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**Summary**

The 1939 Croft Andrew excavations at the Trevelgue Head, Newquay, Cornwall (NGR SW 825 630) produced a small animal bone assemblage. Because of the paucity of animal bone assemblages from Cornwall the Trevelgue Head assemblage provided an important opportunity to develop and advance our understanding of the agrarian economy and husbandry practices in this region during the Iron Age and Romano-British periods. Archaeology Commissions funding of the post-excavation analysis has made this possible. It was possible to identify 490 fragments to species or taxonomic group. The major of the assemblage derived from Iron Age deposits. The assemblage was dominated by the major domesticates, but wild species were also present in small numbers. Domestic animals appear to have been exploited for a variety of products, although may not have been bred at the site directly. The presence of deer (and pigs) indicates the exploitation of woodland. Inter-site comparison hints at two breeds of sheep being present in the locality.

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## Introduction

This animal bone report forms part of the post-excavation analysis being carried out on the 1939 Croft Andrew excavation archive from Trevelgue Head, Newquay, Cornwall (NGR SW 825 630). Trevelgue Head is a multi-vallate cliff castle/promontory fort and is possibly the most 'famous and impressive' example in Cornwall (Nowakowski 2003: 9) (Figure 1). Cornwall Archaeological Unit has undertaken the task of analysing the archive and preparing a publication monograph, with financial support from the Archaeological Commissions Programme.

## Phasing

No material was recovered from Phases 1-5 (Mesolithic-Early Iron Age). All the vertebrate remains considered in this report derive from three phases (Phases 6-8). To summarise Nowakowski (2003: 16-20), the main characteristics of Phases 6-8 consist of the following:

Phase 6 Later Early Iron Age ($6^{th}$-$5^{th}$ centuries BC): Later EIA activity is slight, consisting of a hollow, [290] and [291], appears in both Trenches 61 and 62, respectively. The earliest phase of the rampart, bank [286], also dates to this period in Trench 61. Up-slope of House 1, in Trench 63, features may form a later EIA structure: a gully [277], plus postholes [274] and [279].

Phase 7 Middle-Late Iron Age ($5^{th}$ century BC-$1^{st}$ century AD): A series of structures and activity areas from Phase 7 form the largest component of the excavations. Various middens, dating to $5^{th}$-$4^{th}$ centuries BC, were identified from Trenches 61, 62, 71 and 72: [251], [253], [255], [256] and [294]. A structure [311], dating to $4^{th}$-$1^{st}$ century BC, was discovered in Trenches 71 and 72. Trench 62 produced a range of industrial features. A series of pits and postholes were cut into the bedrock: cutting [238], small furnace [208], central kiln [249], double furnace [245], slate-lined furnace [239], shallow furnace [246], furnace [248], postholes [204], [205] and [206], and rock-cut gullies [214] and [210]. A round house, House 1, is 'unparalleled' in the south-west because of its longevity of use, primarily dating to the $4^{th}$-$1^{st}$ centuries BC. Broadly dated ($3^{rd}$-$1^{st}$ century BC) rampart [298], ditch [264] and counterscarp bank [299] from Trench 71 also date to Phase 7.

Phase 8 Romano-British ($1^{st}$-$4^{th}$ centuries AD): An intrusive structure [172] is located on the eastern edge of House 1. The date of this structure remains tentative.

## Recovery

All the fragments considered in this report derive from hand-collection. Samples were collected during the original Croft Andrew excavations and a small number were processed recently. Sample residues only produced small amounts unidentifiable fragments. Heavy residues <2 mm were scanned with a low power binocular microscope at x12 magnification (see Baker 2002). Hand-retrieval often leads to the preferential recovery of the larger skeletal elements from the larger mammal species. Other large mammal elements and all fragments of birds, fishes

and small mammals, etc are under-represented. In addition, hand-retrieval often leads to immature specimens also being lost. The Trevelgue Head skeletal representation and mortality profiles would suggest that this is the case (see below).

**Methods**

The Trevelgue Head assemblage was recorded using the 'York system' (Harland *et al.* 2003), a custom built relational database utilising MS Access 2000 or XP. In this database, fragmentation is recorded using a modified version of Dobney & Rielly's (1988) diagnostic zones. Combined with a virtually identical suite of anatomical elements, this makes the 'York system' directly comparable with that of Serjeantson (1996). The latter has been used to record other recently analysed assemblages from Cornwall, for example Atlantic Road, Newquay (Ingrem 2000).

Mandibular tooth eruption and wear was recorded using the criteria of Grant (1982) for cattle and pig, and Payne (1973 & 1987) for sheep and goats. Cattle post-cranial epiphyseal fusion ages quoted in Figure 2 are based on Reitz & Wing's (1999) summary of Schmid (1972) and Silver (1969).

Measurements are listed in the Appendix. The majority of measurements follow von den Driesch's (1976) definitions. All pig measurements follow the definitions of Payne & Bull (1988). Humerus 'BT', 'HT', 'HTC' and tibia 'Bd' measurements were taken for all species according to Payne & Bull (1988). Cattle, sheep/goat and deer metapodials were measured using the criteria described by Davis (1992).

**Taxonomic identification**

All the 'countable' fragments were identified using the reference collection held at the Centre for Archaeology (English Heritage, Portsmouth).

The differentiation of sheep (*Ovis aries*) and goat (*Capra hircus*) was attempted on the following elements: deciduous lower premolars ($dP_3$ and $dP_4$); horn-core; humerus; metacarpal; tibia; astragalus; calcaneum; metatarsal; phalanges 1-3. The morphological criteria defined by Boessneck (1969) and Prummel & Frisch (1986) were used for all elements except the teeth (Payne 1985) and the tibia (Kratochvil 1969).

Pig (*Sus domesticus*) and boar (*S.scrofa*) can be differentiated using biometrical separation (Payne & Bull 1988), however where no measurements could be taken physical size was used as an indication.

Species distinction of horse (*Equus caballus*) and donkey (*E.asinus*) was attempted on the maxillary and mandibular cheek teeth (if they could be placed, i.e. were in-situ), using the morphological criteria outlined by Baxter (1999), Davis (1980) and Eisenmann (1981).

Dog (*Canis familiaris*) and red fox (*Vulpes vulpes*) was separated using physical size in the first instance. If physical size failed to distinguish fragments then any distinct morphological features present were used (no standard presently exists).

Red deer (*Cervus elaphus*) and fallow deer (*Dama dama*) remains were separated using the criteria outlined in Lister (1996) for all teeth and other body parts.

Rabbit (*Oryctolagus cuniculus*) and hare (*Lepus* sp.) remains were separated using the criteria outlined in Callou (1997) for all teeth and other body parts.

**Taphonomy**

The Trevelgue Head assemblage was generally well-preserved and probably reflects the shell-rich sandy burial environment. The presence of marine shell in the burial environment would help create a more neutral pH conducive to bone preservation (see Lyman 1999: 421-422). Table 1 outlines surface preservation (cortical integrity) by chronological period and Table 2 by excavation area. To summarise,

| | | |
|---|---|---|
| Excellent | 42 | 36.2% |
| Good | 41 | 36.0% |
| Fair | 2 | 23.5% |
| Poor | 7 | 4.3% |

A fairly large proportion of the Trevelgue Head animal bones were semi-complete. This is because a large number of isolated teeth are present within the assemblage (see below), which generally survive intact. Table 3 outlines fragmentation (expressed as a percentage of complete anatomical elements) by chronological phase and Table 4 by excavation area. To summarise,

| | | |
|---|---|---|
| 0 – 20% | 51 | 13.0% |
| 21 – 40% | 88 | 22.4% |
| 41 – 60% | 58 | 14.8% |
| 61 – 80% | 36 | 9.2% |
| 81 – 100% | 159 | 40.6% |

Table 5 outlines surface modification by chronological period and Table 6 by excavation area (isolated teeth have been excluded from the calculations, so as not to bias the results). To summarise,

| | | |
|---|---|---|
| Gnawed | 50 | 16.8% |
| Root etched | 6 | 2.0% |
| Unmodified | 242 | 81.2% |

The level of gnawing is fairly low; it is not unusual for one-third of later prehistoric – Romano-British animal bone assemblages to be gnawed (personal observation). This would suggest that the majority of bones derive from their original anthropogenic place of deposition, rather than from secondary deposition caused by scavenging animals. In all likelihood, dogs are responsible for the majority of the gnawing however pigs also readily gnaw bone (Greenfield 1988). Pigs leave superficially similar marks to dogs and their impact is often under-estimated.

