

Assessment of the Animal Bone from the Shiant Isles

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Animal bones recovered from excavations carried out by Patrick Foster and a team of volunteers between 2000 to 2006 from Eilean an Tighe and Garbh Eilean in the Shiant Isles were assessed by the author at Cardiff University Osteoarchaeology laboratory in the week beginning 4th December 2006. Phasing information was gained from the reports on the 2004 and 2005 seasons (Foster n.d.; Foster *et al* n.d.) and the overall animal bone record. The assemblage is thought to be largely post medieval, with a small number of contexts dating from the Iron Age and Early Med periods. Most of the material comes from the post-medieval blackhouse midden and its surrounding area on Eilean an Tighe (HI 15). However, a significant amount of material also derives from Iron Age contexts on Eilean an Tighe and also the roundhouse at Annat on Garbh Eilean (RI 41B), with contexts ranging from the Iron Age, Norse and post medieval periods.

All specimens from all contexts were scanned and fragments identifiable to species quantified with the exception of the upper midden (HI 15B, context 30) for which approximately 50% were assessed. Bones and teeth for which measurements could be taken or age ascertained were also noted along with any modifications that were evident. Condition of the bone was noted for each bag on a scale of one to five, where one was excellent, with surface features such as cut marks, gnaw marks and pathology well-preserved and five is very poor with fragments not identifiable beyond 'bone'. A summary of the quantified data is presented in table 1.

The Assemblage

The assessment indicated that bird specimens dominate the assemblage, followed by sheep and fish. Certain trends prevail throughout the assemblages, although there is some variation in species frequency between the different periods and areas of the sites, as indicated in table 1 and summarised in figure 1. Size and morphological variation indicate a range of bird taxa and a number of fish species is present (although the overall impression is that gadids predominate). Other taxa represented include red deer, whale (including one worked specimen) and seal.

A broad range of elements were present for all species in each area of the site. At this stage there is no obvious indication of specialist processing or regulated depositional activity in a specific area, and the quantity and diversity of remains in the upper midden (House Island B) suggests that complete skeletons were processed. Initial examination does not indicate any unusual preponderance of certain elements, as it appears that more resilient and diagnostic elements such as teeth, mandibles and tibiae are most common.

A large number of ageable elements, jaws and teeth were present in the assemblage. Consequently it should be possible to establish an ageing sequence. Individuals of a range of age groups were represented for all of the main taxa. Neonatal and juvenile remains were common in sheep and, to a lesser extent, in cattle, although jaws and teeth in advanced wear stages were also present within the assemblage. Bones from most contexts were relatively well preserved with the majority being rated as three or four on the preservation scale. A large number of measurable specimens were also present, many of which came from birds. This should facilitate a metric comparison with analogous assemblages.

The species identified along with quantification data are presented in table 1. As noted below phasing information could not be ascertained for all contexts and therefore more accurate data may be gained with more detailed phasing. The number of ageable and measurable fragments from each area/period is summarised in table 2. At this stage of analysis few signs of butchery were observed; with cut marks evident on sheep and cattle long bones and also on part of a seal skull. In addition a worked whale mandible 'spatula' was recovered. Some modifications are likely to have been overlooked as a result of the unwashed state of the material as sediment adhering to the bones is likely to obscure modifications.

