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RURAL SETTLEMENT

RELATING BUILDINGS, LANDSCAPE, AND PEOPLE IN THE EUROPEAN IRON AGE

edited by
Dave C. Cowley, Manuel Fernández-Götz,
Tanja Romankiewicz & Holger Wendling

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Chapter 4

Iron Age settlement in mid-west Ireland

Katharina Becker

4.1 Introduction

Difficulties in answering the question of where and how people lived has for a long time been one of the central obstacles to understanding of Iron Age lifeways in Ireland. The earlier part of this period between 800 or 600 BC is very poorly understood and largely characterised by low levels of archaeological evidence. In its later part, from about 400 BC to AD 400, a rather biased dataset has been highlighted as only reflecting particular, select aspects of human activity (*e.g.* Raftery 2006; 1994; 1998).

A period of crucial interest is the Developed Iron Age between ca. 400 BC and about the turn of the millennium (Becker *et al.* 2008; Becker 2012a; Armit *et al.* 2013) that saw the re-emergence of significant levels of human activity. Demographic change has been argued to be reflected in the large set of radiocarbon-dated sites (Armit *et al.* 2013) and the construction of large scale earthworks, the floruit of Royal Sites, the large-scale adoption of iron working technology, and the introduction of La Tène styles, indicate cultural change (Becker 2012 a, b).

While special sites, such as the so-called 'Royal Sites' and large-scale structures like linear earthworks, as well as the La Tène artefact record, indicate human presence and activity, no clear evidence for everyday settlement had been recognised (*e.g.* Raftery 1994). Biases in preservation, and difficulties in recognising settlement or mobile lifeways with low archaeological visibility have been debated as possible explanations for this (*e.g.* Raftery 1994). In combination with a lack of pottery and palynological evidence for an emphasis on pastoral agriculture, this has increasingly consolidated in a narrative of nomadic or semi-nomadic pastoralists (Raftery 1994; Lynn 2003; Armit 2007; Becker 2010; Dolan 2014), with highly visible special enterprises such as the Royal Sites seen as monumental expressions of otherwise invisible communities. In this context the absence of evidence for settlement has served as evidence for mobility – despite the significant methodological challenges that the positive identification of non-sedentary lifeways and the various degrees of mobility presents.

In D.C. Cowley, M. Fernández-Götz, T. Romankiewicz & H. Wendling (eds). Rural Settlement. Relating buildings, landscape, and people in the European Iron Age (Leiden 2019: Sidestone Press) 45-55.

4.2 New light on settlement and settling

However, a richer dataset is beginning to provide evidence that allows this issue to be addressed. It suggests that mobility may have been much more small-scale and complex than previously envisaged. Thus, while pastoralism clearly played an important part in society there is ample evidence for arable agriculture, possibly culminating in the large-scale processing of grains in kilns in the early centuries AD (Monk & Power 2014). As

discussed for the Early Medieval period (O'Sullivan *et al.* 2013), taphonomy and sampling strategies may favour the representation of animal bones, particular those of large mammals, over that of cereals. Thus, the picture may have been biased towards pastoral, over arable agricultural practices. Further evidence for largely sedentary lifeways is implied by the fact that pigs play an important role in the animal bone assemblages, including those of the Royal Sites (*e.g.* McCormick 1997). While nomadic societies can be engaged in arable agriculture and pigs are at times integrated in transhumance practices, the evidence suggests a rather complex system of agriculture and land-use that makes the vision of a fully or strongly mobile society unlikely (Becker in press). The record of house sites that can with relative confidence be dated to this period raises many questions, but seems to demonstrate the existence of formal settlement (*e.g.* Becker *et al.* 2017).

The challenge now is to formulate evidence-based hypotheses of land-use, utilising the large number of excavations undertaken during large-scale infrastructure schemes over recent decades (*e.g.* Becker *et al.* 2017). Patterns observed in the distribution of sites are the result of recovery processes and taphonomy, as well as prehistoric reality. Large linear infrastructural schemes expose only narrow slices of land, but their sheer length and course across a variety of regions, landscapes and eco-habitats provides a large-scale cross-section of past activity. These contrast with and add to the distributions of sites and monuments that are otherwise impacted by research driven agendas as well as the above ground visibility of sites (Armit *et al.* 2013; Becker *et al.* 2017) or other survey methods that are subject to taphonomic processes (*e.g.* Cowley 2016). However, the impact of route selection criteria, whereby a route might be designed to avoid known monuments or landscapes that offer particular construction challenges, such as higher elevations or wetlands (see Armit *et al.* 2013), require consideration. Assessment of variable survey and testing strategies within and between infrastructure schemes can also be helpful to explore the influence of such strategies on the numbers and disposition of sites detected (Bermingham *et al.* 2013b, 7-8).

However, there is also a view that assessment of mass aggregated data such as radiocarbon dates provide insights on broad demographic trends (Armit *et al.* 2013; Bevan *et al.* 2017), exploiting the apparently non-discriminatory recovery processes at work in infrastructural schemes and the sheer volume of data. Thus, for radiocarbon dating, after the exclusion of dates that are unlikely to relate to the contexts within they were found, large-scale change in quantities of radiocarbon dates and their contexts observed over time are argued to reflect actual fluctuations in prehistoric activity. However, there may be some exceptions. It is for example notable that within the study region the dating programme of the Gas Pipeline to the West scheme (Grogan *et al.* 2006), appears to target likely Bronze Age sites in particular, as there is a notable lack of dates for potential Iron Age or Early Medieval sites. It is likely that in a vast dataset such differences will not have a significant impact, and in any case, this paper does not consider chronological changes over time but focuses on a particular period – the Developed Iron Age (ca. 400BC to 1BC/AD). A qualitative comparison of the association of certain types of sites with particular forms of landscapes within the extent of these schemes is conducted that should not be affected by sampling biases. Moreover, the absence of sites from particular parts of these schemes can be argued to reflect a prehistoric reality (cf Cowley 2016). However, the ranges of different methodologies applied make systematic comparison between the archaeology of the landscapes uncovered in infrastructure schemes and those only subject to targeted research excavations difficult.