## Assemblage overview

The 1939 Croft Andrew excavation and subsequent surface finds at Trevelgue Head have produced a vertebrate assemblage consisting of approximately 932 fragments, weighing 12.9 kg.

This report is solely concerned with stratified material (see below). Additional material, deriving from unstratified deposits and unprovenanced surface scatters, has been discounted. It was scanned to determine whether or not it differed in composition to the stratified material, which it did not.

In total 490 fragments have been considered. Three hundred and ninety two fragments were identified to species, genus or family. A further 97 fragments consisted of indeterminate large and medium mammal bones, plus one indeterminate bird bone (Table 7). To summarise, by excavation area the assemblage is divided as follows:

| | | |
|---|---|---|
| Trench 61 | 319 | 65.1% |
| Trench 62 | 139 | 28.4% |
| House 1 | 23 | 4.7% |
| Other (see below) | 9 | 1.8% |

And, by chronological period:

| | | |
|---|---|---|
| Phase 6 | 8 | 1.6% |
| Phase 7 | 457 | 93.3% |
| Phase 7/8 | 14 | 2.9% |
| Phase 8 | 11 | 2.2% |

Material deriving from Trenches 61 and 62 dating to Phase 7 (M-LIA) therefore constitutes the bulk of the assemblage. Eighteen deposits with 10 or more fragments account for 70.2% of the Phase 7 assemblage. From Trench 61 these deposits are 90257B, 90313, 90320, 90325, 90327, 90330, 90383, 90386, 90435, 90448, 90449, 90452 and 90454; from Trench 62 90220, 90237, 90252 and 90434; from House 1 90457. The vast majority of bone fragments therefore derive from the various midden deposits.

## Area and phase overview

Table 7 summarises identified fragments by species, excavation area and chronological period.

### *Trench 61*

Table 8 summarises identified species by chronological period and deposit type for Trench 61.

*Phase 6*

Identifiable fragments derived from bank and midden deposits. The seven identifiable fragments were: three cattle, two sheep/goat and two lagomorphs. All the specimens belonged to skeletally mature animals. One cattle lumbar vertebra had been split axially with a heavy-bladed implement.

*Phase 7*
Identifiable fragments derived from demolition, layer, midden, mussel bed and pit deposits; 64.4% of these fragments came from middens and a further 10.6% came from demolition deposits. Two hundred and forty four fragments were identified: 118 cattle, 11 sheep, four goats, 50 sheep/goat, 36 pigs, two horse, five equids, eight red deer, one red fox, six rabbits, two lagomorphs and one stingray. For cattle, sheep/goat and pig, all parts of the skeleton were represented. Equid remains mainly consisted of isolated maxillary and mandibular teeth. Red deer were represented by lower and upper limb elements from both the fore- and hind-limb. The red fox was represented by a complete femur and the stingray by a single tail-spine. Both deciduous and permanent dentition was present. All teeth were generally in wear and the vast majority of all post-cranial specimens were skeletally mature; most animals were sub- or adult. Small numbers of cattle, sheep/goat and pig bones demonstrated butchery evidence, chop or cut marks. The other species present displayed no butchery evidence.

*Phase 7/8*
Identifiable fragments derived from layer and subsoil deposits. Eleven fragments were identified: six cattle, three sheep/goat, one rabbit and one lagomorph. With the exception of the lagomorph specimen all were skeletally mature. A cattle tibia demonstrated saw marks transversely across the distal shaft.

*Phase 8*
Phase 8 consisted of topsoil. Five fragments were identified: one cattle, three sheep/goat and one pig. With the exception of a pig tibia, all specimens were skeletally mature.

***Trench 62***
Table 9 summarises identified species by chronological period and deposit type for Trench 62.

*Phase 7*
Identifiable fragments derived from floor, furnace, hearth, midden, mussel bed, rock outcrop and pit deposits; 53.2% of these fragments came from middens and a further 21.6% came from hearth deposits. Ninety nine fragments were identified: 48 cattle, 27 sheep/goat, nine pigs, nine equids, three red deer, one red/fallow deer and two rabbits. For cattle and sheep/goat, all parts of the skeleton were represented. Pig and equid remains mainly consisted of isolated maxillary and mandibular teeth. Deer was solely represented by antler fragments. Teeth were almost exclusively represented by permanent dentition that was in wear. All fragments from the post-cranial skeleton were skeletally mature. Small numbers of all the domestic species demonstrated chop and cut marks. Additionally, a few cattle long- and canon-bones were split axially. Two of the three deer antler fragments were also sawn transversely.

***House 1***
This includes the following sub-areas: Trenches 66, 67, 68, 612, 614 and 615. Table 10 summarises identified species by chronological period and deposit type for House 1.

*Phase 7*
Identifiable fragments derived from infill, layer, posthole and wall deposits; 55.0% of these fragments came from layers. Twenty-three fragments were identified: 19 cattle, one possible cattle, one sheep/goat and two pigs. All parts of the cattle skeleton were represented, all of which were skeletally mature. One cattle tibia displayed chop marks.

*Phase 8*
Two cattle teeth were identified: very fragmentary maxillary or mandibular molars, which appeared to be in wear.

***Other areas***
Two rabbit bones were identified from Trench 65 (Phase 6).

**Species composition**

The major domesticates dominate the Trevelgue Head vertebrate assemblage (Table 7). Cattle are predominant, followed by sheep/goat, pig and the equids. Both sheep (*Ovis aries*) and goat (*Capra hircus*) were positively identified. As usual, regardless of chronological period, sheep predominate. In British assemblages from all periods goat is never very numerous compared to sheep (Albarella 2003; Noddle 1994). Horse (*Equus caballus*) was also positively identified. It is assumed the remaining equid specimens are also horses, as donkey (*E.asinus*) has not been positively identified in Britain before the Romano-British period (Armitage 1979; Baxter 1998: 5). The red/fallow deer specimen is almost certainly red deer (*Cervus elaphus*) because fallow deer (*Dama dama*) was not introduced to Britain until the medieval period (Chapman & Putman 1991: 511; Grant 1981: 206; Yalden 1999: 104). The rabbit specimens are intrusive, as they were introduced by the Normans (Cowan 1991: 149; Yalden 1999: 138 & 158). The remaining lagomorph bones are probably also rabbit (but could not be positively identified due to fragmentation or immaturity). Conceivably, they could represent hare. If this were the case, they may be mountain hare (*Lepus timidus*) rather than brown hare (*L.europaeus*). The presence of brown hare in Britain during this period has yet to be confirmed (Yalden 1999: 127) and Tapper (1991: 155) has suggested it may have been a Roman introduction. The stingray (*Dasyatis pastinaca*) is almost certainly contemporary because it derived from Context 90467 (located at the base of Midden 3). In addition, stingray is confined to shallow coastal waters and even outer estuaries (Wheeler 1978: 53), and deep sea fishing was a medieval innovation (Barrett *et al.* 2004; Coull 1972: 62; Kowaleski 2000).

This range of species is typical of a later prehistoric hand-retrieved animal bone assemblage; there is a distinct bias towards the larger domestic mammal species. This may explain why cattle are more numerous than sheep at Trevelgue Head. British Iron Age assemblages are usually dominated by sheep (Hambledon 1999). British assemblages did not become dominated by cattle until the Romano-British period (King 1978 & 1999).