Table 1: Number of Identified Specimens

	Period	COW	SHEEP	PIG	HORSE	BIRD	FISH	OTHER	UNID	TOTAL	% ID
HI 15G - External area N of blackhouse	Iron Age	30	81	1	0	19	5	8	162	309	48
RI 41B - The roundhouse*	Iron Age	4	23	1	0	267	1	9	253	558	55
HI 15A - The blackhouse	Iron Age	3	5	0	0	15	0	4	69	96	28
RI 41B - The roundhouse	Early Med Phase 1	0	5	0	0	16	0	7	65	93	30
RI 41B - The roundhouse	Early Med Phase 2	0	0	0	0	1	0	2	0	3	100
RI 41B - The roundhouse	Early Med Phase 3	0	0	0	0	0	10	1	2	13	85
HI 15A - The blackhouse **	Medieval/Post Medieval	16	143	2	0	237	9	5	277	690	60
HI 15E - Enclosure W of blackhouse	Post Medieval	20	53	1	0	20	82	8	488	680	28
HI 15F - Enclosure S of blackhouse	Post Medieval	51	129	3	4	20	6	9	559	763	27
HI 15B - Lower midden within barn	Post Medieval	49	326	6	2	174	54	60	932	1603	42
HI 15C - Winnowing barn ***	Post Medieval	14	95	0	8	1194	20	1	338	1670	80
HI 15B - Upper midden within barn ****	Post Medieval	238	1654	42	2	5068	2204	182	6902	16292	58
RI 41B - The roundhouse	18th Century	0	0	0	0	17	0	35	8	44	82
RI 41B - The roundhouse	Destruction Period	0	1	0	0	2	0	0	16	19	16
HI 15D - Paved area outside blackhouse	-	1	0	0	0	0	0	0	2	3	33
Test Pit 3	-	0	0	0	0	0	0	0	39	39	0
Test Pit 4	-	1	0	0	0	0	0	0	6	7	14
Test Pit 12	-	0	0	0	0	0	0	0	20	20	0
		427	2515	56	15	7050	2391	331	10138	22902	

* Contexts 67 and 78 are treated as Iron Age although this was not explicitly indicated in the reports. Therefore the Iron Age data has not been split into late Iron Age phase 1 and late Iron Age phase 2.

** HI 15A: although not all contexts are mentioned in the text, it is assumed that all contexts following 139 are of Iron Age date as it is stated in text that Iron Age context 139 extends over the whole excavation area.

*** HI 15C: all contexts containing bone are treated as post medieval, as only context 170 (which contains no bone) is noted as Iron Age in the report.

**** HI 15B: context 30 (upper blackhouse midden) was represented by 4 boxes of bones of which only 2 were examined. Therefore figures in the tables are estimates derived from this 50% sample.

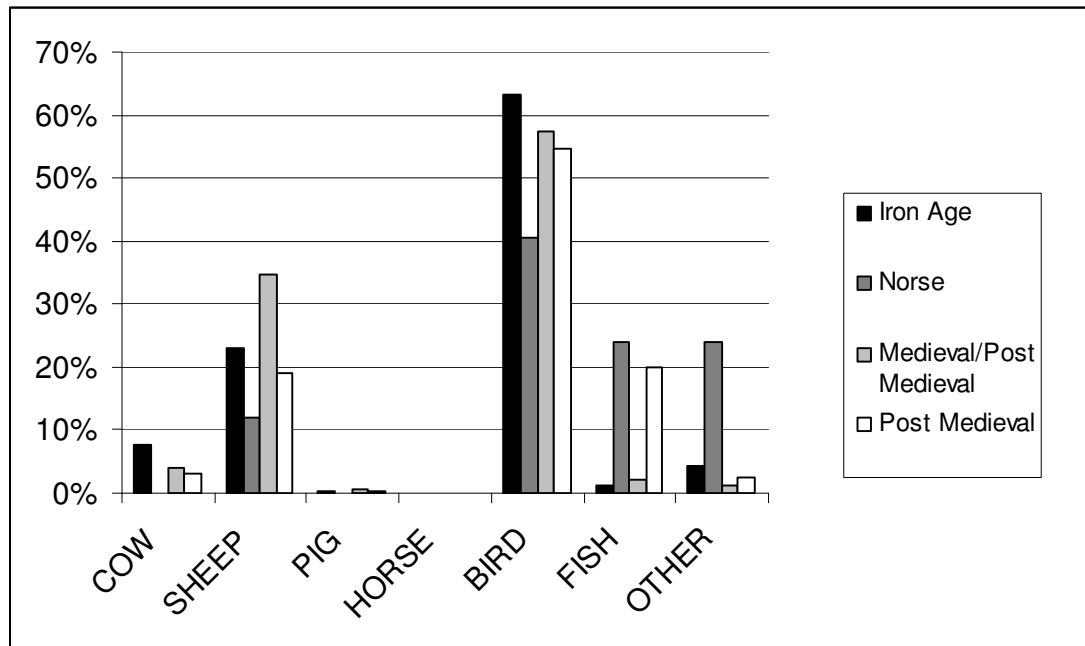


Figure 1. Percentage NISP of the main species and groups by phase.

