5. ECOFACTS

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5.1 Background

A total of 104 bulk samples were submitted for environmental analyses from the excavation undertaken at Grantown Road, Forres, Moray. The samples were collected from Areas C, D, E, G, and H from a series of Neolithic to Iron Age features, including pits, a palisade and post-ring structures, an early medieval pit, and two medieval pits. The environmental finds were composed of carbonised macroplants and charcoal. The full report is included within the site archive.

5.2 Methodology

The bulk samples were processed in their entirety in laboratory conditions using a flotation method designed to retrieve both ecofacts and artefacts (cf Kenward et al 1980).

5.3 Results

5.3.1 The macroplant

A total of 3,080 carbonised macroplant remains were analysed from 59 contexts from Areas C, D, E, G, and H. The assemblage was formed of crops, wild food, and weed taxa. The cereal numbered 1,743 of which there were 1,693 caryopses, one spikelet, one rachis, and 48 culm nodes. The species were cultivated oats (*Avena sativa* L), oats (Avena sp), hulled barley (*Hordeum vulgare* L), naked barley (*Hordeum* var *nudum* L), barley (*Hordeum* sp), rye (*Secale* sp), emmer (*Triticum dicoccum* L), bread/club wheat (cf *Triticum aestivum/compactum* L), wheat (*Triticum* sp), and wheat/rye (*Triticum/Secale* sp). The cereal remains were localised in the early medieval Pit [1110] in Area D and medieval Pits [1010] and [1057] in Area E. The rest of the assemblage was scattered throughout the site in small numbers with no evidence of selective or deliberate disposal.

Other evidence for the cultivation of crops was 11 flax (*Linum usitatissimum* L) seeds which were present in three undated pits, all located within Area D.

The wild food sources were hazelnut (*Corylus avellana* L), blackthorn (*Prunus spinosa* L), and raspberry (*Rubus idaeus* L). A minimum of 710 hazelnut shell fragments were counted from 33 contexts. These finds were concentrated within three pits, [1129], [1134], and [1150], all in Area C associated with Neolithic activity.

The weed assemblage totalled 613 and was present in 24 contexts. The weed species were concentrated within Pit [1119], which had 373, followed by medieval Pits [1010] with 141 and [1057] with 40. The remainder of the assemblage was scattered throughout the site with no evidence of selective or deliberate disposal.

5.3.2 The charcoal assemblage

The charcoal assemblage (539.3g) was recovered from 89 contexts and 656 fragments were identified to species. The species were alder (*Alnus glutinosa* L), birch (*Betula* sp), hazel (*Corylus avellana* L), apple/rowan (*Maloideae/Sorbus* sp), cherry (*Prunus* sp), oak (*Quercus* sp), and pine (*Pinus* sp). Preservation of the charcoal ranged from poor to good. The full results are available in the site archive report.

5.4 Discussion by period

5.4.1 Neolithic

Twenty cereal caryopses were recovered from 12 pits and postholes dated to the Neolithic in Areas C and E. There were four hulled barley, three barley, one oat, and 12 poorly preserved indeterminate cereal caryopses. The absence of any chaff fragments suggests that cereal processing did not occur in this location or that the crop waste was disposed of elsewhere. The cereal is domestic food debris but given the small number recovered it is possible this resource had a more minor role within the economy of this site.

A total of 574 hazelnut fragments were collected from ten features in Area C and eight in Area E. The hazelnut was concentrated in three cluster Pits [1129], [1134], and [1150], from which 300 fragments were semi-quantified. Two blackthorn stones were recorded in Neolithic Postholes [1004] and [1028] in Area E. These plants were collected from the wild and used as a food source. Hazelnuts in particular were an important part of the diet during this early phase of occupation.

Eight weeds were recovered from Posthole [1162] and Pit [1146] in Area C and Pits [1020] and

[1038] in Area E. The species were two marshworts, one fat hen, three goosefoot, one pale periscaria, and one dock. These species probably grew in the surrounding landscape and were charred accidently.

The wood species were oak (58%), alder (11%), hazel (9%), pine (9%), birch (7%), apple/rowan (5%), and cherry (1%). These species were all utilised for fuel, but oak was selected for construction.