Very few comparable Iron Age vertebrate assemblages exist in Cornwall, one exception being The Rumps, St Minver (Chaplin & Coy 1964). Table 11 compares Trevelgue Head to mainly Romano-British sites from Cornwall. In addition to the Rumps, sites included are: Atlantic Road, Newquay (Ingrem 2000), Crane Godrevy,

Gwithian (Hammon 2004) and Duckpool, Morwenstow (Powell & Serjeantson 1995). Most of these assemblages are hampered because they represent small samples however it has been possible to compare the range of species at each site on a presence/absence basis. Overall, a similar range of species was encountered at each site; the major domesticates were predominant with lesser quantities of wild and marine mammals. In this last respect, Trevelgue Head differed from the other sites because it had a smaller wild and marine component. In all likelihood, sample size and recovery may have been responsible.

**Skeletal representation**

Overall, most skeletal elements of the major domesticates are present at Trevelgue Head. Body parts normally discarded during the initial stages of carcase processing indicate that whole carcases and possibly live animals were present at the site. Because of the small sample sizes involved, it has not been possible to fully consider how particular species were utilised, what activities were being carried out at Trevelgue Head or whether there was any diachronic change.

The combined Phase 7 assemblage from all excavation areas demonstrates a clear taphonomic pattern that has been strongly influenced by hand-retrieval, resulting in a recovery bias (Figure 2). For cattle, sheep/goat and pig the mandible is the most frequently occurring element. The mandible (and teeth) is perhaps one of the more durable elements, which are usually readily recognised during excavation. The mandible is also prone to heavy fragmentation, which may lead to its over-representation. Cattle, sheep/goat and pig produced comparable frequencies of girdle bones (the scapula and pelvis) and upper limb bones (particularly the humerus). Preferential recovery and differential fragmentation may account for this. The girdle bones fragment easily and can be over-represented, for instance. These bones, however have the highest utility and probably represent a genuine artefact of activity at Trevelgue Head, e.g. the consumption of meat/food residue. Cattle also produced vertebrae and lower limb elements (carpals, tarsals, metapodials and phalanges), which confirm the presence of whole carcases and in all likelihood live animals. The same elements for sheep/goat and pig are almost exclusively absent (with the exception of the metapodials). This pattern certainly reflects a recovery bias, as they are considerably smaller than the corresponding cattle elements.

**Ageing data**

Mandibular tooth eruption and wear in the major domesticates indicates that the majority of animals were sub-adult or adult (Appendix). None were neonatal or juvenile. Post-cranial epiphyseal fusion data indicated a similar pattern (Appendix). Figure 3 displays the fusion data for Phase 7 cattle, which confirms that the vast majority of individuals were skeletally mature at least 42 months) when slaughtered. This pattern would indicate general exploitation; the usual later prehistoric – Romano-British situation. Cattle were presumably utilised for meat, milk, traction and other by-products, whereas sheep/goat for their meat, milk and wool. It is difficult to gauge the role equids played at Trevelgue Head, the combination of deciduous teeth and butchered bone (see above) could tentatively infer that they were also consumed.

It must be remembered that immature mandibles (and post-cranial elements) are prone to greater levels of post-depositional destruction (Munson 2000; Munson & Garniewicz 2003), so may be under-represented in the Trevelgue Head assemblage.

**Butchery**

Low levels of butchery were observed in the Trevelgue Head assemblage. To summarise, by excavation area or chronological period, the following proportions of cattle, sheep/goat and pig demonstrated butchery evidence (isolated teeth have been excluded from the calculations):

| | |
|---|---|
| Cattle | 12.8% (20 of 156) |
| Sheep/goat | 7.6% (6 of 85) |
| Pig | 11.4% (4 of 35) |

Most of the butchery evidence from the major domesticates related to dismemberment and the division of the carcase into smaller portions, mostly in the form of chop and cut marks around joints. In addition, one cattle radius and four metatarsals had been split axially (Trenches 61 and 62 Phase 7). This is normally interpreted as marrow fat extraction and preparation for grease production (by boiling).

One equid scapula from Context 90434 (Trench 62 Phase 7) demonstrated chop marks to the blade. Three of the four antler tine fragments had been sawn transversely, presumably to produce workable 'blanks'. A red deer metacarpal from Context 90257B (Trench 61 Phase 7) displayed knife marks on the distal posterior shaft, which probably denotes dismemberment.

**Biometry**

Trevelgue Head produced a small biometric sample, principally comprised of cattle and sheep/goat measurements (Appendix). The majority of measurements derive from Phase 7, so it has not been possible to explore diachronic changes relating to breed development and husbandry practices. It has been possible to compare the Trevelgue Head dataset to others from the south-west, namely Atlantic Road, Newquay (Ingrem 2000) and Exeter (Maltby 1979).

Taking into account natural fluctuations and possible differences in herd composition (sex and age), the Trevelgue Head cattle appear to be either slightly smaller or an equivalent size to those from Atlantic Road and Exeter (Table 12). Any discrepancies, i.e. where Trevelgue Head has produced larger specimens, is in all likelihood due to the small samples involved. Smaller Trevelgue Head animals might be expected, due to the slightly earlier date of the material, although Maltby (1979: 36) suggests little breed improvement was evident during the Romano-British period at Exeter.

Table 13 presents the same comparison for sheep/goat. Trevelgue Head and Exeter sheep/goats are of a similar size. The Atlantic Road individuals are smaller. This is peculiar considering the close proximity of Trevelgue Head, and the fact that Atlantic Road is Romano-British and Trevelgue Head is Iron Age.

## Conclusions

Animal bone assemblages of any period from Cornwall are unusual, in particular for the Iron Age. Therefore, despite only producing a small vertebrate assemblage, the 1939 Croft Andrew excavations at Trevelgue Head has provided an invaluable opportunity to expand our knowledge of the pastoral economy and husbandry practices of the south-west in later prehistory.

Overall, the assemblage was well-preserved and had not suffered high levels of post-depositional attrition, such as gnawing and weathering. Most fragments were unabraded, indicating that little reworking had taken place. A sizeable proportion of the assemblage derived from the Phase 7 midden deposits, which probably explains the lack of reworking because deeply stratified material is usually better 'protected'.

The major domesticates constituted the majority of the assemblage. Cattle were predominant, followed by sheep/goat (both species were positively identified), then pig and finally equids. Red deer and one stingray tail-spine also indicate the exploitation of wild resources. Tooth eruption and wear, plus post-cranial epiphyseal fusion, demonstrated that the vast majority of animals were sub-adult or adult when slaughtered. Skeletal representation for the domestic species demonstrated that most anatomical elements were represented, with a bias towards the larger and more robust parts of the skeleton. This suggests that whole carcases and possibly live animals were present at Trevelgue Head. A recovery bias (see above), favouring the larger species and larger body parts might explain why cattle are more numerous than sheep/goat, a trend that normally does not become prevalent until the Romano-British period across Britain.

It would appear as though the inhabitants of Trevelgue Head were utilising domestic animals for a variety of products, with no emphasis on any specific husbandry regime. Pig and red deer would suggest nearby woodland. Trevelgue Head is not a particularly suitable location for raising animals (Jacky Nowakowski pers. comm.), so animals may have been driven to the site when and as required. The single stingray specimen may denote the exploitation of inshore fisheries.

The size and stature of the Trevelgue Head Iron Age cattle are on average slightly smaller than their Romano-British counterparts from the south-west. The Romans are widely credited with breed improvement through innovative husbandry techniques and even imported continental stock, so this situation is to be expected. Surprisingly, the Trevelgue Head sheep/goats are larger than those from Atlantic Road (the reverse of the expected chronological pattern). This might suggest that two types of sheep/goats were present in the locality.