An inherent problem of the dataset is that the limited dating evidence for most sites prohibits fine chronological differentiation or Bayesian modelling of site dating. Thus, dates falling within the study period between 400 BC and the turn of the first millennium BC and AD are treated summarily, focusing on broad patterns in the record and thus playing to the strength of this dataset.

4.3 Patterns of settlement in North-West Munster

4.3.1 The landscapes

The region discussed here covers parts of Counties Clare, Tipperary and Limerick, located within the province of North Munster. The routes of the infrastructural schemes considered run through a diverse landscape, including floodplains, wetlands but also higher elevations. This is augmented by data from survey work in the Shannon estuary as well as the research excavations of some upland sites.

In the preceding Late Bronze Age North Munster was a focus of settlement activity with the hillfort of Mooghaun lying at the nexus of a wider network of sites and of deposits of metalwork such as the large gold hoard 'The Great Clare find' found near nearby (Grogan 2005). Recent decades have seen a number of archaeological investigations. Two recent road-schemes traverse this landscape, the M18 Ennis Bypass and N85 Western Relief Road (Bermingham *et al.* 2012), the M18 Gort to Crusheen (Delaney *et al.* 2012) and the M18 Newmarket on Fergus sections located in central Clare within the Fergus estuary (Figure 1). On the eastern side of the Shannon estuary, the Limerick Southern ring road (Bermingham *et al.* 2013a), the Limerick Main Drainage Scheme and the N7 are located in the River Shannon estuary and river valley,

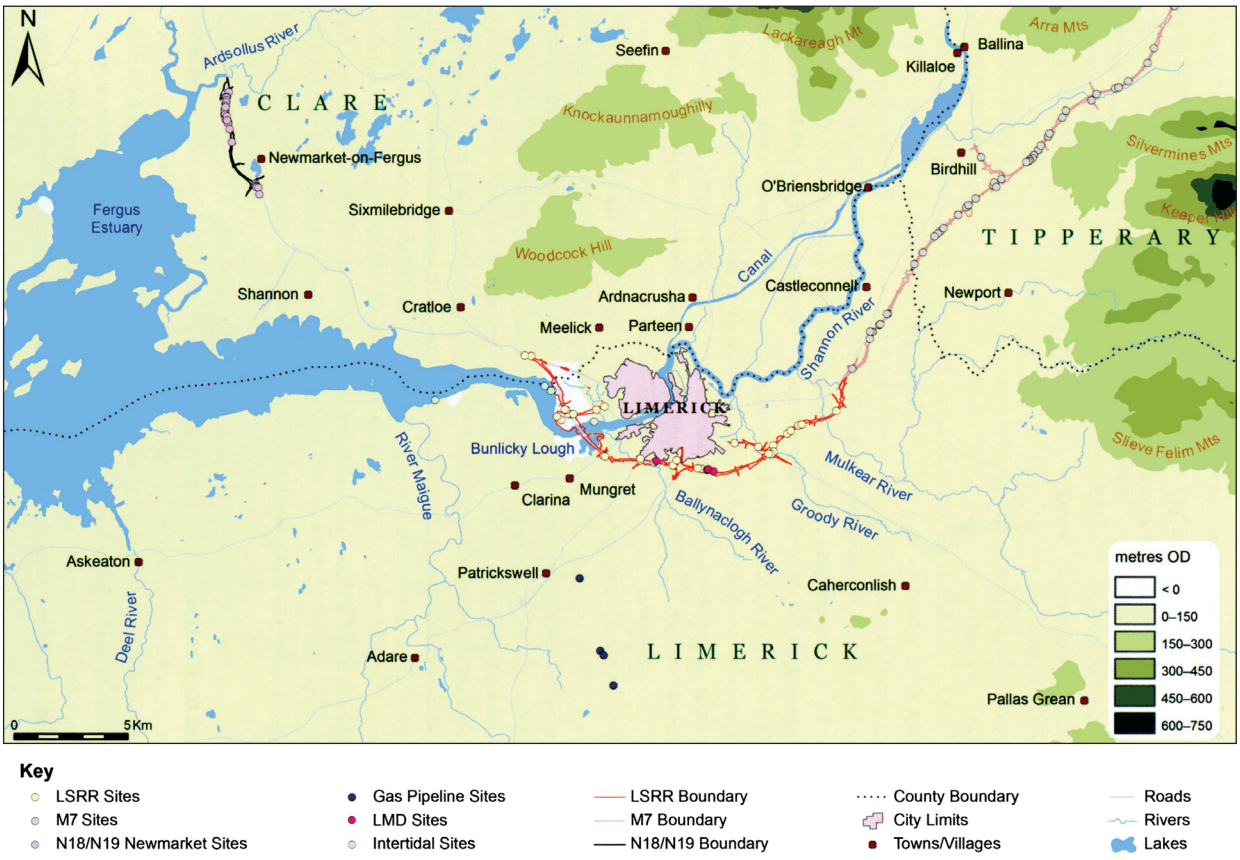


Figure 1: Location of development schemes in the centre of the study region ((TVAS (Ireland) Ltd, courtesy of Transport Infrastructure Ireland)).

from Limerick north-east wards into Tipperary (Figure 1). The 'Gas Pipeline to the West' (Grogan *et al.* 2006) also traversed the area, and the intertidal and estuary sites of the Fergus and Shannon estuaries were surveyed (O'Sullivan 2001; O'Sullivan *et al.* 2010).

The route along the river Fergus valley is generally exceptionally low-lying and wet, with bogs and badly drained soil predominating. In particular the M18 Newmarket on Fergus section is located in a low-lying landscape with a high proportion of water bodies, wetlands including bogs, and today liable to flooding in spring and winter (Bermingham *et al.* 2012, 5-8), with occasional drumlins and glacial ridges. Similarly low-lying are parts of the route around Limerick City where they pass across the Shannon floodplain (Limerick ringroad). In contrast, the N7 Nenagh to Limerick traverses a gently undulating landscape of lowland pasture broken only by a large peat basin that straddles the border between Counties Limerick and Tipperary. The region is overlooked by the Silvermines Mountains to the east and the Arra Mountains to the north and west with the N7 clipping the foothills of both.