5.4.2 Iron Age

There were 173 cereal caryopses, one spikelet, and 44 culm nodes scattered among five slots in the palisade, in two external pits, and four deposits in the structure all located in Area G. The species were hulled barley (54%), barley (16%), oats (5%), emmer (1%), wheat (1%), and cereal (23%). These finds were concentrated in external Pit [1069] which had 152 caryopses and 43 culm nodes. The mix of cereal caryopses and culm nodes in this pit is possible evidence for the disposal of some crop processing waste. Twenty fragments of hazelnut shell were scattered among two slots, (1003A) and (1003C), in Palisade [1002], Pits [1065] and [1069], and Postholes [1071] and [1077]. The hazelnut has accrued through the reworking of food residue into these features. Weed species, numbering 15, were recovered from one slot, [1003D], located in Palisade [1002], as well as Pit [1069] and Postpipe [1083]. The species were one fat hen, seven black bindweed, one hemp-nettle, two nipplewort, two buttercup, one wild radish, and one corn spurrey. The weeds were likely plants that grew alongside the crops and were accidently introduced to the site. The charcoal species were oak (38%), hazel (34%), alder (18%), birch (8%), heather (1%), and pine (1%). Single external Pit [1067] had the largest concentration of charcoal present on site, composed entirely of hazel which may have formed part of a structural element. The rest of the charcoal from this period was formed of fuel debris.

5.4.3 Early medieval

In Pit [1110], there were 455 cereal caryopses identified as oats (42%), hulled barley (27.4%), barley (15.2%), naked barley (0.2%), and cereal (15.2%). There was no evidence that crop processing took place in this location. Instead, these finds are domestic food refuse. There were three fragments of hazelnut in Pit [1110], which are domestic food refuse. The weeds numbered eleven and the species were one fat hen, three black bindweed, one hemp-nettle, two nipplewort, and four wild radish. These finds are probably accidental inclusions within the crops. The wood species present in this phase were oak (70%), hazel (20%), birch (5%), and cherry (5%). These remains are fuel debris.

5.4.4 Medieval

A total of 730 cereal caryopses and one culm node were recovered from the two medieval pits located in Area E. The species were oats (49.4%), rye (12%), hulled barley (10.2%), barley (4.5%), wheat/rye (2.7%), cultivated oats (1.5%), naked barley (0.3%), bread/club wheat (0.3%), emmer (0.1%), and cereal (19%). The cereal is domestic food debris and perhaps, given the presence of a culm node and weed processing waste, from threshing and winnowing. Three fragments of hazelnut shell were recorded in Pit [1010] and one raspberry seed in Pit [1057]. These finds represent the collection and discard of wild resources collected for food. The weed assemblage was focused within Pit [1010], which had 131 and Pit [1057] with 40. The species were nipplewort (33%), hemp-nettle (18%), corn spurrey (10%), cabbage/mustard (7%), lady's mantles (5%), wild radish (5%), knapweeds (4%), fat hen (4%), pale persicaria (4%), knotgrass (3%), sedge (2%), black bindweed (2%), thistle (1%), grass (1%), and dock (1%). The weeds are agricultural contaminates of the crops and from plants growing in the surrounding landscape. The wood species were dominated by oak (66%) followed by alder (16%), hazel (10%), birch (4%), apple/rowan (2%), and pine (2%). These fragments were mostly fuel debris but there was evidence of an oak post.

5.5 Summary of crops

Cereal remains were recovered from all phases of occupation, but these were concentrated within the early medieval and medieval pits. While the assemblage from the earlier Neolithic and Iron Age periods was small it was still possible to identify evidence of agricultural changes within the economy of this site. Hulled barley was recovered from all

periods of occupation, which is not unsurprising as this species has traditionally been among the more important cultivated crops in Scotland since the Neolithic (Bishop et al 2010: 77; Dickson & Dickson 2000: 231). This is because barley is more tolerant of poor soil conditions which other species struggle to successfully adapt to (Dickson & Dickson 2000: 233; Renfrew 1973: 81). Hulled barley appears to have been more important in the early stages of occupation but by the early medieval and medieval periods oats had emerged as an important crop. It therefore appears that at Grantown Road hulled barley was replaced by oats as the site developed. This pattern of crop exploitation has been noted at other Scottish archaeological sites. Hulled barley was an important crop at prehistoric sites throughout Scotland including East Beechwood Farm, Inverness (Robertson forthcoming a), Bertha Park, Perth (Robertson 2020), West Link Road, Inverness (Robertson forthcoming b), Lewiston, Drumnadrochit (Robertson forthcoming c), and at Kintore in Aberdeenshire (Holden 2002). Hulled barley and oats were the main crops at medieval sites in Perth High Street and at Bon Accord, Aberdeen (Fraser & Smith 2011: 75; Robertson 2021).

Small numbers of naked barley and emmer were recovered from the early medieval and medieval phases. These two species have been identified as important crops during the Scottish Neolithic (Bishop et al 2010: 77). However, given their absence in the earlier stages of occupation and the small numbers present in the later phases, these are probably a weed of the main oat and hulled barley crops. Bread/club wheat is a common find among medieval sites especially from those classified as high-status. This species was noted in small numbers at Grantown Road in the medieval phase of occupation (Dickson & Dickson 2000: 237). To successfully cultivate bread/club wheat on a large scale requires very specific soil and climate conditions (Renfrew 1973: 65). It is unlikely the growing conditions needed to cultivate substantial yields of bread/club wheat existed at this site. It is more likely that bread/club wheat was cultivated on a small scale or was imported as a luxury food item. There was no significant evidence of crop processing in any of the occupation phases. This suggests that processing of cereals either occurred in a separate location outwith the excavated area or that the chaff fragments were inadvertently removed from the macroplant assemblage.

