

8. Excavating a meal: a multidisciplinary approach to early medieval food economy

Alison Kyle, Karen Stewart and Auli Tourunen

Illus. 1—Location of the sites discussed in this paper (Headland Archaeology Ltd).



The early medieval period is one for which we have an abundance of archaeological and historical evidence, which has increased in recent years as a result of the national roads-building programme. This has led to a wealth of information that benefits research in all sectors of the archaeological profession. It is now possible to synthesise these data by taking a holistic approach, integrating the work of individual specialties.

The Specialist Services Department within Headland Archaeology Ltd includes the current authors: Alison Kyle (finds specialist), Karen Stewart (archaeobotanist) and Auli Tourunen (faunal remains specialist). The authors are ideally placed to take a multidisciplinary approach to the data gathered during an excavation, facilitating an integrated interpretation of the site.

Material evidence from four early medieval sites is referred to throughout this paper (Illus. 1); these were generally low-status settlement sites where a range of activities took place, including, in one instance, burial (see Appendix 1 for radiocarbon dating results). Kilcloghans, Co. Galway, was a univallate ringfort, excavated in 2007 under the direction of Liam McKinstry on the route of the N17 Tuam Bypass (McKinstry 2008).¹ Carrowkeel, also in County Galway, was a so-called ‘cemetery-settlement’ excavated in 2005 by Brendon Wilkins as part of the N6 Galway to East Ballinasloe PPP Scheme (O’Sullivan 2007b,



Illus. 2—Artist's impression of early medieval food economy activity and the landscape (Sara Nylund, Headland Archaeology Ltd).

90–3).² A number of early medieval pits and ditches were excavated in the townland of Moyle Big in County Carlow. This site was directed by Joanne Hughes during excavations in 2005–6 that were part of the N9/N10 Kilcullen–Waterford Scheme: Kilcullen to Carlow.³ Finally, a ringfort at Ballyvass, Co. Kildare, was excavated in 2007 as part of the same road scheme and was directed by Tara Doyle (see this volume). The four excavations were conducted by Headland Archaeology Ltd on behalf of Galway County Council, Kildare County Council and the NRA.

This paper discusses the stages of the early medieval food economy, from production to processing and preparation, and finally to consumption. In a food economy, production can involve the sourcing of food from animal husbandry, crop cultivation and wild resources; processing includes activities that enable these raw materials to be consumed; and consumption refers to the stage at which the products are eaten (Illus. 2).

Production

Production is generally the most archaeologically elusive of the phases with which this analysis deals; both animal husbandry and crop production leave few traces in the archaeological record. Within bone assemblages it is difficult to separate animals bred and slaughtered on the site from animals brought in for slaughter or even as ready-cut pieces. There is some archaeological evidence for the sheltering of livestock (Simpson 1999, 20; Waterman 1972, 31). The presence of lice that live on domestic animals (Kenward & Allison



Illus. 3—Infant pig skull from Kilcloghans, Co. Galway (Headland Archaeology Ltd).

1994, 102) or in layers of manure (Tourunen 2008, 79) also indicate the presence of live animals. Another possible indication is the presence of infant animal bones. These often represent miscarriages, stillbirths or animals that died shortly after birth rather than animals that have been consumed (e.g. O'Connor 1991, 248; 2003, 80). The presence of such bones may therefore indicate that animal-breeding was practised at these sites.

These data must be interpreted carefully, however, as calves may have been slaughtered for the production of vellum (manuscript parchment produced from calfskin). Interestingly, socketed tools with prongs recovered from Kilcloghans may have been used in the processing of cattle hides (Kyle 2008; McKinstry 2008). Only a few infant cattle remains were recovered from Kilcloghans, however, thus the remains might rather represent instances of pregnant animals being slaughtered and the foetuses discarded. At Carrowkeel, Ballyvass and Kilcloghans, however, infant cattle, sheep/goat (sheep and goat cannot always be distinguished based on skeletal evidence) and pig were all identified (Illus. 3). Therefore these bones probably represent animal-breeding taking place in the vicinity of these sites.

Tillage was an important part of the early medieval food economy, as can be seen in the contemporary law-tracts (Kelly 2000), and charred cereal grains are commonly recovered during excavations of early medieval sites (Monk & Kelleher 2005) (Illus. 4). This does not, however, necessarily mean that crops were being grown at the site, as sheaves and processed grain were relatively easy to transport. The presence of cereal pollen is a more definitive indicator of cereal crop cultivation, as the grains of cereal pollen are particularly large (Faegri & Iverson 1975) and tend not to travel far from the plant.