A broad contrast can be noted between sites in the low-lying wetter regions and those that are located on the higher elevations on the fringes of the Arras and Silvermines mountains. Whereas burial and iron-working sites dominate in the lower elevations, a greater diversity of sites, including occupation sites can be found in the higher elevations (Figure 2).

4.3.2 The locations of burial and iron working sites

Along the Fergus estuary ring-ditches and pit cemeteries have been identified within the low-lying and wet landscape on small elevations that offer good vistas over the surrounding landscape. The ring-ditches at Ballyboy were located at heights of 39 and 33 m OD below the crest of an east-facing valley ridge (McNamara 2010a, b). The cemetery at Manusmore 100 (Taylor 2006) was located on the top of a south-facing incline at a height of about 8 m OD about 120 m from the nearest river and with views across the Fergus estuary. Nearby, Manusmore 102 was located at about 11-14 m OD (Hull 2006a). A flat cemetery at Killow AR104, consisting of eight possible cremation

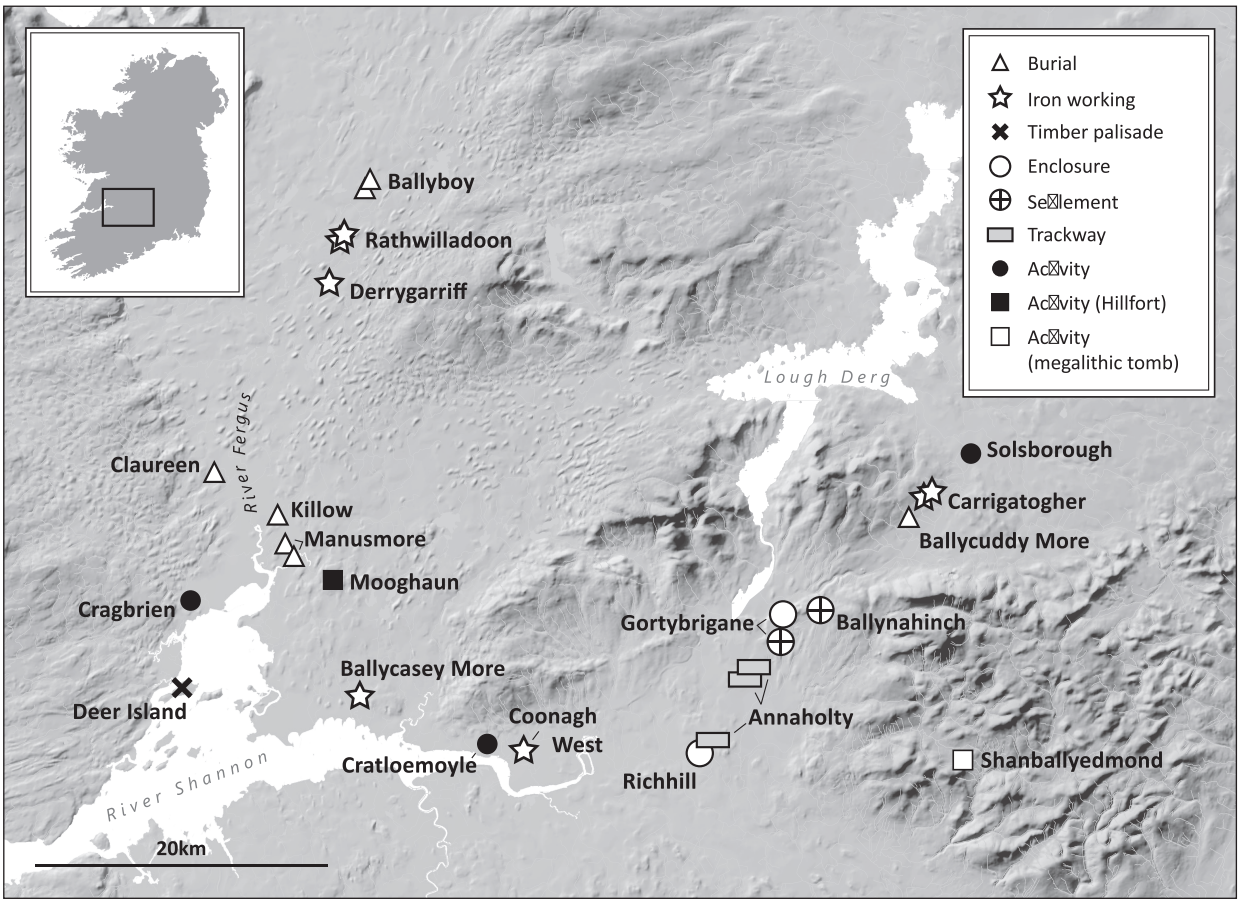


Figure 2: Distribution map of Developed Iron Age sites in the study region.

pits, was located on two drumlin gravel islands at a height of less than 6 m OD, at the interface of deep bog to its north and east and higher and drier land to the south and west (Taylor 2006, 2, 4-6). In the higher elevations along the N7 in the foothills of the Arra Mountains at 80 m OD, only one possible cemetery has been identified at Ballycuddy More (E2483). Nine pits, some with evidence of *in situ* burning and containing cremated bones are suggested to be a cremation cemetery (Taylor 2011, 9), although no human bone was identified.