A small number of flax seeds were recovered from three undated pits in Area D. Flax has been cultivated in Scotland as early as the prehistoric period and has multiple economic uses. It has been used to produce linseed oil, food, and linen (Dickson & Dickson 2000: 68, 253–4). What role the flax had at this site is unclear but at some stage during its occupation the inhabitants had access to this resource.

5.6 The wild food remains

5.6.1 Hazelnuts

The presence of hazelnut in all phases demonstrates that this resource was continually accessible but was particularly important during the Neolithic period. Hazelnuts are a common find at many Scottish archaeological sites due to the density of the shell and their ability to survive in most environmental conditions. The shells are often deliberately exposed to heat during roasting and are sometimes recycled as a kindling material or disposed of in fires during cleaning (Bishop et al 2010). Hazelnuts are seasonally available, nutritious, and easy to store long term which made them a popular food source throughout the Scottish prehistoric and medieval period.

The hazelnuts from Grantown Road were all composed of small concentrations of fragmented shells suggesting they have derived primarily from discarded domestic food debris. There was no surviving evidence that any of these finds had accumulated from large scale food processing such as storing or roasting large caches (Bishop 2019).

5.6.2 Fruits

Unlike hazelnuts, soft fruits such as blackthorn and raspberry are usually not deliberately exposed to heat so are therefore underrepresented within the archaeobotanical record. Therefore, the economic importance of fruits within the diet of the inhabitants at Grantown Road is difficult to fully interpret. What is apparent is that fruits alongside nuts were gathered when the season allowed.

5.6.3 The weed taxa

Even through the weed species were concentrated within the medieval phase, the species recovered from throughout the site tended to be similar. The weed species generally favoured agricultural fields, waste ground, and sandy acidic soils. Species such as sedge and buttercup which are usually found in damper soils were a minor component within this assemblage. This indicates that the surrounding landscape was dominated by acidic soils which experienced little environmental change from the prehistoric to the medieval period. Some of these weed species, such as cabbage/mustard, fat hen, pale persicaria, hemp-nettle, corn spurrey, and common chickweed, do have some economic and dietary value. These species have been deliberately collected from the prehistoric onwards for food, especially in times of famine (Renfrew 1973; Smith 1999: 331). Many of these plants also have a high nutritional value and could have been used to add flavour to cereal pottage made from the cultivated cereal crops (Renfrew 1993: 24). There is, however, no conclusive evidence that any of these species were deliberately collected for use in any of these capacities. Instead, most of these are agricultural contaminants or derived from plants that grew locally and were accidentally charred. Species such as sedge and grass have also been used as flooring, building material, or for fuel, as occurred at Oakbank Crannog, Cults Loch, and Black Loch where they were interpreted as forming floor layers (Miller 2002: 41; Robertson 2018: 85; Robertson & Roy 2019: 11–12). What construction role, if any, these plants had at Grantown Road is unclear given the small size of the carbonised assemblage.

5.7 Summary of the wood

The wood species found at Grantown Road are all native and would have grown locally in the surrounding landscape. Alder and birch normally favour more damp habitats, hazel and cherry tend to grow in hedgerows, scrub, and woodland while oak tends to grow wherever the soil and climate permits. Apple/rowan is found in rocky habitats and pine is typically found in more acidic soils (Linford 2009; Stace 2010; Martynoga 2012). The charcoal assemblage is dominated by fuel debris but there is some evidence for the burning of discrete structural elements such as posts and stakes. All the wood species were used as a fuel source, whereas oak and hazel were favoured for construction. The main wood species such as alder, birch, hazel, and oak were consistently exploited whereas heather, apple/rowan, cherry, and pine had a much more marginal role within this economy. As the heather, cherry, apple/rowan, and pine were concentrated within the earlier prehistoric phases it is possible that during the medieval period these trees were no longer as easily accessible or that they were no longer preferred as cultural attitudes to exploitation of wild resources changed.

5.8 Conclusion

The macroplant and charcoal assemblages from Grantown Road are composed of domestic food, fuel debris and some small structural elements. While the ecofacts assemblages were not overly large it was still possible to identify changes in how plants were exploited at this site. It appears that in the early stage of occupation the favoured crop was hulled barley and this began to change in the later stages where oats gained in popularity and had an important role within this economy. Access to woodland resources was relatively consistent in that the main wood species remained accessible for fuel and construction. However, wood species such as heather, cherry, and apple/rowan became underrepresented within the later assemblage, suggesting that the woodland surrounding the site was less diverse. Regardless, it is clear that the population living at this multi-phase site had access to a range of plant resources used for food, fuel, and construction.