by a second spread of charcoal and burnt bone (C.07). This overlay the extent of the C.13 deposit, but was slightly wider in extent.

Initially, it was considered that the two fire events were separate in time, with C.13 possibly representing a pre-bank hearth and C.07 a later hearth. The fact that both burnt spreads are similar in extent and composition suggested another possibility. Both fires may have been lit within a shallow pit, dug through the C.08 and underlying C.09 construction layers for a depth of 0.15–0.18m, down to the surface of the Bs-horizon subsoil. The initial fire in this hearth pit, represented by the C.13 sediment, was used for cooking, as indicated by the presence of burnt bone. This burnt sediment was subsequently covered by two spreads of sterile soil derived from the initial digging of the hearth pit. This explains why the sides of this hearth pit were not clearly visible in excavation, as the fill (C.08a and C.09a) and cut (C.08 and C.09) material was very similar.

A second cooking fire was lit soon afterwards at this location, represented by the charcoal and burnt bone in the C.07 spread. Both fire events in this hearth pit are likely to have been close in time, possibly lit over a matter of days. Radiocarbon dating of burnt bone from C.07 and C.13 (samples TN2015-02 and TN2015-03) indicate a date range of 890–795 BC for this hearth.

18.8.4 Abandonment

Excavation revealed a gradual accumulation of slopewash silts on the inner side of the bank. Some of these contained stone tumble from the bank. This sediment did not contain any other archaeological material, and so there are no details of the occupation history or abandonment of the hillfort. There is also evidence for partial collapse and erosion of the bank exterior, consistent with natural erosion over a long period of time.

18.9 DISCUSSION

The aim of the Tinoran excavation was to examine details of the defences of the third and fourth enclosures of this hillfort, and to recover samples for scientific dating. In that respect, the project was successful, and the final results should provide a major insight into what was an important prehistoric settlement in eastern Ireland. This will also strengthen the case for the future protection of the hillfort, or at least that portion that has survived the devastation caused by modern forestry.

The defences of both enclosures are notably different in character. The third enclosure is surrounded by a carefully built stone bank, while a bank built with soil from an external ditch was used for the fourth enclosure. This might indicate the enclosures were built at different times, but could also reflect the different topography at the respective locations. The stone bank of the third enclosure was built on a very steep slope, where an earthen bank and accompanying ditch would have been difficult to maintain. The latter was feasible on the more gentle slope profile of the fourth enclosure. Other factors may explain the different construction methods, such as the availability of stone, and the visual significance attached to different enclosures in this hillfort.

The Tinoran excavation did not produce significant evidence for the occupation of this hillfort. The small hearth discovered inside the bank in Trench 2 is connected with continued occupation of the site *c.*890–795 BC. The crushed pottery vessel and whetstone are connected to occupation activity during the construction of the stone bank enclosure, *c.*1155–980 BC.

Finally, neither excavation trench yielded information on the final abandonment of this hillfort. There is no evidence from either trench for deliberate destruction connected to warfare.

Acknowledgements

I wish to thank the site supervisor, Nick Hogan, and site archaeologists James O'Driscoll and Alan Hawkes. James carried out the preliminary survey of this site, while Nick prepared the excavation drawings. We are grateful to Victor O'Neill and family for permission to excavate.

Plate 19.1: General view of Tinoran hillfort looking north-east from Hughstown hillfort.

Plate 19.2: Aerial view of Tinoran hillfort showing location of two excavation trenches (source: Google Earth).

Plate 19.3: Location of Trench 1, Tinoran hillfort, prior to excavation. The levelled bank and infilled ditch is visible as a gentle slope at this location.

Plate 19.4: Section of bank of fourth hillfort enclosure re-built in modern era, located in forestry to immediate east of Trench 1 (Plate 19.3 background).

Plate 19.5: Trench 1, Tinoran, following removal of A-horizon topsoil. The infilled ditch is visible as a dark band across centre of trench, beyond which the levelled bank is exposed as an area of orange soil (looking north-west).

Plate 19.6: Trench 1, Tinoran, following cleaning of Bs-horizon (C.27). The infilled ditch is visible as a dark band across centre of trench, beyond which the levelled bank is exposed as an area of orange soil (looking north-west).

Plate 19.7: Trench 1, Tinoran, after excavation of ditch and bank area (looking north-west). Note 1m^2 extensions to both corners of trench on northern side.

Plate 19.8: Post-excavation view of ditch and bank area, Trench 1, Tinoran. Note ledge (C.22) on inner slope of ditch (looking west).

Plate 19.9: Post-excavation view of ditch and bank area, Trench 1 (looking south). Note ledge (C.22) on inner slope of ditch (lower centre).

Plate 19.10: Detail of (C.22) ledge (not fully excavated) on inner slope of ditch, Trench 1.

Plate 19.11: East-facing section of main ditch (C.18) and C.22 ledge (far right), Trench 1, Tinoran.

Plate 19.12: Excavation of ditch infill, Trench 1, Tinoran.

Plate 19.13: West-facing section of main ditch (C.18) and C.22 ledge (far left), Trench 1, Tinoran.

Plate 19.14: Detail of stratification of west-facing section, Trench 1, Tinoran (20cm scale divisions).

Plate 19.15: Removal of A-horizon topsoil exposed residual bank (centre) at northern side of Trench 1, Tinoran.

Plate 19.16: Excavation of bank area, Trench 1, Tinoran.

Plate 19.17: Stratification of bank area, Trench 1. Removal of sod/A-horizon exposed stony bank sediment (C.23), overlying a buried sod layer (C.24), over a grey leached layer (C.25) on top of iron pan (C.26) and Bs-horizon (C.27).

Plate 19.18: Excavation at northern end of Trench 1. Removal of A-horizon topsoil exposed outline of C.05 pit (top right corner).

Plate 19.19: Excavation at northern end of Trench 1. Cleaning of Bs-horizon surface exposed outline of C.05 pit (top right corner).

Plate 19.20: Post-excavation view of eastern side of C.05 pit. Trench 1, Tinoran. The sides of the pit are lined with a thin layer of iron pan.

Plate 19.21: Section across C.05 pit, showing upper fill of black organic silt (C.03) and lower fill of grey/light brown silt (C.04).

Plate 19.22: Excavation of C.05 pit in progress.

Plate 19.23: Full outline of C.05 pit revealed after extension of excavation trench.

Plate 19.24: General view of C.05 pit in relation to excavated bank area.

Plate 19.25: Excavation of area to east of C.05 pit in search of similar features.

Plate 19.26: Trench 1, Tinoran, after backfilling.

Plate 19.27: The bank of the third hillfort enclosure is visible as band of fern growth across southern slope of Tinoran hill. Trench 2 was located in centre of photograph.

Plate 19.28: General view of 4m by 3m Trench 2, Tinoran, with a 1m wide extension cutting off south-west corner. The bank of stones with inner boulder revetment is visible (left), as is the natural Bs-horizon inside this structure.

Plate 19.29: Collapsed bank stones (C.10) exposed under A-horizon in 1m wide cutting across stone bank, Trench 1, Tinoran.

Plate 19.30: Stratification at northern side of Trench 2, Tinoran. Thin layer of organic soil (A-horizon) overlying two layers of slopewash silt (C.03 and C.05), on top of two bank construction spreads (C.08 and C.09), over orange subsoil (Bs-horizon).

Plate 19.31: Charcoal spread with fragments of burnt bone (C.13) beneath C.09 bank construction layer, Trench 2, Tinoran.

Plate 19.32: Subsoil surface (C.17) beneath C.13 burnt spread, Trench 2, Tinoran.

Plate 19.33: Stratification under stone bank, Trench 2. The stones forming core of bank are visible, with a kerb boulder (right). These stones overlie two pre-bank layers: an orange/brown layer (C.08) over a grey/brown slaty sediment (C.09) on top of subsoil.

Plate 19.34: Excavation of slope below stone bank, Trench 2, Tinoran. This slope was dug into at two levels (centre and top of photograph) to create a platform for the bank construction.

Plate 19.35: Line of boulders (C.14) forming inner kerb on stone bank, Trench 2, Tinoran.

Plate 19.36: Large stones forming outer facing of stone bank (C.12), Trench 2, Tinoran

Plate 19.37: Charcoal spread with fragments of burnt bone (C.07) inside stone bank, Trench 2, Tinoran.

Plate 19.38: Charcoal spread with fragments of burnt bone (C.07) inside stone bank, Trench 2, Tinoran.

Plate 19.39: Stratification of south-facing section inside stone bank, Trench 2, Tinoran. The thin dark layer at base of section is the pre-bank burnt spread (C.13), while the overlying dark layer is the post-construction burnt layer (C.07).

Plate 19.40: Excavation of C.05 slopewash silts inside stone bank, Trench 2, Tinoran (looking south).

Plate 19.41: General view of C.03 surface in Trench 2, Tinoran (looking south), following removal of organic soil. Note stone tumble (C.04) from bank (top left corner).

Plate 19.42: Trench 2, Tinoran, after backfilling.

Plate 19.43: Continuation of stone bank of third hillfort enclosure in area of felled forestry to immediate west of Trench 2 location, Tinoran. Part of the exterior face of this bank may have been re-built at a later date.

APPENDIX: 9

GEOPHYSICAL SURVEY AT HUGHSTOWN, CO. KILDARE

A geophysical survey (licence number 12R130) was undertaken within Carrigeen townland Co. Kildare, **IG** 284070, 188887, from the 05th of October to 26th of October 2012, to investigate a large, multivallate enclosure of likely prehistoric origin (RMP – KD038-025001). The geophysical survey at Hughstown hillfort was undertaken to define the enclosing elements which have been heavily denuded in recent times, due largely to intensive agricultural practices, and to identify archaeological features within its interior. This survey was successful, identifying up to three large enclosing elements, including the previously unrecorded pair of enclosing elements, as well as a number of potential hut structures within the interior.

19.1 INTRODUCTION

Hughstown is a large, partially levelled, multivallate monument, located on the summit of a hillock, west of the town of Baltinglass (Fig. 20.1). Positioned at 290 O.D., it is one of up to nine hillforts within the Baltingalss cluster, a unique group of large, elaborate hillforts on the western side of the Wicklow mountains. The hillfort occupies an area of approximately 8.22ha. The site was largely levelled prior to the first edition Ordnance Survey (Fig. 20.2 and Fig 20.3) and subsequent farming activity has affected the extant enclosure at its summit. The eastern portion of the outer defences may be partially preserved as a field boundary composed of large stone boulders (other boundaries are composed of earth and stone) curving from north to south.

Today, the site is divided by a boundary separating pasture land from newly planted forestry. The outer enclosing elements are levelled and are topographically indistinguishable. These are partly visible in aerial photography and form concentric oval crop-marks surrounding the hilltop. At the summit of Hughstown, an extant enclosure measuring approximately 53m in diameter comprises a bank composed of large stone boulders, 4.2m maximum width, with no evidence for a corresponding ditch. This is considered the inner enclosing element of the hillfort. A break in the bank to the north-east represents the entrance, although this and a substantial area of the interior has been disturbed in the last decade. Despite this, a circular setting of earth and stone approximately 14m in diameter is visible to the east of centre. Unfortunately, due to large amounts of ferrous material (a gate and metal railings), it was impossible to survey the interior of the inner enclosure.

19.2a GEOLOGY, TOPOGRAPHY AND CLIMATE

Hughstown is situated on a north-south running formation of course greywacke and shale (www.gsi.ie). These and their associated formations are considered a magnetically quite geological formation and it is unlikely to have affected the magnetic data.

The survey areas comprise a single field that is fenced off with electrical wire and earthen and stone banks. The fort extends into an area of newly planted forestry at the west. This area was not surveyed. The surveyed field was under pasture at the time of investigation, ideal conditions to undertake geophysical survey.

Overcast weather conditions and moderate temperatures throughout the majority of the survey facilitated data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations. Strong gust of wind may have caused periodic buffeting of the instrument, although the effects of this within the geophysical data are minimal.

Fig. 20.1: Hughstown in Co. Kildare (Bing Maps).

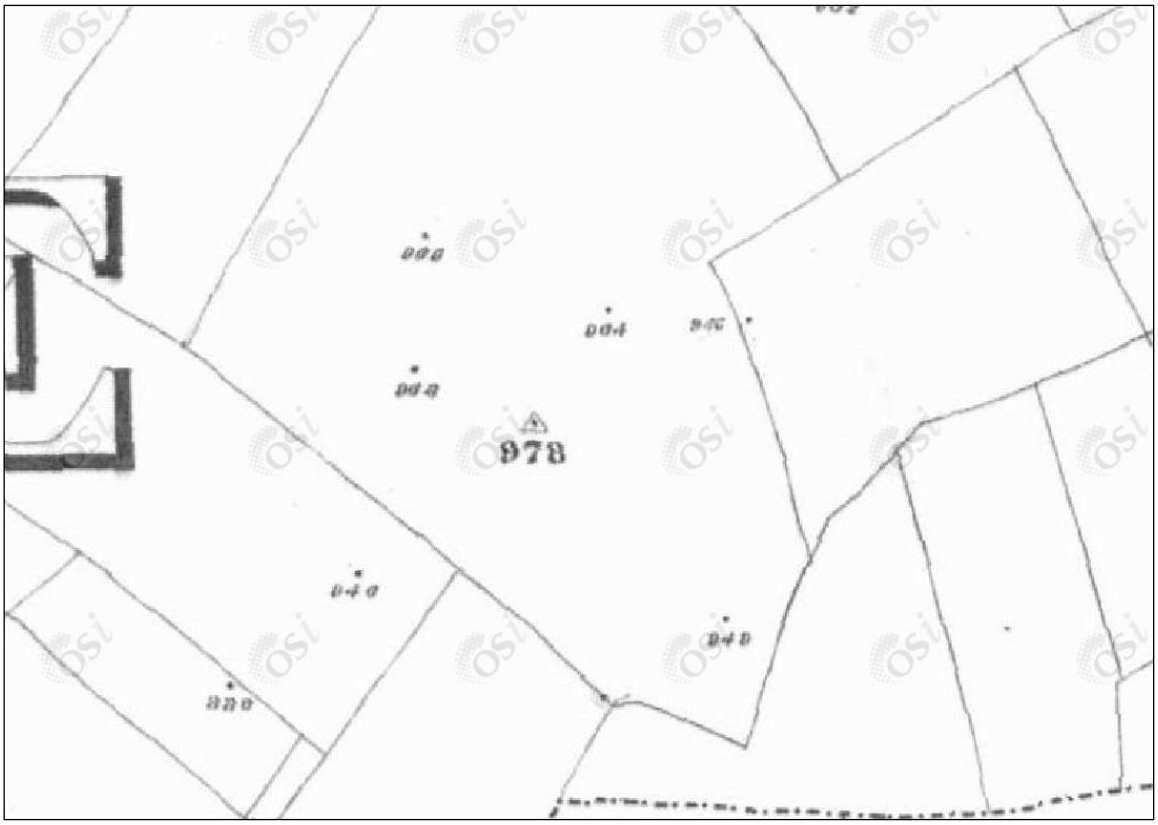

Fig. 20.2: First edition Ordnance Survey map.

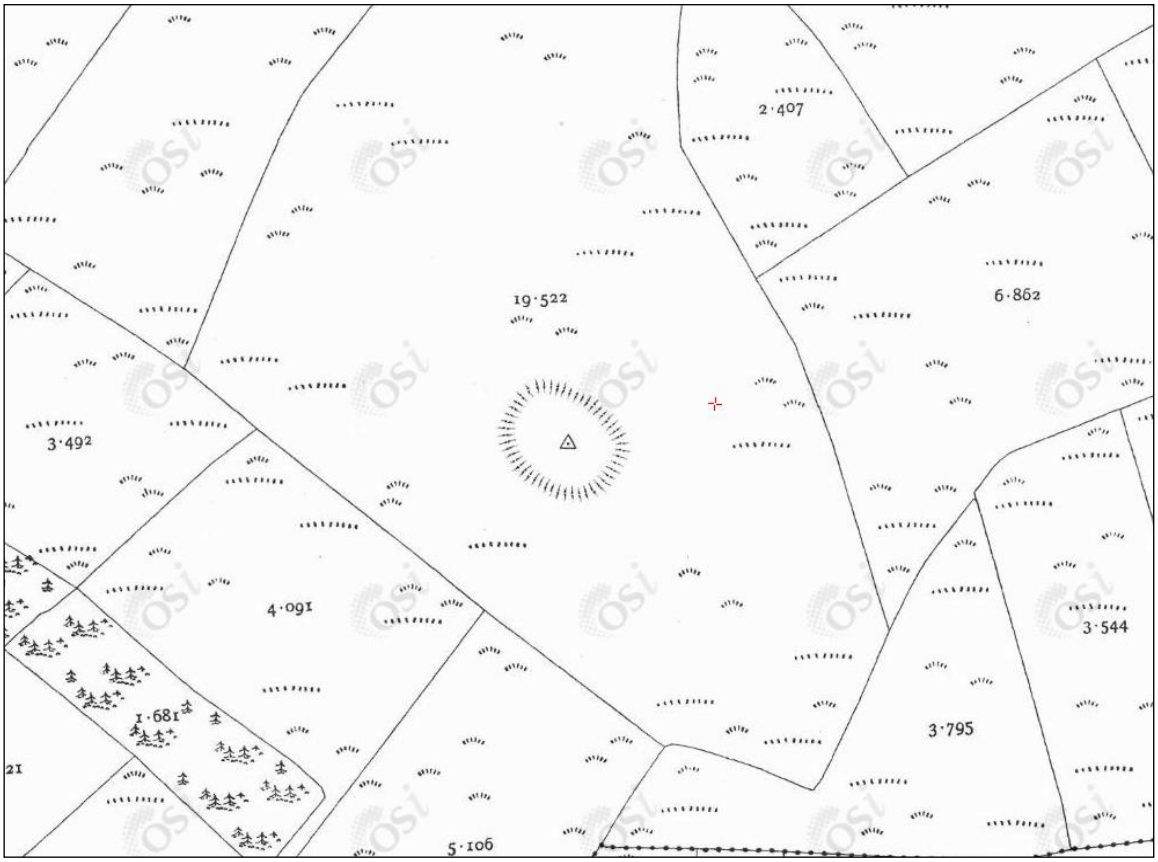

Fig. 20.3: Second edition Ordnance Survey map.

19.3 ARCHAEOLOGICAL BACKGROUND

A mound (RMP – KD038-025002) was recorded within the interior of the central enclosure at Hughstown. This could not be identified on inspection, however, an unrecorded mound was identified approximately 80m to the north of the outer enclosing element. This was circular in shape, measuring 11.1m in diameter and approximately 1.4m in height. This may represent the recorded mound, with the displacement representing a co-ordinate error, or, modern disturbance of the interior may have destroyed the monument.

Immediately outside the hillfort to the north is a pond which holds water all year. A larger pond 350m to the east of the hillfort, is embanked at its southern end where it cuts into the hillside. This is present in first edition Ordnance Survey mapping, indicating the pond may be ancient. Approximately 74m to the west of this pond, a circular low rise stone bank encloses an area 16m in diameter. This unrecorded enclosure is present on second edition Ordnance Survey mapping (**Fig.** 4). A partial rise is visible at its centre, therefore, this may be best interpreted as a prehistoric barrow.

19.4 SURVEY PROGRAM

The proposed survey incorporates the remains of the hillfort which are possible to survey. High resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the hillfort, to identify possible internal occupation and assess the number, form and composition of the defensive features. An area of 6.6ha was surveyed, using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

19.5 GEOPHYSICAL SURVEY RESULTS

Hillfort Defences and Related Features

The defences of Hughstown hillfort are visible in Irish Army Air Corp and the Cambridge University collection of aerial photographs as low relief features. Recent agricultural practices have largely destroyed these low relief features, preventing further analysis of the site through modern aerial surveys. The site itself is divided by a stone and earth bank and sheep wire. This wire causes much stronger magnetic responses in comparison to electrical wire fencing due

largely to the increased amount of ferrous material incorporated in this type of fencing. Such responses are visible as strong negative anomalies close to the edges of the survey (**G1**) (Fig. 20.4 and Fig. 20.5).

The destruction of the site is likely associated with farming practices. Cultivation marks are visible in the survey results as discrete linear features running north-west/south-east (**G2**). These are orientated on the same axis as the field boundary which divides the hillforts. This boundary is present on the 1st edition Ordnance Survey mapping, therefore, these cultivation marks may not be modern.

G3a represents a number of di-polar anomalies. These are distributed throughout the survey area with no distinct pattern. Often these types of features may relate to modern ferrous material, however, an archaeological origin cannot be disregarded. Feature **G3b** is an extreme example of a di-polar anomaly. Its large size suggests that a large body of ferrous material is present in this area. Considering that a large majority of these types of responses are small, single finds usually of modern origin (such as a nail or plough fragment), **G3b** is an unusual anomaly. Unfortunately, further analysis of this feature would only be speculative.

The series of anomalies **G4a**–**G4d** represent features which are likely to be somewhat modern in origin. A discrete linear feature (**G4a**) protrudes from the corner of a field boundary (although this field boundary represents the continuation of the outer defences of the hillfort) and likely represents a levelled field system. **G4b** represents a curvilinear positive/negative anomaly which positioned between the middle and outer defence elements of the hillfort. Considering this is confined by these two elements, **G4b** may be of archaeological significance. However, the response is not similar to anomalies which can be regarded as somewhat contemporary with the hillfort, and therefore, it cannot be dismissed that this may be modern in origin. **G4c** represents a faint curving anomaly on a somewhat similar orientation to the levelled hillfort defences. However, when projected, this would not form a concentric circuit with these elements, and therefore, may be of modern origin, potentially representing a somewhat modern levelled field boundary. To the north of the surveyed area, a zone of magnetic disturbance (**G4d**) represents a levelled field system visible in Irish Army Air Corp and the Cambridge Aerial photographs. This is visible on the ground as a linear feature 2-3m in width, with notably stunted grass growth and a compacted surface.

Prior to geophysical surveying, aerial photography had suggested that the hillfort comprised a central enclosure with two levelled concentric ditches (which one could assume had

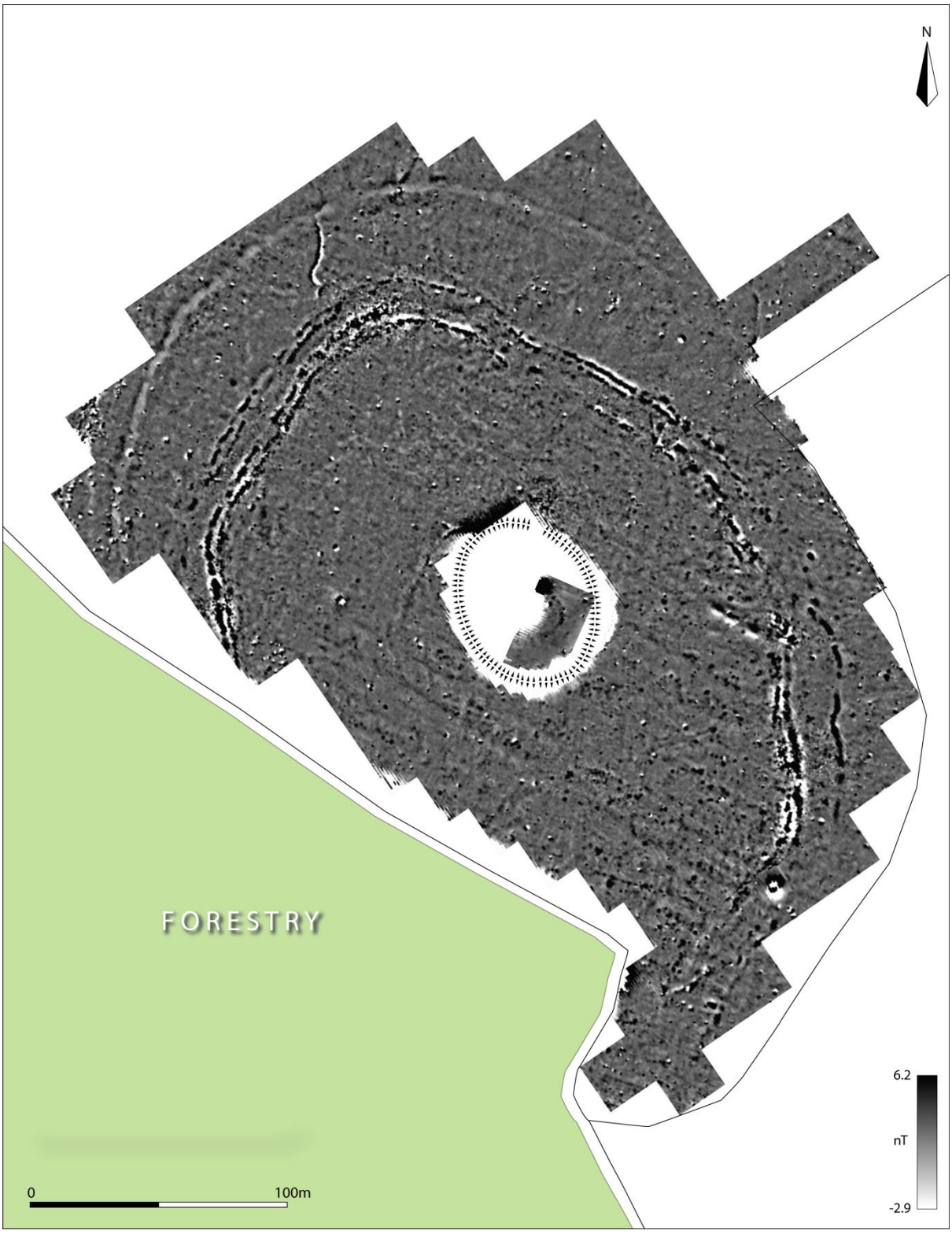

Fig. 20.4: Hughstown geophysical results.

