

8 THE ENVIRONMENTAL EVIDENCE

8.1 *The animal bone, by C Smith*

The bulk of the animal bones and mollusc fragments from the site were recovered by hand-excavation, but two contexts from a midden in Phase 5 (contexts 22 and 38) were wet-sieved in order to retrieve small fish bones (full report [Smith 2009](#)).

8.1.1 Species present

The earliest phases on the site produced very little bone. Fragments identified only as indeterminate mammal bone were present in Phase 1–2 and Phase 2 (early medieval). Medieval Phases 2–3, 2–4 and 2–5 contained cattle, pig and indeterminate mammal fragments. In addition to these species, horse, sheep/goat and roe deer were present in medieval Phase 4.

The Phase 5 midden was, however, more productive and present in the hand-excavated contexts (18, 22 and 38) were the remains of cattle, sheep/goat, pig, horse, roe deer (*Capreolus capreolus*), dog, fox (*Vulpes vulpes*), domestic fowl (*Gallus gallus*), domestic/

greylag goose (*Anser anser*), amphibian (frog or toad), fish and small fragments of oyster (*Ostrea edulis*) and mussel (*Mytilus edule*) shell. Bones categorised only as large ungulate, small ungulate, indeterminate mammal and indeterminate bird were also recorded ([Table 3](#)). The sieved samples from two midden contexts contained a similar species range, although roe deer was absent. A single rabbit bone was present in the sieved sample from context 38 and a further amphibian bone was noted in the sample from context 22. It is worth noting that separate fragments from the same dog radius were recovered from contexts 22 and 38 in the Phase 5 midden.

The most frequently occurring mammals were cattle and sheep/goat, followed by pig. Although cattle outnumbered sheep/goat in terms of fragment count and weight, an estimation of the minimum numbers of animals (MNI) indicated that three cattle, four sheep/goats and two pigs were represented ([Table 4](#)). However, as individual cattle provided perhaps twelve times as much meat as primitive sheep breeds ([Chaplin 1971](#), 134), the contribution to the diet from cattle to sheep/goat at Old Rayne is in the ratio of 36:4, or nine times greater, based on MNI.

Table 3 Fragment count (n), weight of fragments (g), % food-forming mammals based on fragment count and % food-forming mammals based on weight

Species	n	weight (g)	% food-formers based on fragment count	% food-formers based on weight
Cattle	249	3282	64.2	76.2
Sheep/goat	105	521	27.1	12.1
Pig	28	271	7.2	6.3
Horse	3	216	0.8	5.0
Roe deer	3	17	0.8	0.4
Dog	3	37		
Fox	5	16		
Large ungulate	208	1320		
Small ungulate	81	123		
Indeterminate mammal	2214	3363		
Domestic fowl	40	42		
Goose	9	13		
Indeterminate bird	17	11		
Fish	68	11		
Amphibian	1	>1		
Mollusc		74		
TOTAL	3034	9318		

Table 4 Fragment count (n), weight of fragments (g), minimum numbers of animals (MNI) and % food-forming mammals in Phase 5 midden

Species	n	MNI	weight (g)	% food-formers
Cattle	213	3	2824	63.8
Sheep/goat	99	4	496	29.6
Pig	19	2	237	5.7
Horse	1	1	167	0.3
Roe deer	2	1	6	0.6
Dog	2	1	28	
Fox	4	1	15	
Large ungulate	197		1222	
Small ungulate	108		118	
Indeterminate mammal	1700		2672	
Domestic fowl	41	4	42	
Goose	9	1	13	
Indeterminate bird	17		11	
Fish	65		10	
Amphibian	1		>1	
Mollusc			74	
TOTAL	2478		7936	100.0

8.1.2 Age of animals at death

An estimate of the ages at which domestic animals died or were killed provides useful information regarding patterns of livestock management. However, it is to be expected that conditions of preservation may not have been favourable to the survival of the bones of younger animals at this site. This is because younger bones are relatively less well mineralised and therefore contain a higher proportion of organic material than those of older animals, thus in conditions unfavourable to organic preservation younger bones will tend to be destroyed more quickly.

With this in mind, mandibular tooth wear and eruption patterns as well as the state of epiphyseal fusion of the long bones was noted. All of the surviving mandibles of cattle came from mature adults in which the lower third molar was completely in wear (one example in each of Phases 2–3, 4 and 5). Two sheep/goat mandibles in the Phase 5 midden came from animals estimated to have died or been killed between 3–4 years and 4–6 years respectively. A partial pig mandible from the same midden probably died between the ages of 13 and 20 months.

Epiphyseal fusion evidence for cattle and sheep/goats from the Phase 5 midden is presented in [Table 5](#) (the evidence for other phases and species being too scant). Despite the potential preservation bias and the small sample numbers, it would appear that more sheep than cattle were killed at a younger age. This is not unusual in a medieval context and has been

noted elsewhere in Scotland, particularly in urban settings.

As regards other animals, the dog radius from the Phase 5 midden was unfused both proximally and distally and, although large, must have come from an immature animal. A roe deer mandible in a Phase 4 context (43) retained its deciduous dentition and was therefore also immature.

8.1.3 Butchery

Evidence of butchery was generally in the form of knife cuts or chop marks noted on the bones of cattle, sheep/goat and pig. There was no evidence that saws had been used and it is assumed that carcasses were disjointed using axes or cleavers. There was some evidence of skilful removal of limbs, as shown by slivers of bone derived from the articular ends of the femur and humerus of cattle, evidently produced when cutting the carcass into manageable pieces.