Illus. 4—Oat (left) and barley (right) grains recovered from Kilcloghans, Co. Galway (Headland Archaeology Ltd).

Although there is some evidence from faunal and plant remains for food production, the most direct archaeological evidence for production comes from artefactual assemblages. With regard to tillage, components of ploughs are occasionally found during excavations. These show that the ‘heavy plough’ was in use in Ireland by the mid-seventh century AD (Ó Cróinín 1995, 91). This type of plough was a technological innovation as it incorporated the use of a mould-board, which meant that ploughs no longer simply cut the sod but also turned it to form ridges and furrows (Mitchell & Ryan 1997, 234). This innovation allowed for an increase in agricultural output.

Sickles that have been recovered from excavated early medieval sites, and those discussed in the written records in the form of the law-texts, provide evidence that early medieval harvesting was somewhat different to the harvesting of today. Instead of cutting crops at the base of the stalks—which would have required the use of a long-bladed sickle known as a scythe—and storing the straw for winter, it is thought that fodder crops were cut close to the ear and the stalks left in the field for grazing (Kelly 2000, 238). It is of note that scythes are as yet unknown from early medieval Irish contexts (*ibid.*, 480). It is possible to infer the conditions in which crops were grown and the season at which crops were harvested from crop weed evidence (Jones et al. 2004), and in the early medieval period crops grew to a greater, and much more variable, height than those of today (Moffet 2006, 47).

Wild animal resources do not seem to have played an important role at Carrowkeel, Ballyvass or Kilcloghans. At Carrowkeel and Kilcloghans, for instance, the number of fish bones proved to be insignificant. The lack of these bones in even finely sieved samples further supports their absence from the economy rather than merely being a product of



Illus. 5—Charred hazelnut shells from Carrowkeel, Co. Galway (Headland Archaeology Ltd).

poor preservation. The Ballyvass analysis is still ongoing but seems to follow the same pattern. The low number of wild animals is a common feature of early medieval animal bone samples (McCormick & Murray 2007, 104).

Palaeoenvironmental samples taken at Kilcloghans and Carrowkeel were found to contain charred hazelnut shells, though in low concentrations in both cases. Hazelnut shells frequently occur on early medieval sites. These are almost always charred (Illus. 5), as carbonisation preserves the shells, which would otherwise rot. It is likely that these nuts were consumed by the inhabitants of the site, though the possibility remains that they may have been accidentally included in a fuel assemblage if hazel wood was being used for firewood.

Preparation and processing

Evidence for crop-processing is more abundant in the archaeological record than evidence for crop cultivation. Settlement sites containing charred grain evidence can be classified as being 'producer' or 'consumer' sites (Hillman 1981; Jones 1985), although there are problems inherent in doing so (van der Veen & Jones 2006). Sites containing high proportions of chaff (that is, the inedible fragments of cultivated grains) and weed seeds might be considered

'producer' sites. Unfortunately, the latter sites are very rare in the archaeological record as these early stages of processing do not usually come into contact with fire, and thus would not be preserved. Cereal-drying kilns are also a common occurrence on or near early medieval sites (Monk & Kelleher 2005). It was in the cereal-drying kilns that cereals came into contact with fire, as fire was used to create the warm air that dried out the grains prior to use or storage. A tobacco-pipe-shaped kiln was excavated at Ballyvass and, though analysis is in the very early stages, considerable quantities of grain were recovered, particularly barley grains, which may be associated with brewing (Doyle, this volume).

Meat preparation can also be seen in the bone evidence; for instance, roasting over an open fire can leave burn marks on bones, such as those present at Kilcloghans, as the ends of the bones sticking out were exposed to fire but the meat protected the rest (McCormick & Murray 2007, 51). Butchery can leave marks on animal bones, although a skilful butcher could cut the carcass without leaving marks on the bones. This was desirable as cutting to the bone could damage or blunt a knife more quickly than through ordinary use. Whetstones, used to sharpen blunted knives, were therefore occasionally necessary in the processing of animal carcasses.

Cut marks on bones can indicate how the carcass was butchered: for example, whether the torso was split in half axially through the spine or whether the bones were separated from joints. The nature of the cut marks varies depending on the type of implement used to carry out the butchery. Axes could be used for the initial stages of butchery, while knives were used for the more skilled or refined aspects of carcass preparation. It is possible that small domestic knives, recovered from both Kilcloghans and Carrowkeel (Franklin 2008), may have been used in the butchery of animals (Illus. 6).