	Measurable Bones	Ageable elements, jaws and teeth
HI 15G - External area N of blackhouse (Iron Age)	64	58
RI 41B - The roundhouse (Iron Age) *	113	14
HI 15A - The blackhouse (Iron Age) **	14	4
RI 41B - The roundhouse (EMed P1)	7	0
RI 41B - The roundhouse (EMed P2)	1	0
RI 41B - The roundhouse (EMed P3)	0	0
HI 15A - The blackhouse (med/post med)	147	82
HI 15E - Enclosure W of blackhouse (post med)	26	22
HI 15F - Enclosure S of blackhouse (post med)	32	75
HI 15B - Lower Midden within barn (post med)	203	198
HI 15C - Winnowing barn (post med) ***	558	50
HI 15B - Upper midden within barn (post med) ****	2408	1134
RI 41B - The roundhouse (18th Century)	1	0
RI 41B - The roundhouse (Destruction)	2	0
HI 15D - Paved area outside blackhouse	0	0
Test Pit 3	0	0
Test Pit 4	0	0
Test Pit 12	0	0
TOTAL	2372	1070

Table 2: Number of Measurable and Ageable elements

Discussion

In the Iron Age, medieval and post-medieval assemblages there is a very high proportion of bird bone relative to the other species. This may be partially accounted for by the methodology employed for the purposes of this assessment, with birds and fish not being identified to species. In spite of this, it is clear that birds played an important role on the islands. The Shiant is well known as a haven for certain species of birds, with large numbers residing on the steep cliffs. The Shiant Isles website

(<http://www.shiantisles.net>) states that there is an estimated 240,000 puffins (2% of the worlds population), 15,000-18,000 guillemots, 8,000-11,000 razorbills, 4,000-6,000 fulmars, 2,000 kittiwakes and 1,500 shags. These are modern figures and cannot be compared in any meaningful way to the assemblage, but nonetheless show that the Shiant provide a good habitat for birds. Therefore the very large number of bird bones may be largely the result of the environment in which Shiant islanders lived. Birds are likely to have been plentiful and could probably have been snared or captured with relative ease.

Sites for comparison are readily available for the Iron Age material. Figure 2 shows the exceptional nature of the assemblages from the Shiant, with both Garbh Eilean and Eilean an Tighe showing a higher proportion of bird bones than any of the other Hebridean sites. The assemblage from Garbh Eilean is particularly exceptional with 88% of identified specimens deriving from birds, although any interpretation must be qualified by the relatively small size of this assemblage, with 304 identified specimens. It seems clear that during the Iron Age the exploitation of birds was more important to the Shiant Isles than other islands of the Hebrides, although they also made an important economic contribution at Pabbay (Cartledge 2000: 268) and Bornais Mound 1 (Cartledge nd).

Detailed age profiles of domesticates, combined with analysis of health indicators, has the potential to indicate whether fowling was especially important as a result of an unsuccessful agricultural economy. Initial impressions of age distribution indicate that neonatal remains are relatively common, especially in sheep. Mulville (2000b) has suggested that a large proportion of neonatal sheep and cattle remains on the island of Mingulay, are indicative of a failing agricultural economy, which is supplemented to a minor degree by wild species. The very small size of the islands, with a lack of suitable grazing land would limit the potential for large flocks/herds of domestic animals. Wild resources could therefore play a crucial supplementary role. This may provide an explanation as to the large proportion of birds in the Shiant assemblage. Dodgshon (2004) highlighted what a risk-laden environment the Western Isles were and that low order crises would have affected communities on a regular basis. Having access to the ecological diversity of the island environment would have been central to communities' survival (Dodgshon 2004: 15).