The sites at Manusmore, Killow and possibly Ballycuddy More would usually be considered flat cemeteries, consisting of pits with pyre debris, some including small amounts of human remains. Such deposits may be considered pyre deposits, rather than actual formal burials involving the deposition of the cremated remains. Instead, after the removal of the human remains, the content of the pyre ashes had to be disposed of in a formal manner, possibly also representing charged and potentially problematic material (Becker 2014). This would explain the amount of less than 700 g of identifiable human cremated bone from 27 pits with bone at Manusmore AR100 (Anthony 2006a) and the presence of only flecks of bone in five pits. Similar patterns were observed at Manusmore AR102 (Anthony 2006b), where only about 150 g of cremated bone, partially identifiable as human, were identified in five pits, ranging in date from the Early to the Developed Iron Age (after Becker *et al.* 2008). At Killow all the identifiable human bone from three pits comprised only 18 g (Anthony 2006c, table 3) and at the ring-ditch at Claureen AR131 (Anthony 2006d), multiple deposits of human bone only comprised 117 g. Fire-reddened ground at Manusmore had been discussed as evidence for the pyre location and also at Killow AR104 evidence for *in situ* burning in three pits was noted (Bermingham *et al.* 2012, 51). The presence of grave goods in association with the more substantial cremation deposits at the ring-ditch sites of Ballyboy creates a supportive contrast to the lack of finds in the flat cemeteries. At Ballyboy 1 (McNamara 2010a) two cremation deposits had been placed in pits cut into the ditch fills. These contained a decorated antler die, glass beads, an amber bead and some undeterminable iron fragments (Figure 3). A third cremation of a female individual was situated within the interior of the ditch and was possibly the focus



Figure 3: Ballyboy 1. Top: ring ditch. Bottom: selection of finds (after McNamara 2010a, plates 6 and 8) , TVAS (Ireland) Ltd, courtesy of Transport Infrastructure Ireland).

of the ring-ditch. At Ballyboy 2 (McNamara 2010b), a ring-ditch enclosed four cremation pits and contained a number of cremations in a sequence of ditch fills, pit cuts and ditch recuts (Figure 4), associated with a number of glass beads and iron fragments.

The actual act of cremation taking place in these locations could add a further dimension to the range of possible cosmological and social reasons for the placement of burial sites in this environment. The availability of fuel sources for the energy-consuming process of cremation in the form of wood, but also peat, may be a factor and, in fact, at Killow evidence for the burning of peat has been noted (Bermingham *et al.* 2012, 51).

Considerations regarding the availability of fuels may have played a role in the siting of iron smelting and apparently also smithing activities in these wet landscapes, in addition to the likely exploitation of bog ore deposits. Similarly positioned on elevations within wetlands, sites like Rathwilladoon 5 (Lyne 2009a) would appear to represent evidence for small-scale iron working in the form of a possible furnace pit with slag, and, if contemporary, charcoal production in an adjacent kiln. Nearby, a curved slot-trench also produced an Iron Age date on charcoal. The slot trench may be reconstructed as a 10 m diameter roundhouse or as a semi-circular windbreak or shelter. These two sites lie at 28 m OD and 31 m OD respectively on the southeast-facing slopes of a hill overlooking a sizeable area of wetland, with Rathwilladoon 2 sitting on a near-level shelf on the hillside (Lyne 2009b, 27). More significant levels of iron production and processing are indicated at Derrygarriff 2 (Nunan 2009), also located on raised ground at 26 m OD within a wetland area. Here 10 kg of ferrous



Figure 4: Ballyboy 2. Top: ring ditch. Bottom: selection of finds (after McNamara 2010b, fig. 4 and plate 8) , (TVAS (Ireland) Ltd, courtesy of Transport Infrastructure Ireland).

slags, indicative of iron smelting (Young 2009, Appendix 2.3) were retrieved from what appeared to be a collapsed shaft furnace. Smithing hearth cakes and hammerscale indicate also smithing took place on site (Young 2009, 10). Also in the south-east of the study area at Coonagh West 4, an iron smelting furnace was located on a gravel ridge on the edge of the Shannon estuary within its tidal mud flats (Ruttle & Taylor 2013, 4, 11).

4.3.3 Settlement and movement

Further north-east in the higher elevations of the foothills of the Arras and the Silvermines mountain ranges, Iron Age activity is of decidedly different character than that observed in the lower-lying areas. At Ballynahinch 2 a cluster of probably at least five circular slot trenches representing house structures is spread out over a site that was in the Early Medieval period enclosed with a ditch (Figure 5). Ballynahinch 2 (Scotland 2011) is situated at 118 m OD in an area of current pasture land, that gently sloped from north to south and offered wide views. Bronze Age burial activity was followed in the site sequence by the creation of a number of foundation trenches, of which structure 1 produced two Iron Age dates falling into the Developed Iron Age. The other trenches remain undated, although structure 3 produced a Late Bronze Age date. It is possible that the remainder