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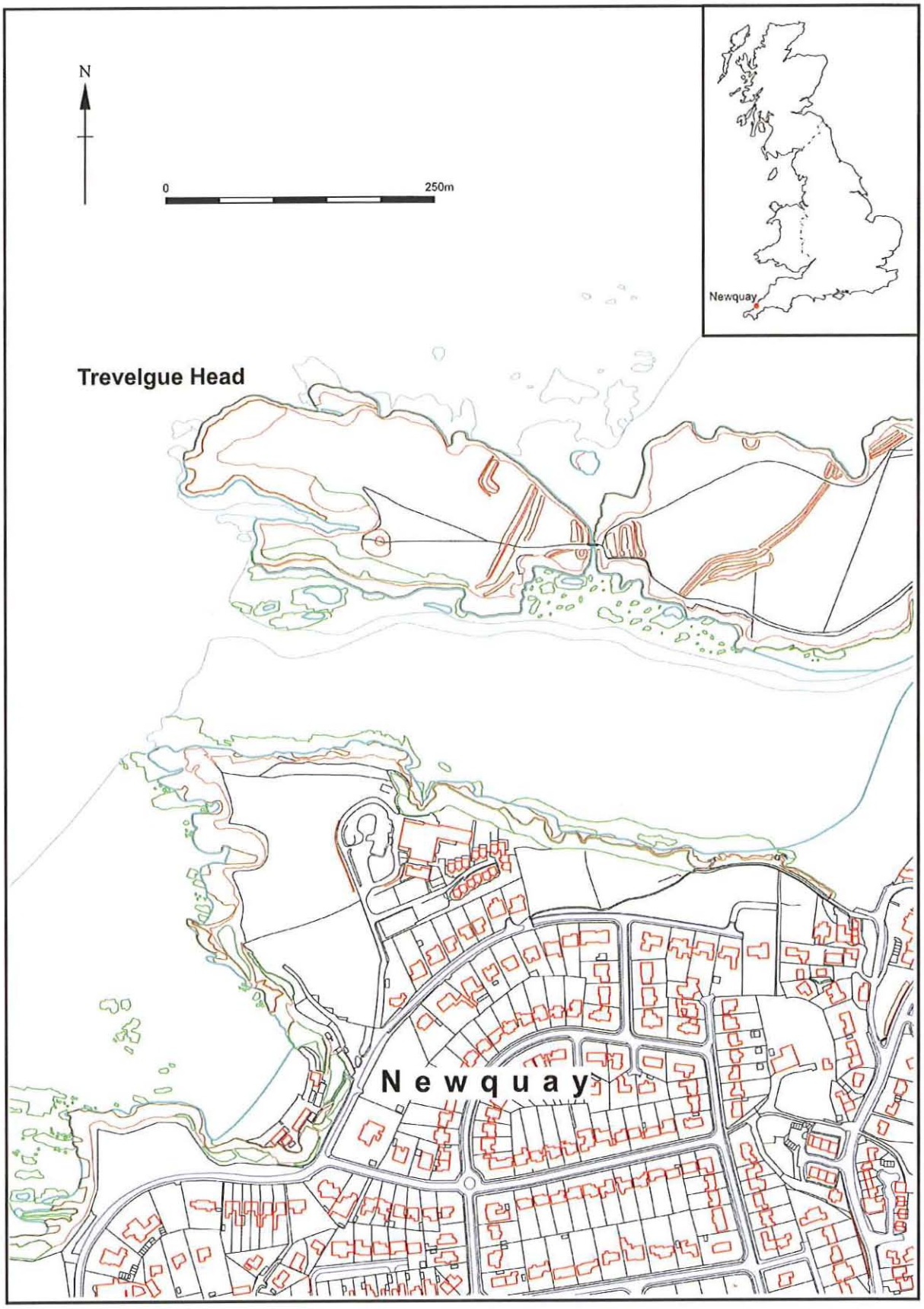


Figure 1. Location map of the multi-vallate cliff castle/promontory fort at Trevelgue Head, Cornwall (NGR SW 825 630)

*Figure 2. Phase 7: Skeletal representation for cattle, sheep/goat and pig, based on unadjusted NISP (except pig metapodials)*

NB. isolated teeth have been excluded from the mandible count

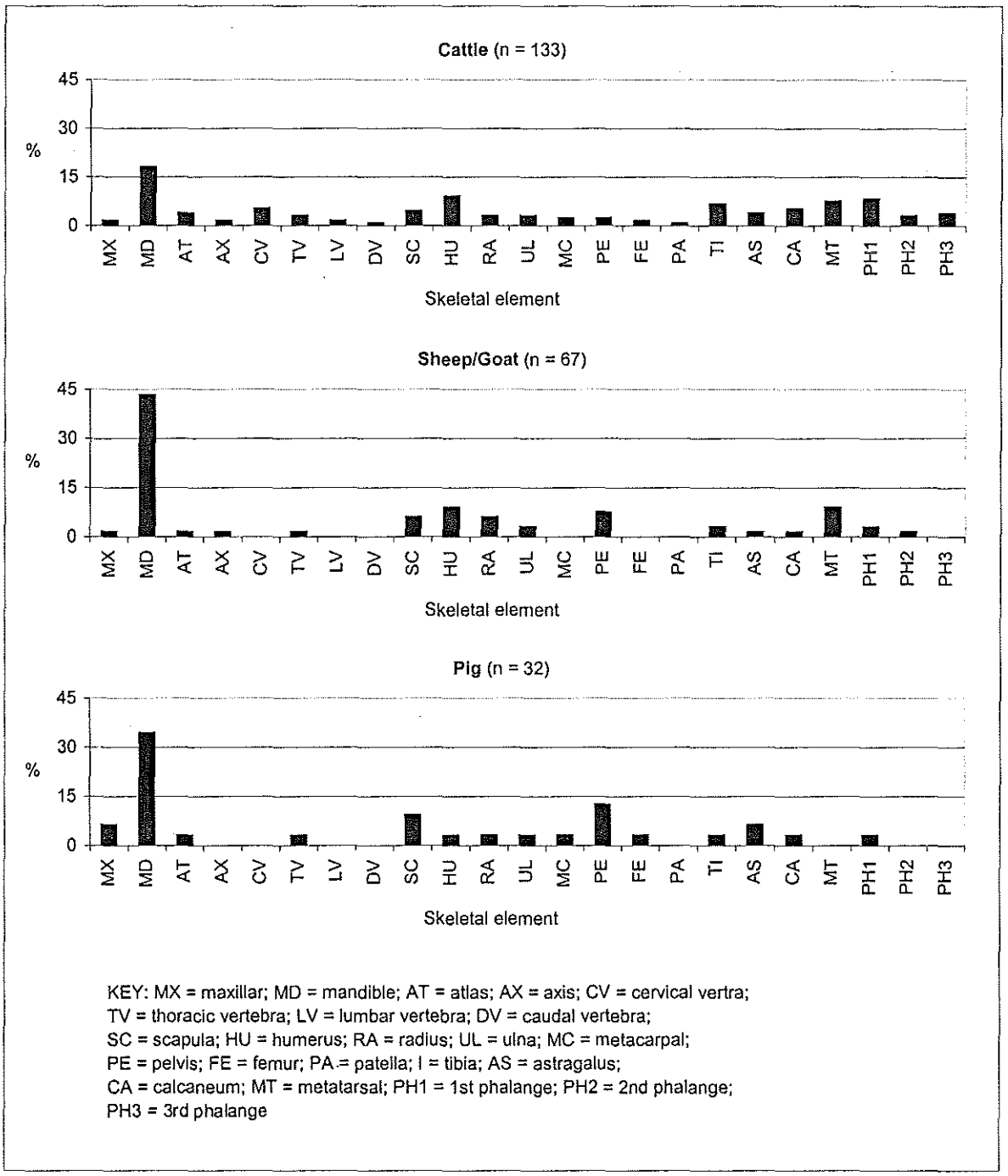

*Figure 3. Phase 7: Cattle post-cranial epiphyseal fusion, after Reitz & Wing's (1999: 76, Table 3.5) summary of Schmid (1972) and Silver (1969), based on 89 observations*