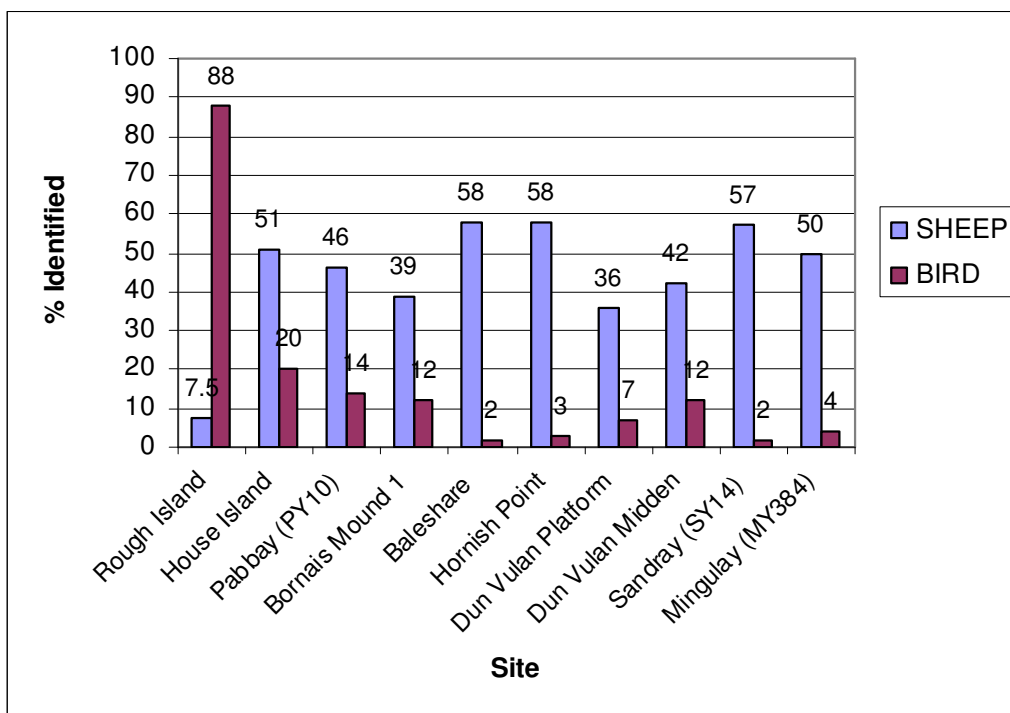


Figure 2. Comparison of the proportion of sheep and birds in the Shiant Isles' Iron Age assemblages

with other sites Hebridean Iron Age assemblages.

Given the environment, it might be expected that fish would also have been a vital resource for the prehistoric inhabitants of the islands. Research has shown fish to be a commonly exploited resource on other small Hebridean islands. Fish remains comprise 63% of identified specimens from the Iron Age assemblage from Sandray, 29% from Pabbay and 12% from Mingulay (Mulville 2000a, 2000b), with members of the cod family being best represented in each case. There is no evidence that fish made an important economic contribution on the Shiant Isles as the assemblage comprises only 1% fish. Indeed it appears that birds may have been plentiful enough to provide additional dietary input and the large scale exploitation of fish was therefore not necessary, unlike at Sandray and Pabbay.

The tiny Early Medieval (Pictish) assemblage has similarities with other similar Hebridean assemblages with an increasing reliance on fish relative to the Iron Age however a larger sample would be needed to draw any firm conclusions.

There is very little published work on assemblages comparable to that of the blackhouse and associated buildings/middens on Eilean an Tighe and the roundhouse on Garbh Eilean. Ethnographic information and historical accounts of the Shiant Isles provide some information regarding animal exploitation. Early nineteenth century accounts of the Shiant Isles mention 'visits to the shepherd' (e.g. MacCulloch 1819, 1824) and note that the isles provide good pasturage for sheep (Daniell 1820). Similarly Martin (c.1695, after Robson 2003) noted that the cattle on Eilean Mhuire (the other large island in the Shiant group) were fatter than any he had seen on Lewis and sheep are described as 'exceeding fat with long horns'. In addition, Headrick (1800) noted that sheep were better suited to the island's environment, as marginal areas of grazing land would not have been accessible to cattle. This is supported by the larger quantity of sheep bones recovered.