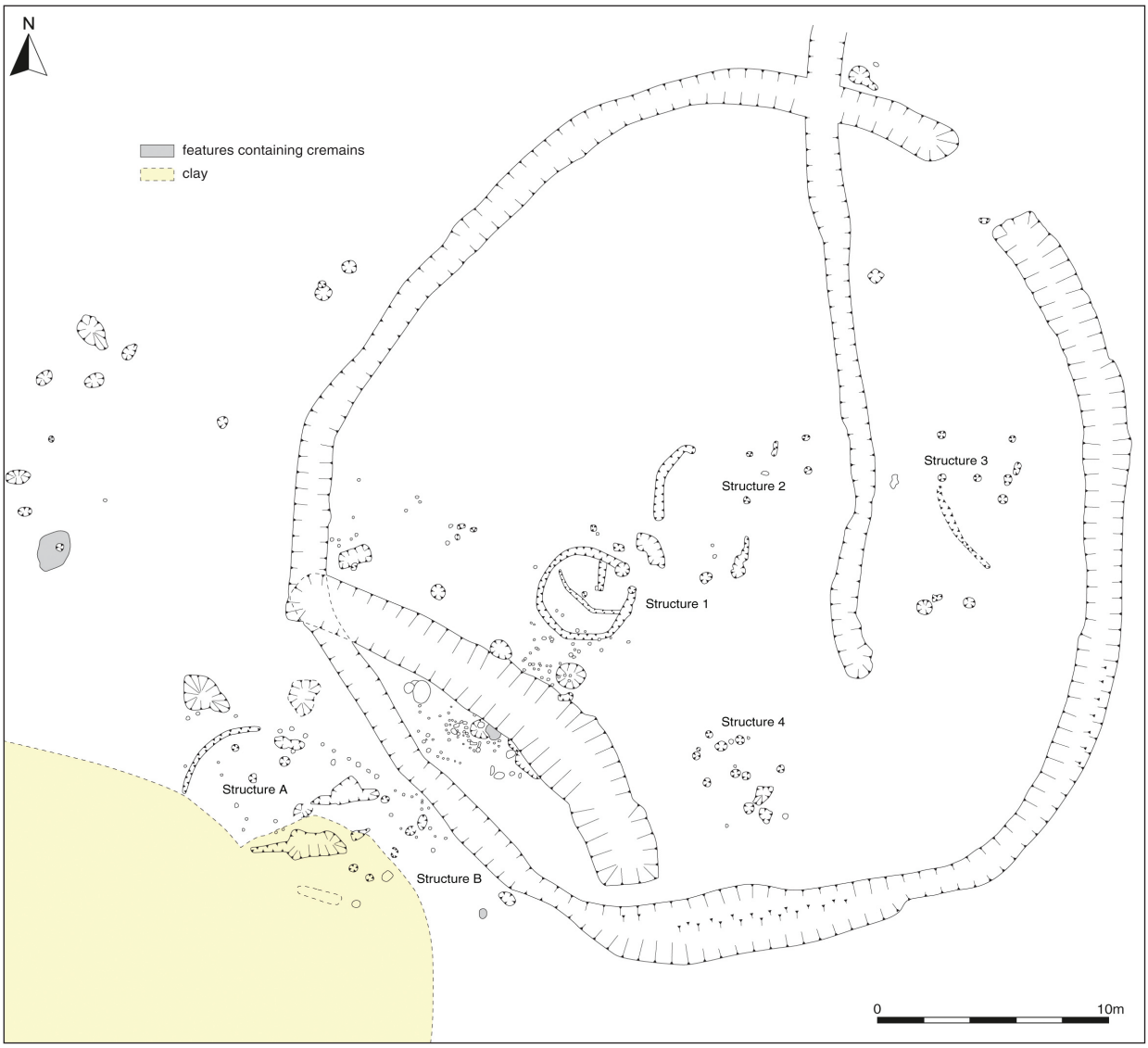


Figure 5: Ballynahinch 2 excavation plan (after Scotland 2011, fig. 6 , Aegis Archaeology Limited, courtesy of Transport Infrastructure Ireland).

of the houses are of Iron Age date. The medieval dates are from postholes that have no clear structural relationship to the slot trenches. The early medieval enclosure trench cuts through the distribution of houses, suggesting the possibility that the entire group of house structures may indeed be of Iron Age date. Further northeast, at Solsborough (Murphy & Clarke 2001), features including some kilns produced Iron Age dates at the very end of the study period on unidentified charcoal and hence may not be of relevance here.

Some tentative evidence for the maintenance or modification of the enclosures in the Iron Age has been discussed in the case of Mooghaun, where a Hallstatt plateau date was derived from a bank built against the middle rampart (UB-4277 on animal bone, Grogan 2005, 241, table 7.2, 244). This appears to represent the latest Late Bronze Age horizon of activity after the abandonment of the Bronze Age occupation area (Grogan 2005, 181). A radiocarbon date was derived on bone from deposits in the inner enclosure in area A between cal. 47 BC and AD 133 (Grogan 2005, 244). These deposits contained evidence for industrial activity consisting of iron and bronze working, and production of rotary querns and iron nails, found to fill hollows on the site in area A (Grogan 2005, 131-7, 244). These artefacts were originally considered to be of Medieval date (Grogan 1996, 56-7; Henderson 2007, 183) and it has to remain unclear if the Iron Age date relates to this assemblage or is residual.

Nearby at Cooleen (McNamara 2012) in a similar location at 76 m above OD on a slope with wide views, a possible roundhouse and a four poster structure produced two Hallstatt plateau dates allowing for a date in the Developed Iron Age or indeed earlier (not on map).

To the west at Gortybrigane 2 an early Medieval ditched enclosure is located on the summit of a hill that slopes steeply towards a basin of waterlogged bog, located within a poorly drained lowland landscape (Clark & Long 2010, 6). The enclosure contained several features, including remains of what appears to be a rectangular Middle Bronze Age house as well as further undated possible structures. The only feature currently datable to the Iron Age is a pit containing human bones, iron working residue and grains. Rather than settlement, specialised activities such as metalworking may have taken place here. An apparent focus of the enclosure on the cluster of features that includes the likely Iron Age pit may hint at an earlier origin of the enclosure.

This site cluster is separated from a further enclosure to the south at Richhill 2 by a large bog basin. The double-ditched enclosure at Richhill 2 is located on a slope and the Iron Age date relates to the re-cutting of a Bronze Age ditch in the 4th to 2nd centuries BC, followed by the later addition of a second ditch in the Early Medieval period (Clark & McLeod 2010). The dating of the sequence is based on hazel charcoal pieces without a clear functional relationship to the ditch and hence possibly residual within it. The stratigraphic and chronological order of the dates makes it possible that this enclosure was indeed re-cut in the Iron Age. The enclosure was only partially excavated, but no structures or other clear evidence for its purpose was recovered within the excavated extent.

One or two trackways are located in the bog basin connecting the two areas of activity, indicating habitual movement between the areas either end of the bog. The two segments of trackway at Annaholty 8 connect two islands of dry gravel land, creating a causeway at the narrowest part of the bog (Taylor & Bermingham 2013, 7). This trackway showed evidence for at least two phases of construction in the 1st century BC (Taylor & Bermingham 2013, 10-8) with the heavily worn timbers of the trackway showing the movement of cattle or vehicles. The presence of animals in this landscape, possibly passing along the trackway, is also indicated in a nearby pollen profile by spores associated with dung parasites (O'Brien 2013, 57-9). At Annaholty/Sallymount remains of a trackway were dated to broadly the same period as Annaholty 8 (McCooey *et al.* 2010).