Fig. 20.5: Hughstown geophysical interpretation.

corresponding bank features). Gradiometry survey has identified the outer of these ditch features, while recording two sets of linear anomalies that may represent burnt wood features.

G5a represents a strong set of positive annular features which are disrupted throughout its length (likely due to destruction through agricultural processes). On the southern and eastern side they are particularly denuded. These two features are positioned 2m from one another and likely represent the remains of two closely set, enclosing elements such as a bank and ditch. Considering the high intensity of these anomalies, it is possible that these features were burnt or retain burnt features. For example, the bank may have been destroyed by fire and the remains of this feature may have in-filled an external ditch. The bank/ditch arrangement was subsequently confirmed by excavation. In specific areas, such as the northernmost section, the strength of these readings intimate that parts of **G5a** are relatively well preserved despite clear evidence for substantial post-hillfort cultivation. There is no clear evidence for an entrance, although, such a feature is hard to identify due to the erratic nature of preservation.

Placed 6m inside **G5a** is a similar set of responses, **G5b**. **G5b** is visible as an annular set of features which likely represents two closely set enclosing elements, positioned 2m apart, that are of similar composition to the internal external examples. Considering the concentricity of **G5a** and **G5b**, it could be intimated that the two enclosing elements are contemporary. Again, there is no clear evidence for an entrance feature, although the destruction caused by post-hillfort cultivation is problematic in this regard.

G6, the outer enclosing element, is positioned 26–37m from **G5a**. This is more oval and less concentric with **G5a** and **G5b**, likely due to the construction techniques and composition of these defences (**G6**). The geophysical results suggest that **G6**, an annular band of negative magnetic data, represents the defensive element identified through aerial photography as the outer enclosing element. While this was originally identified as a cut feature such as a ditch, the geophysical response is suggestive of a bank feature. Considering the large boulders that comprise the extant field boundary which mirror the levelled outer defences on the eastern side of the hillfort, similar material may have made up a bank feature. Therefore, the anomaly **G6** may represent the remains of a substantial bank feature, or, may represent a ditch which has been in-filled with similar material. Certainly one would expect bank material to be quarried from a nearby source, although the availability of erratic boulders may have negated the necessity to do so. A potential entrance is visible to the north-east (**G7**) of the survey. **G7** comprises a small break in the defensive element **G6,** approximately 2–3m in width, with the terminals of **G6** rounding at their edges. While this may be an original entrance, a possible

modern origin cannot be dismissed.

Hillfort Interior and Habitation Features

Throughout the surveyed area, pit-like features are scattered with a mild concentration within the southern interior of the hillfort. Often these anomalies are natural features derived from geological or soil conditions, however, they may also be archaeological in origin. Unless notable concentrations occur, it is difficult to assess the importance of such anomalies.

G8 comprises two coin-joined circular bands of faint magnetic enhancement. The eastern smaller band overcuts the larger example to its south-east. These measured 15m and 8m in diameter respectively. The faint nature and the composition of the responses may indicate that these are cut features such as ditches, and in that regards, may be interpreted as coin-joined prehistoric barrows. However, one cannot disregard the potential for destruction through modern cultivation processes.

G9 represents an area of magnetic disturbance immediately outside the entrance of the extant inner enclosure of the hillfort. While this may be archaeological, the entrance of this enclosure has been recently altered and a substantial area of the interior has been disturbed in the last decade. Therefore, this modern alteration may be responsible for the disturbance in the immediate area, although an archaeological origin cannot be dismissed.

The remainder of the features within the interior comprise faint circular settings of pit-like anomalies of various different sizes. While these may represent the partially destroyed remains of hut structures, it must be cautioned that the faint nature of these features means a conclusive interpretation is impossible without excavation and as such these features must be described as extremely tentative.

G10–**G18** consist of a circular series of faint pit-like features that measure approximately 6m in total diameter. These are mainly clusters in the southern end of the interior of the fort. **G19**–**G30** comprises a faint set of pit-like features positioned in a circular fashion and measure *c. 7m* in diameter. These are more evenly spread throughout the interior. **G31**–**G38** represent a circular setting of pit-like features positioned in a circular arrangement and these measure approximately 8m in diameter. Again, these have a somewhat even distribution. **G39**–**G45** consist of a circular setting of pit-like features that measure 10m in diameter. These mainly cluster at the southern end of the interior. **G46** and **G47** measure 11m in diameter and comprise

a circular setting of pit-like features. **G48** and **G49** represent circular settings of pit-like features approximately 13m in diameter. **G50** is positioned within the interior of the extant central enclosure at the highest point of the interior of Hughstown fort. It is the only possible structure within this central enclosure. It comprises a distinct series of pit like-features that, when projected, measures approximately 17m in diameter. The responses from these anomalies are strong and suggest this structure may have been destroyed by fire. This series of anomalies corresponds with a visible feature on the ground. This comprises a 0.3m high and 0.4m wide earthwork.

Discussion of Results

Geophysical survey of the large multivallate hillfort at Hughstown has produced evidence for an elaborate series of enclosing elements. This comprises an external ditch feature probably with an accompanying internal bank enclosing an area of approximately 8.22ha. This has already been recorded by aerial survey. Two unrecorded internal enclosing elements were identified by geophysical survey, approximately 26–37m inside the outer defences. Both of these new enclosures comprise a parallel and closely spaced set of anomalies which probably represent bank with external ditch. This has subsequently been confirmed by excavation. The strength of the readings suggests that the internal bank was subject to burning. Some of this material may have in-filled the external ditch, resulting in the responses visible in the geophysical survey. Importantly, the two newly discovered enclosing elements are not concentric and are compositionally different. This may suggest that they are not contemporary.

The survey has also identified a considerable number of possible hut structures within the interior. However, considering the faint nature of these responses, this interpretation is tentative and should be considered with caution. The possible central hut structure is more plausible, considering it is more visible in the geophysical results and is also apparent on the surface. It is interesting that the largest possible structure is positioned within the interior of a smaller, extant central enclosure positioned at the highest position within Hughstown fort. This may represent evidence for structures, hierarchical settlement within the fort itself. Unfortunately, modern disturbance within the smaller, central enclosure prevented complete survey of its interior and other structures may be present that may further aid out interpretation of the settlement within the fort.

Geophysical survey has revealed important archaeological features which may be

somewhat contemporary with the construction of the hillfort at Hughstown. These features are vital to the understanding of this monuments and its wider landscape setting.

APPENDIX: 10

EXCAVATIONS AT HUGHSTOWN, CO. KILDARE

By Professor William O'Brien

In August 2015 sample excavation was conducted at a prehistoric hillfort at Hughstown, Co. Kildare. This is the westernmost site in a cluster of hillforts in the Baltinglass area of south-west Wicklow, with this example located just inside the boundary with Co. Kildare. The excavation was undertaken as part of a research project on prehistoric hillforts in Ireland, based in University College Cork with funding from the Irish Research Council. The excavation at Hughstown consisted of a single trench across the defences of the second enclosure of this hillfort. This enclosing element is visible as a low-relief scarp, which is best viewed on aerial lidar survey and magnetic gradiometry. Excavation confirmed the presence of a substantial ditch, with the remains of an accompanying bank on the inside. Samples of charcoal were recovered for radiocarbon dating. The results confirm that construction and early use of the second enclosure at Hughstown occurred during the Early Neolithic, *c.*3690–3535 BC. This is supported by the discovery of a single sherd of Neolithic pottery in the excavation.

20.1 HUGHSTOWN HILLFORT

This multiple enclosure hillfort is located in the townland of Hughstown on the Kildare/Wicklow border, *c.*2km west of the town of Baltinglass, Co. Wicklow (Fig. 21.1; ITM 684004, 688930). The hillfort lies on the highest point of Hughstown Hill, at an altitude of 298m OD. It encloses an area of 8.22 hectares of fairly level ground, with steep slopes to the north-east and south-west. The location is striking, with extensive views of the lowland of south Wicklow, east Kildare and Carlow (Plate 21.1).

Hughstown hillfort is listed as site KD038-025001 in the *Record of Monuments and Places* for Co. Kildare (see Condit 1992; 1998). The interior was substantially leveled by farming in modern times, and is currently used for grazing. Aerial photographs obtained from the Irish Army Air Corp, Cambridge University and the Ordnance Survey of Ireland show three enclosures on this hill (Plates 21.2 and 21.3). Only one of these is represented on Ordnance Survey historic mapping, namely a sub-circular enclosure at the summit.

The entire site was investigated by magnetic gradiometry survey in 2012, as part of an ongoing landscape study of the Baltinglass hillforts (Fig. 21.3; O'Driscoll 2013). Together with LiDAR survey, this revealed a multiple enclosure hillfort, measuring approximately 356m (north-west/south-east) by 261m (north-east/south-west) in overall extent. There are four widely-spaced enclosing elements, the innermost being a sub-circular enclosure at the summit, measuring 54m (north-west/south-east) by 50m (north-east/south-west). This comprises a low earthen bank with some large boulders, with no visible external ditch. This is surrounded by a large sub-oval enclosure, measuring 248m (north-west/south-east) by 197m (north-east/south-west), which is visible in places as a low-relief ditch feature. The geophysical survey recorded this ditch as a line of high magnetic gradiometry readings, with lines of low readings on either side. The survey recorded a third enclosing element, measuring 290m (north-west/south-east) by 228m (north-east/south-west), located 23–48m outside and concentric with the second enclosure (Fig. 21.3). The outermost (fourth) enclosure has also been substantially leveled, and is also best imaged in the geophysical as a line of low gradiometry readings. This enclosure measured approximately 356m (north-west/south-east) by 261m (north-east/south-west). Though mostly leveled, a portion is preserved as a curving field bank, along the north-east side of the outer enclosure.

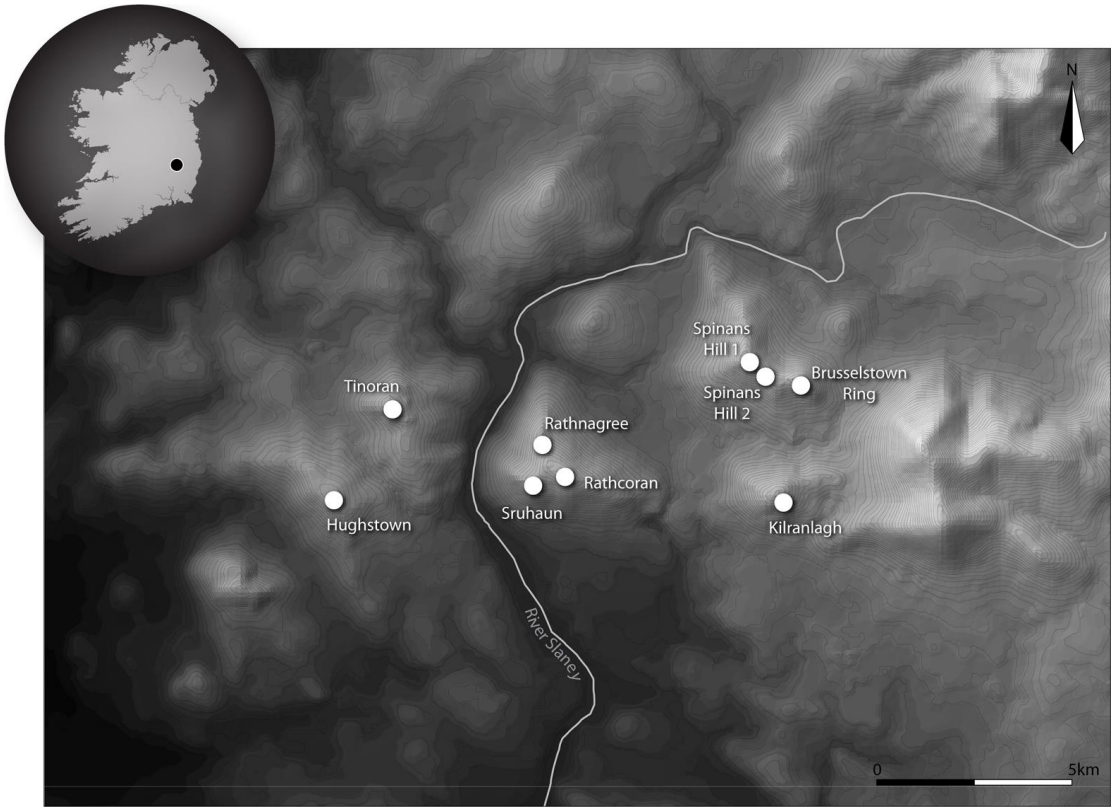

Fig. 21.1: Prehistoric hillforts and hill-top enclosures in the Baltinglass area, showing location of Hughstown hillfort.

Recent geophysical survey has identified a large number of circular features in the interior of the Hughstown enclosure (Fig. 21.3). These are possible roundhouse features, measuring 6–17m in diameter, of unknown date (O'Driscoll forthcoming). A number of prehistoric monuments are recorded in the vicinity, including a possible cursus monument (KD038-036) abutting the southern side of the hillfort.

20.2 EXCAVATION PROJECT

The main purpose of the Hughstown excavation was to obtain information on the design of the enclosing element(s) and the methods and materials employed in construction. It was hoped to obtain dating evidence for the construction and abandonment of the enclosure. There was also a possibility of recovering artifacts and environmental evidence relating to the occupation of the site. The project team consisted of the excavation director and licence holder, Professor William O'Brien; the site supervisor and surveyor, Nick Hogan MA; and site archaeologists, James O'Driscoll MPhil and Dr Alan Hawkes.

A single trench was excavated on the western side of the second enclosure of the hillfort (Fig. 21.2; Plate 21.3). This 10m by 2m trench was aligned approximately east–west across the line of the enclosure (Plate 21.4). The trench was de-turfed by spade with subsequent excavation undertaken by trowel. This included context-based recording, with full written descriptions, photography and scale drawings. On completion of work the trench was back-filled by hand and the ground surface restored (Plate 21.18).

The Hughstown excavation is part of a wider investigation of Irish hillforts, based in UCC and funded by the Irish Research Council. This research includes a programme of sample excavation designed to create a new chronology for Irish hillforts. Excavations have already been conducted at the hillforts of Clashanimud, Co. Cork; Glanbane, Co. Kerry; Ballylin, Co. Limerick; Formoyle, Co. Clare; Toor More, Co. Kilkenny; Rathnagree, Co. Wicklow; Sruhaun, Co. Wicklow, and Tinoran, Co. Wicklow (reports on these excavations have been submitted to the National Monuments Service). Along with these projects, the results from Hughstown add to our understanding of the chronology and defensive features of prehistoric hillforts in Ireland.

Natural Soil

The natural soil in the excavation trench was a brown podzol with the following profile:

Fig. 21.2: Aerial survey (top) and contour survey (bottom) at Hughstown enclosure, showing location of excavation trench (source: James O'Driscoll).

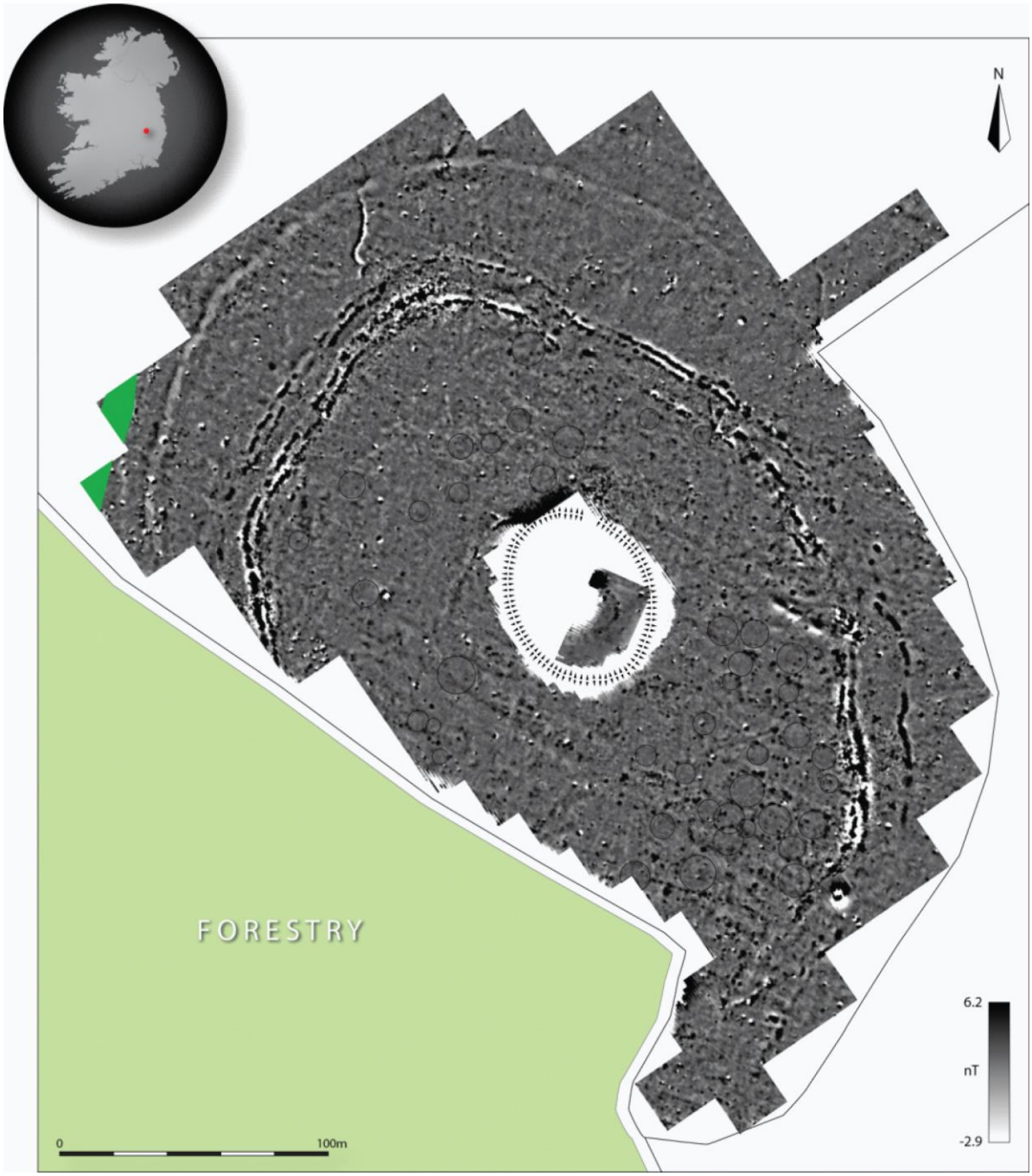

Fig. 21.3: Magnetic gradiometry survey of Hughstown (James O'Driscoll).

Sod layer (Context 01), 0.07–0.1m in thickness, compact with no stones.

A-horizon topsoil (C.02) beneath sod layer, 0.07–0.15m in thickness, reaching 0.2m over ditch. Dark brown organic soil, friable with sandy silt texture, frequent pebbles and occasional small stones (Plate 21.4).

Bs-horizon (C.34). Compact surface of bright orange to yellow orange sandy silt, with frequent pebbles and small to medium stones, and occasional larger stones (Plate 21.5).

C-horizon (C.35) exposed only on lower sides of ditch. Hard surface of grey-white silt, with numerous pebbles amd occasional large angular stones of shale and sandstone.

20.3 Archaeological Features

There were two separate areas of archaeology in this trench (Figs 21.4 and 21.5):

1. A large earth-cut ditch occupying the western half of the trench.
2. The remains of a stone-faced bank of soil, which incorporated a slot trench with stake settings, in the central area.

Ditch (C.34)

Excavation revealed a large ditch with a V-shaped profile cut into the Bs-horizon subsoil (C.35). The top of the ditch was 2.8–3m wide, narrowing to 0.5–0.6m at the base, with a central depth of 1.5–1.6m (Figs 21.4 and 21.5; Plates 21.6–21.8). The sides were steeply sloping (45º) and smooth, with the upper portion formed in Bs-horizon (C.35) and the base in C-horizon (C.36). A sharp break of slope 0.4m above the base served to create a channel-like profile at the bottom of the ditch.

There were four significant events in the infilling of this ditch (Fig. 21.6):

1. Early fire event

Excavation exposed a thin deposit of charcoal (C.33) at the base of the ditch. This was present as small lumps and flecks in direct contact with the cut of the ditch (Plate 21.9). A radiocarbon date for this material (sample HT2015-01) should be close in time to the digging of the ditch, even if the source of this charcoal is unknown. The latter does not seem to be connected to any burning event inside the ditch or in the adjacent bank, as neither the underlying cut nor the stones

directly overlying the charcoal were fire-reddened. The occurrence of this charcoal indicates a small fire in the vicinity of the ditch, close in time to when the latter was dug.

The C.33 deposit may be related to a minor occurrence of charcoal along the mid outer slope of the ditch. Excavation removed thin pockets of red-brown silt (C.32) containing charcoal, which were in direct contact with the ditch cut. If C.32 and C.33 were connected, it would indicate a source for this charcoal from outside the ditch, rather than the bank area.

2. Bank erosion

The infilling of the ditch began with an accumulation of yellow-brown silt (C.31) along the inner base and lower slope (Plate 21.8). This primary sediment continued up the inner slope of the ditch as a grey-brown silt (C.09). Both sediments had a number of small to large stones, with C.09 containing some large inclined slabs that seem to have fallen into the open ditch. This probably represents a collapsed stone facing on the exterior of the adjacent bank (Plates 21.10–21.12).

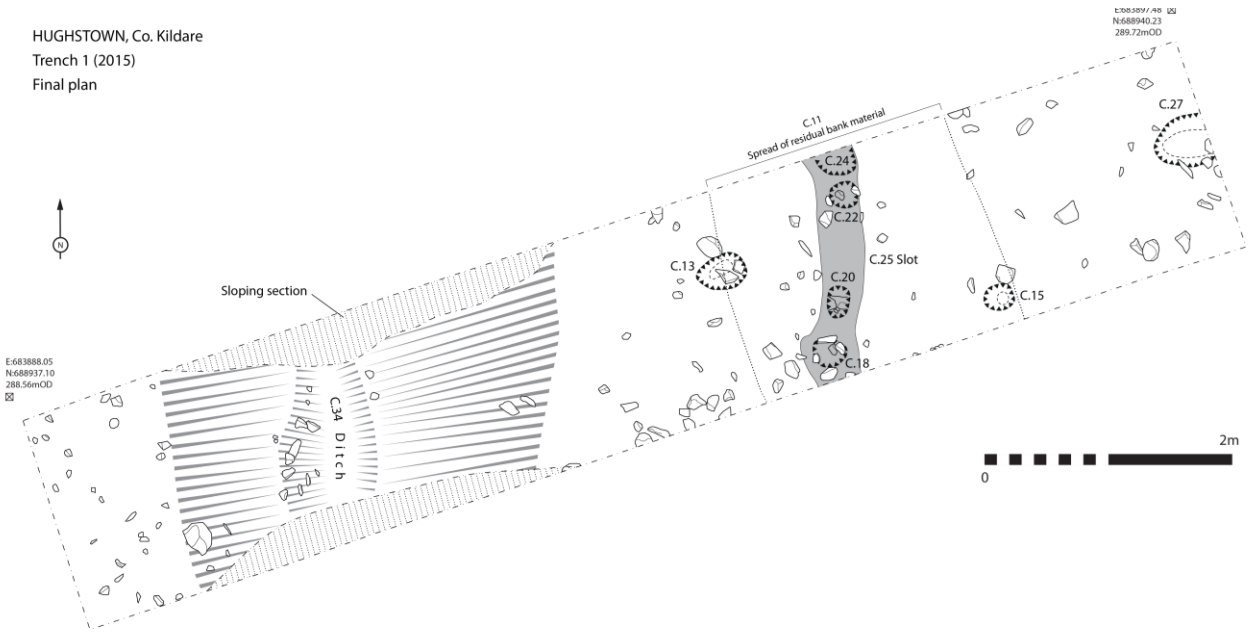

Fig. 21.4: Post-excavation plan of Hughstown trench.