The source of the significant quantities of faunal material recovered from various areas around the blackhouse may be found in MacCulloch's 1824 description of a shepherd's dwelling as being surrounded by 'a collection of pools, and rubbish, and dirt, through which he can scarcely gain access to his door'. The preponderance of bird bones is also supported by ethnographic literature. In an account of the lives of the last family on the islands in the early twentieth century, MacGregor (1964) noted that the Campbells snared puffins for food and used their feathers to stuff pillows and mattresses. In addition in Martin Martin's accounts of life on the Shiant Isles, several references are made to customs surrounding the killing of fowl (Martin c.1695, after Robson 2003: 26-7). Morrisone (c. 1678-88) also highlighted the abundance of sea fowl, sheep and cattle on the Shiant Isles.

There is substantial evidence that birds were an important resource on other Hebridean Islands in history and prehistory. In 1549, Monro (1961) mentions that dried birds were used to pay rent on St. Kilda and a century later Moray (1678) and MacKenzie (1681-4) wrote at some length about fowling on the island, describing methods of snaring, and capturing fowl in their nests on cliff faces and striking them in flight with long poles. The birds were exploited for food, feathers and their fat used as a remedy for aches and pains. These authors allude to the importance of seabirds to the economy in describing how children are taught to climb at an early age and dogs trained to scale the cliffs and catch birds. In a study of the history of St. Kilda, Harman (1997) states that, in the 18th century, fulmars, gannets and puffins were the main prey species. Of those, young fulmars were favoured and harvested en masse in late summer and early autumn. Gannets and fulmars would both yield a substantial amount of meat, with gannets weighing 2.5-3.5kg and fulmars 0.75-1.5kg. Feathers would also have been a useful resource. Guillemots and razorbills were not favoured on St. Kilda (Connell 1887; Ross 1890).

The most notable contrast between the Iron Age and the later assemblages is in the increased exploitation of fish, they contributed only 1% to the identified Iron Age assemblage, whereas the later assemblages comprise 19% fish. Fish may have been relied upon more in the later phases of

occupation as a result of the over-exploitation of birds alternatively improvements in fishing technology may have also made this a more profitable, less labour intensive activity. Fishing was highlighted as a highly profitable activity in Monro's (1961) brief account of the Shiant Islands in 1549. Similarly Buchanan (1654) noted the importance of fish to the local population in the post-medieval period.

Throughout the occupation of the Shiant Islands, wild resources provided an important source of food. The small size of the islands would only provide for a small flock of sheep, in spite of writers such as Daniell (1820) highlighting that the pasturage on the Shiant Islands is of a very high quality. Resources such as birds and fish would be crucial in such a marginal environment.

Potential

The assemblage makes a significant contribution to the body of data of Hebridean Iron Age assemblages and also provides a large quantity of material from a blackhouse midden and associated contexts, a feature type which has received little attention in archaeological literature in the past. This medium sized assemblage is particularly interesting as a result of the large quantity of bird bones recovered from all periods and sites. As shown in figure 1, the proportion of bird bones is considerably higher than other Iron Age Hebridean sites. Analysis should therefore target the following areas:-

- Detailed analysis of species frequencies, with particular emphasis on the identification and quantification of bird and fish species to ascertain whether species representation is similar to other Hebridean assemblages or in accordance with applicable ethnographic accounts. This has the potential to provide details of the development and adaptation of wild species exploitation strategies in the Hebrides. Comparisons with other small islands (e.g. Mingulay, Sandray, Pabbay and St. Kilda) may be particularly enlightening, as a reliance on wild resources may be a feature of small island economies where the environment is not conducive to large scale husbandry. Also questions regarding the increasing importance of marginal areas and resources to the inhabitants of the Hebrides during the clearances of the second half of the 18th century, when land most suitable for grazing was regularly cleared of its native inhabitants. Resources from marginal areas such as the Shiant Islands may have been more intensively exploited at this time.
- Detailed comparison of age representation with comparable Hebridean sites, both Iron Age and where possible post medieval. This may give indications of seasonal exploitation strategies, the successfulness of the economy and reveal whether domestic mammals show similar age profiles as other Iron Age Hebridean assemblages. This will be interesting as it has been highlighted that neonatal domesticates are unusually prevalent in assemblages from the islands of Sandray (Mulville 2000a: 287) and Mingulay (Mulville 2000b: 305). In addition health indicators of domesticates will be analysed.
- Detailed analysis of anatomical distribution between sites, site sub-divisions and periods in order to ascertain exploitation strategies and possible areas of industry/activity.

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