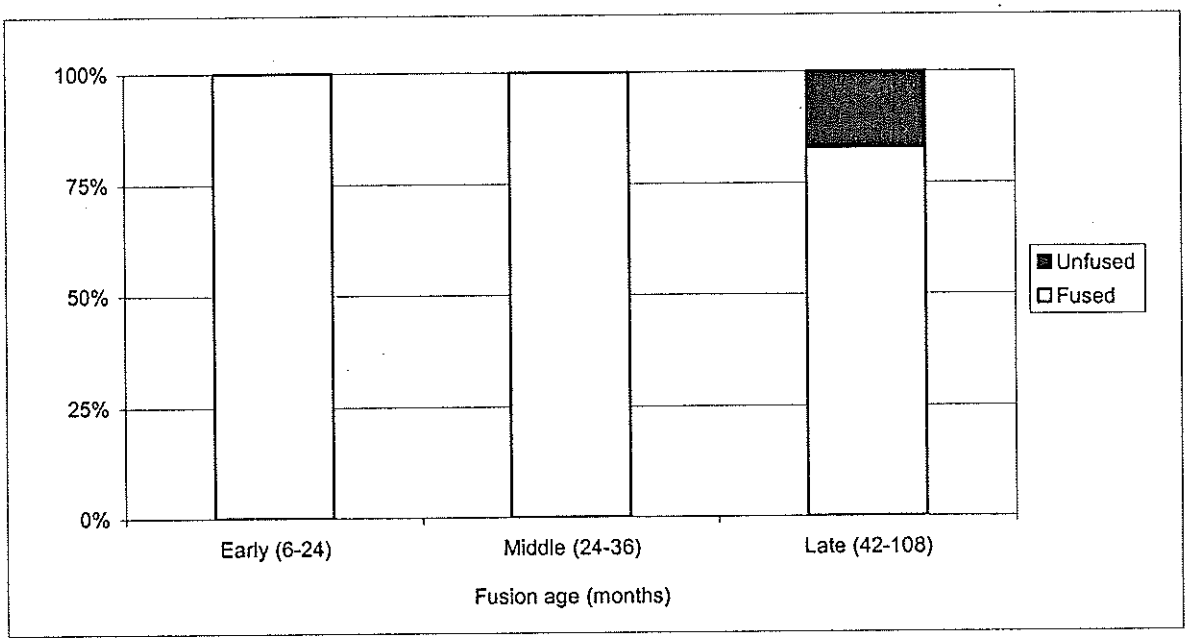

*Table 1. Surface preservation by phase*

| Pres | Excellent | Good | Fair | Poor | Total |
|---|---|---|---|---|---|
| 6 | 4 | 3 | | | 7 |
| 7 | 132 | 131 | 87 | 17 | 367 |
| 7/8 | 3 | 5 | 3 | | 11 |
| 8 | 3 | 2 | 2 | | 7 |
| Total | 142 | 141 | 92 | 17 | 392 |

*Table 2. Surface preservation by area*

| Pres | Excellent | Good | Fair | Poor | Total |
|---|---|---|---|---|---|
| 61 | 110 | 109 | 44 | 2 | 265 |
| 62 | 29 | 25 | 34 | 11 | 99 |
| House 1 | 1 | 7 | 14 | 4 | 26 |
| Other | 2 | | | | 2 |
| Total | 142 | 141 | 92 | 17 | 392 |

*Table 3. Fragmention by phase*

| Frag % | 0-20 | 21-40 | 41-60 | 61-80 | 81-100 | Total |
|---|---|---|---|---|---|---|
| 6 | | 1 | 3 | | 3 | 7 |
| 7 | 47 | 85 | 52 | 35 | 148 | 367 |
| 7/8 | 3 | 2 | | 1 | 5 | 11 |
| 8 | 1 | | 3 | | 3 | 7 |
| Total | 51 | 88 | 58 | 36 | 159 | 392 |

*Table 4. Fragmentation by area*

| Frag % | 0-20 | 21-40 | 41-60 | 61-80 | 81-100 | Total |
|---|---|---|---|---|---|---|
| 61 | 36 | 65 | 30 | 23 | 111 | 265 |
| 62 | 13 | 19 | 12 | 12 | 43 | 99 |
| House 1 | 2 | 4 | 14 | 1 | 3 | 26 |
| Other | | | | | 2 | 2 |
| Total | 51 | 88 | 58 | 36 | 159 | 392 |

*Table 5. Modification by phase (isolated teeth excluded)*

| Mod | Canid | Root etched | Unmodified | Total |
|---|---|---|---|---|
| 6 | | | 7 | 7 |
| 7 | 50 | 8 | 224 | 282 |
| 7/8 | 1 | | 8 | 9 |
| 8 | 1 | | 3 | 4 |
| Total | 52 | 8 | 242 | 302 |

*Table 6. Modification by area (isolated teeth excluded)*

| Mod | Canid | Root etched | Unmodified | Total |
|---|---|---|---|---|
| 61 | 37 | 4 | 181 | 222 |
| 62 | 12 | 3 | 49 | 64 |
| House 1 | 3 | 1 | 10 | 14 |
| Other | | | 2 | 2 |
| Total | 52 | 8 | 242 | 302 |

*Table 7. Identified (NISP) hand-collected fragments from Trevelgue Head by excavation area, phase and taxo*

KEY: B = cattle (*Bos taurus*); B? = cf. cattle (cf. *B.taurus*); OVA = sheep (*Ovis aries*); CAH = goat (*Capra hircus*); O = sheep/goat (*O.aries/C.hircus*); S = pig (*Sus s*
EQC = horse (*Equus caballus*); EQ = equid (*Equus* sp.); ORC = rabbit (*Oryctolagus cuniculus*); LAG = lagomorph (Lagomorpha); CEE = red deer (*Cervus elaphus*);
CD = red/fallow deer (*C.elaphus/Dama dama*); VUV = red fox (*Vulpes vulpes*); DAP = stingray (*Dasyatis pastinaca*); Lrg = indet. large mammal;
Med = indet. medium mammal; Bird = indet. bird

| Area/Phase/Taxa | B | B? | OVA | CAH | O | S | EQC | EQ | CEE | CD | VUV | ORC | LAG | DAP | Lrg | Med | Bird | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Trench 61* | | | | | | | | | | | | | | | | | | |
| Ph 6 | 3 | | | | 2 | | | | | | | | | | | 1 | | 6 |
| Ph 7 | 118 | | 11 | 4 | 50 | 36 | 2 | 5 | 8 | | 1 | 6 | 2 | 1 | 25 | 22 | 1 | 292 |
| Ph 7/8 | 6 | | | | 3 | | | | | | | 1 | 1 | | 2 | 1 | | 14 |
| Ph 8 | 1 | | | | 3 | 1 | | | | | | | | | 2 | | | 7 |
| Total | 128 | | 11 | 4 | 58 | 37 | 2 | 5 | 8 | | 1 | 7 | 3 | 1 | 29 | 24 | 1 | 319 |
| *Trench 62* | | | | | | | | | | | | | | | | | | |
| Ph 7 | 48 | | | | 27 | 9 | | 9 | 3 | 1 | | 2 | | | 22 | 18 | | 139 |
| *House 1* | | | | | | | | | | | | | | | | | | |
| Ph 7 | 20 | 1 | | | 1 | 2 | | | | | | | | | 2 | | | 26 |
| Ph 8 | 2 | | | | | | | | | | | | | | 2 | | | 4 |
| Total | 22 | 1 | | | 1 | 2 | | | | | | | | | 4 | | | 30 |
| *Trench 65* | | | | | | | | | | | | | | | | | | |
| Ph 6 | | | | | | | | | | | | | 2 | | | | | 2 |
| Total | 198 | 1 | 11 | 4 | 86 | 48 | 2 | 14 | 11 | 1 | 1 | 9 | 5 | 1 | 55 | 42 | 1 | 490 |

*Table 8. Trench 61: Identified (NISP) hand-collected fragments from Trevelgue Head by excavation deposit, phase*