8.1.4 Size of animals

Anatomical measurements were made where butchery and preservation allowed. Although no intact long bones were recovered, the bones of domestic livestock appear to have come from animals which were small in stature when compared with bulky modern breeds. These small cattle, sheep/goats and pigs were the norm in the medieval period. The

Table 5 Phase 5 midden: age categories of cattle and sheep/goats at death, based on epiphyseal fusion of long bones

Age Category	Cattle		Sheep/goat	
	n	%	n	%
F/J			1	3.3
J	1	4.2		
J/I	1	4.2	7	23.3
I/A	8	33.3	7	23.3
A	14	58.3	15	50.0
Total	24	100.0	30	99.9

Key: F/J= Foetal/Juvenile; J =Juvenile; J/I = Juvenile or Immature; I = Immature; I/A = Immature or Adult; A = Adult

domestic fowl bones from Old Rayne were also from small birds, some apparently of bantam size. The geese were of a similar size to the wild greylag.

A single large dog radius recovered from the Phase 5 midden was from a young animal and therefore could not be used to give an accurate estimate of height. However, the dog from which it came was probably above average height for this period and may have come from a large working dog, such as a hound.

8.1.5 Discussion

The animal bone assemblage indicates a meat supply dominated by domestic livestock and poultry. A good supply of fish was also available, as well as marine molluscs such as mussel and oyster. There was very little evidence that hunting took place, other than from a small number of roe deer bones, a partial fox and a large immature dog, which may possibly have been a hound. The lack of evidence of hunting is perhaps surprising given that in the 13th century Alexander II granted the privilege of ‘free forest’ to Bishop Ralph de Lambley over the lands of Brass and Fetternear. A summer palace and hunting lodge was located at Fetternear in the parish of Chapel of Garioch (Slade 1971, 179). It may be the case that venison and other game were consumed elsewhere than at Old Rayne, perhaps at Fetternear itself, or that the meat supply from domesticated animals was sufficient for the household’s needs.

8.2 The fish remains, by R Cerón-Carrasco

Fish remains were identified from three Phase 5 midden contexts (18, 22 and 38) and a Phase 5–6 deposit (52) over the midden. All the fish bones were examined and identified to the highest taxonomic level, usually to species or to the family group (Cerón-Carrasco 2009). Nomenclature follows Wheeler & Jones (1989, 122–123). Haddock (*Melanogrammus aeglefinus*) and cod (*Gadus morhua*) were the only two species present in this small fish bone assemblage. The Gadidae family group are marine cod-family fishes; in Scotland this group

Table 6 Phase 5 fish species representation by NISP

Species	NISP
Cod	5
Haddock	77
NI Gadidae	2

includes some of the well-known species including cod and haddock. Table 6 summarises the species representation by NISP (Number of Identified Specimens) per fragment count for the Phase 5 midden as this produced most of the identifiable fish bone elements.

8.3 The plant remains, by S Timpany and D Masson

Seven samples from Old Rayne, Aberdeenshire were sent to Headland Archaeology for processing and identification (Timpany & Masson 2009). Three of the samples were taken from the lower fills of the ditch (2/4, 3/3, 3/4), in part to assess if there was any evidence that the ditch had been waterlogged. Three further samples were taken from Phase 3 and 4 hearths/ovens 42 and 60 (42, 60/2, 60/3) to assess their function. One sample was taken from the Phase 5 midden (22).

8.3.1 Plant remains

Charred cereal grain was found within five samples (contexts 3/3, 3/4, 22, 42 and 60/2) with a mixture of grain recovered including oat (*Avena* sp.), club/bread wheat (*Triticum aestivocompactum*), rye (*Secale cereale*) and barley (*Hordeum vulgare*). The grains were generally well preserved within the sample from oven 42, however, grains from the other samples were found to be poorly preserved, being either abraded and/or broken. Charcoal fragments were present in the samples from hearths/ovens 42 and 60. A charred hazel (*Corylus avellana*) nutshell was recovered from context 60/2.

8.3.2 Ditch fill

Only two samples from the ditch fill (contexts 3/3, 3/4) produced finds, with a third sample (context 2/4) being void of archaeological materials. The ditch assemblage was found to consist of rare to occasional amounts of charred oat and barley grain, together with a rare amount of burnt bone in context 3/3. The poor preservation of the grain being abraded and broken and the small quantity of burnt bone suggests this material has been washed into the ditch from nearby surroundings. The abraded grain in particular suggesting it was exposed for some time before being incorporated into the ditch fill. None of the ditch samples processed was waterlogged.

8.3.3 Hearths/ovens, Phases 3–4

The fills from two hearths/ovens were found to contain a mixture of predominantly burnt bone and charred cereal grain (including burnt fish bone in oven 60). The hearths/ovens were thought to represent cooking ovens during the excavation

and the finds recovered from the sample processing appear to have borne this out. It would appear that hearth/oven 42 was used for both cooking meat and drying grain or baking. This oven contained the greatest quantity of cereal grain, which was largely of oat and rare barley, rye and club/bread wheat. Hearth/oven 60 on the other hand appears to have been largely used for the cooking of meat, including fish. Charcoal is present within these samples which is likely to relate to remnants of the fuel used within the ovens. Also present in all samples are daub fragments, which could have originated from the superstructure of the ovens.

8.3.4 Midden, Phase 5

The materials recovered from context 22 are consistent with midden dumps seen in other urban medieval middens (eg [Timpany 2008](#)). Much of the material recovered from this sample is likely to relate to the dumping of domestic waste, in particular that of animal bone ([Smith above](#)) and fish bone ([Cerón-Carrasco above](#)), with rare quantities of charred grain also present (oat and barley).