Sexton (1998, 76) notes that there were two main categories of cereal food types in early medieval Ireland: breads and pot-based preparations (which included both porridges and gruels). Quern-stones, which were used to grind cereal to produce flour, were indispensable in the preparation of cereal-based foods and were therefore essential components of domestic life. While there is no evidence of the use of ovens in this period, it has been



Illus. 6—Domestic knife blade from Carrowkeel, Co. Galway (Headland Archaeology Ltd).



Illus. 7—Unconserved bucket hoop from Kilcloghans, Co. Galway (Headland Archaeology Ltd).

suggested that breads may have been cooked in a ‘pot-oven’: foods would have been placed in a lidded ceramic vessel that would then either have been heated by embers or placed directly in a fire (ibid., 80). The production and use of ceramic vessels, termed Souterrain Ware, in early medieval Ireland was largely restricted to north-east Ulster, however (Ryan 1973; Edwards 1990). Thus it is not likely that pot-ovens were in use over most of the country, if at all. It is possible that breads were cooked on metal griddles or flat stones, which were again either placed directly in the fire or heated by embers (McLaren et al. 2004, 20), the latter leaving little trace in the archaeological record.

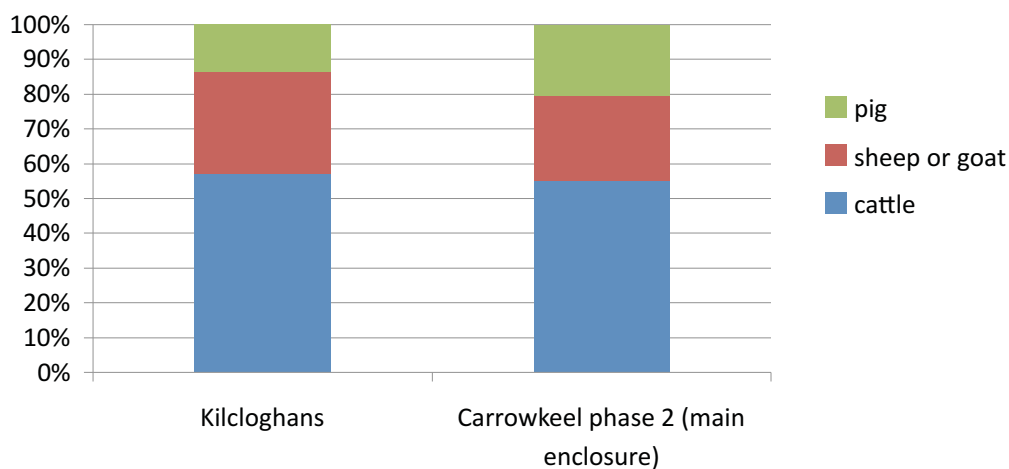
Porridges and gruels were undoubtedly prepared over a fire, but the archaeological record can provide further detail on the techniques employed. While the use of domestic ceramic vessels was geographically restricted, Souterrain Ware was encountered during excavations at Moyle Big, Co. Carlow, some distance outside its main distribution zone. Sooting on the external surfaces of sherds from this assemblage indicates that the vessels were used for cooking. Furthermore, residue adhering to the internal surfaces of a number of these sherds represents the carbonised remains of a food that was cooked in these pots. The sooting pattern present on a small number of these sherds indicates that cooking was carried out by placing the vessel directly in the hearth rather than by suspension. This is evidenced by the presence of soot on the vessel walls accompanied by an absence of soot on the base (Rice 1987, 235), which would not have been exposed to soot as it would have been obscured by embers.

While Souterrain Ware was undoubtedly commonly used for cooking, it is also possible that vessels were used for storage, as either a primary or secondary function (Kyle 2007, 79). Metal, wood and leather alternatives would have been used in the absence of ceramics, but

organic materials rarely survive in the archaeological record. Excavations at the Kilcloghans ringfort recovered two iron bucket hoops (Illus. 7) and a possible bucket handle. While none of the wooden components of the bucket survived, we can use the presence of these metal objects to infer the presence of a wooden bucket that may have been used to feed livestock, for milking or to store foodstuffs.