Fig. 21.5: Post-excavation photogrammetry of Hughstown trench.

Contexts 09 and 31 represent primary erosion of the bank connected to the failure of this revetment. This eventually resulted in an influx of significant amounts of bank material, represented by large stones and dark brown silt (C.30) with numerous voids in the lower part of the ditch. It is notable that none of these stones were fire-reddened (Plate 21.13), and so cannot be linked to any deliberate destruction of the bank. There was also an influx of orange gravelly sediment (C.29) from outside the ditch, which might represent the erosion of a low counterscarp bank.

3. Break in ditch infill

The infilling of this ditch slowed considerably following collapse of the adjacent bank. This is marked by the development of a thin sod layer in the half-filled ditch. This was visible as a thin lense of organic silt (C.05) overlying the C.30 stones in the centre of the ditch (Fig. 21.6; Plate 21.8).

4. Agricultural clearance

Local sources confirm that the remaining bank was levelled some 20–30 years ago during land reclamation for agricultural purposes (landowner information: William Swain). This is recorded in the upper ditch stratification as a layer of bright orange stony silt (C.05), overlain by a layer of brown-orange stony silt (C.04). These sediments represent redeposited subsoil derived from the ditch, which originally formed the core of the adjacent bank (Fig. 21.6; Plate 21.8). The levelling of the latter into the ditch depression was followed by a spread of organic soil (C.03 mid brown humic silt, overlain by topsoil C.02 and sod C.01).

Bank

The excavation results point to the former presence of a bank on the inner side of the ditch (Fig. 21.4). This feature was not visible prior to excavation, and landowner information indicates it was levelled by agriculture in the modern period. The removal of A-horizon topsoil exposed a spread of residual bank material (C.10), measuring 1.9–2.5m wide by 0.05–0.1m thick, located 2m inside the ditch (Fig. 21.6; Plate 21.14). This compact deposit of yellow-brown silt contained broken stones, 0.04–0.1m in size, many of which had a reddened appearance. The latter is probably due to iron oxide weathering rather than heat-reddening, and it is notable there was no significant occurrence of charcoal in the C.10 spread.

Excavation revealed a deposit of larger stones (C.11) at the base of the A-horizon (C.02), located between the western margin of the C.10 deposit and the inner edge of ditch. These loose stones were 0.15–0.35m in length, mostly sub-angular clasts with slightly rolled appearance. They probably represent bank material, possibly related to the stones of the collapsed bank revetment (C.06) occurring within the inner side of the ditch.

Old ground surface

Excavation of the residual bank material exposed a thin spread of fine black silt (C.28) underneath and respecting limits of C.10 stone deposit (Fig. 21.6). This represents an buried sod layer beneath the former bank. This old ground surface contained a few flecks of charcoal, but no other archaeological material to indicate contruction level or pre-enclosure activity at that location.

Stake features

Excavation uncovered a number of small features cut into the Bs-horizon subsoil, within or adjacent to the location of the former bank (Fig. 21.4). These include (from west to east) a possible stakehole (C.13), a slot trench (C.25) with four possible stake settings (contexts 18, 20, 22 and 24), a large stakehole (C.15) and a small pit (C.27). These are described as follows:

The C.11 stones overlay a small pit (C.13) that may be a large stakehole (Plate 21.15). This D-shaped feature measured 0.38m (east–west) by 0.3m (north–south), with a depth of 0.27m. It was filled with a mid brown sandy silt (C.12) that contained the same type of reddened angular stone as the C.10 bank material. The lower fill was grey-brown sandy silt containing charcoal, a sample of which has been submitted for radiocarbon dating.

The removal of the residual stony bank material (C.10) exposed a narrow curving band of dark sediment within the underlying old ground surface (C.28). The excavation of this dark brown silt (C.16) revealed a 1.74 length of slot trench (C.25) cut through C.28 into the Bs-horizon (Figs 21.4 and 21.5; Plates 21.15 and 21.16). This feature had a slight curve, measuring 0.25–0.36m in upper width and 0.1–0.14m at base, with a depth of 0.07–0.11m. It was filled with a compact deposit of dark brown silt that contained frequent small angular and reddened stones similar to

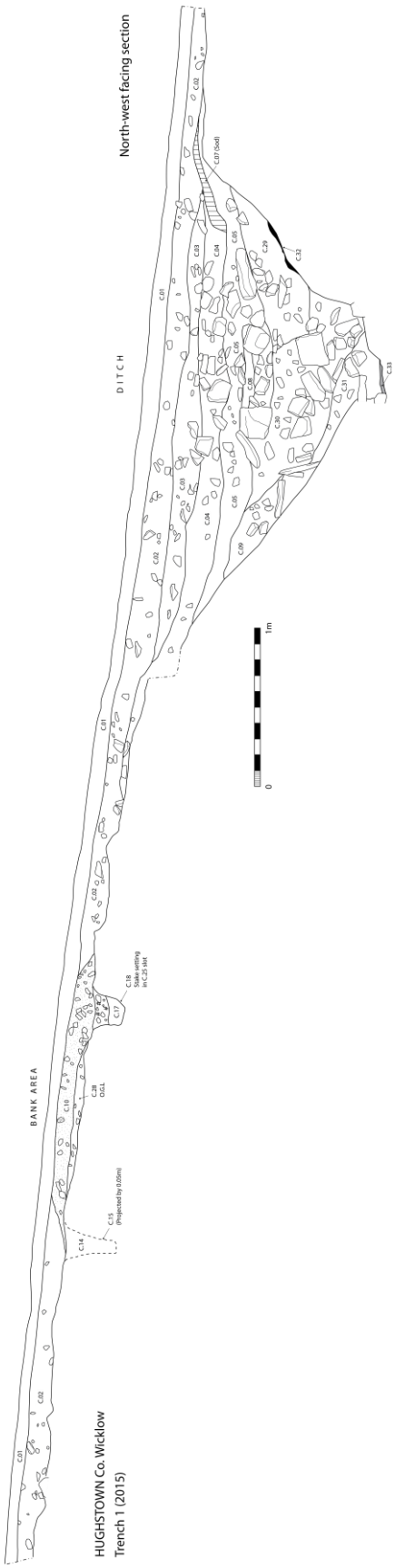

Fig. 21.6: Stratigraphic section across bank and adjacent ditches, Hughstown.

those in the C.10 bank deposit. The fill also contained a small amount of charcoal, a sample of which was submitted for radiocarbon dating.

The investigation of this slot trench revealed four possible stake settings (from south to north: contexts 18, 20, 22 and 24). These ranged 0.23–0.35m in maximum length and 0.14–0.21m in depth, and were filled at the base by a light brown sandy silt (contexts 17, 19, 21 and 23) that did not contain charcoal. The upper fill of this slot (C.16) was composed of similar stony sediment to the C.10 spread, suggesting that these stakes stood with, and were supported by, the original bank. The diameter of the these possible stake settings within the C.25 slot trench indicates this may have been a light roundwood fence.

Excavation on the inner side of the C.10 bank material revealed a large stakehole (C.15) close to southern side of trench (Plate 21.15). This sub-circular feature measured 0.27m by 0.25m, with a depth of 0.34m. The fill (C.14) consisted of a yellow-brown silt with occasional angular and reddened stones similar to those in the C.10 spread.

Finally, a small pit (C.27) was discovered extending into section at eastern end of trench (Fig. 21.4; Plate 21.17). This irregular cut measured 0.41m by 0.4m (extending out of eastern section), with an irregularly flat base at a depth of 0.09–0.13m. The fill (C.26) consisted of a mid brown silt with occasional small stones and flecks of charcoal. The significance of this feature is not known, and it cannot be stratigraphically linked to the enclosing element.

Table 21.1: Archaeological contexts, Hughstown excavation.

Context	***Description***
01	Sod layer; 0.07–0.1m in thickness; compact and free of stones.
02	A-horizon topsoil beneath sod layer. Dark brown organic soil, friable with sandy silt texture, frequent pebbles and occasional small stones.
03	Upper layer of ditch. Layer of mid brown organic silt, 0.06–0.19m in thickness, mostly free of pebbles, but does contain some small angular stones with reddened appearance. No charcoal.
04	Layer in upper fill of ditch. Orange brown silt, 0.1–0.2m in thickness, mostly free of pebbles with some small stones. The inner (eastern) side of this layer contained very large stones from the collapsed bank revetment (C.06).
05	Layer in upper fill of ditch. Compact layer of orange silt, 0.1–0.28m in thickness, with a high stone content in centre of ditch, but mostly free of stones along inner and outer sides.
06	Collapsed stones from bank revetment. Concentration of very large stones along

	mid to upper inner (eastern) side of ditch. These stones were mostly of grey coarse sandstone, with no indications of obvious fire-reddening (Plate 21.13). The majority were 0.1–0.25m in length, with some larger examples up to 0.3–0.45m, as well as five examples in 0.6–0.7m (largest was 0.81m by 0.43m by 0.14m). Angular to sub-angular in shape, with many broken surfaces, some of these stones had a slightly rolled appearance to indicate a drift source.
07	Buried sod. Thin lens of dark brown organic silt, 0.03–0.06m in thickness, on upper outer edge of ditch. Peaty texture; mostly free of stones.
08	Thin lens of dark brown organic silt, 0.04–0.08m in thickness, in central area of ditch. Peaty texture; mostly free of stones, but did contain a small amount of charcoal.
09	Deposit of compact light brown silt, 0.2m in maximum thickness, on mid inner slope of ditch. This sediment built up around collapsed stones of bank revetment (C.06).
10	Residual bank material. A 1.9–2.5m wide by 0.05–0.1m thick spread of small broken stones 2m inside the inner (eastern side) of ditch. The stones were mostly 0.04–0.1m in size, angular in form, within a yellow-brown silt. The majority had a red coloration that is probably due to iron oxide induration rather than heat-reddening. No significant occurrence of charcoal, with only occasional flecks present.
11	Stone deposit on inside of ditch. A spread of small to large stones at base of A-horizon (C.02), in a 2m wide area between inner edge of ditch and the western limit of residual bank material (C.10). These stones were 0.15–0.35m in length, mostly sub-angular clasts with a slightly rolled appearance. Probable bank material, related to C.06 collapsed bank revetment on inner side of ditch.
12	Fill of small pit (C.13; possible stakehole) on inner side of ditch. Overlain by C.11 stones, but not by pre-bank sod (C.28). The upper part of fill was a mid brown sandy silt with infrequent amounts of small to medium stone, some of which was reddened in the same manner as the C.10 stones. One flat angular stone, measuring 0.25m by 0.17m by 0.08m, was placed upright in this fill. The lower fill was grey-brown sandy silt with some charcoal (radiocarbon sample HT2015-03) and infrequent medium pebbles, but no larger stones.
13	Cut of small pit containing C.12 fill, cut into Bs-horizon subsoil. D-shaped pit measuring 0.38m (east–west) by 0.3m (north–south), with two large stones forming the western side, measuring 0.21m by 0.16m by 0.05m and 0.15m by 0.09m by 0.09m respectively. Vertical east and north sides, other sloping steeply to an irregularly flat base with a central depth of 0.27m. Two large stones projecting from lower sides of pit.
14	Fill of large stakehole (C.15) on inner side of 'bank', close to southern side of trench. Yellow-brown fine silt with frequent pebbles, as well as occasional large stones in 0.04–0.13m size range. The latter were angular and reddened, similar to those in the C.10 spread from which they were probably derived. Rare flecks of charcoal (not sampled) in upper part of fill; none in lower portion.
15	Large stakehole with C.14 fill. Sub-circular in plan, measuring 0.27m (east–west)

	by 0.25m (north–south), cut into Bs-horizon subsoil to a depth of 0.34m. Vertical sides, except on steeply sloping north-west side, with an irregularly flat base measuring 0.14m (east–west) by 0.12m (north–south).
16	Upper fill of possible slot trench (C.25) within bank on inner side of ditch. Compact deposit of dark brown silt with frequent small to medium stones and a small amount of charcoal (radiocarbon sample HT2015-02). The stone content was mostly angular, with many reddened examples similar to the C.10 bank material. Stratigraphically later than the C.28 old ground surface.
17	Lower fill of possible stake setting (C.18) at southern end of slot trench (C.25). Loose deposit of light brown sandy silt with frequent pebbles and occasional small to medium stones. Rare flecks of charcoal, not enough to indicate that a stake was burnt *in situ.*
18	Possible setting for stake at southern end of slot trench (C.25). Sub-oval depression in lower part of C.25 slot, measuring 0.23m (east–west) by 0.2m (north–south), with irregular vertical stony sides to a flat base, with a central depth of 0.2m.
19	Lower fill of possible stake setting (C.20) on southern side of slot trench (C.25). Loose deposit of light brown sandy silt with frequent pebbles and occasional small to medium stones. Rare flecks of charcoal.
20	Possible setting for stake, 0.18m north of C.18, on southern side of slot trench (C.25). Sub-oval depression in lower part of C.25 slot, measuring 0.25m (east–west) by 0.18m (north–south), cut into Bs-horizon to a depth of 0.21m. Two large stones projecting from east and west sides, leaving a 0.13m by 0.07m space on south side for stake position.
21	Lower fill of possible stake setting (C.22) on northern side of slot trench (C.25). Loose deposit of light brown sandy silt with frequent pebbles and occasional small to medium stones. Rare flecks of charcoal.
22	Possible setting for stake, 0.65m north of C.20, on northern side of slot trench (C.25). Sub-oval cut in lower part of C.25 slot, measuring 0.25m (east–west) by 0.22m (north–south), with steeply sloping sides to a rounded base at a depth of 0.17m.
23	Lower fill of possible stake setting (C.22) at northern end of slot trench (C.25). Loose deposit of light brown sandy silt with frequent pebbles and occasional small to medium stones. Rare flecks of charcoal.
24	Possible setting for stake, 0.07m north of C.22, at northern end of slot trench (C.25). Elongated oval cut in lower part of C.25 slot, measuring 0.35m (east–west) by 0.13m (north–south), with steeply sloping sides to an irregularly flat base at a depth of 0.08–0.14m.
25	Shallow slot trench cut into Bs-horizon (Plates 21.15 and 21.16), with four possible stake settings (contexts 18, 20, 22 and 24). Total excavated length of 1.74m, with slight curve, 0.25–0.36m in upper width and 0.1–0.14m at base, with a depth of 0.07–0.11m (outside of stake settings). Stratigraphically later than the pre-bank old ground surface (C.28).
26	Fill of irregular pit (C.27) at eastern end of trench. Mid brown silt with occasional

	pebbles and small stones. Frequent flecks of charcoal.
27	Small pit filled with C.26, partly extending into section at eastern end of trench (Plate 21.17). This irregular cut in the Bs-horizon measured 0.41m (north–south) by 0.4m (extending out of eastern section), with steeply sloping sides to an irregularly flat base at a depth of 0.09–0.13m.
28	Spread of fine black silt underneath and respecting limits of C.10 stone deposit. Free of clasts, with occasional flecks of charcoal. Old sod layer beneath former bank.
29	Deposit of sediment on outer slope of ditch. Compact bright orange sediment, gravelly texture with numerous pebbles and small stones, and occasional large stones.
30	Stony deposit in lower central area of ditch. Loose arrangement of very large stones with many voids and pockets of dark brown sandy silt. The stones were 0.15–0.4m in length, and were mostly sub-angular with several broken examples. None were reddened or burnt in any way.
31	Deposit of yellow-brown silt on lower inner slope of ditch. Compact with numerous small to large stones, mostly sub-angular, but not reddened.
32	Small pockets of red-brown sandy silt on mid outer slope of ditch. Contained small amounts of charcoal.
33	Thin occurrence of lump and fleck charcoal at base of ditch, underlying C.31 sediment (radiocarbon sample HT2015-01).
34	Cut of ditch.
35	Natural Bs-horizon. Compact surface of bright orange to yellow orange sandy silt, with frequent pebbles and small to medium stones, and occasional larger stones.
36	Natural C-horizon (exposed only on lower sides of ditch). Hard surface of grey-white silt, with numerous pebbles amd occasional large angular stones of shale and sandstone.

20.4 FINDS

The only artifact of any date found in the Hughstown excavation is a single sherd of prehistoric pottery. This find (15E322:01) is a body sherd; well-preserved with very smooth external surface and possibly burnished. The absence of any weathering means it was buried soon after discard.

20.5 RADIOCARBON DATES FROM HUGHSTOWN

The following three samples were selected from the Hughstown charcoal for AMS radiocarbon dating The results are as follows (wood identifications: Susan Lyons, UCC):

HT2015-01 Sample of alder charcoal (heartwood) from sediment (Context 33) at base of ditch of second enclosure.
GrA-64434; 4815 ± 35 BP (3645–3535 BC)

HT2015-02 Sample of willow charcoal (heartwood) from upper fill (Context 16) of slot trench (Context 25) inside bank of second enclosure.
GrA-64437; 4825 ± 35 BP (3655–3535 BC)

HT2015-03 Sample of alder charcoal (heartwood) from fill (Context 12) of small pit (Context 13) inside bank of second enclosure.
GrA-64436; 4850 ± 35 BP (3690–3540 BC)

These results confirm that construction and early use of the second enclosure at Hughstown occurred during the Early Neolithic, *c.*3690–3535 BC. The result of 3645–3535 BC (GrA-64434) provides a *terminus ante quem* for the digging of the enclosure ditch, while a similar date range of 3655–3535 BC (GrA-64437) for charcoal in the slot trench is probably (but not certainly) part of the same construction event, as is the result of 3690–3540 BC (GrA-64436) for an adjacent pot (posthole?).

20.6 DISCUSSION

The aim of the Hughstown excavation was to investigate the form and construction of the defences of the second hillfort enclosure, and to recover samples for radiocarbon dating. The latter confirms that construction and early use of this enclosure occurred during the Early Neolithic, *c.*3690–3535 BC. It is important to stress that this result does not date the entire hillfort at Hughstown, as further excavation is required to ascertain the date of other enclosing elements. These radiocarbon dates are supported by the discovery of a single body sherd of Neolithic pottery (15E0321:01). This was found is a cultivation-disturbed layer over the bank area and so cannot be directly associated with the hillfort defences. The ceramic is very different from recent finds of Bronze Age coarseware at the nearby hillforts of Tinoran and Rathnagree. The closest parallels are with burnished wares of the Early/Middle Neolithic (Rose Cleary pers. comm.).

20.6.1 Hillfort construction

The excavation yielded important information on the defences of the second enclosure at Hughstown. This involved the digging of a substantial ditch, the soil from which was piled on the inside to form a bank. The discovery of numerous large stones in the ditch fill suggests that the bank was faced with drystone walling. Based on the depth of the ditch (1.5–1.6m from modern ground level), the original height of the earthwork defences at this location is extimated at 3m.

20.6.2 Hillfort occupation

The excavation did not produce significant evidence for the occupation of this hillfort. The discovery of charcoal residues at the base of the ditch attest to early occupation of the hillfort, but there are no details available.

Fig. 21.7: Correlation of magnetic gradiometry readings (black corresponds with high magnetic readings; white low readings) with excavated features, Hughstown trench. There is a close correlation between high gradiometry readings and the ditch and slot trench feature.

20.6.3 Abandonment

The Hughstown excavation did not yield information on the final occupation of this hillfort. Geophysical survey indicates high magnetic gradiometry readings along the defences of both the second and third enclosures (Fig. 21.3). However, excavation did not confirm deliberate destruction by fire of the defences of the second enclosure. There is a broad correspondence between the higher gradiometry readings and both the ditch and palisade slot trench (Fig. 21.5), but neither of the latter can be associated with definite burning events.

Acknowledgements

I wish to thank the site supervisor, Nick Hogan, and site archaeologists, James O'Driscoll and Alan Hawkes. James carried out the geophysical survey of this site, while Nick prepared the excavation drawings. We are grateful to the Corrigan and Swain families for permission to excavate.

Plate 21.1: General view of Hughstown hillfort, Co. Kildare (looking west).

Plate 21.2: Aerial view of Hughstown hillfort. Location of excavation trench marked in white (centre left; not to scale)). Source: Bing Maps.

Plate 21.3: Aerial view of Hughstown hillfort (precise location of excavation trench, in red left of centre). Source: Google Earth.

Plate 21.4: Removal of C.02 topsoil in progress, Hughstown trench (looking east to summit enclosure in top right corner). The darker band across centre of trench is the first indication of the ditch.

Plate 21.5: Exposure of orange Bs-horizon surface, showing dark bank of upper ditch fill (centre), Hughstown excavation (looking east).

Plate 21.6: Post-excavation view of ditch, Hughstown (looking east).

Plate 21.7: Post-excavation view of ditch, Hughstown (north-facing section).

Plate 21.8: Ditch stratification, Hughstown (north-facing section).

Plate 21.9: Excavation of charcoal-flecked sediment (C.33) at base of ditch, Hughstown.

Plate 21.10: Large stones in C.09 sediment, Hughstown ditch.

Plate 21.11: Ditch stratification, Hughstown (south-facing section).

Plate 21.12: Reconstruction of how the exterior stone facing in the bank may have looked, using original stones (C.06) excavated from the ditch.

Plate 21.13: Large stones (C.06) from collapsed bank recovered from ditch, Hughstown.

Plate 21.14: General view of bank surface (centre) and ditch infill (top left), Hughstown (looking west).

Plate 21.15: Post-excavation of bank area (looking south) of C.25 slot with contexts 18, 20, 22 and 24 stake setting (centre right), and adjacent small pits C.13 (far right) and C.15 (far left).

Plate 21.16: Post-excavation view of bank area (looking west) of C.25 slot with contexts 18, 20, 22 and 24 stake setting (centre top), and small pit C.15 (lower left).

Plate 21.17: Small pit (C.27) extending into section at eastern end of trench, Hughstown.

Plate 21.18: Backfilled excavation trench at Hughstown hillfort.

APPENDIX: 11

GEOPHYSICAL SURVEY AT RATHMOON, CO. WICKLOW

A geophysical survey (licence number 14R032) was undertaken within Rathmoon townland Co. Wicklow, **IG** 685710, 687766 from the 2nd of March to 16th of March 2014, to investigate a large, low-lying enclosure of likely prehistoric origin (RMP – WI026-009). The survey was successful in identifying a complex series of enclosing elements and corresponding entrance features that might suggest these defences are contemporary. Furthermore, a concentration of large, pit-like features at the centre of the monument may represent funerary practices, indicating the enclosure may have had a ritual function.

21.1 INTRODUCTION

The large enclosure at Rathmoon comprises a circular enclosure approximately 120m in diameter (Fig. 22.1). It is in a low-lying position and although there are reasonable views of to the south and east, the monument is not as prominently sites as some of the more impressive hillforts in the area. Rathmoon is classified by Grogan (2007b, 117) as a hilltop enclosure. Conversely, its low-lying and inconspicuous location infers it is not representative of this monument type. It forms one of four large enclosures in the Baltinglass area positioned at the base of hilltops in low-lying, inconspicuous positions. It is depicted in the first and second edition OS maps as a univallate enclosure with a total footprint of approximately 1.14ha (Fig. 22.2 and Fig. 22.3). Aerial and satellite imagery reveal a more complex system of up to three somewhat concentric enclosing elements, all of which that been levelled and this complexity has subsequently been confirmed by geophysical survey.

21.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

Rathmoon is situated on a north-south running formation of course greywacke and shale (www.gsi.ie). These and their associated formations are considered a magnetically quite geological formation and it is unlikely to have affected the magnetic data. Immediately to the south, a soft – fine grained granite formation is also unlikey to have affected the geophysical results.

The survey area comprises a single field under pasture. Unfortunately, the western and northwestern extremities of the site are defined by a modern earthen bank and ditch drainage feature which has largely destroyed the outer enclosing elements of Rathmoon in these areas. The low-lying nature of the site and its easy accessibility has made it an excellent area to farm and these processes are likely to blame for the monuments destruction. In the 1940's edition of the Ordnance Survey maps, the enclosure was still visible on the ground and was recorded, suggesting extensive destruction of the monument in the last 70 years has taken place.