KEY: see Table 1

| Deposit/Phase/Taxa | B | OVA | CAH | O | S | EQC | EQ | CEE | VUV | ORC | LAG | DAP | Lrg | Med | Bird | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Phase 6* | | | | | | | | | | | | | | | | |
| bank | | | | | | | | | | | | | | 1 | | 1 |
| midden | 3 | | | 2 | | | | | | | | | | | | 5 |
| *Phase 7* | | | | | | | | | | | | | | | | |
| demolition | 16 | 1 | | 1 | 6 | | 1 | | | 3 | | | 2 | 1 | | 31 |
| layer | 1 | | | | | | | | | | | | | | | 1 |
| midden | 82 | 7 | 1 | 29 | 20 | | 4 | 8 | | 3 | 2 | | 17 | 14 | 1 | 188 |
| mussel bed | 19 | 3 | 3 | 20 | 10 | 2 | | | 1 | | | 1 | 5 | 7 | | 71 |
| pit | | | | | | | | | | | | | 1 | | | 1 |
| *Phase 7/8* | | | | | | | | | | | | | | | | |
| layer | 1 | | | 2 | | | | | | 1 | 1 | | 1 | | | 6 |
| subsoil | 5 | | | 1 | | | | | | | | | 1 | 1 | | 8 |
| *Phase 8* | | | | | | | | | | | | | | | | |
| topsoil | 1 | | | 3 | 1 | | | | | | | | 2 | | | 7 |
| Total | 128 | 11 | 4 | 58 | 37 | 2 | 5 | 8 | 1 | 7 | 3 | 1 | 29 | 24 | 1 | 319 |

*Table 9. Trench 62: Identified (NISP) hand-collected fragments from Trevelgue Head by deposit type, phase and taxon.*

| Deposit/Phase/Taxa | B | O | S | EQ | CEE | CD | ORC | Lrg | Med | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| *Phase 7* | | | | | | | | | | |
| floor | 4 | 2 | 1 | 2 | | 1 | | | 1 | 11 |
| furnace | | | 3 | | | | | 1 | | 4 |
| hearth | 9 | 13 | 1 | 1 | | | 2 | 3 | 1 | 30 |
| midden | 23 | 9 | 2 | 6 | 2 | | | 16 | 16 | 74 |
| mussel bed | 6 | 1 | | | | | | | | 7 |
| outcrop | 2 | 1 | 1 | | | | | 1 | | 5 |
| pit | 4 | 1 | 1 | | 1 | | | 1 | | 8 |
| Total | 48 | 27 | 9 | 9 | 3 | 1 | 2 | 22 | 18 | 139 |

*Table 10. House 1: Identified (NISP) hand-collected fragments from Trevelgue Head by deposit type, phase and taxon.*

KEY: Table 1

| Deposit/Phase/Taxa | B | B? | O | S | Lrg | Total |
|---|---|---|---|---|---|---|
| *Phase 6* | | | | | | |
| layer | | | | | | |
| *Phase 7* | | | | | | |
| hearth | 1 | | | | | 1 |
| floor | 1 | | | | | 1 |
| infill | | | | | 1 | 1 |
| layer | 10 | | 1 | 1 | | 12 |
| posthole | 4 | 1 | | 1 | 1 | 7 |
| subsoil | 1 | | | | | 1 |
| wall | 1 | | | | | 1 |
| *Phase 8* | | | | | | |
| hearth | 1 | | | | | 1 |
| structure | | | | | 2 | 2 |
| topsoil | 1 | | | | | 1 |
| Total | 20 | 1 | 1 | 2 | 4 | 28 |

*Table 11. Inter-site species comparison with other Cornish sites*

KEY:
Sites: R = The Rumps (Chaplin & Coy 1964: 32-34); C = Crane Godrevy (Hammon 2004: Table 2); D = Duckpool (Powell & Serjeantson 1995: 137, Table 1); DS = Duckpool si (Powell & Serjeantson 1995: 139, Table 3); Duckpool Heard (Powell & Serjeantson 1995: 138, Table 2); A = Atlantic Road (Ingrem 2000: Table 1); Atlantic Road sieved (Ingrem 2000: Table 2)

Period: EIA-RB = early Iron Age - Romano-British; RB = Romano-British; LRB = late Romano-British; post-RB = post Romano-British

Quantification: NISP = number of identified skeletal specimens; MNI = minimum number of individuals; n = number

| Site | TH | R | C | D | DS | DH | A | AS |
|---|---|---|---|---|---|---|---|---|
| Period | EIA-RB | LIA-ERB | post-RB | LRB | LRB | LRB | RB | RB |
| Quantification | NISP | MNI | NISP | NISP | NISP | NISP | NISP | NISP |
| Cattle | 199 | 4 | 813 | 43 | 4 | 40 | 220 | 38 |
| Sheep/Goat | 101 | 19 | 445 | 20 | 8 | 24 | 821 | 273 |
| Pig | 48 | 5 | 109 | 23 | 10 | 14 | 67 | 13 |
| Equid | 16 | | * | 2 | | 2 | 11 | |
| Canid | 1 | | * | | 1 | | 5 | 1 |
| Cat | | | | 1 | | | 4 | |
| Cervid | 12 | n1 | * | 3 | | 5 | 4 | 1 |
| Lagomorph | 14 | | * | | | 1 | | |
| Badger | | | | | | | 1 | |
| Pine marten | | | | | | | 1 | |
| Beaver | | n5 | | | | | | |
| Otter | | | * | | | | | |
| Grey seal | | | | | | | | |
| Ceteacean | | | * | | | | | |
| Rodent | | | * | | | | 1 | 20 |
| Bird | 1 | n3 | 37 | 3 | | 3 | 8 | 1 |
| Amphibian | | | | | | | 1 | 8 |
| Fish | 1 | | 362 | | | | 1 | 18 |
| Total | 393 | n/a | 1766 | 95 | 23 | 89 | 1145 | 373 |

*Table 12. Cattle biometry comparison (Atlantic Road, Newquay - Ingrem 2000: Appendix; Exeter - Maltby 1979: 164-167, Table 65)*

| Site | Elem | Meas | Phase | N | Range | Mean |
|---|---|---|---|---|---|---|
| Trevelgue | HU | BT | IA | 7 | 62.1 - 75.3 | 65.4 |
| Exeter | HU | BT | RB | 4 | 59.8 - 65.0 | 62.5 |
| Trevelgue | HU | HT | IA | 8 | 34.7 - 42.8 | 37.9 |
| Exeter | HU | HT | RB | 6 | 36.0 - 42.9 | 39.7 |
| Trevelgue | TI | Bd | IA | 6 | 48.1 - 57.0 | 52.5 |
| Exeter | TI | Bd | AD55-300 | 9 | 49.7 - 63.3 | 55.4 |
| Exeter | TI | Bd | AD300+ | 11 | 50.1 - 65.1 | 55.7 |
| Atlantic Rd | TI | Bd | RB | 5 | 51.1 - 58.5 | 54.2 |
| Trevelgue | TI | Dd | IA | 6 | 34.9 - 40.4 | 39.5 |
| Exeter | TI | Dd | AD55-300 | 11 | 35.3 - 47.3 | 41.3 |
| Exeter | TI | Dd | AD300+ | 11 | 35.0 - 46.0 | 39.5 |
| Atlantic Rd | TI | Dd | RB | 6 | 37.4 - 41.4 | 40.7 |
| Trevelgue | AS | GLl | IA | 4 | 54.5 - 60.8 | 57.4 |
| Exeter | AS | GLl | AD55-300 | 14 | 50.7 - 59.6 | 55.2 |
| Exeter | AS | GLl | AD300+ | 18 | 54.3 - 62.0 | 58.3 |
| Atlantic Rd | AS | GLl | RB | 4 | 54.5 - 58.5 | 56.4 |
| Trevelgue | AS | GLm | IA | 4 | 50.1 - 54.5 | 52.1 |
| Exeter | AS | GLm | AD55-300 | 13 | 47.1 - 54.6 | 50.5 |
| Exeter | AS | GLm | AD300+ | 18 | 48.8 - 61.6 | 53.6 |
| Atlantic Rd | AS | GLm | RB | 4 | 47.8 - 51.5 | 50.5 |
| Trevelgue | AS | Dl | IA | 4 | 29.5 - 34.2 | 31.7 |
| Exeter | AS | Dl | AD55-300 | 14 | 28.9 - 35.3 | 31.6 |
| Exeter | AS | Dl | AD300+ | 18 | 29.1 - 38.3 | 33.3 |
| Trevelgue | MT | BatF | IA | 2 | 45.1 - 52.4 | 48.8 |
| Exeter | MT | BatF | AD55-300 | 24 | 38.3 - 49.5 | 42.3 |
| Exeter | MT | BatF | AD300+ | 25 | 36.9 - 51.1 | 44.0 |