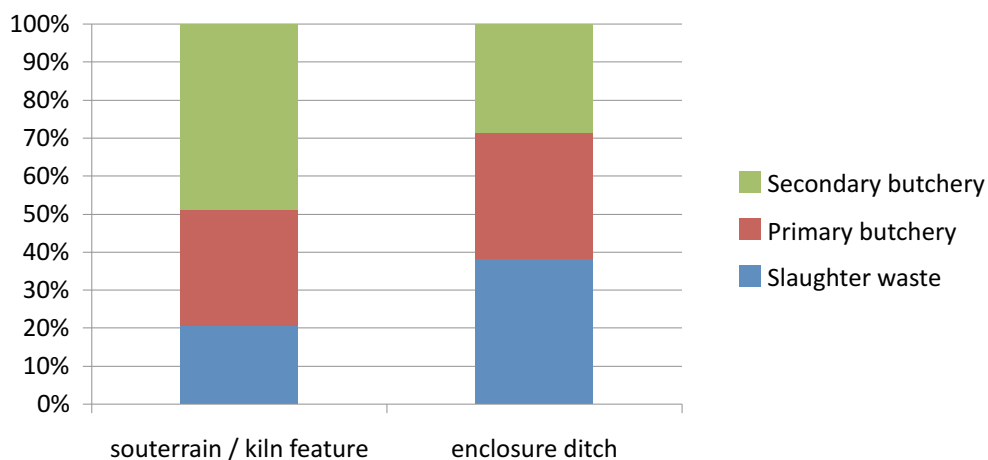
Consumption

In the absence of direct evidence for consumption, such as human faeces, we have to make certain assumptions and inferences based on indirect evidence. While primarily a physical necessity, the consumption of food is, in all societies, a social action that both reflects and consolidates social positions (Jones 2007; van der Veen 2003). This seems to have been particularly true in early medieval Ireland. According to the contemporary law-tracts, Irish society was organised in distinctive hierarchical layers based on a client–lord relationship (Gerriets 1983; Kelly 2005, 29–38). This relationship required the lord to provide land, livestock and protection for his clients, and in return his clients were required to pay food rents to the lord. If this was in fact the case, consumption in early medieval Ireland may be said to be two-tiered, with low-level consumption representing the family or household and high-level consumption representing the client–lord relationship, which may have involved aspects of feasting.



Illus. 8—The proportions of cattle, sheep or goat and pig (Number of Identified Specimens [NISP]) at Kilcloghans and Carrowkeel.

In the written records cattle are valued most highly, while sheep and pigs receive less emphasis (Kelly 2000, 27). This very same emphasis—the domination of cattle, followed by either sheep or pig—can be seen in most of the animal bone assemblages recovered from excavated sites (McCormick & Murray 2007, 104), regardless of the status of their former inhabitants. This might imply that animal husbandry was very static in early medieval Ireland and that the same patterns of production were used at all sites (Illus. 8). Nevertheless, though similar bone assemblages are recovered from different site types, it remains possible that different consumption patterns are present.



Illus. 9—Differences in the anatomical distribution of cattle (NISP) at Ballyvass, Co. Kildare.

Food rent included both live animals and meat (Kelly 2000, 320). Part of the food rent was likely to be transported into a lord's household for consumption, but one form of food rent involved feasting in the client's household (*ibid.*, 320, 357). The anatomical distribution, i.e. the proportion of different body parts present, created by feasting may be difficult to identify from normal consumption if complete animals were consumed (McCormick 2002, 29–31). This type of feasting in several locations will not create great differences in the animal bone assemblages. Young male animals formed a large part of the food rent (Kelly 2000, 59–62, 72, 87), however, and it might be expected that the bones of these animals were more likely to accumulate at the higher-status settlements, even if mixed with normal household waste. Therefore the age and sex distribution of the consumed animals within the same species might prove to be a useful tool when analysing the social status of the sites.

Plant food consumption was also constrained by social custom. For instance, bread wheat was considered the highest-status cereal, followed by rye, oats, barley and other wheat species, such as spelt and emmer (Kelly 2000, 219). Peas and beans were regarded as having the least status and their cultivation may have been seen as 'women's work' (Ó Corráin 2005, 567).

The grain species distribution at the discussed sites seems to correspond to the status accorded them in the law-tracts. Oats and barley dominate the grain assemblages at these sites, while bread wheat is the least abundant. This seems to reflect the low-status nature of the four sites.