Sunny weather conditions and warm temperatures for the majority of the survey could have affected data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations. The instrument was balanced more regularly (every grid) to augment its effect on the captured data.

21.3 ARCHAEOLOGICAL BACKGROUND

The closest recorded archaeological site is positioned 800m to the north-west of Rathmoon. WI-026-006001. This site is in at the northern edge of Rathmoon townland and comprises a mound

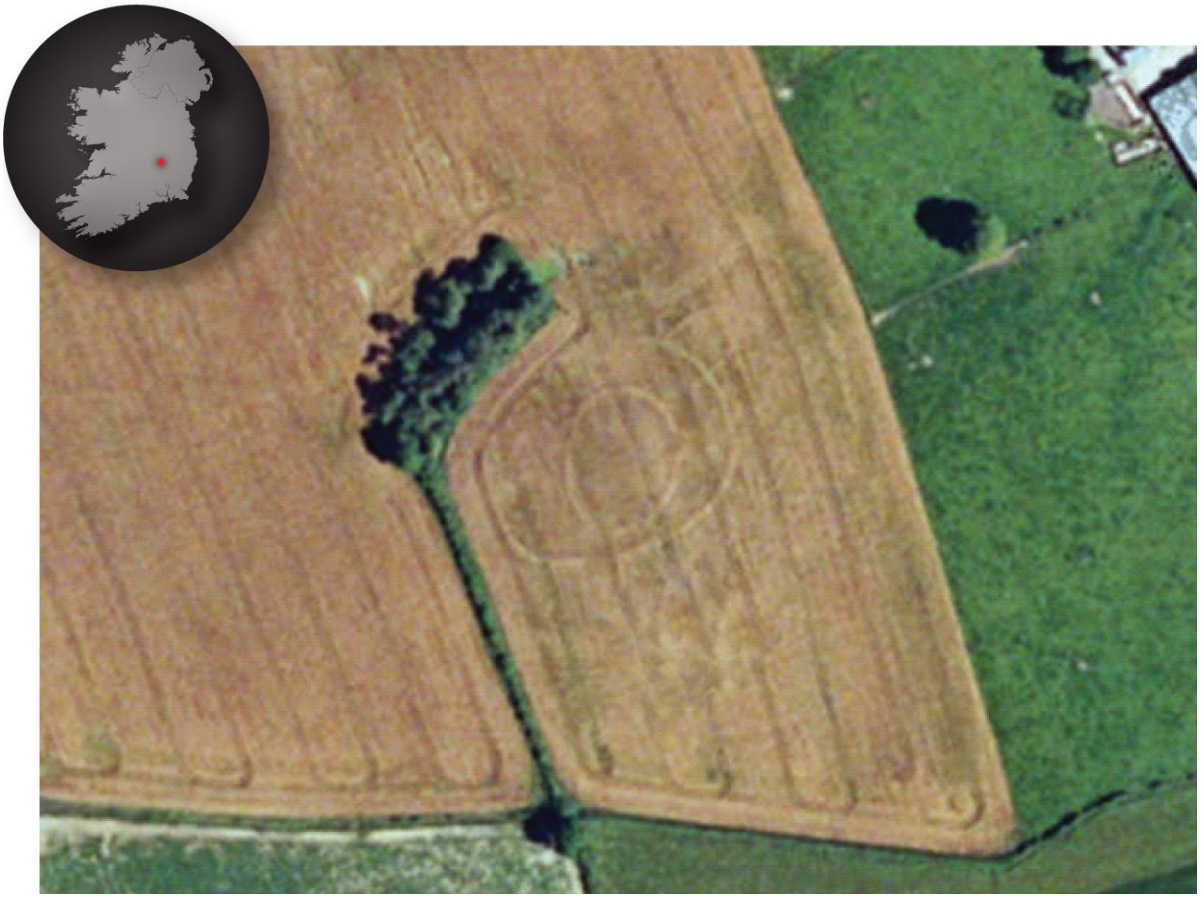

Fig. 22.1: Rathmoon enclosure in Co. Wicklow (Google Earth 2015).

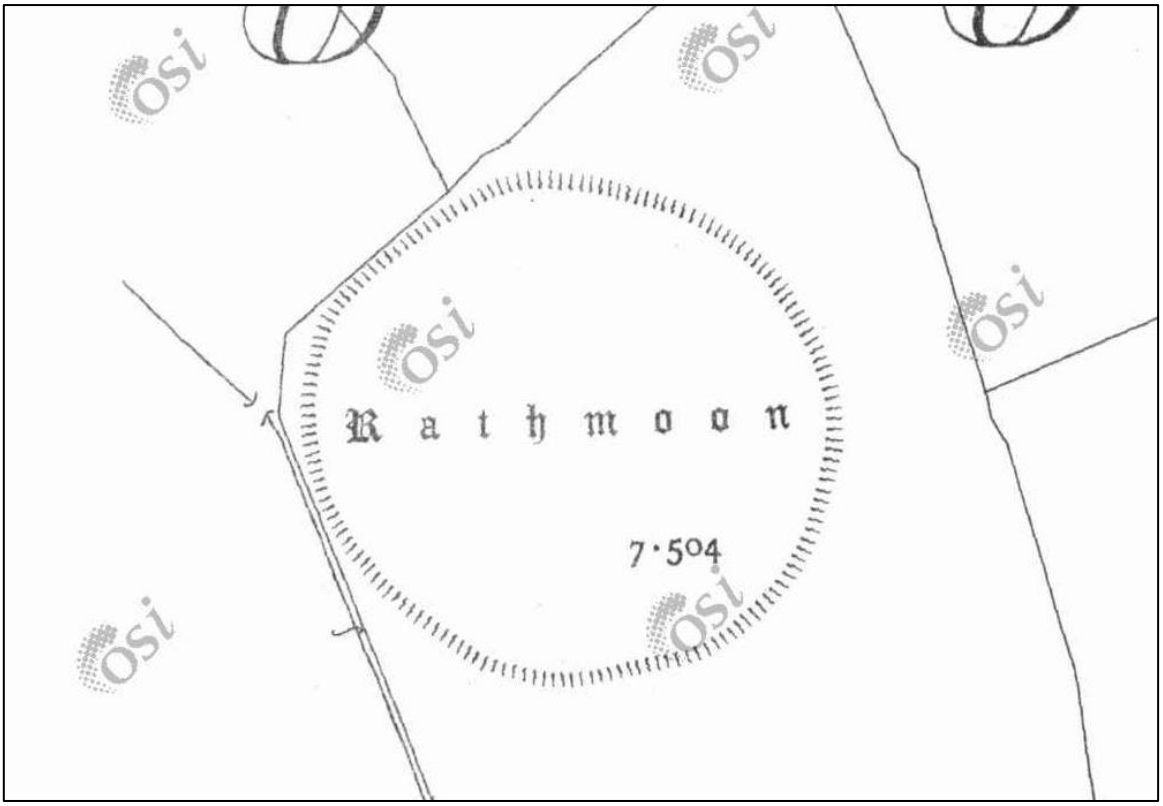

Fig. 22.2: First edition Ordnance Survey maps.

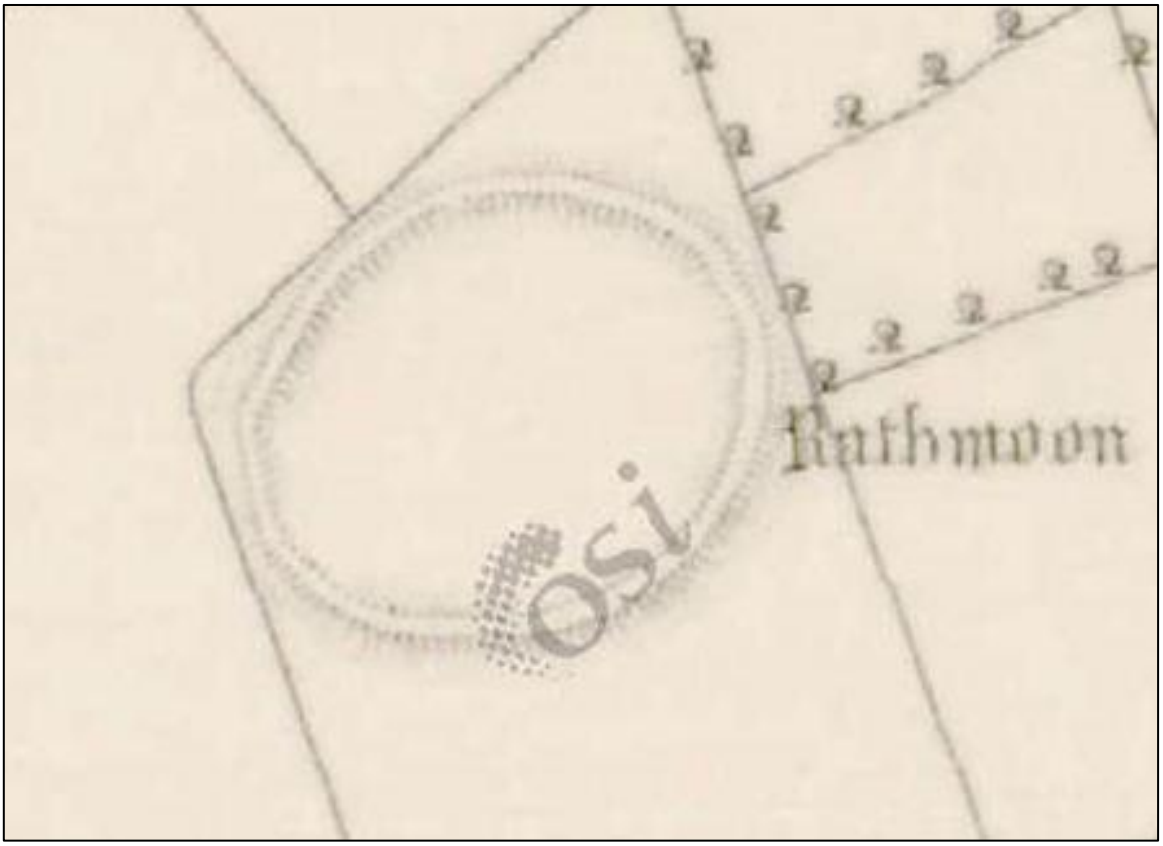

Fig. 22.3: Second edition Ordnance Survey maps.

which was destroyed in the mid 1900's and produced cremated remains. Price (Corlett and Weaver 2002a, 175) describes the monument as a circular mound 26m in diameter and 3.9m high standing on the crest of a hill. The lower part of the mound formed a terrace just over 1m wide, with a central dome-shaped mound rising out of this. The monument may have originally had an outer bank (Corlett and Weaver 2002a, 75). During the destruction of the mound in 1958, a rectangular cist was recorded near the southern edge, measuring 0.8m by 0.45m and was 0.5m deep. Lucas (1960, 86) notes that the top of the cist was probably at the old ground surface. The cist contained a 'very considerable' amount of cremated bone (Lucas 1960, 87). The number of individuals was estimated to be three adult females and two adolescents, one a newly born and another aged 6–8 years. A leaf-shaped arrowhead was the only artefact recovered from the deposit. It was found within the cist with the cremated bone, and showed signs that it had been burnt with the human remains. No radiocarbon dates have been retrieved from the burial. Typologically, the arrowhead dates to the Early/Middle Neolithic (Sharpe *per comm.*).

21.4 SURVEY PROGRAM

The proposed survey extent incorporates the remains of the enclosure which are possible to survey. High resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the hillfort, to identify possible internal occupation and assess the number, form and composition of the defensive features. An area of 1.8ha was surveyed, using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

21.5 GEOPHYSICAL SURVEY RESULTS

Geophysical survey revealed a complex system of enclosure and internal features that suggests the monument is prehistoric (Fig. 22.4 and Fig. 22.5). Up to 16 sub-divisions linking these enclosing elements have been identified (**G1a**–**G1p**). These are mostly distributed in-between the outer two enclosing elements and probably represent a later attempt to sub-divide areas in-between the existing enclosing elements for agricultural practices. This has been noted at a number of other hillfort sites in Ireland, such as Clashanimud in Co. Cork, where modern farmers attempt to divide the fort into smaller parcels of land using the existing enclosing elements of the hillfort.

Fig. 22.4: Rathmoon geophysical survey results.

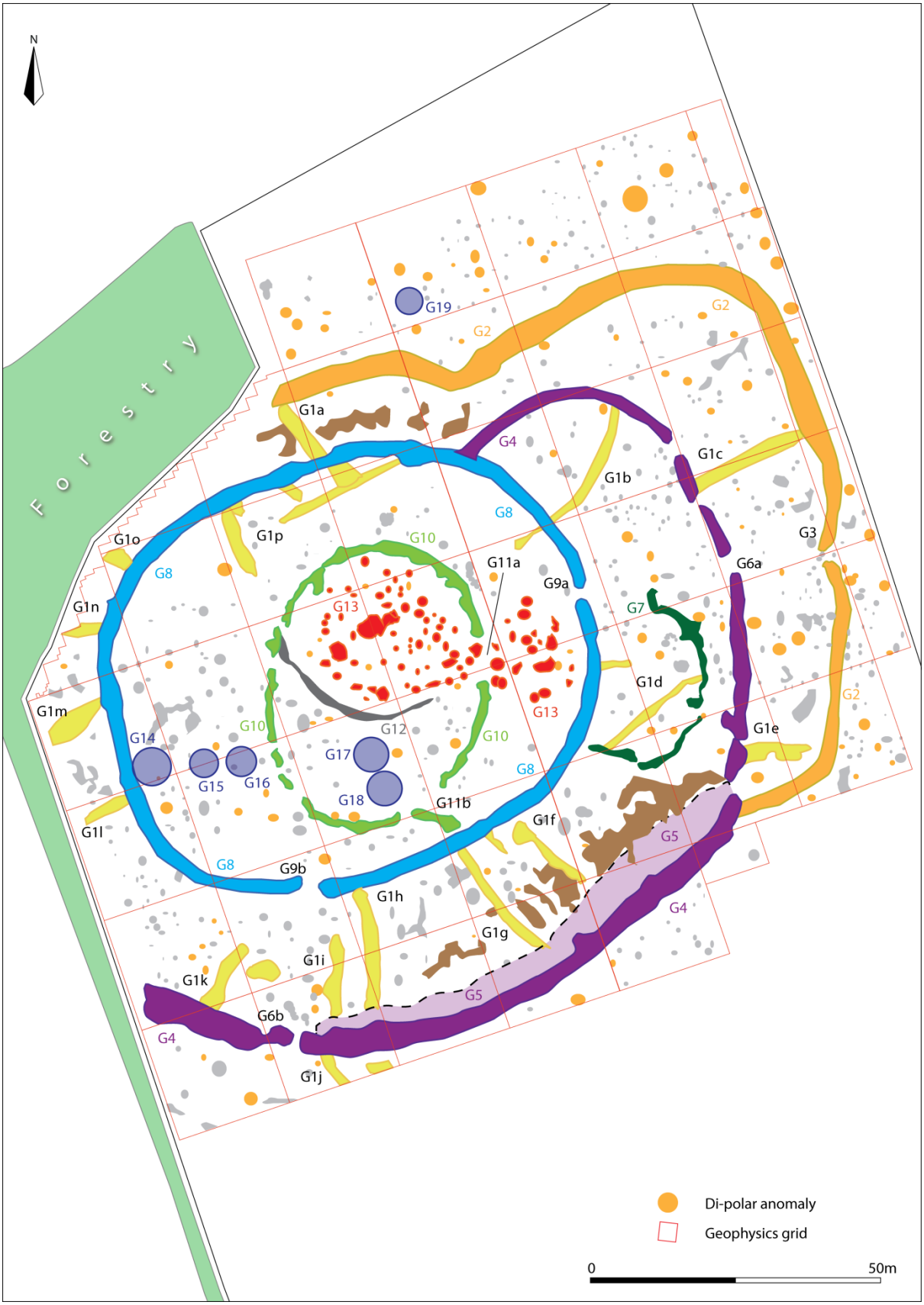

Fig. 22.5: Rathmoon geophysical survey interpretation.

G2 comprises an unrecorded external enclosure (enclosure 4) measuring 160m (east–west) by 120m (north–south). This new enclosing element has increased the total size of the monument to 1.71ha. It is apparent only on the eastern and northern side and abuts the southeastern section of enclosure 3. As such, it seems that enclosure 4 did not extend around the entire circuit of the fort. This may have been an attempt by the builders of the monument to focus labour output in an area that was more visible and accessible to people, and could be viewed as an element of competitive display. Competitive display is often associated with more topographically dominant hillforts and this could hint that the Rathmoon enclosure could be contemporary with the local hilltop forts. A 3–4m wide gap (**G3**) on the eastern side of **G2** is likely to represent an original entrance, particularly due to the fact that it is in-line with other possible entrance features in enclosures 1, 2 and 3.

G4 consists of another unrecorded enclosing element surrounding the eastern and southern side of Rathmoon (enclosure 3). It is positioned approximately 12–28m from the outer enclosure 4. It is similar to the latter, as enclosure 3 does not from a complete circuit, and instead joins enclosure 2 at the northeast. The responses from the geophysics suggest that these are ditch (enclosure 3 and 4) features measuring up to 8m wide.

A 7m wide area abutting the inside of enclosure 3 at the south may represent a possible bank feature (**G5**). It is notable that other features, such as the later field division anomalies (**G1a**–**G1p**) respect this faint band that may represent a bank. This is further supported at the eastern section of enclosure 3, where **G5** is not apparent in the results yet other anomalies do not encroach within 7m of the ditch.

G6a represents a possible original entrance feature and consists of a 4m wide break in enclosure 3 that is in-line with the gap in enclosure 4 (**G3**). **G6b** comprises a second prominent break at the southern side of enclosure 3 that measures approximately 2.5m wide. **G7** represents a series of positive magnetic anomalies in-between enclosure 3 and 4. These may be later field division features.

G8 comprises enclosure 2, the enclosing elements recorded in the Ordnance Survey maps. This enclosure forms a complete circuit. The anomaly is approximately 4m in average width and is distinct from enclosure 3 and 4 as the anomaly is particularily strong in comparison (up to 28nT). It is difficult to distinguish this type of anomaly from the response of *in-site* burning, however, considering the enclosure is visible in the aerial and satellite imagery, it probably represents a ditch feature in with highly magnetic material.

There are two breaks in enclosure 2, **G9a** and **G9b**. **G9a** is positioned at the eastern side of the enclosure and consists of a 2m wide break. It is notable that the terminals of the ditch are slightly in-turned. This gap is in-line with the possible entrance features in the outer enclosing elements (**G3** and **G6a**). G9b consists of a 4m wide gap at the south of enclosure 2 and this corresponds with a break in enclosure 3 (**G6b**).

Morphologically, the inner enclosure (enclosure 1) is different from the outer examples (**G10**). It is oval in shape and there is no obvious feature that might connect it with the other enclosures. **G10** itself consists of a strong band of magnetic readings, however, considering it is visible in aerial photographs, it is still likely to represent a ditch feature. A 6m wide gap at the east may represent an original entrance (**G11a**). This is partially aligned with the possible entrances of enclosure 2, 3 and 4 (**G3**, **G6a** and **G91**). The entrance of the inner enclosure is slightly staggered and this may have been a purposeful arrangement, concealing visibility of the interior until the last moment. They probably formed a formal entrance to the site. It is notable that this is the only side of the enclosure where all four enclosing elements overlap. This may have been a deliberate attempt to monumentalise the entrance area. A possible break in enclosure 1 is apparent as a 4–5m gap at the south although this is not aligned with breaks in other enclosing elements.

The inner enclosure is sub-divided by an annular band of magnetism, probably a shallow ditch (**G12**). Interestingly, this sub-divides enclosure 1, with the northern half being densely occupied with a series of large, pit-like anomalies (**G13**) that might represent some form of funerary practice such as the deposition of human remains in pits, while the southern half is occupied by two possible structures (**G17** and **G18**). The series of pits comprising **G13** extends beyond the entrance of enclosure 1.

G14 comprises a circular band of pit-like features that is truncated on its westerns side. It abuts the inner side of enclosure 2 and when projected, measures approximately 7m in diameter. Immediately to the east of **G14**, two circular settings of faint pit-like features (**G15** and **G16**) each measure approximately 5m in diameter. These probably represent the remains of hut structures. Within the interior of enclosure 1 (**G10**), two circular arrangements of pit-like features (**G17** and **G18**) could represent the remains of two hut structures that both measure approximately 7m in diameter. Outside the Rathmoon enclosure, a circular arrangement of pit-like features measuring approximately 4m in diameter may also represent a possible hut structure. The area defined by the pit features comprises a circular area of slightly low-

magnetism which could suggest some introduced material to form a floor surface survives and has affected the magnetic readings.

Discussion of Results

The identification of a complex system of widely spaced enclosing elements on a low-lying enclosure in Rathmoon townland is a significant discovery. Considering the number of large, elaborate hillforts in the area, the equally complex enclosure at Rathmoon may be broadly contemporary with some of these hilltop forts and could represent a formal burial area for elites who may have occupied such sites.

The complex system of enclosure and the possible attempts at monumentalising the entrance area may be a form of competitive display. The correspond entrances in each of the enclosing elements at the side of the fort suggests they all of the enclosing elements were contemporary. Enclosure 3 and 4 did not form complete circuits and the only area where all four defences exist is surrounding this entrance area. This further supports the interpretation that the entrance area was deliberately aggrandised.

At the centre of the fort, a considerable number of substantial pit-like features could represent a concentration of pit burials, while a limited number of possible hut structures were also identified. It could be suggested that the fort primarily functioned as a formal burial ground for high status individuals associated with the hillforts in the area, although further work on the enclosure, particularly excavation, is needed to clarify these results.

APPENDIX: 12

GEOPHYSICAL SURVEY AT BREWEL HILL, CO. KILDARE

A geophysical survey (licence number 14RO124) was undertaken within Brewel West townland Co. Kildare, **IG** 683214, 701291 from the 12th of February to 15th of February 2015, to investigate the prehistoric landscape of Brewel Hill, and in particular, a possible hilltop enclosures at the summit of the hilltop (RMP – KD032-026001). The survey was successful in confirming this monument as a probable hilltop enclosure and revealing no other features indicative of a larger set of enclosing elements that might comprise a hilltop. A number of possible internal structures were identified, as well as a possible ring-ditch at the north-east of the exterior.

22.1 INTRODUCTION

Brewel Hill is located in the townland of Brewel West *c.* 8km south of Kilcullen, Co. Kildare on the western extreme of the domed hills that form the foothills of the Wicklow Mountains, in a region of ridged to rolling pastureland (Fig. 23.1 and Fig. 23.2). The hilltop has extensive panoramic views of neighbouring counties Wicklow, Carlow and Dublin with impressive vistas of the Wicklow Mountains, particularly that of Church Mountain located *c.* 10k to the E. Keadeen Mountain, along with an important group of Late Bronze Age hillforts at Baltinglass are also visible on a clear day *c.* 13km to the southeast.

Brewel Hill comprises an externally ditched enclosure and associated stone-circle (known as the 'Pipers Stones') on the submit of a prominent hilltop at 216m OD. The enclosure is approximately 74m in external diameter with a possible entrance at the east. It is approximately 0.4ha in total area. Within the interior, four stones remain of what is possibly a stone circle. Surrounding this at the west and south is a low bank that may also be of archaeological significance. The enclosure and the stone circle are recorded in the second edition of the Ordnance Survey mapps, as are a number of now destroyed field systems joining the fort (Fig. 23.3 and Fig. 23.4).

The enclosure on Brewel Hill is one of a number of possible ritual monuments in the area, some of which have been protected by preservation order since the 1970s. These include a number of prehistoric barrows located immediately northeast of the site. Others have been

recently discovered and are potentially of national significance such as a rare curses monument, possible figure-of-eight enclosure and three smaller additional enclosures, located at the eastern base of the hill. While these sites may not have any direct relationship to the activity at the summit of the hill, their spatial association, may suggest some connection.