*Table 13. Sheep/Goat biometry comparison (Atlantic Road, Newquay - Ingrem 200 Appendix; Exeter - Maltby 1979: 181-185, Table 79)*

| Site | Elem | Meas | Phase | N | Range | Mean |
|---|---|---|---|---|---|---|
| Trevelgue | SC | SLC | IA | 2 | 17.2 - 17.4 | 17.3 |
| Exeter | SC | SLC | RB | 19 | 15.9 - 18.9 | 17.5 |
| Trevelgue | HU | BT | IA | 3 | 24.5 - 27.0 | 25.8 |
| Exeter | HU | BT | AD55-300 | 10 | 23.0 - 27.2 | 25.3 |
| Exeter | HU | BT | AD100-300 | 16 | 23.3 - 28.8 | 25.3 |
| Exeter | HU | BT | AD300+ | 9 | 25.8 - 27.5 | 26.7 |
| Atlantic Rd | HU | BT | RB | 5 | 15.8 - 24.2 | 20.7 |
| Trevelgue | HU | HT | IA | 3 | 14.3 - 17.3 | 15.8 |
| Exeter | HU | HT | AD55-300 | 10 | 14.6 - 18.0 | 16.6 |
| Exeter | HU | HT | AD100-300 | 15 | 14.8 - 18.4 | 16.7 |
| Exeter | HU | HT | AD300+ | 10 | 16.4 - 18.7 | 17.3 |
| Atlantic Rd | HU | HT | RB | 5 | 12.1 - 16.2 | 14.0 |

# Appendices

## Skeletal elements

### *Element codes:*

XdP34 = maxillary 3rd or 4th deciduous premolar
XdP34 = maxillary 3rd or 4th deciduous premolar
XP34 = maxillary 3rd or 4th premolar
XM12 = maxillary 1st or 2nd molar
XM3 = maxillary 3rd molar
XM = maxillary molar
MX = maxilla
FC = cranial fragment
IT = isolated maxillary or mandibular tooth
I = mandibular incisor
P2 = mandibular 2nd premolar
dP3 = mandibular 3rd deciduous premolar
P34 = mandibular 3rd or 4th premolar
M = mandibular molar
MD = mandible (with or without teeth)
AT = atlas
AX = axis
CV = cervical vertebra
TV = thoracic vertebra
LV = lumbar vertebra
DC = caudal vertebra
SC = scapula
HU = humerus
RA = radius
UL = ulna
H = hamate (carpal)
L = lunate (carpal)
TQ = triquetrum (carpal)
CP = carpal
MC = metacarpal
PE = pelvis
FE = femur
PT = patella
TI = tibia
AS = astragalus
CA = calcaneum
NC = navicular-cuboid
PH1 = 1st phalange
PH2 = 2nd phalange
PH3 = 3rd phalange

## Mandibular tooth eruption and wear

### *Tooth codes:*

dP4 = 4th deciduous premolar
P4 = 4th premolar
M1 = 1st molar
M2 = 2nd molar
M3 = 3rd molar
M12 = 1st or 2nd molar

## Post-cranial epiphyseal fusion

### *Aspect codes:*

P = proximal/anterior/cranial
D = distal/posterior/caudal

### *Taxa codes:*

See below

### *Element codes:*

See above

### *Fusion codes:*

F = fused (or fully ossified)
FG = fusing
U = unfused

## Measurements

All measurements are given in millimetres (mm). The majority of measurements follow von den Driesch's (1976) definitions. All pig measurements follow the definitions of Payne & Bull (1988). Humerus 'BT', 'HT', 'HTC' and tibia 'Bd' measurements were taken for all species according to Payne & Bull (1988). Cattle, sheep/goat and deer metapodials were measured using the criteria described by Davis (1992).

### *Taxa codes:*

B = cattle (*Bos taurus*)
OVA = sheep (*Ovis aries*)
CAH = goat (*Capra hircus*)
O = sheep/goat (*O.aries/C.hircus*)
S = pig (*Sus scrofa*)
EQ = equid (*Equus* sp.)
CEE = red deer (*Cervus elaphus*)

## *Appendix 1. Cattle: Skeletal elements (NISP)*

| Area | | | 61 | | | 62 | House 1 | | Other | |
|---|---|---|---|---|---|---|---|---|---|---|
| Phase | 6 | 7 | 7/8 | 8 | | 7 | 7 | 8 | 7 | 8 |
| XdP34 | | 4 | | | | | | | | |
| XP34 | | | | | | 1 | | | | |
| XM12 | | 5 | | | | 3 | 1 | | | |
| XM3 | | 2 | | | | 4 | | | | |
| MX | | 2 | | | | | | | | |
| FC | | 4 | | | | | 1 | | | |
| IT | | 1 | | | | 5 | 7 | 2 | 6 | 1 |
| I | | 3 | | | | 1 | 1 | | | |
| P2 | | | | | | 1 | | | | |
| P34 | | | | | | 2 | | | | |
| M | | 1 | 1 | | | | | | | |
| MD | 1 | 17 | 2 | | | 6 | 1 | | | |
| AT | | 4 | | | | | 1 | | | |
| AX | 1 | 2 | | | | | | | | |
| CV | | 5 | | | | 2 | | | | |
| TV | | 3 | 1 | | | 1 | | | | |
| LV | 1 | 2 | | | | | | | | |
| DV | | 1 | | | | | | | | |
| SC | | 4 | | | | 2 | | | | |
| HU | | 4 | | | | 5 | 3 | | | |
| RA | | 2 | | | | 1 | 1 | | | |
| UL | | 3 | | | | | 1 | | | |
| H | | 1 | | | | | | | | |
| L | | 1 | | | | | | | | |
| TQ | | 1 | | | | | | | | |
| CP | | | | | | 1 | | | | |
| MC | | 3 | | | | | | | | |
| PE | | 3 | | | | | | | | |
| FE | | 2 | | | | | | | | |
| PT | | 1 | | | | | | | | |
| TI | | 6 | 2 | | | 2 | 1 | | | |
| AS | | 4 | | | | 1 | | | | |
| CA | | 5 | | | | 1 | 1 | | | |
| NC | | | | | | 1 | | | | |
| MT | | 7 | | | | 3 | | | | |
| PH1 | | 10 | | | | 1 | | | | |
| PH2 | | 2 | | 1 | | 2 | | | | |
| PH3 | | 3 | | | | 2 | | | | |

## *Appendix 1. Sheep/Goat: Skeletal elements (NISP)*

| Area | | | 61 | | 62 | House 1 |
|---|---|---|---|---|---|---|
| Phase | 6 | 7 | 7/8 | 8 | 7 | 7 |
| XdP34 | | 2 | | | | |
| XM12 | | 9 | 1 | 1 | 5 | |
| XM3 | | 1 | | | 1 | |
| XM | | 1 | | | | |
| MX | | 1 | | | | |
| FC | | 4 | | | | |
| dP3 | | 2 | | | | |
| M | | | | | | 1 |
| MD | 1 | 20 | 1 | | 8 | |
| AT | | | | | 1 | |
| AX | | 1 | | | | |
| TV | | | | | 1 | |
| SC | | 3 | | 1 | 1 | |
| HU | | 5 | | | 1 | |
| RA | 1 | 3 | | | 1 | |
| UL | | 2 | | | | |
| PE | | 3 | | | 2 | |
| TI | | 1 | | | 1 | |
| AS | | | 1 | | 1 | |
| CA | | 1 | | | | |
| NC | | 1 | | 1 | | |
| MT | | 5 | | | 1 | |
| PH1 | | | | | 2 | |
| PH2 | | | | | 1 | |