At Kilcloghans a horse bone (pelvis) with cut marks was recovered. According to the historical sources, horseflesh was not consumed during this period (Kelly 2000, 352–3), but it is not yet clear whether this rule was always obeyed (Murray & McCormick 2005, 73). The presence of horse bones does not necessarily indicate horseflesh consumption: horses could have been used for their skin, bones and hair (Rackham 2004, 20–1). Thus cut marks on horse bones might reflect skinning or dismemberment rather than consumption (*ibid.*). The location of the cut marks on the Kilcloghans horse pelvis—on the surface articulating against the spine—is significant as they relate to dismemberment rather than defleshing for consumption.

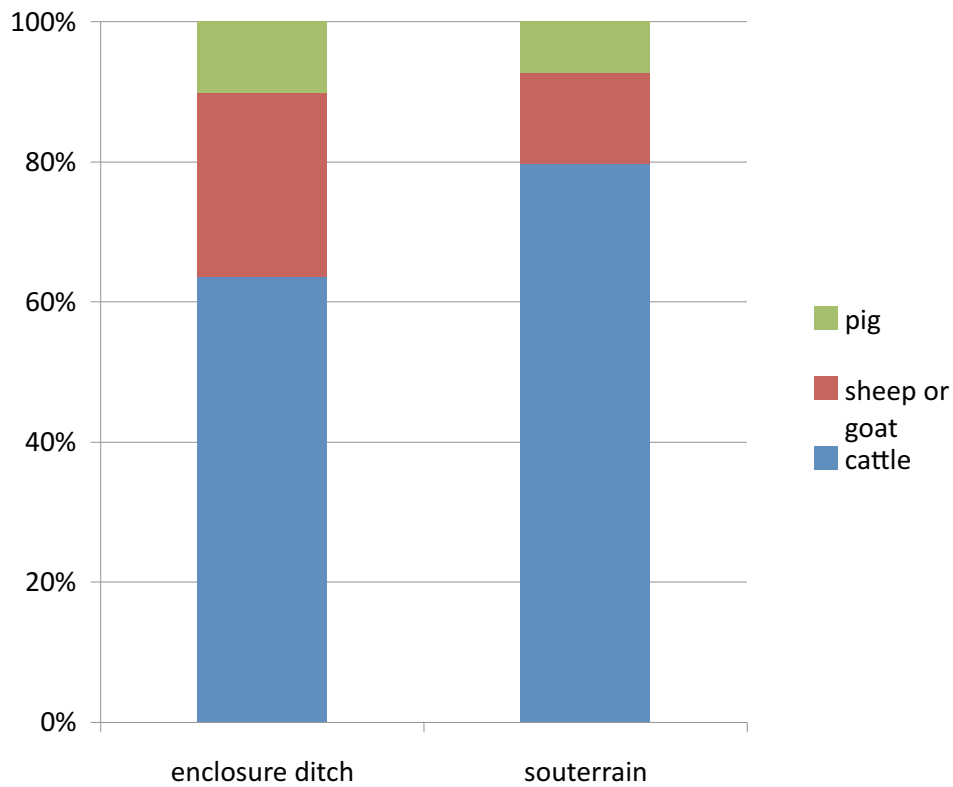
At Ballyvass ringfort, evidence of consumption was present in the animal bone material from a possible souterrain, or subterranean passage, within the ringfort, which was reused as a kiln (Doyle, this volume) (Illus. 9). The animal bones from this feature were predominantly food waste, compared with the higher levels of slaughter waste recovered from the enclosure ditch. This difference may reflect spatial differentiation in the activities at the site (see below).

An example of the usefulness of integrating various strands of evidence is apparent at Kilcloghans. The artefactual, archaeobotanical and faunal evidence all indicated domestic activities. The archaeobotanical and faunal evidence, however, indicated a difference in the species present between the enclosure and the souterrain (Illus. 10 & 11).