22.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

Most of this region of east Kildare is covered by Grey Brown Podzolics (Gardiner and Radford 1980). The Grey Brown Podzolics are, generally-speaking, some of the most fertile soils in Co. Kildare; they are well drained to moderately well drained and are usually moderately acid to neutral in reaction. They occur mainly in Laois, Carlow, and south east Kildare on undulating to rolling topography at elevations ranging from 60 to 120 m OD. Soils from this group mainly consist of calcareous, non-tenaceous glacial till of mainly limestone composition but with an admixture (20%) of granite or sandstone (*ibid*., 107). These soils have a wide use range, being well suited to the production of a wide range of farm, fruit and vegetable crops, including malting barley. They are deep and, with their medium to light texture and their good structure

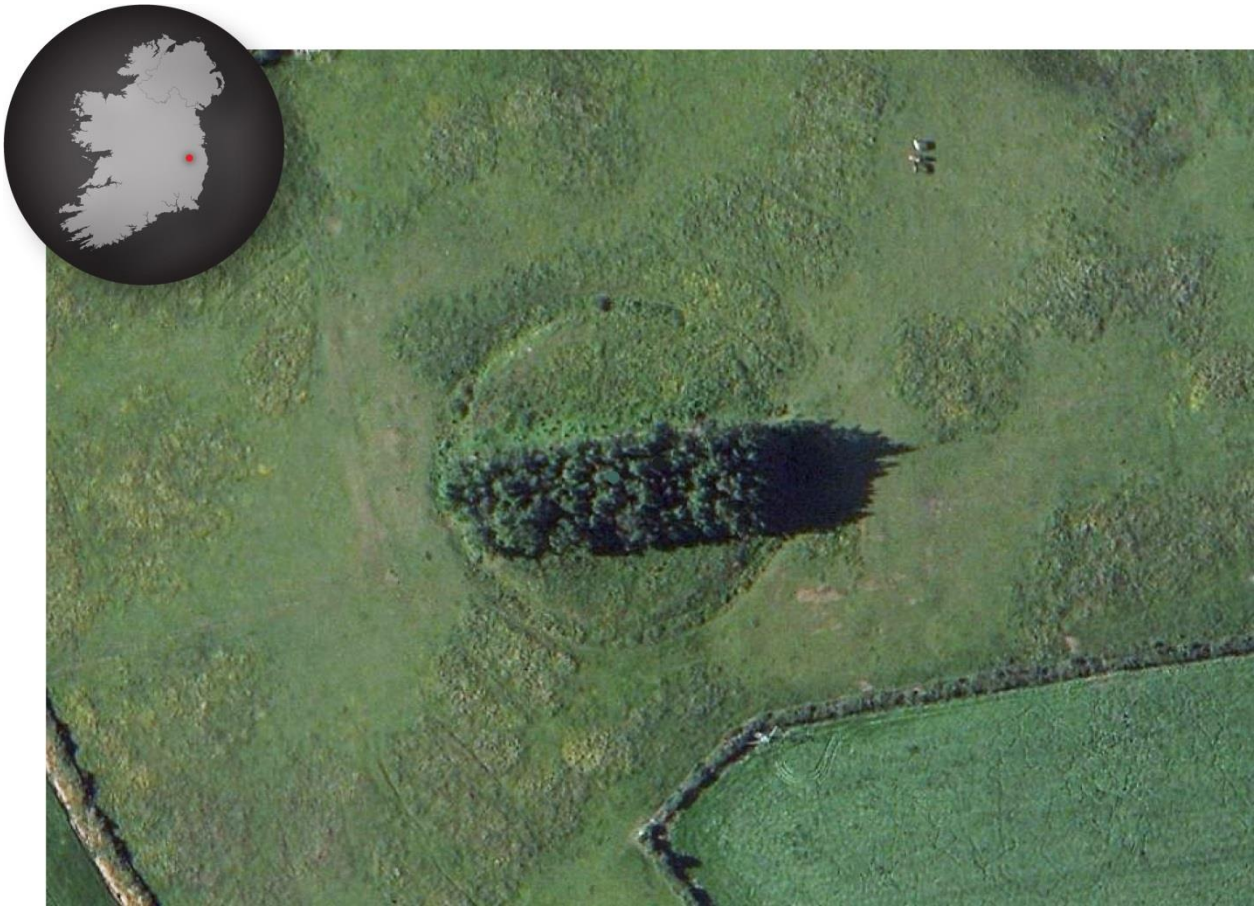

Fig. 23.1: Brewel Hill hilltop enclosure, Co. Kildare (Bing Maps).

and friability, are easily tilled. They also have a high potential for grass production which can be utilised over a long grazing season. The predominant rock types in Kildare are sedimentary rocks, limestone of Carboniferous age in particular which only occasionally reaches the surface (e.g. Carbery Castle and Brewel Hill), but older rocks underlie the hills on the eastern edge of the county, and the distinctive high ground in a fault bound inlier to the north of Kildare town.

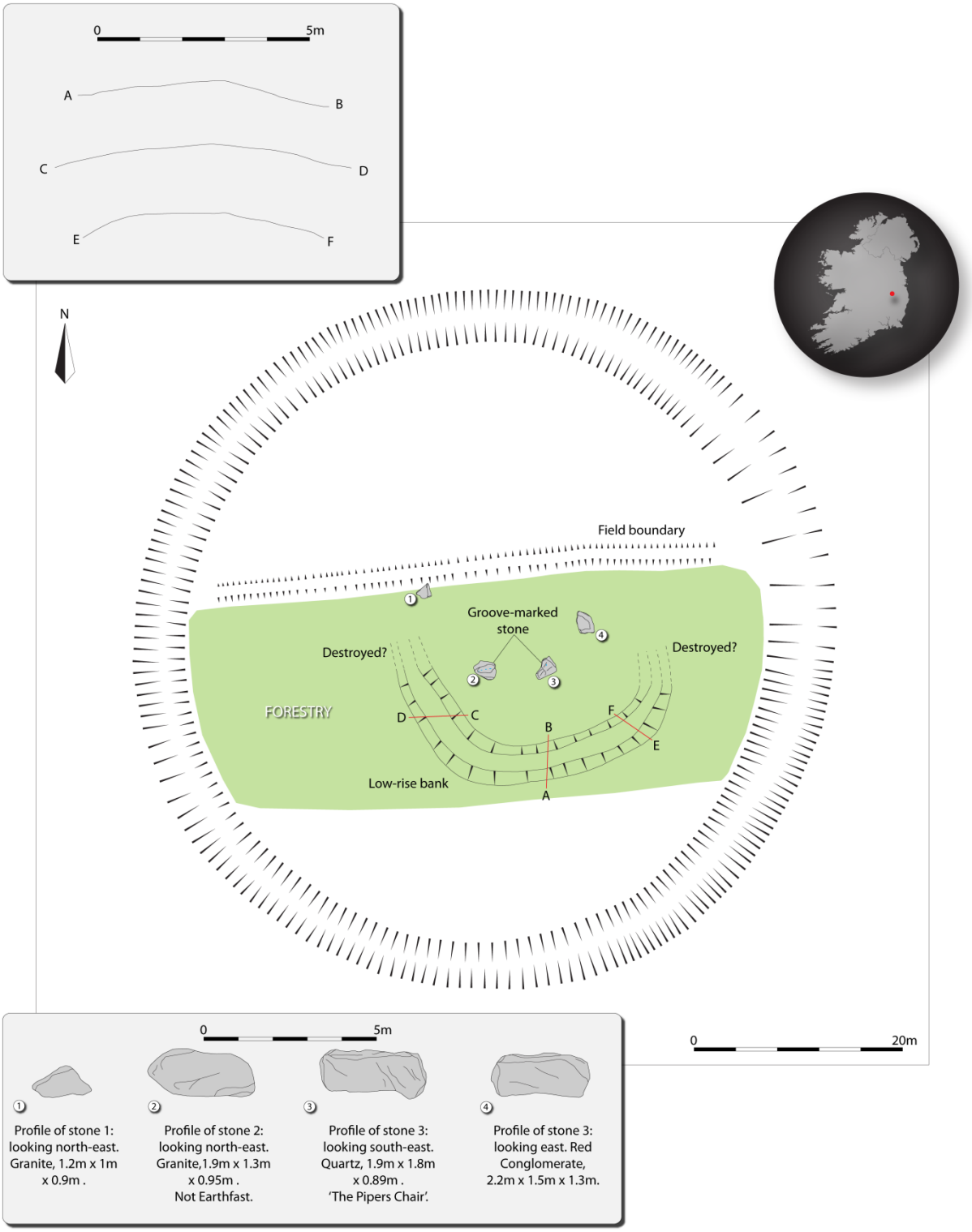

Fig. 23.2: Plan of Brewel Hill hilltop enclosure and stone circle.

Fig. 23.3: First edition Ordnance Survey map.

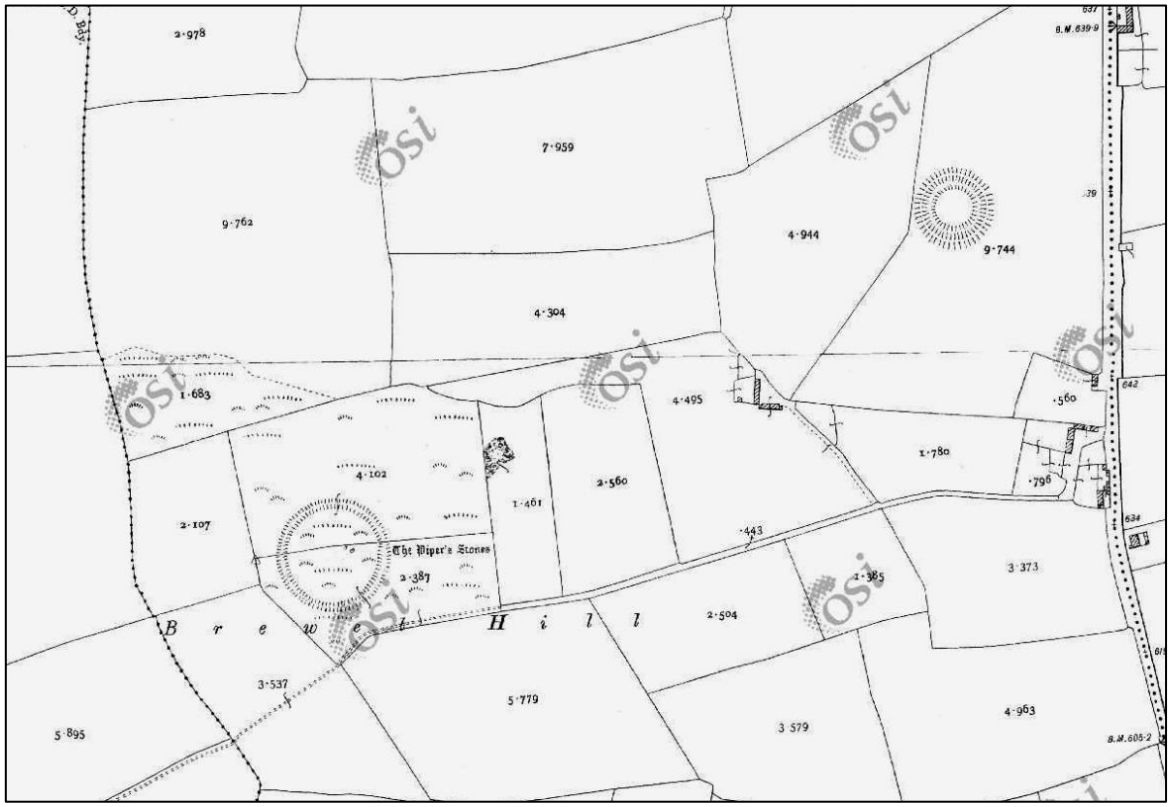

Fig. 23.4: Second edition Ordnance Survey map.

There are also some minor igneous rocks and the larger Tullow Granite Pluton, which is a part of the Leinster Granite (Parks and Sheehan-Clarke 2005, 15). The underlying geology at Brewel Hill however, comprises quaternary glacial deposits overlying bedrock comprised of Silurianage (443 to 417 million years old) greywackes and shales of the Kilcullen Group which were deposited primarily as turbidites (GSI.ie). The Quaternary Period is the final one of the geological timescale. It marks the period of the Ice Age, which began about 1.6 million years ago, and the postglacial period or Holocene, which extends to the present day. All of the surface deposits in the Kildare area were deposited during the Quaternary Period. Some areas of exposed bedrock are visible on the submit of Brewel Hill, while field clearance cairns are recorded in a number of areas along the current field boundaries. Interestingly, none of the stones recorded making up the stone-circle are composed of this underlying geology.

The interior is under pasture making ideal conditions for geophysical survey. Overcast conditions and cold temperatures throughout the majority of the survey facilitated data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations.

22.3 ARCHAEOLOGICAL BACKGROUND

Interest was take in in the local area by antiquarians such as Liam Price, John O'Donovan and Patrick Walshe due to the dense concentration of prehistoric monuments. This did not result in any of these features to be excavated. Rather, a rigorous visual investigation of the archaeology, placenames and local mythology of the area was undertaken. John O'Donovan, for example, records the hill as 'Brewel' or 'Bruighe' in Irish. It can be translated as 'Brugh aill', 'fort of the precipice (Ordnance Survey Parish Name Book; Loganim.ie). Liam Price, notes how he was told of how the stones on Brewel Hill where thrown by a giant from Knockandort and that a hound jumped from 'Kyle' (church site located N of Brewel) to the hill at Brewel (Corlett and Weaver 2002, 51). The Kildare stone circles are commonly known as the *'Piper's Stones'*, a tradition explaining them as being people turned into stone for dancing impiously round a piper, who is sometimes thought to be represented by an isolated pillar either inside or outside the circle (Powel web source; Corlett 1999, 19). Walshe records that the legend with the group of stones at Brewel is associated with a dispute amongst three pipers as to which of them could throw a stone the farthest. Walshe recounts that *'They decided to put their strength to the test and chose Knuckadow, a tall hill about a mile and a half south of Brewel, as the position from which the " cast " was to be thrown. The stones landed on the top of Brewel hill where they remain to this*

day. The fourth, and smallest boulder, was thrown by a young ambitious piper who was spectator of the contest and desired to emulate his older brethren' (Walshe 1931, 127).

22.4 SURVEY PROGRAM

The proposed survey extent incorporates the remains of the hilltop enclosure which are possible to survey, as well as an extensive area surrounding this monument. High resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the fort, to identify possible internal occupation and assess the number, form and composition of the defensive features. An area of 3.06ha was surveyed, using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

22.5 GEOPHYSICAL SURVEY RESULTS

There are a large number of di-polar anomalies scattered throughout the survey area (Fig. 23.5 and Fig. 23.6). While these are represent ferrous material that could be of archaeological significance, it is probable that the majority of these responses are modern ferrous litter. Throughout the data collection process, numerous house shoes, buckles and harnesses were identified on the surface. These would have resulted in a number of the di-polar response visible in the collected data.

The most notable response within the data are the linear strips of positive magnetics orientated north-east south-west (for example **G1a** and **G1b**), apparent throughout the entire surveyed area. These likely represent the remains of drainage ditches that could have been used to remove excess water from the summit and recover the land from the marsh which is depicted in the second edition Ordnance Survey maps. These possible drainage ditches traverse the entire hilltop and have probably destroyed a considerable portion of the underlying archaeology that may be present. **G1a** and **G1b** represent large examples of these possible ditches and measure up to 4m wide.

G2 and **G3** are visible in the data as a series of linear bands of disordered magnetic readings. These probably represent levelled field boundaries. These features correspond with levelled field boundaries depicted in the first and second edition Ordnance Survey maps. G2 extends roughly north-south through the surveyed area. **G3** runs north-south before turning at a right angle to the west, towards the extant enclosure at the summit of the hilltop. **G3** is visible as

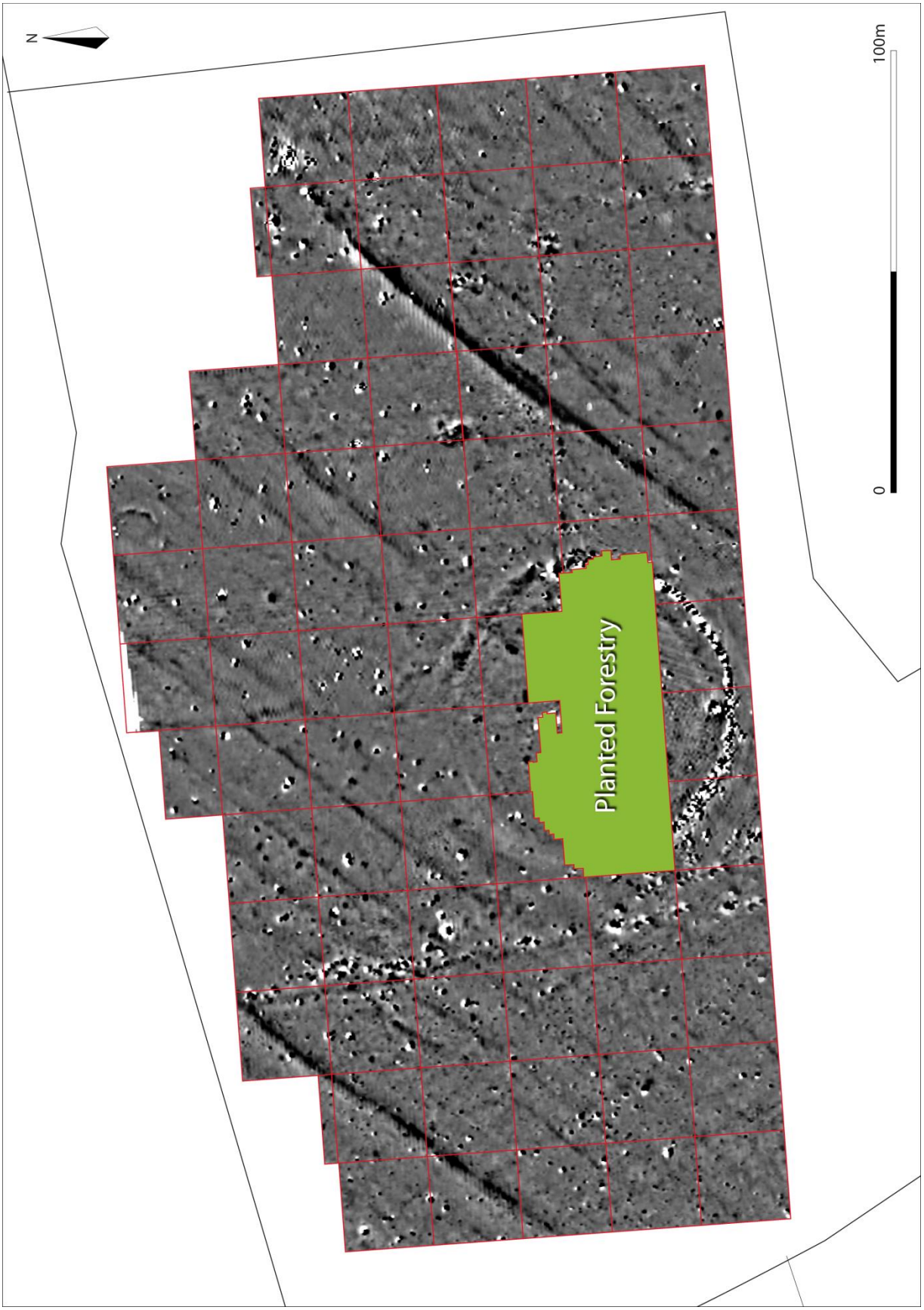

Fig. 23.5: Brewel Hill geophysical survey results.

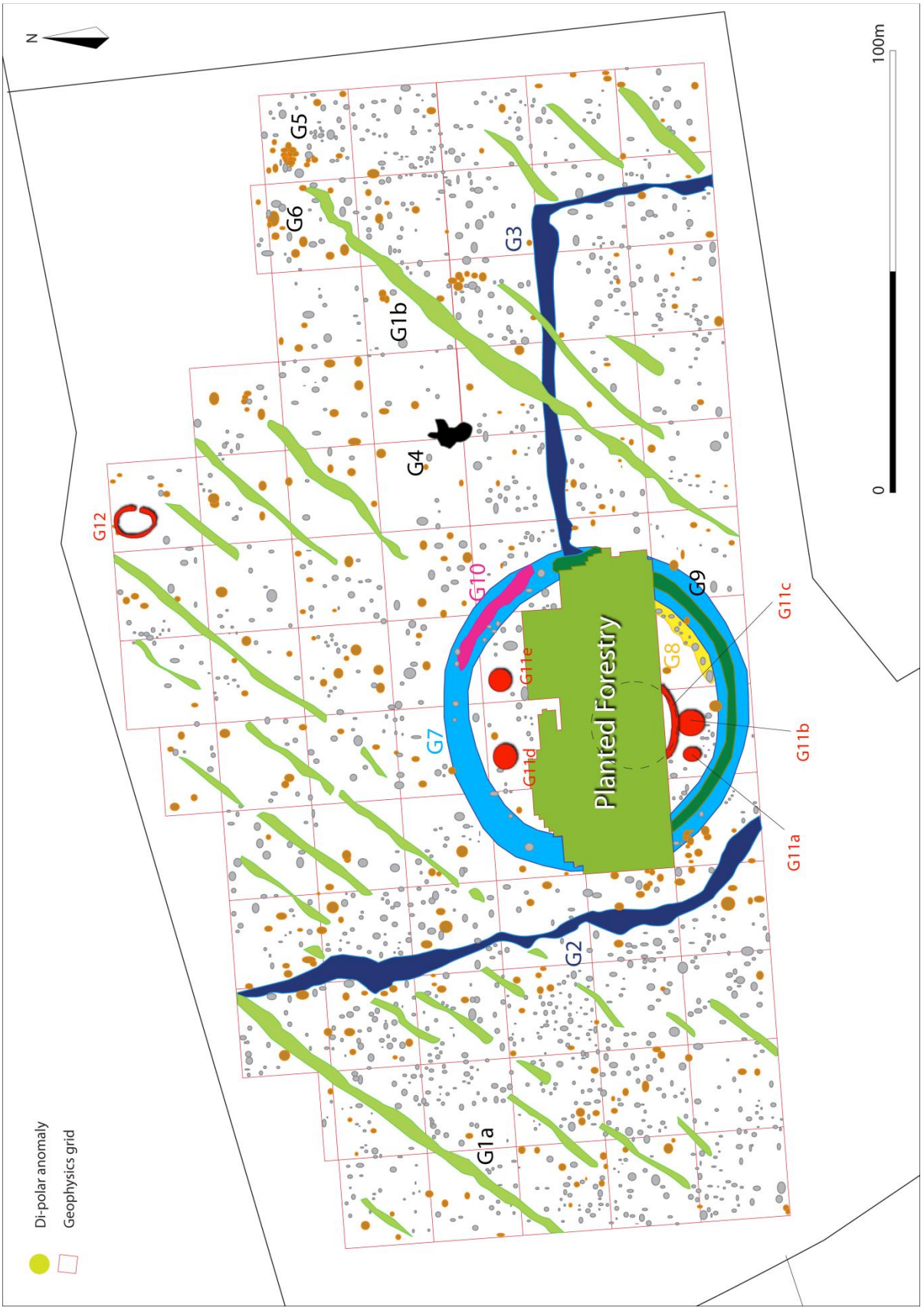

Fig. 23.6: Brewel Hill geophysical survey interpretation

a low-rise bank approximately 2.5m wide within the interior of the enclosure and delimits the northern extent of the forested area.

G4 is visible as an amorphous area of positive magnetics 30m to the east of the extant enclosure. It measures approximately 7m by 4m. Considering its irregular shape, it is difficult to interpret, although it is clear that it is a substantial anomaly that represents a cut feature. It could represent a small stone or gravel quarry, such as those visible in the Ordnance Survey maps. An excellent example is apparent in the second edition Ordnance Survey maps, positioned approximately 80 to the north-east of the extant enclosure. This small rectangular quarry pit measures approximately 13m by 16m. Other examples are visible 240m to the north-west of the enclosure.

G5 and **G6** represent two clusters of di-polar anomalies. Both of these clusters correspond with shallow sunken areas positioned at the edge of a large, natural topographical depression surrounding the north-eastern and eastern portion of the hilltop. These features (**G5** and **G6**) may also represent small stone or gravel test quarries.

The extant ditch of the enclosure on the summit of Brewel is apparent in the geophysical data as a circular band of low magnetic readings (**G7**). This indicates that material has been introduced into the fill of the ditch (probably naturally through erosion processes). The low magnetic readings are reminiscent of stone rather than soil or other naturally magnetisable material. It is therefore possible that the remains of a bank has been used to partially backfill the ditch. There is a slight indication of a low-rise internal bank feature on the ground. This is also represent in the geophysical survey as a band of positive magnetics (**G8**) abutting the inner edge of the ditch at the south-east. This is an important result, as an internal bank (with external ditch) is more reminiscent of a hilltop enclosure, rather than a henge type monument which usually have external banks. There is no indication of an external bank in the geophysical survey.