The enclosure at Richhill (Clark & MacCleod 2010) may have been used for stock-keeping, perhaps for summer pasture within this low-lying and wetter area as part of small-scale transhumance practice. The pollen record from Annaholty bog, while allowing the reconstruction of a relatively densely overgrown, wet landscape, supports this hypothesis with a combination of herbaceous taxa suggesting the local grazing of animals. Small amounts of cereal pollen also indicate small-scale arable farming in the vicinity (O'Brien 2013). Chronologically the building of the trackway appears to correlate with a period of land-clearance represented in the pollen record (Taylor & Bermingham 2013, 8).

A substantial investment is not only reflected in the construction of the trackways, but also in the evidence for the management of the woodland around the site. Evidence of coppicing at Annaholty 8 suggests the utilisation of local wood resources, adding to the evidence provided by the pollen record, the trackway and other sites, for the intense use, management and habitual movement between different parts of the landscape.

4.3.4 Farming communities

Like that from Annaholty, the pollen record from Mooghaun Lough also suggests pastoral as well as arable agriculture being practiced in this area during the Developed Iron Age. While the dating of the record is broad, the chronological model suggests substantial pastoral and arable farming in the period between 650 and 300 BC. Interestingly, an increase in activity in the latter part of this period is followed by a period of apparently steady farming activity that includes a significant cereal-growing component (300 BC-AD 1, Molloy 2005, 274-5). In County Clare on the M18 at Caheraphuca Lough a period of substantial clearance of the existing elm population in zone 6c (Molloy & O'Connell 2012, 119) may possibly be contemporary to the burial and iron working sites in this area (Molloy & O'Connell 2012, 114).

In addition to the pollen record, cereal and animal bone finds from a number of dated contexts on the road scheme provide information on subsistence methods. At Manusmore AR100, two pit deposits contained significant amounts of charred cereal, including wheat grains, wheat chaff and barley. Few animal bones have been recorded on these sites, with a pit at Killow producing horse and possibly sheep bones (Bermingham *et al.* 2012, 51). At Killow pit 27A also contained charred barley and wheat remains, as well as bread wheat, six row barley and what are most likely wild oats. The aforementioned pit at Gortybrigane that produced an Iron Age date on human bone also produced (wild) oat and barley grains. At Coonagh West 4, a possibly deliberate deposit of animal bone comprising mainly cattle jaw bones, was associated with a whetstone. The deposit was dated on charcoal (Ruttle & Taylor 2013) – which makes an Iron Age date of the deposit possible, if not secure.

While there is no clear evidence for the exploitation of wild animal resources in this landscape, hunting and fishing may have played an important role in these

wetland environments. A double palisade dating to this part of the Iron Age at Deer Island in the Fergus Estuary has been discussed as possibly having played a role in fishing (O'Sullivan *et al.* 2010), as may an earlier Iron Age post-and-wattle structure in the Fergus Estuary that produced a radiocarbon date of 748-556 BC (O'Sullivan 2001, 170-120; Appendix 1).

While the possible settlement sites uncovered are largely void of finds, the wooden artefacts surviving due to their reuse in the construction of the Annaholty 8 trackway provide important insights into lifeways of the period, such as stave-built kegs, a losset-type vessel, a yoke and possibly a cart (Moore 2013). Traction (presumably by cattle), the transport of goods, possibly the making of bread and butter or other milk products, all add to the evidence for substantive settlement activity in the area. A lathe-turned wooden bowl from a bog at the edge of the Killow burial site either sits chronologically late within or post-dates the calibration range of 777 and 407 cal. BC (95%) obtained directly on the ash wood (UBA 6287; Hull 2012b, 135-6).

4.4 Models of settlement

The archaeology of the Developed Iron Age in the North-West of Munster provides a picture of differential landscape use, likely to relate to landscape type and its resources.

Based on the distribution of sites across these landscapes it is possible to hypothesize a model of landscape-specific land-use and settlement where occupation sites are located in the drier, elevated parts of the landscape surrounded by land with pastoral and arable potential. They are linked into a wider network of sites, which may be used seasonally for pasture or the exploitation of fuel and raw material resources for burial and iron working in lower elevations. The range of Iron Age activity extends across the entire range of landscape forms, with activity in the truly elevated parts of this landscape also evidenced in the, rather ephemeral, re-use of a court tomb at Shanballyedmonduff as well of the Bronze Age Mooghaun hillfort.

Employing a mixed agricultural regime and habitually moving between different parts of the landscape, possibly to access seasonal resources, Iron Age communities have left a significant footprint on the landscapes of North Munster. Extrapolation of the site distributions encountered on the linear schemes to the surrounding areas would imply a densely inhabited landscape. Cemeteries are in some areas of the route closely spaced, with the two ring-ditches at Ballyboy 1 and Ballyboy 2, or the cemeteries at Manusmore and the site at Killow, located at a distance of about 1 km apart respectively. This density may suggest groups living in the vicinity (cf Jones 2012, 55) and the repeated use of the burial sites suggests that they were the burial grounds of small family units. While set apart spatially, they nevertheless aligned themselves within the same landscapes. At the same time the burial sites link the Iron Age of this region most visibly into wider Iron Age cultural trends both in terms of the forms of monuments as well as the artefacts found within them. While at the margins of the La Tène distribution in Ireland, the range of glass beads and toggles, and the bone dice, relate closely to the range of artefacts found in other parts of the country (cf Eogan 2012) and show how the local, small scale settlement was linked into the supra-regional networks of Iron Age of Ireland.

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4.6 Bibliography

Anthony, S. 2006a. Human and animal bone. In G. Hull. *N18 Ennis Bypass and N85 Western Relief Road. Site AR100, Manusmore, Co. Clare.* 16-18. Final Archaeological Excavation Report, TVAS Ireland Ltd.

Anthony, S. 2006b. Human and animal bone In G. Hull. *N18 Ennis Bypass and N85 Western Relief Road. Site AR102, Manusmore, Co. Clare.* 9-11. Final Archaeological Excavation Report, TVAS Ireland Ltd.

Anthony, S. 2006c. Human and animal bone. In K. Taylor. *N18 Ennis Bypass and N85 Western Relief Road, Site AR104, Killow, Co. Clare.* 10-4. Final Archaeological Excavation Report, TVAS Ireland Ltd.