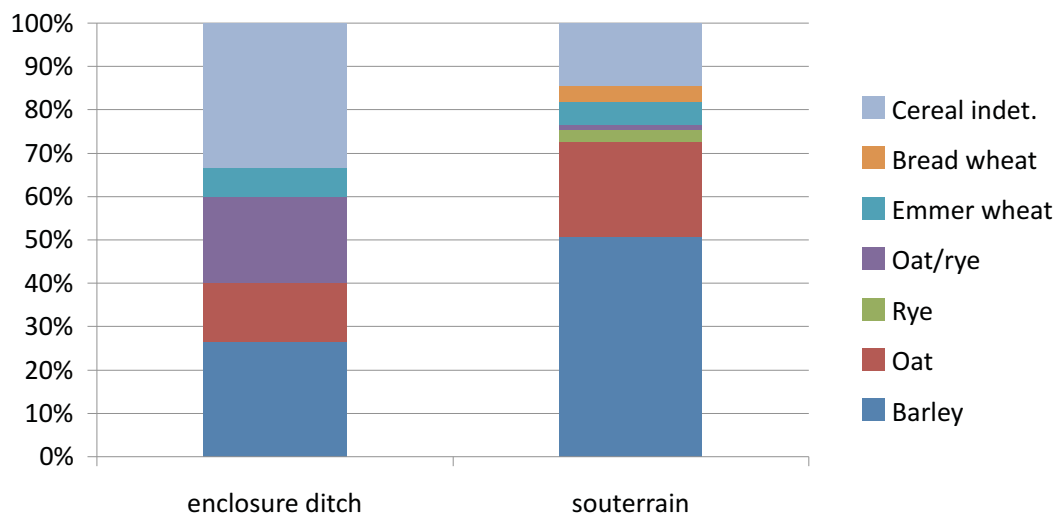
As can be seen in Illus. 10, the souterrain contained more cattle bones than the enclosure ditch. Also, the souterrain was found to contain evidence of bread wheat, which was absent from the enclosure ditch. Unfortunately, these features date from the same period and their respective chronologies are not clear. Nevertheless, the environmental evidence may allow us to identify a change in the activities at the site even within one archaeological phase. This could be an indication of the dynamic nature of early medieval society. McCormick and Murray (2007, 108–9) have proposed that the decreasing numbers of cattle in archaeological assemblages are linked to the decreasing importance of cattle as a currency as the early medieval period progressed. The accumulation of environmental evidence such as that recovered at Kilcloghans will contribute to our understanding of the social framework of society in the early medieval period. At the moment the evidence for this period in the Galway region, as well as the absence of an absolute chronology at the site, does not allow us to test the data from this site against the model proposed by McCormick and Murray.

Conclusion

The excavations undertaken under the remit of the NRA's policy of archaeological excavation have produced a wealth of evidence relating to the early medieval period. The transects across the landscape that are excavated in advance of road projects produce a less biased sample of the archaeological landscape than the more selective research-led excavations. This allows for the analysis of sites that might otherwise go undetected and unremarked. Environmental evidence is recovered from most excavated early medieval sites; the wider the range of site types excavated, the more we can use these data to build interpretative frameworks for the production, processing, consumption and disposal of foodstuffs in early medieval Ireland. The faunal evidence, for example, is broadly similar across all of the sites discussed, even taking into account their disparate characters, as well as in comparison with larger, higher-status sites such as Knowth (McCormick & Murray 2007). The archaeobotanical evidence is likewise broadly similar, constrained as it is by the limited suite of cereals cultivated during the early medieval period. As discussed above regarding Ballyvass, however, small changes in this record, in association with the historical sources, can tell us a great deal about the inhabitants of the sites. The material culture recovered from ringforts throughout Ireland is generally homogeneous, deriving from the daily domestic tasks that were carried out on occupation sites, regardless of status. In contrast, while such 'mundane' artefacts are found at higher-status sites, prestige items, such



Illus. 10—Species composition of animal bone (NISP) from within the ringfort ditch and the souterrain at Kilcloghans.



Illus. 11—Species composition of the cereal grains from the ringfort ditch and souterrain at Kilcloghans.

as dress ornaments and objects made from special or rare materials or of unusual form, are frequently recovered. This was the case at Ballyvass (see Doyle, this volume), while only the ubiquitous domestic objects were recovered from Kilcloghans and Carrowkeel.

Environmental and artefactual evidence recovered in the course of these excavations has shed light on the types of food people ate in the early medieval period and the different ways in which that food was prepared and the contexts within which it was consumed. The various strands of evidence—artefactual, archaeobotanical and faunal—allow us to make comparisons not only between sites but also within sites. This allows different interpretations to be tested against multiple classes of evidence, thereby refining our understanding and knowledge of the ways of life of the people who inhabited these sites.

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Notes

1. Kilcloghans: NGR 142990, 253830; height 46 m OD; excavation licence no. 06E1139.
2. Carrowkeel: NGR 159326, 22349; height 45 m OD; excavation reg. no. E2046; ministerial direction no. A024; RMP no. GA097-066.
3. Moyle Big: NGR 277216, 173509; height 200–300 m OD; excavation reg. no. E2598; ministerial direction no. A021.
4. Ballyvass: NGR 276870, 187816; height 96–8 m OD; excavation reg. no. E2996; ministerial direction no. A021.