Two distinct anomalies are visible within the ditch; **G9** and **G10**. **G9** is visible as a series of alternating positive/negative readings of very high magnetism. This is the type of anomaly often associated with a metal wire or fence. It may be related to the field boundary **G3**, which abuts the northernmost section of **G9**. As such, **G9** may be interpreted as the remains of a metal wire fence delimiting the monument from workable farmland to the south. This type of anomaly is not present at the north of the site. Instead, at the north-eastern section of the ditch, a band of positive magnetic readings is apparent within the ditch (**G10**). This may suggest that this section of the ditch has been filled with more magnetically enhanced soil.

Up to five possible structures are apparent within the enclosure; **G11a**, **G11b**, **G11c**, **G11d** and **G11e**. **G11a** is positioned to the south of the interior and is represented by an oval series of pit-like features that may represent post-holes. This feature measures 5m by 3.5m and may represent a hut structure. **G11b** is similar in composition, being positioned at the south of the interior and comprising a circular series of pit-like features probably representing post-holes. This features measures approximately 5m in diameter. There are a number of other pit-like features in near **G11a** and **G11b** which may also represent the remains of structural features, however, no obvious plan is visible in the geophysical results. **G11c** represents portion of a larger, possibly circular structure. This is visible as a curving band of higher magnetic gradient, extending to the north into the forested area. When projected, this possible structure would have a total diameter of approximately 22m. The possible structure is not at the centre of the enclosure. This structure likely underlies the low-rise bank feature surrounding the stone circle at the centre of the enclosure. **G11d** and **G11e** are two smaller possible structures to the north of the enclosure interior. **G11d** is approximately 6m in diameter and is defined by a faint band of higher magnetic gradient. Similarly, **G11e** is represented by a circular band of positive magnetics approximately 5m in diameter. Both anomalies may represent truncated hut structures.

To the north of the extant enclosure, an oval band of higher magnetics measuring approximately 12m by 9m (**G12**) may be interpreted as a possible levelled ring-barrow. A 1.5m wide gap is visible in the oval band which may represent an entrance to the monument.

Discussion of Results

The results of the geophysical survey were disappointing, considering wealth of extant and levelled prehistoric remains in the immediate environs of the hilltop. This may be largely due to land reclamation evidenced by the extensive number of wide drainage ditches visible in the geophysical survey. Except for one possible barrow, no obvious archaeological remains were recorded outside of the extant enclosure at the summit of the hilltop. More extensive remains are visible within the interior of this monument, presumably because it has not been subject to the destructive process of land reclamation. The geophysical survey has identified a possible internal bank, inferring the monument may be more aptly interpreted as a hilltop enclosure. Additionally, a number of possible internal post-structures were identified, as well as a larger structure that probably underlies the partially extant earthwork surrounding the stone circle at its centre.

APPENDIX: 13

GEOPHYSICAL SURVEY AT KNOCKEEN, CO. WICKLOW

A geophysical survey (licence number 14R0008) was undertaken within Knockeen townland in Co. Wicklow, **IG** 290240, 173660 from the 13th of March to 29th of March 2014, to investigate a large, multivallate enclosure of likely prehistoric origin (RMP – WI037-018). The survey was successful in identifying a number of unrecorded enclosing elements as well as possible internal occupation in the form of hut-structures and other features.

23.1 INTRODUCTION

Knockeen hillfort is recorded as a large, univallate hillfort located at the northern edge of a low hill ridge at 123m OD and is overlooked by the larger Rathgall hillfort approximately 250m to the south. There are excellent views of the flat plains to the north, north-east and north-west, however, views to the south are obstructed by a rising slope upon which Rathgall sits. The spectacular group of nine large hillforts in the Baltinglass region are visible to the north of both sites. Pairs of hillforts are not uncommon in Ireland, however, they are poorly understood. Survey of Knockeen hillfort may help us to better understand its relationship with the nearby Rathgall.

Knockeen hillfort occupies an area of approximately 3.14ha. The site has been levelled at the north and east, although the defences at the south and west remain in good condition. The site was depicted in both editions of the Ordnance Survey maps, indicating that destruction of the bank was undertaken after 1906 (Fig. 24.1 and Fig. 24.2). The bank comprises of earth and stone and in places, there seems to be a distinct yellow clay incorporated. It measures approximately 1.5m high and up to 6m wide. There is no obvious ditch feature associated with the bank. There are a number of breaks in the bank. One of these, a 4m wide break at the south, could be an original entrance. It is interesting to note that this is orientated on Rathgall hillfort to the south. A possible second enclosing element has been noted in aerial and satellite imagery approximately 50m from the hillfort. This may be depicted in the second edition Ordnance Survey maps at the south-west. Interestingly, these maps also depict a possible counterscarp bank less than 10m from the inner enclosing elements. Clarifying the presence of these defensive elements was a primary concern for the survey.

Fig. 24.1: Knockeen hillfort, Co. Wicklow (Bing Maps).

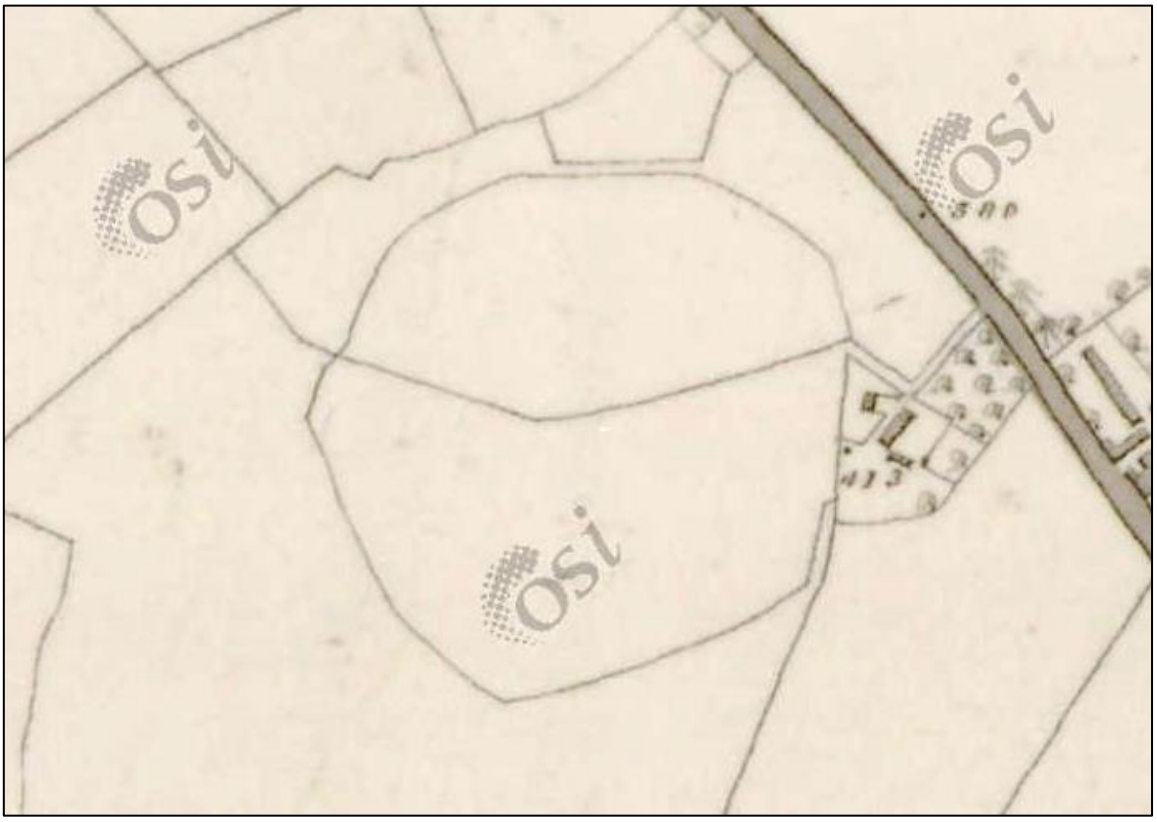

Fig. 24.2: First edition Ordnance Survey maps.

A large cairn is positioned at the highest point of the interior (WI – 037-018001). This measures 19m by 10m and is approximately 2.5m high. Field stones have been added at the east and western side of the monument, although these are easily recognisable as the main cairn is mostly covered in earth and smaller stone.

23.2 GEOLOGY, TOPOGRAPHY AND CLIMATE

Knockeen hillfort, as well as the nearby Rathgall, are positioned on Pale, fine to course-grained granite with shallow but well drained mineral soils. Immediately surrounding Knockeen to the north, the bedrock formation consists of granite with microcline phenocrysts upon which deep, well drained mineral soils exist. This provides excellent quality agricultural land suitable for both crop and animal husbandry. They are magnetically 'quite' and therefore are unlikely to have had an effect on the collected data.

The survey area comprised two fields. The interior of the fort was defiend on the southern and western side by the hillfort bank and a series of modern earthen banks and electric wire fencing at the north and east. The external survey area was positioned to the south-west of the hillfort interior. This field was defined by the hillfort bank to the north-east and a series of electric wire fences. Both areas were under pasture and provided excellent conditioned to undertake geophysical survey.

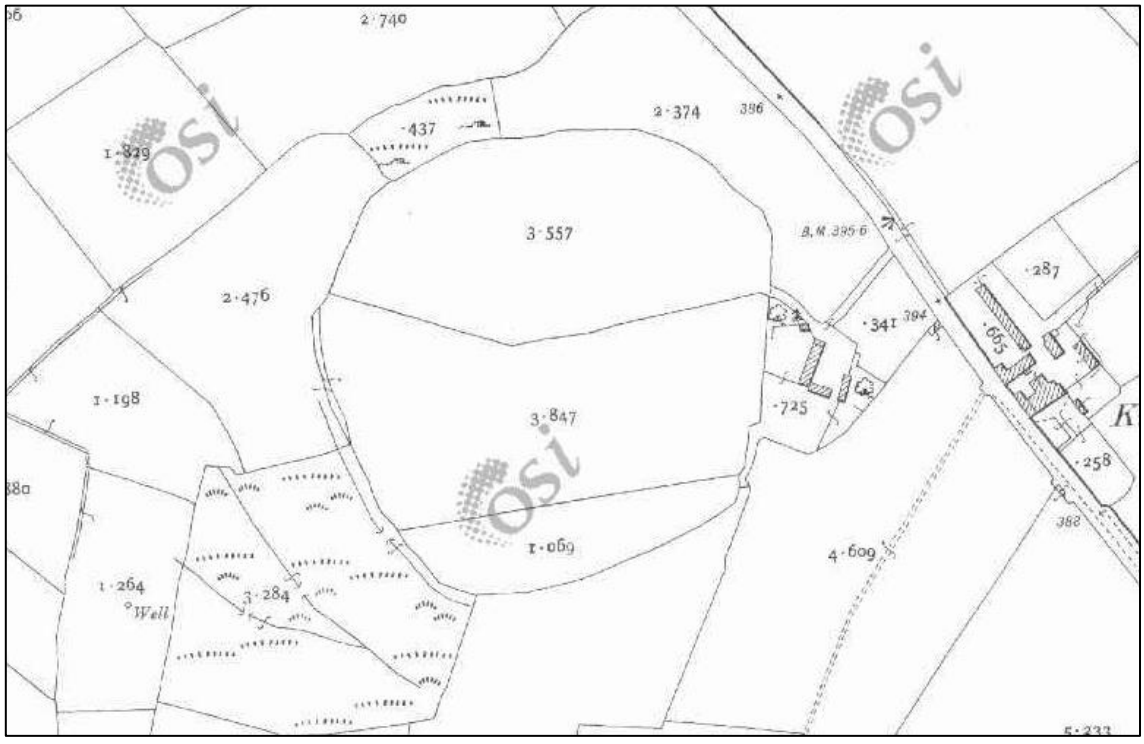

Fig. 24.3: Second edition Ordnance Survey maps.

Overcast weather conditions and moderate temperatures throughout the majority of the survey facilitated data capture, as magnetic gradiometers are sensitive to internal and external temperature fluctuations.

23.3 ARCHAEOLOGICAL BACKGROUND

Rathgall hillfort, positioned approximately 250m to the south of Knockeen has been extensively investigated over the past 50 years. Excavations by Raftery (1976) in the seventies revealed an intensively occupied interior with evidence for extensive prestige goods manufacturing, including the casting of bronze objects and weapons. Other exotic items such as LMHK (Low Magnesium High Potassium) glass beads and amber objects reveal contacts with settlements on the continent as far away as northern Italy. Burials were also recovered from the interior suggesting the fort had a ritual component. These excavations are currently in the process of being published. Although the enclosing element of Rathgall have not provided dating evidence for its construction, the majority of occupation within the interior dates to the Late Bronze Age and a similar date could be ascribed the defences. The enclosing elements themselves consist of an internal stone wall that likely dates to the Early Medieval period. The second enclosure comprises a large bank with internal stone facing. It measures and is up to 4m high and has an external ditch. Immediately abutting this ditch is a second enclosing element. Approximately 50m beyond this is a third enclosure that is partly preserved in field boundaries. The site occupies a total area of approximately 6.08ha.

Approximately 50m from the outer defences at the north, a circular enclosure is visible as a crop mark in some aerial photographs althougu this feature is not visible at ground level. It demonstrates the intensive occupation of the area and hints at the possibility of extra mural occupation.

23.4 SURVEY PROGRAM

The proposed survey extent incorporates the interior of the hillfort which is possible to survey, as well as some of the inner enclosing elements and a section of the possible outer defences at the south-west. High resolution magnetic gradiometry survey (0.5m x 0.125m) was undertaken over the monument in order to ascertain information about the internal layout of the hillfort, to identify possible internal occupation and assess the number, form and composition of the

defensive features. In total, 5.8ha at Rathcoran was surveyed using a series of 20m x 20m grids which were later tied into Irish Grid using GPS.

23.5 GEOPHYSICAL SURVEY RESULTS

Hillfort Defences and Related Features

There were a number of areas that were not possible to survey. **G1** represent areas that comprised fodder for cattle in the area, as well as zones that were waterlogged (Fig. 24.4 and Fig. 24.5). Considering the good quality of the agricultural lands in the area, it is not surprising to detect intensive agricultural features such as field walls and a number of ridge a furrow interior and northern section of the enclosing elements. An excellent example of such ridge and furrow abut the enclosure elements at the north (G2). **G3a–G3g** consist of a number of relict field boundaries that are mainly visible within the interior of the hillfort, but can also be seen abutting the defences at the northwestern side. It is notable that this collection of levelled field walls have two different orientations, north-west/south-east and east/west, and therefore probably comprise two separate field systems. Neither overlap which suggests both sets may have been broadly contemporary.

A strong band of alternating high/low magnetism extends from the inner face of the enclosing elements at the south-west (**G3h**). This is unlikely to represent an ancient feature associated with the defences, rather, the response is indicative of a buried wire from a disused wire fence.

At the north and north-west, the gradiometry survey detected the remains of the levelled portion of the hillfort bank (**G4**). This is apparent in the results as a faint positive magnetic feature that follows the projected circuit of the defences until it turns sharply at the north-west. This sharp turn is depicted in both editions of the Ordnance Survey maps. The anomaly is approximately 6–8m wide and this is broadly representative of the wide of the extant bank at the south.

Approximately 10m outside of **G4**, **G5** represents a similar band of positive magnetic readings. It is concentric with the latter feature and measures approximately 9m in maximum width. It is positioned as the edge of a steep fall in topography which probably marks the edge of the inner bank and, therefore, may represent another, unrecorded bank or counter-scarp feature. Such a feature was partially depicted in the second edition Ordnance Survey maps, at

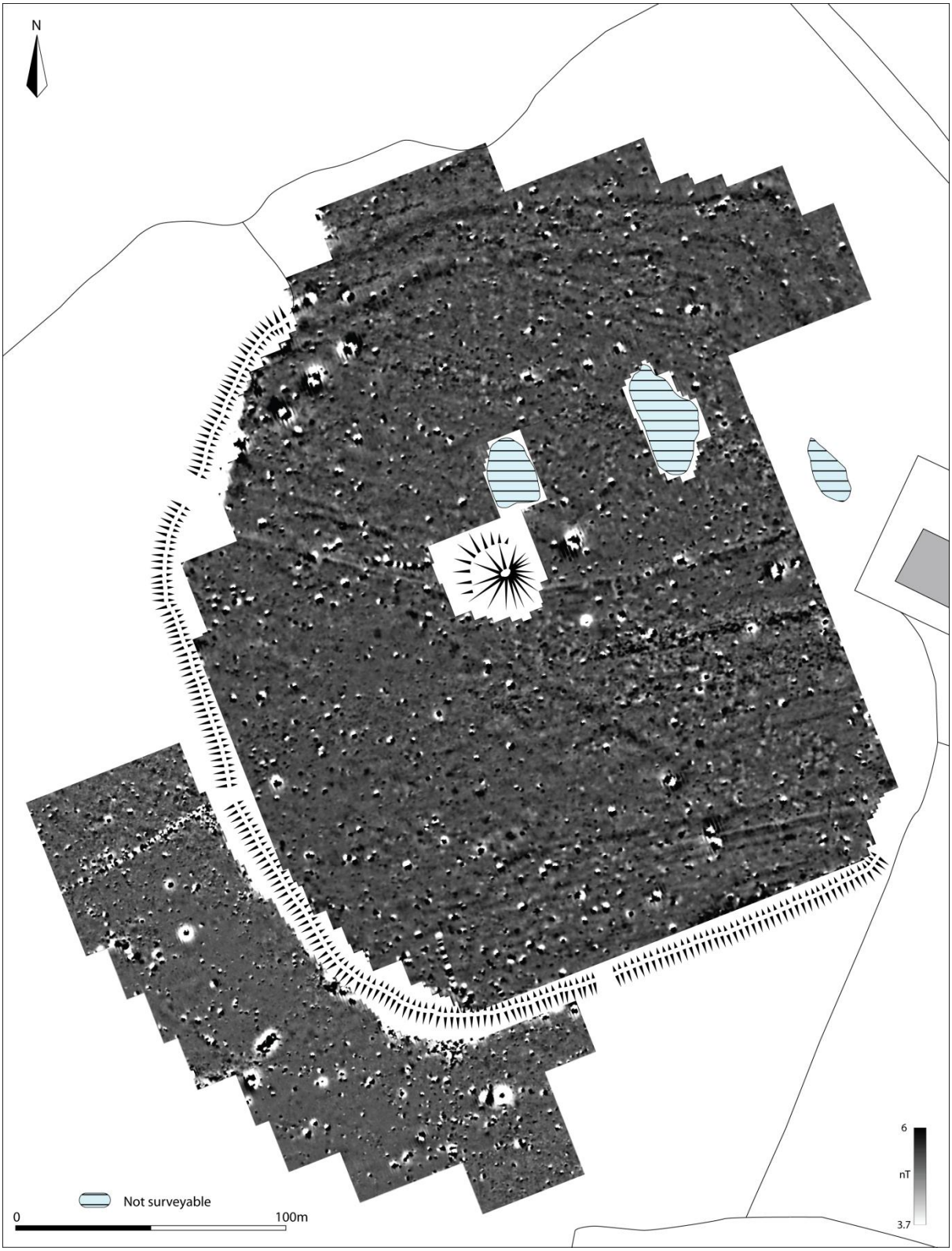

Fig. 24.4: Knockeen gradiometry survey results.

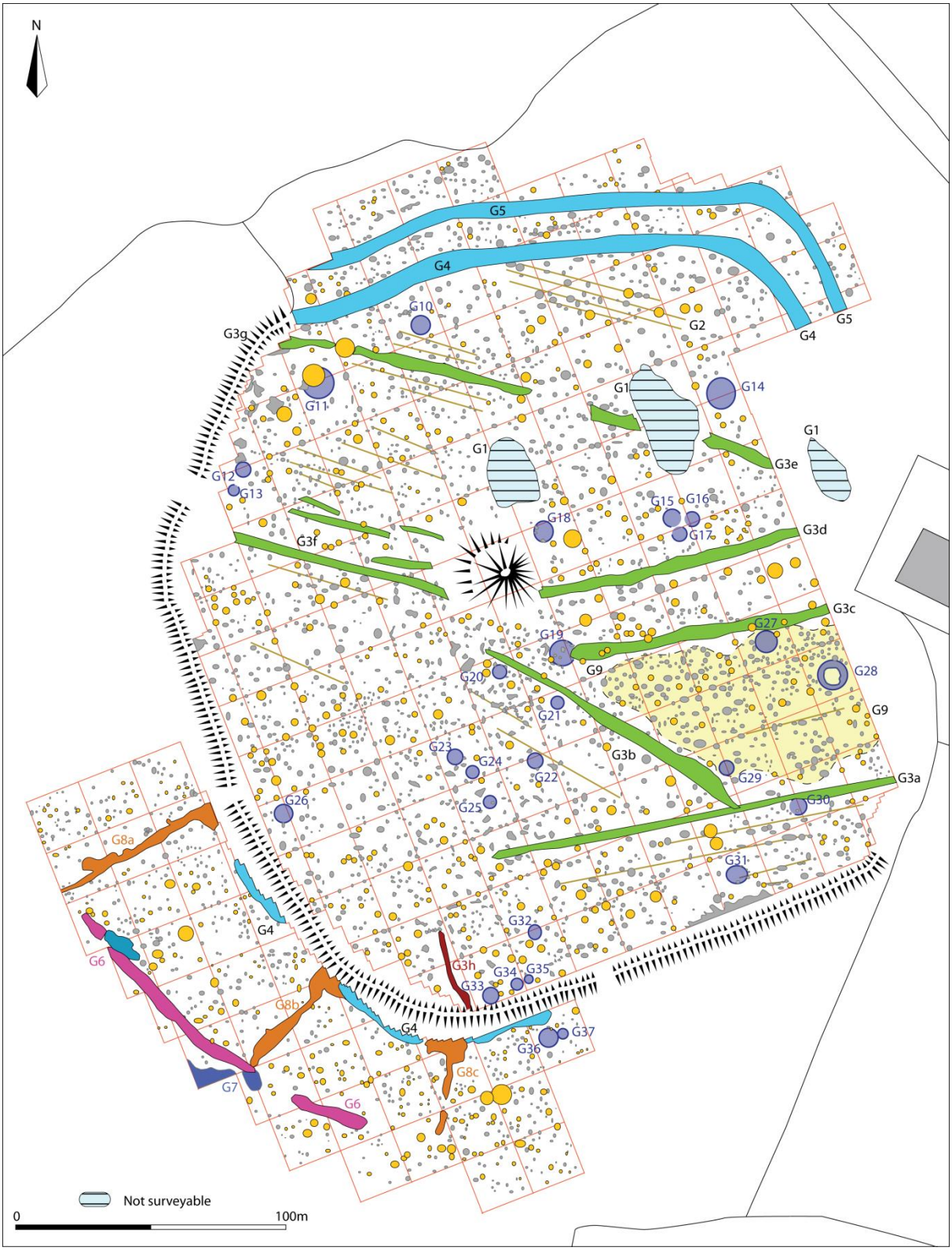

Fig. 24.5: Knockeen gradiometry survey interpretation.

the southwestern side of the defences. This appears as the partial remains of a field boundary and was placed approximately 10m from the inner hillfort bank. This is partially visible in the geophysical survey results at the south-west. Considering there is no steep scarp or other notable topographical feature, it could be suggested that a ditch was positioned between the **G4** and **G5**. The evidence suggests that **G5** would have surrounded the entire circuit of the hillfort.

Ranging from 40–55m from the inner enclosing elements, a faint band of negative magnetic may represent the remains of an outer enclosure (**G6**). This corresponds with a curving boundary visible in the second edition Ordnance Survey maps and some aerial photographs. The faint nature of the response means it is difficult to identify in the results and could not be traced beyond the survey area. However, if we project the circuit of the feature, it would surround a total area of approximately 6.08ha. **G7** represents an area of increased magnetic activity that obscures **G6**.

A number of linear responses (**G8a**–**G8c**) joining the internal and external enclosing elements likely represent levelled bank features that could have been used to divide the area in-between the enclosing elements. Such radial banks have been noted at other hillfort sites, such as Clashanimud hillfort in Co. Cork. Interestingly, **G8c** does not extend beyond the project circuit of the possible outer enclosing element **G6**, supporting the interpretation that this feature originally extended around the entire circuit of the hillfort.