Anthony, S. 2006d. Bone analysis. In G. Hull. *N18 Ennis Bypass and N85 Western Relief Road Site AR131, Claureen, Co. Clare*. 5-6. Final Archaeological Excavation Report. TVAS Ireland Ltd.

Armit, I. 2007. Social landscapes and identities in the Irish Iron Age. In C. Haselgrove & T. Moore (eds). *The Later Iron Age in Britain and beyond.* 130-9. Oxbow: Oxford.

Armit, I., Swindles, G. & Becker, K. 2013. From dates to demography in later prehistoric Ireland? Experimental approaches to the meta-analysis of large 14 C datasets. *Journal of Archaeological Science*, 40 (1), 433-8.

Becker, K. 2010. Iron Age Ireland. Finding an invisible people. In G. Cooney, K. Becker, J. Coles, M. Ryan, & S. Sievers (eds). *Relics of old decency. Archaeological studies in later prehistory.* 353-62. Bray: Wordwell.

Becker, K. 2012a. Redefining the Irish Iron Age. In M. Potterton & C. Corlett (eds). *Life and death in Iron Age Ireland*. Bray: Wordwell.

Becker, K. 2012b. The introduction of iron working to Ireland. In A. Kern & J. Koch (eds). *Technologieentwicklung und -transfer in der Eisenzeit. Tagungsbericht der AG Eisenzeit, Hallstatt 2009.* Langenweissenbach: Beiträge zur Ur-und Frühgeschichte Mitteleuropas.

Becker, K. 2014. Token explanations – Rathgall and the interpretation of cremation deposits in later prehistoric Ireland. *Archaeology Ireland* 28 (1.107), 13-5.

Becker, K. in press. Irish Iron Age Settlement and Society - Reframing Royal Sites. *Proceedings of the Prehistoric Society* (2019).

Becker, K., Armit, I., & Swindles, G. 2017. The contribution of NRA archaeology to the understanding of the Irish Iron Age. In M. Stanley, R. Swan & A. O'Sullivan. *Stories of Ireland's past*. 85-100. Dublin: Transport Infrastructure Ireland.

Becker, K., Ó Néill, J. & O'Flynn, L. 2008. Iron Age Ireland: Finding an invisible people. *Archaeology Ireland*, 22.2, 3.

Bermingham, N., Coyne, F., Hull, G., Reilly, F. & Taylor, K. 2013a. *River Road. The archaeology of the Limerick Southern Ring Road.* NRA Scheme Monograph 14. Dublin: NRA.

Bermingham, N., Hull, G., O'Keeffe, P. & Taylor, K. 2013b. Searching for a past. In N. Bermingham, F. Coyne, G. Hull, F. Reilly & K. Taylor. *River Road. The archaeology of the Limerick Southern Ring Road.* 1-28. NRA Scheme Monograph 14. Dublin: NRA.

Bermingham, N. & Hull, G. 2012. Introduction. In N. Bermingham, G. Hull & K. Taylor 2012. *Beneath the Banner. Archaeology of the M18 Ennis Bypass and N85 Western Relief Road, Co. Clare.* 1-30. Dublin: NRA.

Bermingham, N., Hull, G. & Taylor, K. 2012. *Beneath the Banner. Archaeology of the M18 Ennis Bypass and N85 Western Relief Road, Co. Clare.* Dublin: NRA.

Bevan, A., Colledge, S., Fuller, D., Fyfe, R., Shennan, S. & Stevens, C. 2017. Holocene fluctuations in human population demonstrate repeated links to food production and climate. *Proceedings of the National Academy of Sciences*, 115 (15) E3597.

Clark, L. & Long, P. 2010. *N7 Nenagh to Limerick High Quality Dual Carriageway Archaeological Resolution Project. Gortybrigane Site 2, E2488 Co. Tipperary.* Final Excavation Report.

Clark, L. & MacLeod, R. 2010. *N7 Nenagh to Limerick High Quality Dual Carriageway Archaeological Resolution Project Richhill Site 2, E2311, Co. Limerick.* Final Excavation Report.

Cowley, D.C. 2016. What do the patterns mean? Archaeological distributions and bias in survey data. In M. Forte & S. Campana (eds). *Digital methods and Remote sensing in Archaeology*. 147-70. New York: Springer.

Delaney, S., Bayley, D., Lyne, E. McNamara, S., Nunan, J. & Molloy, K. 2012. *Borderlands. Archaeological investigations on the route of the M18 Gort to Crusheen road scheme*. Dublin: NRA.

Dolan, B. 2014. Beyond Elites. Reassessing Irish Iron Age Society. *Oxford Journal of Archaeology* 33.4, 361-77.

Eogan, J. 2012. An Iron Age penannular ring-ditch at Ballybronoge South, Co. Limerick. In C. Corlett & M. Potterton (eds). *Life and Death in Iron Age Ireland in the Light of Recent Archaeological Excavations.* 105-19. Dublin: NRA.

Grogan, E., O'Donnell, L., Johnston, P. & Gowen, M. 2006. *The Bronze Age landscapes of the Pipeline to the West: an integrated archaeological and environmental assessment.* Bray: Wordwell.

Grogan, E. 2005. *The North Munster Project.* 255-88. The Discovery Programme. Bray: Wordwell.

Henderson, J. 2011. *The Atlantic Iron Age: Settlement and Identity in the First Millennium BC*. London: Routledge.

Hull, G. 2006a. *N18 Ennis Bypass and N85 Western Relief Road Site AR102, Manusmore, Co. Clare Final Archaeological Excavation Report 04E0189*. TVAS Ireland Ltd.

Hull, G. 2006b. The wooden bowl. In K. Taylor. *N18 Ennis Bypass and N85 Western Relief Road Site AR104, Killow, Co. Clare*. Final Archaeological Excavation Report Licence No: 04E0191. TVAS (Ireland) Ltd.

Lynn, C. 2003. Ireland in the Iron Age - A basket case? *Archaeology Ireland*, 17(2), 20-3.