Hillfort Interior and Habitation Features

There are approximately 28 circular anomalies, most of which are within the interior of the inner enclosure of Knockeen (**G10**–**G37**). These may represent hut structures associated with the occupation of the hillfort and this would provide an interesting contrast with the nearby Rathgall, where there is limited evidence for domestic habitation. However, it must be stressed that many of the geophysical responses are faint, therefore, there interpretation as structures is tentative.

At the eastern side of the interior, **G9** represents an area of increased magnetic activity. Considering the type of activity within the interior of Rathgall, G9 could represent an area of where craft manufacture took place. However, without excavation, it is difficult to substantiate this interpretation and **G9** could equally be a more modern feature.

G10 comprises a band of positive magnetic anomalies approximately 6.5m in diameter. At its northern side, two strong positive pit-like features could represent a possible entrance. The interior of the band defining the potential structure is characterised by a distinct uniform set of readings that could possible indicate an introduced floor layer.

G11 is one of the more convincing hut structures. It comprises a circular setting of pit-like features that are connected by smaller and fainter readings. This could represent a setting of structural posts linked together by a shallow trench that acted as a setting of wattle. The possible structure measures approximately 11m in diameter and is obscured on its northwestern side by a large dipolar anomaly.

G12 and **G13** are posited at the northwestern edge of the interior close to the bank of the inner enclosure. Both of these features are visible on the ground as low circular, grass covered bands. These correspond of responses in the geophysical results. **G12** consists of a circular setting of pit-like features approximately 5m in diameter. **G13** consists of a circular band of positive magnetics that measures 3.5m in diameter. At its northern edge, two strong pit-like features may represent an entrance.

A large, circular setting of pit-like features (**G14**) is positioned at the northeastern side of the interior. It measures approximately 10m in diameter and may represent a hut structure.

A group of three possible structures to the north-east of centre. Here anomalies are characterised by narrow bands of negative magnetic readings with faint positive anomalies abutting the inner face of the latter readings (**G15**, **G16** and **G17**). This could be interpreted as hut structures with stone footings.

G18 comprises a circular setting of positive pit-like features approximately 7m in diameter. It is positioned immediately to the east of the central cairn.

A circular band of negative magnetic readings with an internal set of positive pit-like features abutting the interior face of the latter readings could represent a possible hut structure (**G19**). A central positive magnetic anomaly could be associated with a central structural timber or a central hearth.

A sub-circular setting of pit-like features positioned to the south of the central cairn could represent a potential hut structure (**G20**). It measures approximately 5m in diameter.

Thirty metres to the south-east of **G20**, a circular setting of pit-like features measures approximately 5m in diameter (**G21**). The interior is characterised by negative readings which could indicate an introduced floor layer.

A faint circular setting of pit-like features (**G22**) 30m south of **G21** could also represent a possible hut structure. **G22** measures approximately 5m in diameter.

A circular setting of pit-like anomalies (**G23**) measuring 5m in diameter may represent a hut structure, although this particular feature is quite faint. Fifteen metres to the south-east, a circular setting of pit-like features measuring 4m in diameter (**G24**) could represent a potential structure.

A faint circular setting of pit-like anomalies 20m south of **G25** may represent a hut structure. This measures approximately 4m in diameter and has a central positive magnetic feature that could represent a hearth.

At the south-east of the interior, a circular setting of pit like features (**G26**) measuring 5m in diameter may represent a structure. The feature also has a central positive set of readings that could indicate a hearth.

A sub-circular setting of pit-like features (**G27**) positioned within the area of increased magnetic activity at the south of the hillfort interior measures approximately 7m in diameter and could represent a potential hut structure.

At the southeastern edge of the area of increased magnetism, a circular band of negative magnetics surrounds an area of slightly higher readings (**G28**). This has a total diameter of 12m. Although it could represent a possible hut structure, the broad negative bands defining the feature are approximately 3m wide. Therefore, the feature could also represent a barrow monument, the negative band of readings corresponding with the now levelled earthen banks.

A sub-circular setting of pit-like features approximately 5m in diameter is positioned in the southeastern corner of the hillfort (**G29**). The features measures approximately 5m in diameter.

G30 represents a sub-circular setting of pit-like features surround an area of negative readings. When projected the feature as an approximate diameter of 6m.

The anomaly **G31** comprises a elliptical setting of pit-like features that measures 7m east-west by 5m north-south. It also has a central positive magnetic anomaly that could represent a hearth.

A group of 4 potential structures is located near the southern edge of the hillfort interior (**G32**, **G33**, **G34** and **G35**). All four comprise circular settings of pit-like features. **G32** measures approximately 5m in diameter and surrounds a central area of uniform low-magnetic gradient. **G33** measures 5m in diameter and has a central positive anomaly that could represent a hearth. **G34** measures approximately 4m in diameter and abuts **G35** which is positioned immediately to the east. G35 measures approximately 3m in diameter.

Tow possible hut sturcutres are positioned outside of the hillfort interior, **G36** and **G37** and are located between the inner and outer enclosing elements near the possible original entrance at the south. They comprise a coinjoined pair of circular anomalies that consists of settings of pit-like features measuring 7m (**G36**) and 4m (**G37**) in diameter.

Discussion of Results

The geophysical survey was successful in identifying the presence of a second enclosing element at Knockeen. This probably comprised a bank and ditch feature 55m from the inner enclosure. The survey also revealing the inner defences are more substantial and comprised an additional counter-scarp bank. The defensive elements at Knockeen are notably similar to Rathgall. Importantly, however, there may be significant differences in the function and occupation at both hillforts.

Within the interior of Knockeen, 28 ephemeral circular anomalies might represent hut structures, although the geophysical responses for many of these features is too ambiguous to confirm this interpretation and excavation evidence is needed.

An area of increased magnetic disturbance on the eastern side of the interior could represent a metalworking area similar to that found on the eastern portion of Rathgall. Again, it is important to stress that this is speculative and such an interpretation must be confirmed by excavation.

The survey has revealed an interesting correlation between the intensively investigated Rathgall hillfort and the nearby Knockeen with similar defensive layouts and some corresponding

internal activity. Excavation and dating evidence is needed to confirm these features at Knockeen, as well as to obtain a relative chronology to see if the two forts are contemporary.

N

G11e

G12

G11d

G6

G5

G1b

G4

G7

G10

G1a

G3

G2

Planted Forestry

G8

G9

G11a

G11b

G11c

Dipolar anomaly

Geophysics grid

0

50m

Fig. 5.58: Gradiometry survey interpretation at Brewel Hill.

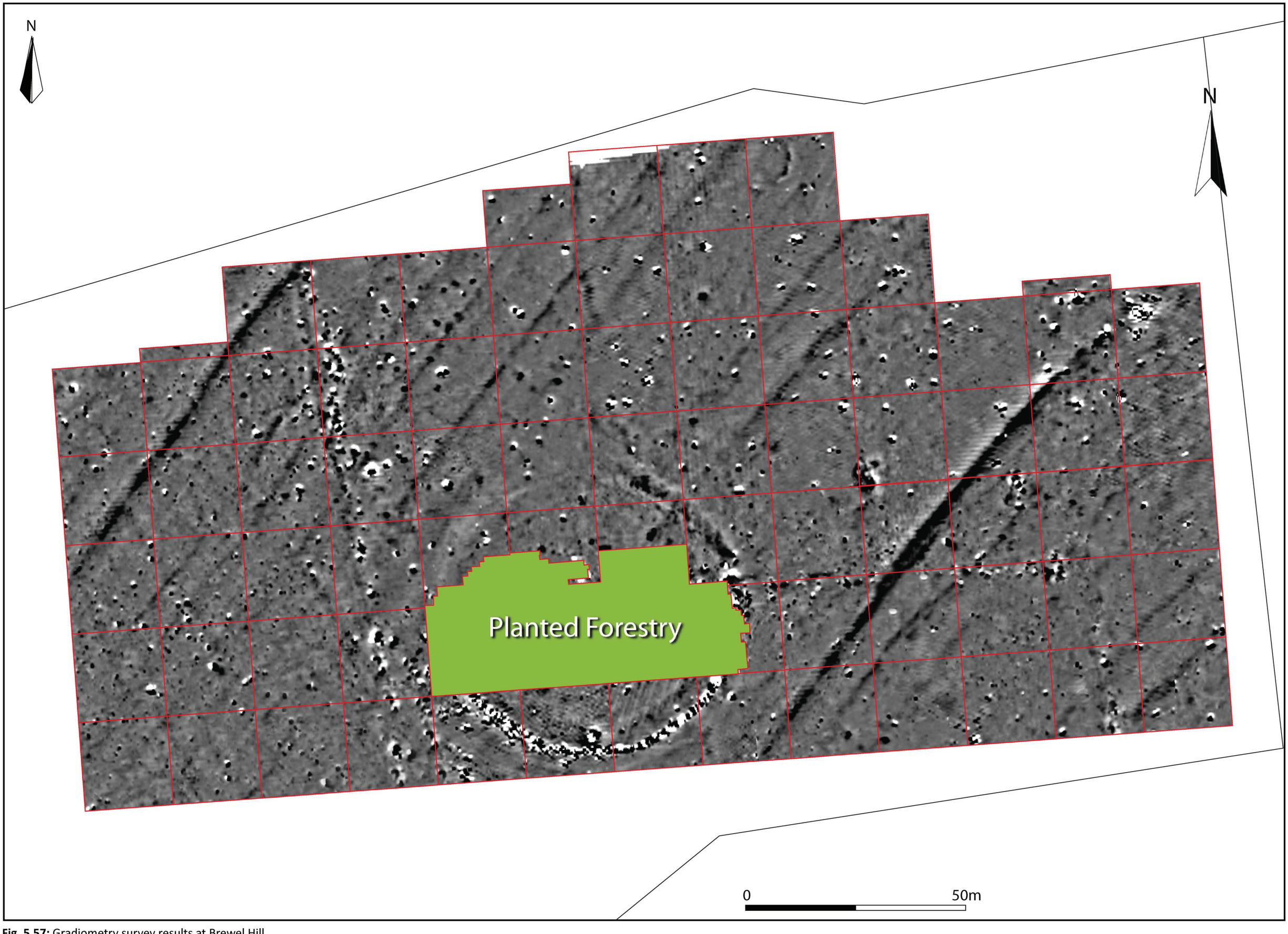

Fig. 5.57: Gradiometry survey results at Brewel Hill.

Fig. 9.13: Gradiometry survey interpretation at Glanbane.

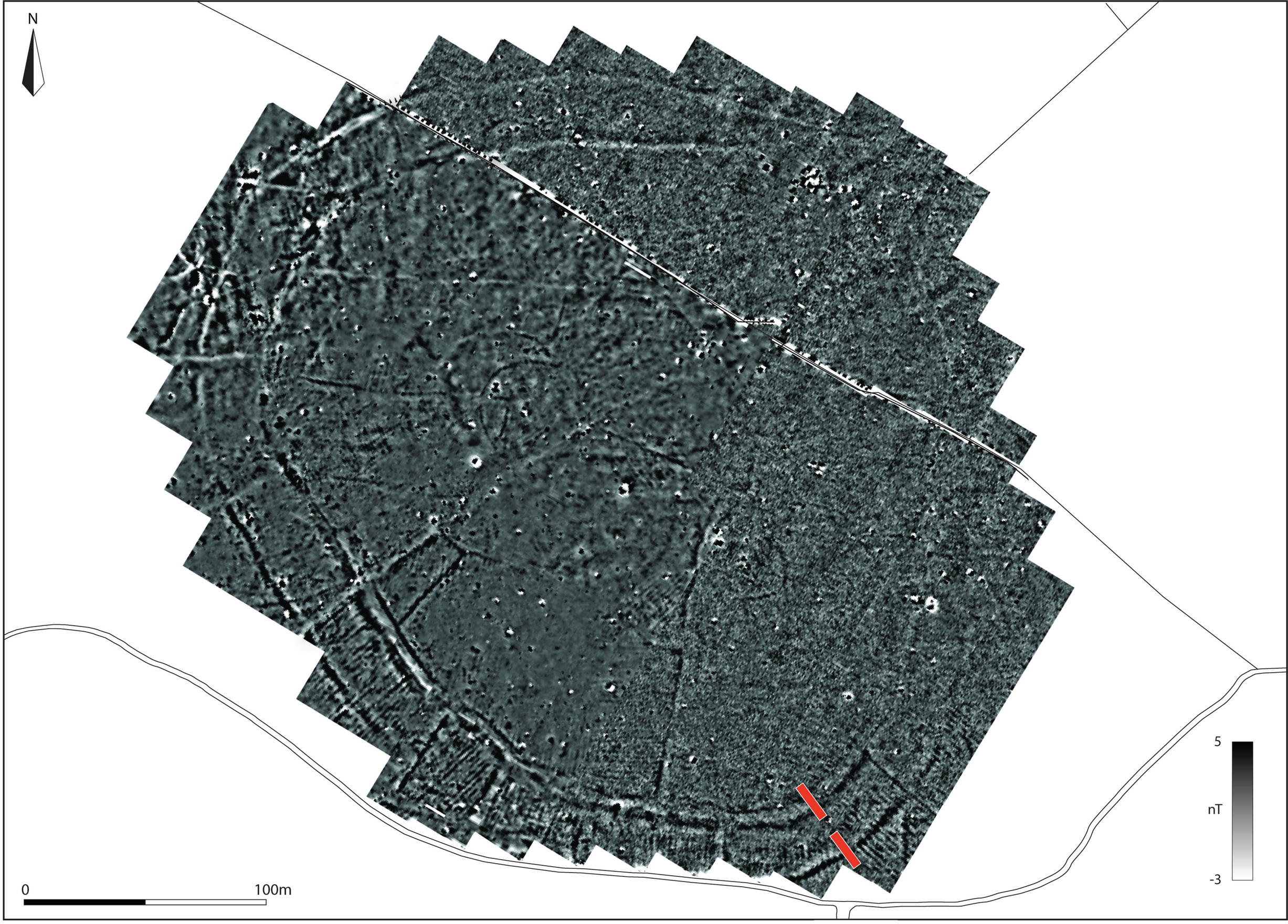

Fig. 9.12: Gradiometry survey results at Glanbane.

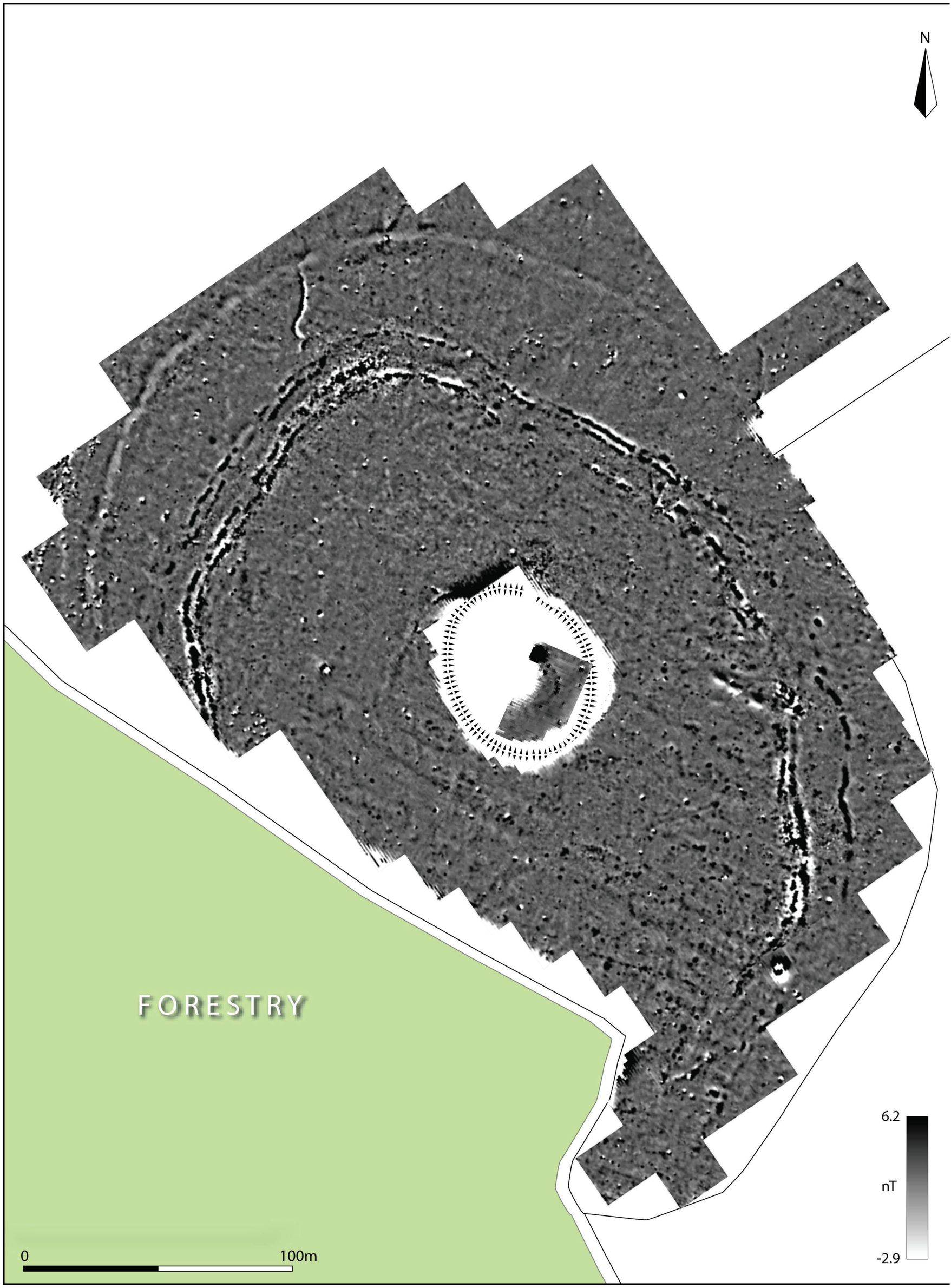

Fig. 5.40: Gradiometry survey results at Hughstown.

Fig. 5.41: Gradiometry survey interpretation at Hughstown.

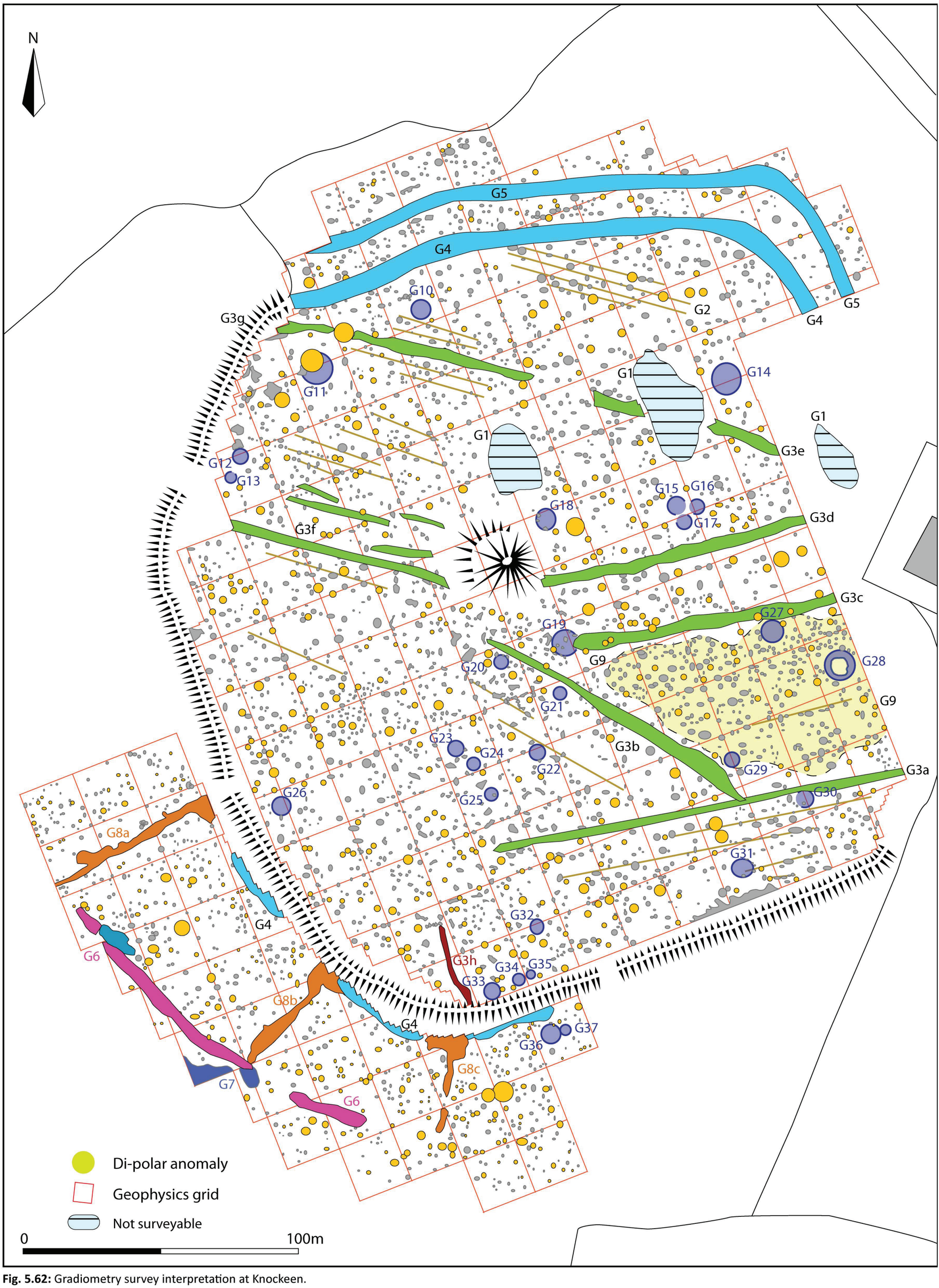

Fig. 5.62: Gradiometry survey interpretation at Knockeen.

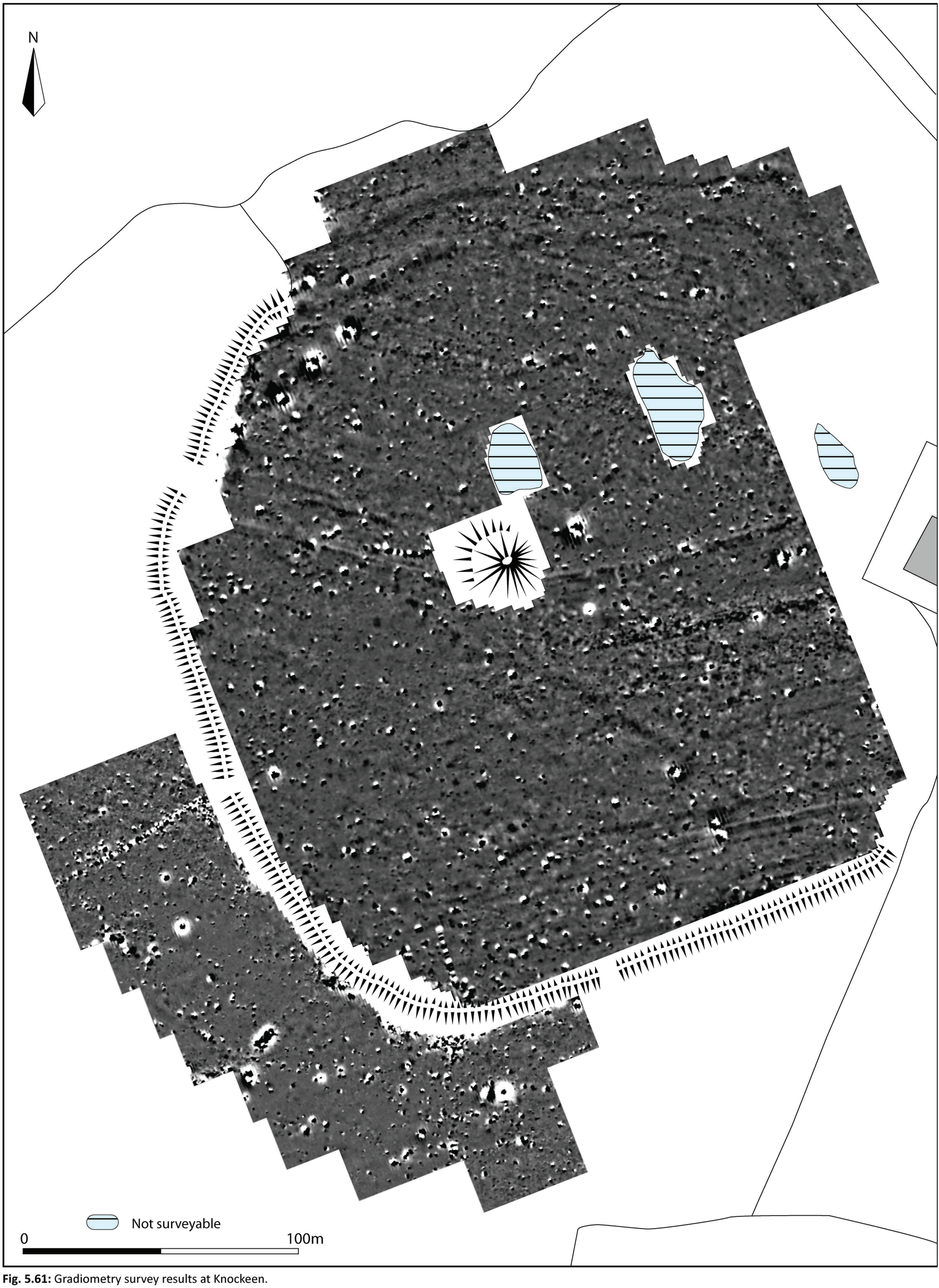

Fig. 5.61: Gradiometry survey results at Knockeen.