Lyne, E. 2009a. *N18 Gort to Crusheen Road Scheme. E3657 Rathwilladoon 5, County Galway*. Final excavation report, IAC.

Lyne, E. 2009b. *N18 Gort to Crusheen Road Scheme. Rathwilladoon 2 and 3. E3656.* Final excavation report, IAC.

McCooey, J, Ruttle, E & Taylor, K, 2010. *N7 Nenagh to Limerick High Quality Dual Carriageway, E3462, Monitoring of Wetlands Cos Limerick and Tipperary*, Archaeological monitoring report. TVAS (Ireland) Ltd.

McCormick, F. 1997. The Animal bones from Site B. In D. M. Waterman. *Excavations at Navan Fort 1961-1971*. 117-20. Ed. C. J. Lynn. Belfast: Stationary Office.

McNamara, M. 2012. *N7 Nenagh to Limerick High Quality Dual Carriageway Archaeological Resolution Project. E3370, Cooleen Site 1, Co. Tipperary.* Final Archaeological Excavation Report. TVAS Ireland Ltd

McNamara, S. 2010a. *N18 Gort to Crusheen Road Scheme. Ballyboy 1. E3719.* Final report. IAC.

McNamara, S. 2010b. *N18 Gort to Crusheen Road Scheme. Ballyboy 2.* E3718. Final report. IAC.

Molloy, K. 2005. Holocene vegetation and land-use history at Mooghaun, south-east Clare, with particular refernce to the Bronze Age. In E. Grogan. *The North Munster Project*. 255-88. The Discovery Programme. Bray: Wordwell.

Molloy, K. & O'Connell, M. 2012. Prehistoric farming in western Ireland: pollen analysis at Caheraphuca, Co. Clare. In S. Delaney, D. Bayley, E. Lyne, S. McNamara, J. Nunan & K. Molloy. *Borderlands. Archaeological investigations on the route of the M18 Gort to Crusheen road scheme.* 109-23. Dublin: NRA.

Monk, M. & Power, O. 2014. Casting Light from the Fires of Corn-Drying Kilns in the Later Irish Iron Age. *Archaeology Ireland* 28.3, 39-42.

Moore, C. 2013. Wood Technology. In K. Taylor & N. Bermingham. *N7 Nenagh to Limerick High Quality Dual Carriageway Archaeological Resolution Project E3530, Annaholty Site 8, Co. Tipperary.* 17-38. Final Archaeological Excavation Report for Limerick County Council. TVAS Ireland Ltd.

Murphy, D. & Clarke, L. 2001. *Nenagh By-pass project N-52 Link road. Report on resolution of archaeological sites. 00E0210-227, 00E0385, 00E0552.* Archaeological Consultancy Services Ltd.

Nunan, J. 2009. *N18 Gort to Crusheen Road Scheme. E3711. Derrygarriff 2. Charcoal kiln and metallurgy furnace.* Final Report. IAC.

O'Brien, C. 2013. Pollen Analysis. In K. Taylor & N. Berminham. *N7 Nenagh to Limerick High Quality Dual Carriageway Archaeological Resolution Project E3530, Annaholty Site 8, Co. Tipperary*. 55-9. Final Archaeological Excavation Report for Limerick County Council TVAS Ireland Ltd.

O'Sullivan, A. 2001. *Foragers, Farmers and Fishers in a Coastal Landscape.* Discovery Programme Mongraph 5. Dublin: Royal Irish Academy.

O'Sullivan, A., Dillon, M., Sands, R., McDermott, C., Shaw, R. & Devlin, G. 2010. *The Fergus Estuary and Islands: discovering a maritime historic landscape in Co. Clare.* Dublin: University College Dublin School of Archaeology in association with the Discovery Programme.

O'Sullivan, A., McCormick, F., Kerr, T.R. & Harney, L. 2013. *Early Medieval Ireland, AD 400-1100. The evidence from Archaeological Excavations.* Dublin: Royal Irish Academy Monographs.

Raftery, B. 1994. *Pagan Celtic Ireland. The Enigma of the Irish Iron Age.* London: Thames and Hudson.

Raftery, B. 1998. Kelten und Keltizismus in Irland: Die archäologischen Belege. In A. Müller-Karpe, H. Brandt, H. Jöns, D. Kraußе & A. Wigg (eds). *Studien zur Archäologie der Kelten, Römer und Germanen in Mittel- und Westeuropa. Alfred Haffner zum 60. Geburtstagi.* 465-75. Rahden/Westfalen: Verlag Marie Leidorf GmbH.

Raftery, B. 2006. Celtic Ireland: Problems of Language, History and Archaeology. *Acta Archaeologica Academiae Scientiarium Hungaricae* 57, 273-79.

Ruttle, E. & Taylor, K. 2013. *Limerick Southern Ring Road, Phase II. E2091, Coonagh West Site 4, Co. Limerick.* Final Archaeological Excavation Report, TVAS Ireland Ltd.

Scotland, L. 2011. *N7 Nenagh to Limerick High Quality Dual Carriageway. Archaeological Resolution Project E2400: Ballynahinch Site 2. Final Excavation Report.* Aegis Archaeology Limited.

Taylor, K. 2006. *N18 Ennis Bypass and N85 Western Relief Road Site AR104, Killow, Co. Clare*. Final Archaeological Excavation Report Licence No: 04E0191

Taylor, K. 2011. *N7 Nenagh to Limerick High Quality Dual Carriageway Archaeological Resolution Project E2483, Ballycuddy More Site 1, Co. Tipperary.* Final Archaeological Excavation Report. TVAS Ireland Ltd.

Taylor, K. & Bermingham, N. 2013 *N7 Nenagh to Limerick High Quality Dual Carriageway Archaeological Resolution Project E3530, Annaholty Site 8, Co. Tipperary*. Final Archaeological Excavation Report, TVAS Ireland Ltd.

Young, T. 2009. Analysis of archaeometallurgical residues Derrygarriff 2, Co. Clare, E3711. In J. Nunan. *N18 Gort to Crusheen Road Scheme, Derrygarriff 2. Charcoal Kiln and metallurgy furnace.* Final Report, IAC. ixi.