Fig. 5.20: Gradiometry survey interpretation at Rathcoran.

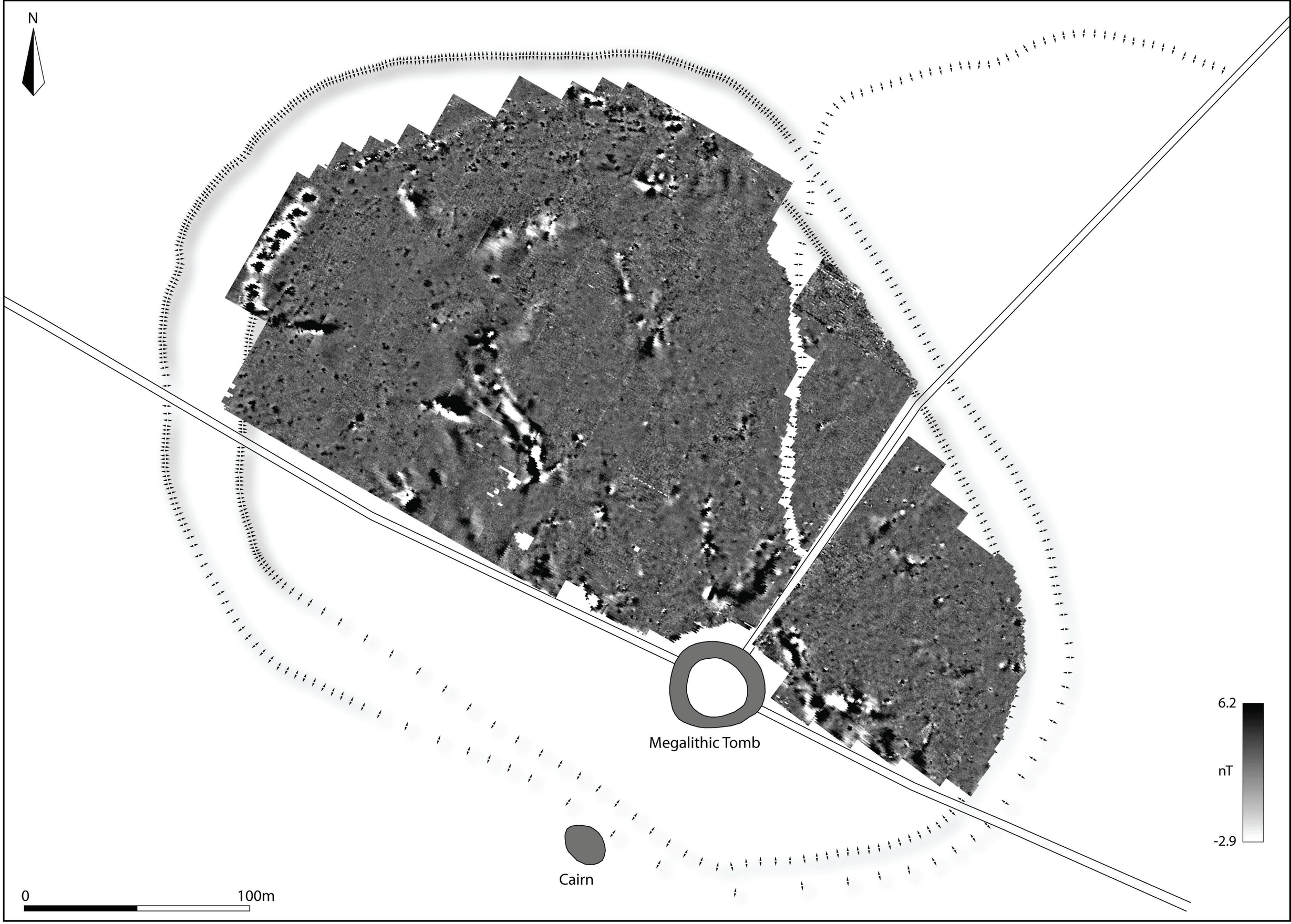

Fig. 5.19: Gradiometry survey results at Rathcoran.

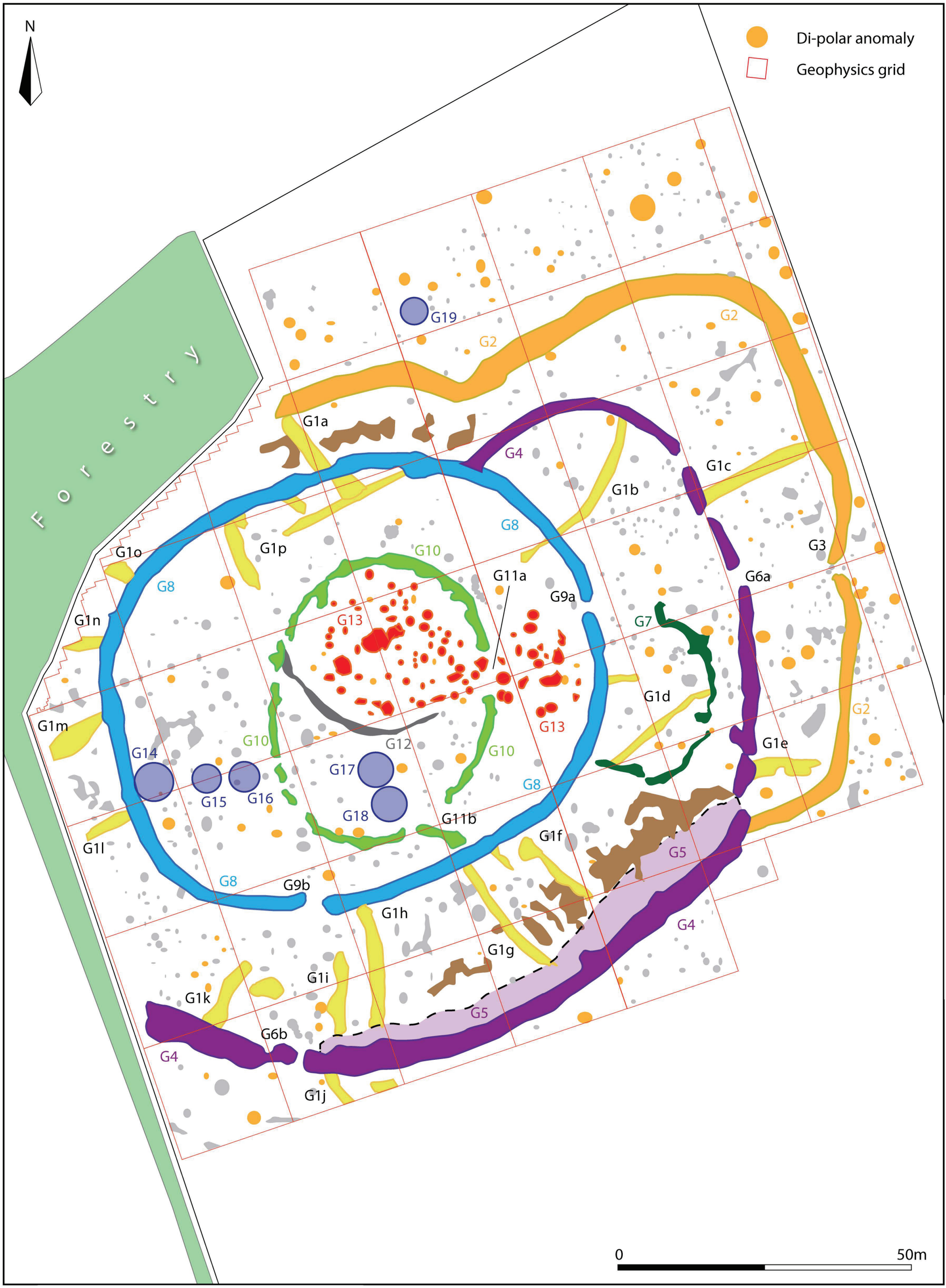

Fig. 5.47: Gradiometry survey interpretation at Rathmoon.

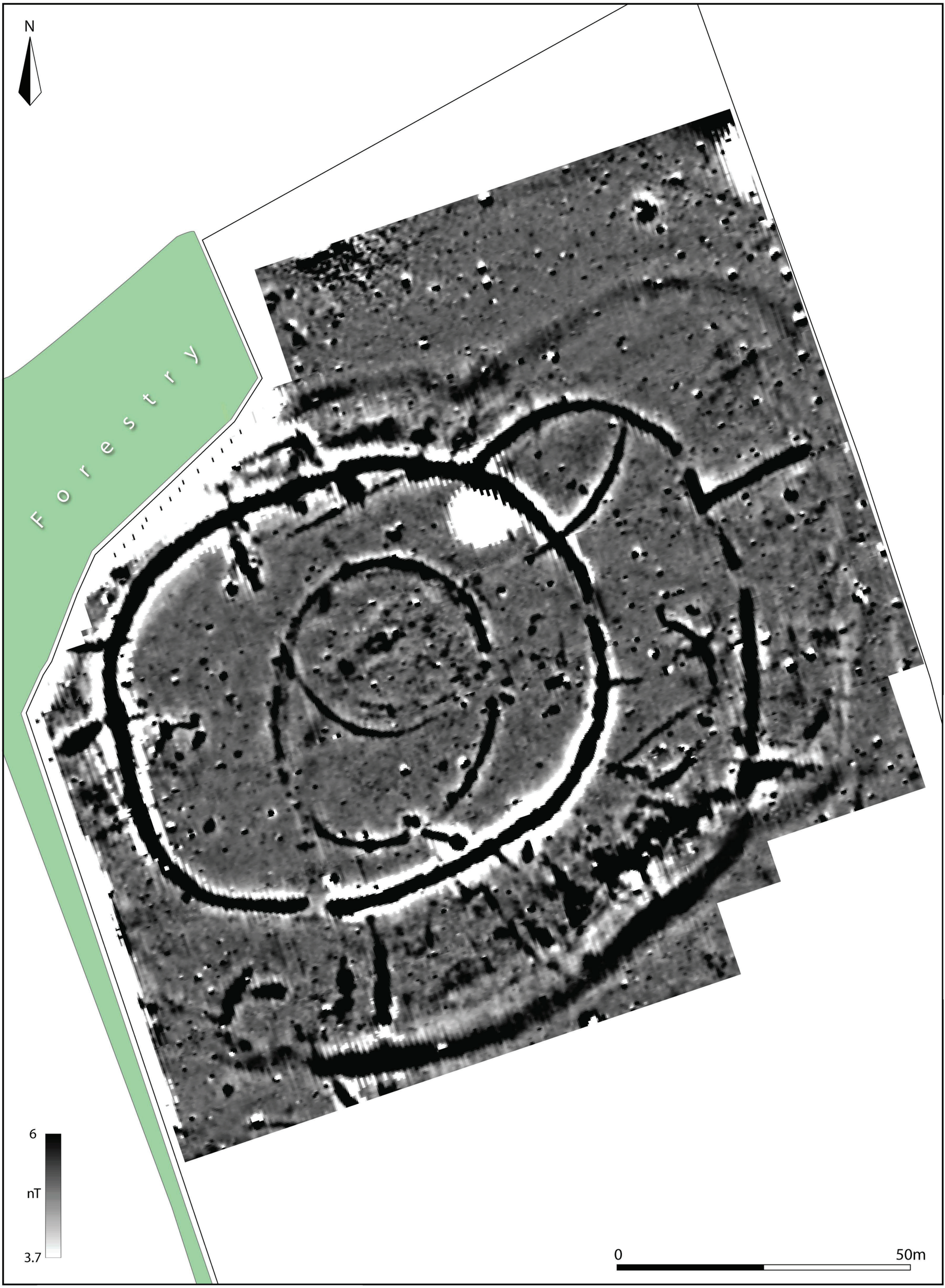

Fig. 5.46: Gradiometry survey results at Rathmoon.

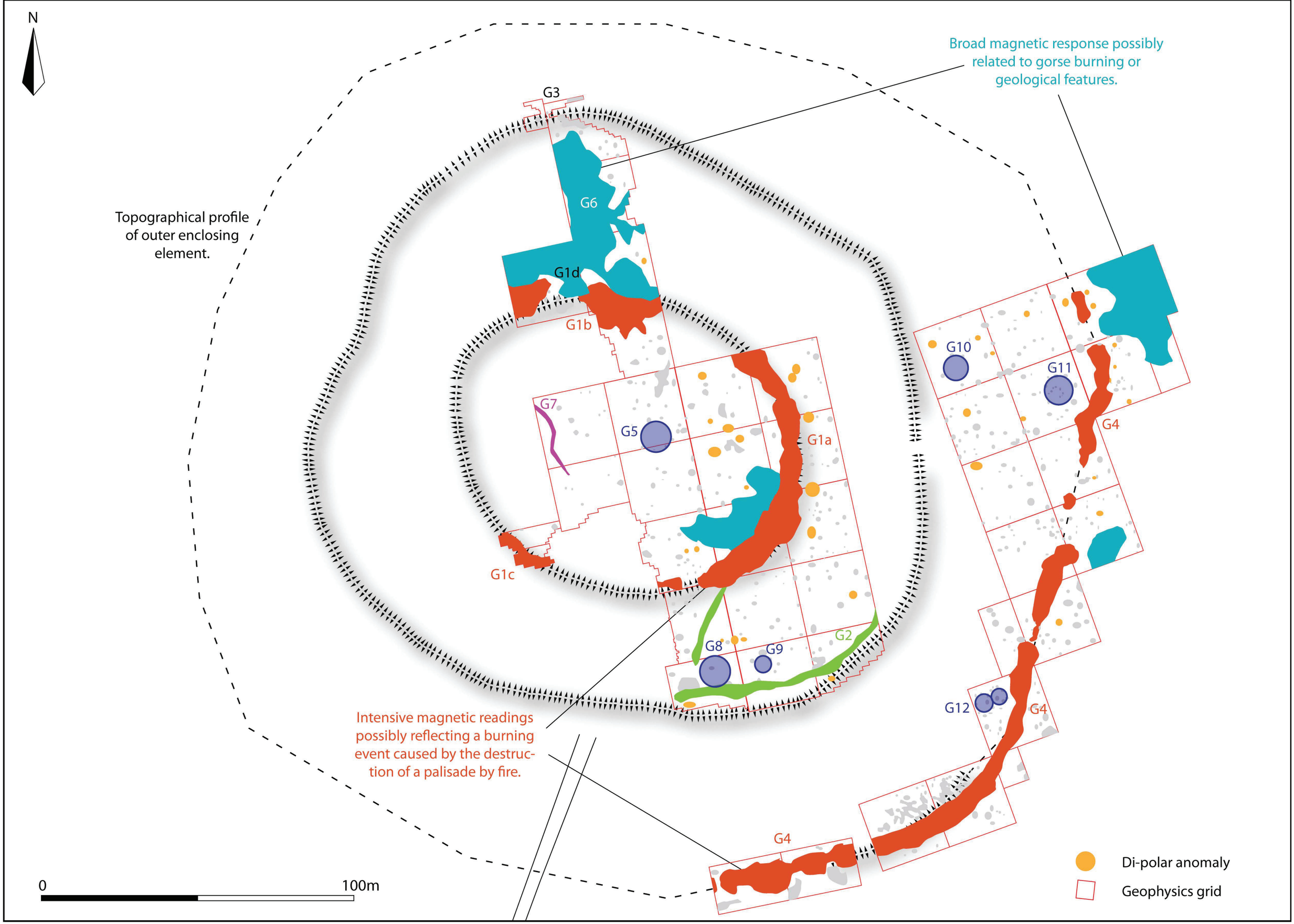

Fig. 5.26: Gradiometry survey interpretation at Rathnagree.

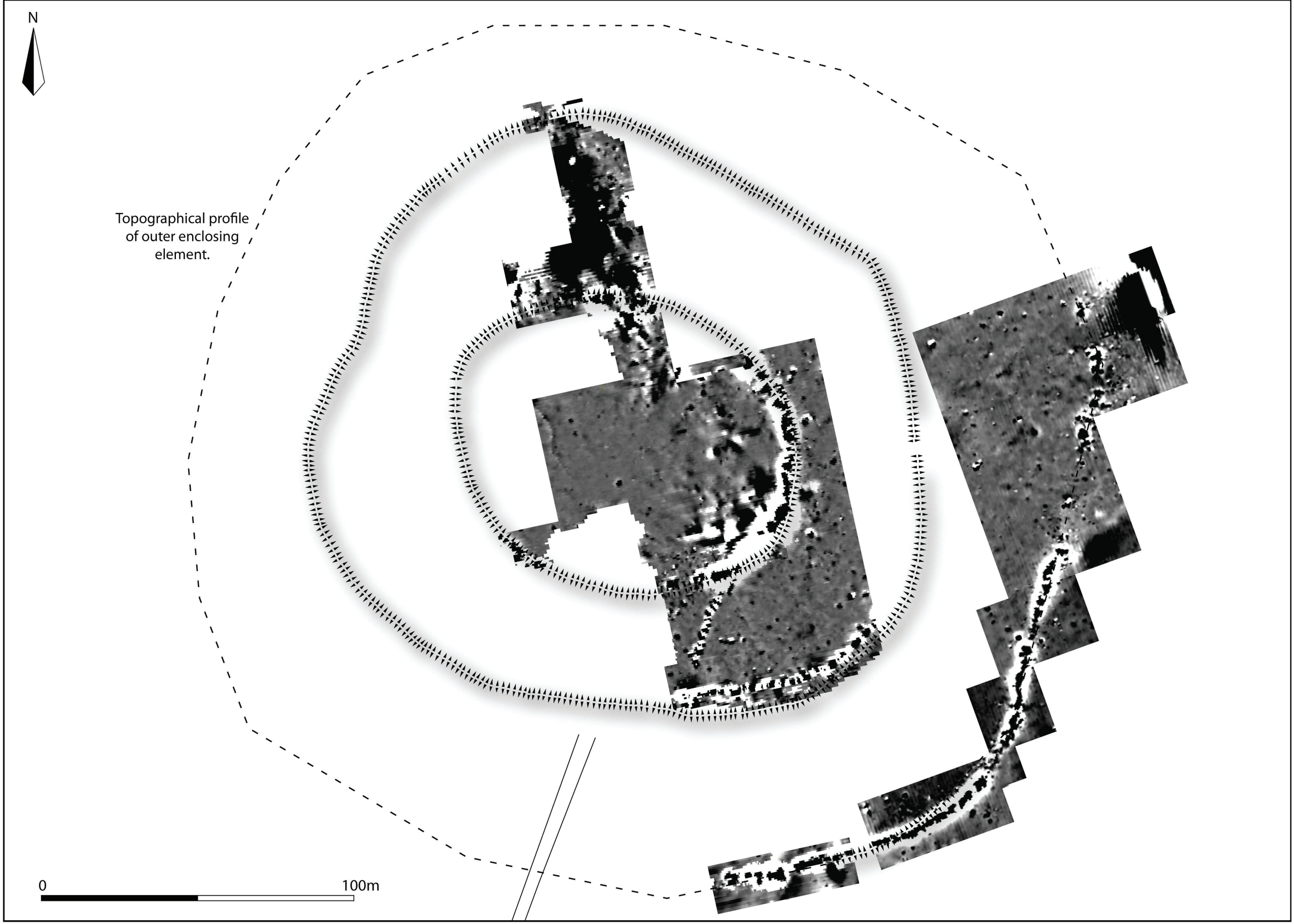

Fig. 5.25: Gradiometry survey results at Rathnagree.

Fig. 5.31: Gradiometry survey interpretation at Sruhaun.

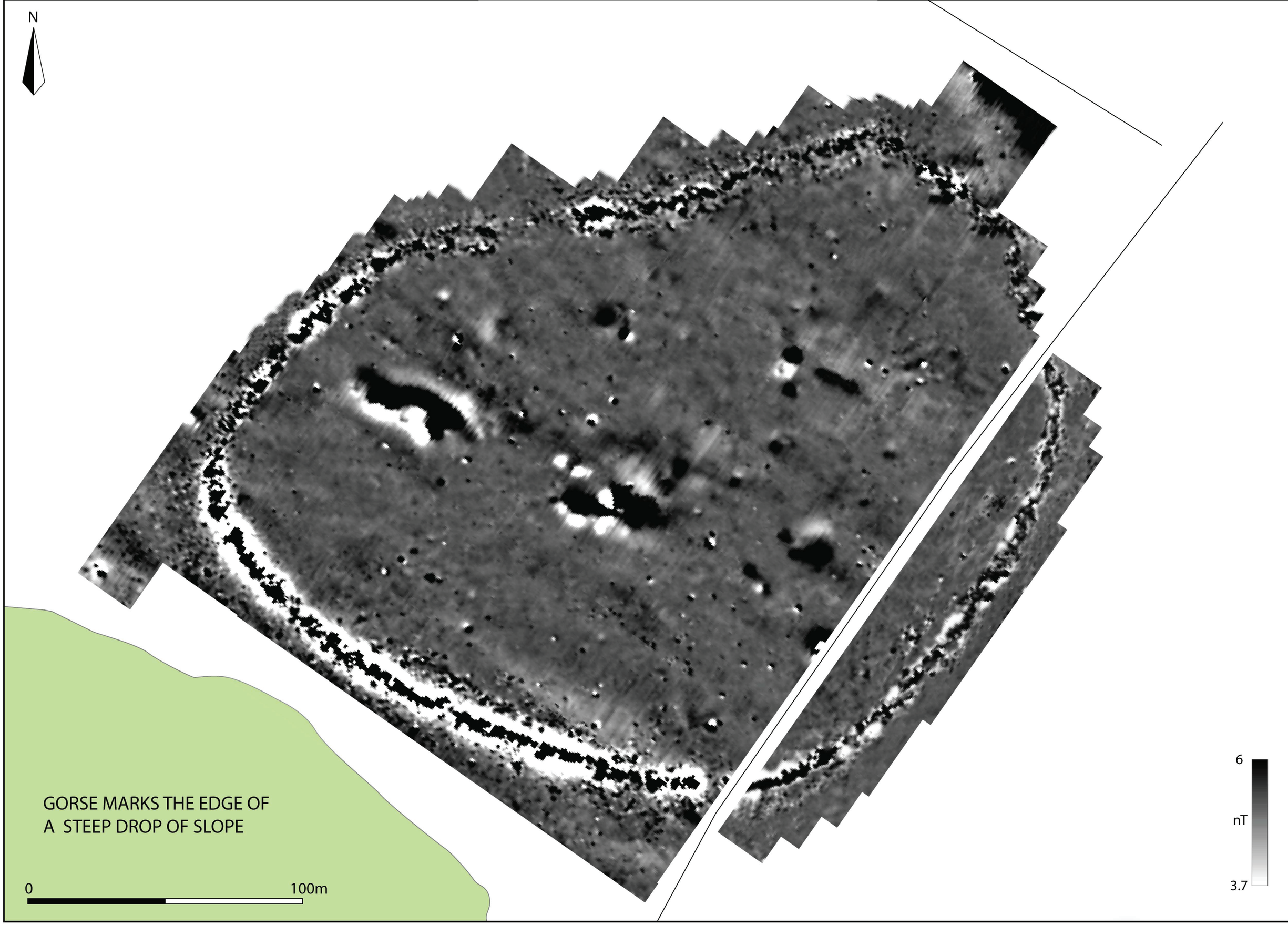

Fig. 5.30: Gradiometry survey results at Sruhaun.

Fig. 7.12: Gradiometry survey interpretation at Toor More.

Fig. 7.11: Gradiometry survey results at Toor More.