## *Appendix 1. Pig: Skeletal elements (NISP)*

| Area | 61 | | 62 | House 1 |
|---|---|---|---|---|
| Phase | 7 | 8 | 7 | 7 |
| XP34 | 1 | | | |
| XM12 | | | 2 | |
| XM3 | | | 1 | |
| XM | | 1 | | |
| MX | 2 | | | |
| FC | 1 | | 1 | |
| IT | | | | |
| I | | | 2 | |
| C | 3 | | | |
| M | | | | 1 |
| MD | 10 | | 1 | |
| AT | 1 | | | |
| TV | 1 | | | |
| SC | 3 | | | |
| HU | 1 | | | |
| RA | 1 | | | 1 |
| PE | 4 | | | |
| FE | 1 | | | |
| TI | 1 | 1 | | |
| AS | 2 | | | |
| CA | 1 | | | |
| MT3 | 1 | | | |
| MT4 | 1 | | | |
| PH1 | 1 | | | |

*Appendix 2. Cattle: Mandibular tooth eruption and wear ('Approx. age' after O'Connor 2003: 160, Table 31)*

| Phase | Area | Context | ID | dP4 | P4 | M1 | M2 | M3 | M12 | Approx. age |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 61 | 90443 | 43 | | | | | G | | adult 3 |
| 7 | 61 | 90220 | 398 | | | | | J | | elderly |
| 7 | 61 | 90264 | 67 | | | | | | G | immature+ |
| 7 | 61 | 90435 | 99 | J | | | | | | n/a |
| 7 | 61 | 90436 | 263 | | | | | | C | immature+ |
| 7 | 61 | 90454 | 225 | | | | | G | | adult 3 |
| 7 | 61 | 90454 | 121 | | | | | | J | elderly |
| 7 | 61 | 90454 | 216 | | G | K | H | G | | adult 3 |
| 7 | 61 | 90454 | 215 | | E | | G | G | | adult 3 |
| 7 | 61 | 90454 | 129 | | | | | A | | subadult+ |
| 7 | 61 | 90252A | 71 | | | | | | K | immature+ |
| 7/8 | 61 | 90200 | 96 | | | | | | G | immature+ |
| 7 | 62 | 90231 | 365 | | A | | | | | n/a |
| 7 | 62 | 90237 | 373 | | | | | | K | immature+ |
| 7 | H1 | 90457 | 423 | | | | | | F | immature+ |

*Appendix 2. Sheep/Goat: Mandibular tooth eruption and wear ('Approx. age' after O'Connor 2003: 160, Table 31)*

| Phase | Area | Context | ID | Taxa | dP4 | P4 | M1 | M2 | M3 | M12 | Approx. age |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 61 | 90386 | 272 | OVA | 14L | | | | | | 2+ months |
| 7 | 61 | 90448 | 315 | OVA | 11L | | | | | | 2+ months |
| 7 | 61 | 90454 | 3 | OVA | 14L | | | | | | 2+ months |
| 7 | 61 | 90257B | 195 | OVA | 14L | | | | | | 2+ months |
| 7 | 61 | 90257B | 196 | OVA | 9L | | | | | | 2+ months |
| 7 | 61 | 90435 | 106 | CAH | 13L | | | | | | 2+ months |
| 6 | 61 | 90443 | 46 | O | | 9A | | | | | n/a |
| 7 | 61 | 90320 | 26 | O | | 0 | 8A | 5A | | | 1+ years |
| 7 | 61 | 90325 | 186 | O | 14L | | 8A | 6A | 0 | | 1+ years |
| 7 | 61 | 90435 | 105 | O | | | 9A | 8A | 2A | | 2-3 years |
| 7 | 61 | 90435 | 108 | O | | | | | | 3C | 6+ months |
| 7 | 61 | 90435 | 107 | O | | | | | | 9A | 6+ months |
| 7 | 61 | 90436 | 267 | O | | 9A | 9A | 9A | 11G | | 4-6 years |
| 7 | 61 | 90449 | 146 | O | | | | | | 9A | 6+ months |
| 7 | 61 | 90454 | 4 | O | | | | | | 5A | 6+ months |
| 7 | 61 | 90257B | 197 | O | | | | | | 2A | 6+ months |
| 7 | 61 | 90257B | 198 | O | | | | | | 9A | 6+ months |
| 7 | 61 | 90257B | 199 | O | | | | | | 0 | 2+ months |
| 7 | 62 | 90220 | 401 | O | | | | | | 9A | 6+ months |
| 7 | 62 | 90237 | 346 | O | | | | | | 12A | 12+ months |
| 7 | 62 | 90237 | 347 | O | | | | | 11G | | 4+ years |
| 7 | 62 | 90250 | 412 | O | | | | | | 9A | 6+ months |
| 7 | 62 | 90333 | 467 | O | | | | | 9G | | 3-4 years |
| 7 | 62 | 90231A | 404 | O | | | | | 5A | | 2-3 years |
| 7 | 62 | 90231A | 403 | O | | | | | | 9A | 6+ months |
| 7 | 62 | 90231A | 402 | O | | | | | | 9A | 6+ months |
| 7 | 62 | 90273A | 80 | O | | | | | | 8A | 6+ months |
| 7 | H1 | 90457 | 433 | O | | 11S | 11B | 9A | 11G | | 4-6 years |

*Appendix 2. Pig: Mandibular tooth eruption and wear ('Approx. age' after O'Connor 2003: 160, Table 31)*

| Phase | Area | Context | ID | dP4 | P4 | M1 | M2 | M3 | M12 | Approx. age |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 61 | 90330 | 281 | | F | | J | C | | adult 2 |
| 7 | 61 | 90435 | 112 | F | | C | | | | immature+ |
| 7 | 61 | 90448 | 311 | | C | F | B | | | subadult+ |
| 7 | 61 | 90454 | 240 | | | | | D | | adult 2 |
| 7 | 62 | 90273A | 81 | | | | | C | | adult 2 |
| 7 | H1 | 90406 | 330 | | | | | A | | subadult+ |

## *Appendix 3. Cattle: Post-cranial epiphyseal fusion*

| Phase | Area | Context | ID | Element | Prox | Dist |
|---|---|---|---|---|---|---|
| 7 | 61 | 90327 | 52 | AT | f | f |
| 7 | 61 | 90452 | 250 | AT | f | f |
| 7 | 61 | 90313 | 286 | AT | f | f |
| 7 | 61 | 90313 | 287 | AT | f | f |
| 7 | H1 | 90457 | 425 | AT | f | f |
| 6 | 61 | 90443 | 44 | AX | f | f |
| 7 | 61 | 90454 | 132 | AX | f | |
| 7 | 61 | 90454 | 212 | CV | f | f |
| 7 | 61 | 90324 | 10 | CV | | f |
| 7 | 61 | 90330 | 279 | CV | u | u |
| 7 | 62 | 90333 | 390 | CV | f | f |
| 7 | 61 | 90454 | 237 | TV | f | f |
| 7 | 61 | 90448 | 307 | TV | f | f |
| 7 | 61 | 90454 | 136 | TV | | u |
| 6 | 61 | 90443 | 45 | LV | f | f |
| 7 | 61 | 90454 | 236 | LV | f | f |
| 7 | 61 | 90448 | 308 | LV | u | u |
| 7 | 61 | 90454 | 217 | SC | f | |
| 7 | 61 | 90330 | 275 | SC | f | |
| 7 | 62 | 90333 | 385 | SC | f | |
| 7 | 62 | 90465 | 415 | SC | f | |
| 7 | 61 | 90454 | 122 | HU | | f |
| 7 | 61 | 90454 | 123 | HU | | f |
| 7 | 61 | 90454 | 226 | HU | | f |
| 7 | 61 | 90454 | 227 | HU | | f |
| 7 | 62 | 90237 | 371 | HU | | f |
| 7 | 62 | 90238 | 374 | HU | | f |
| 7 | 62 | 90333 | 386 | HU | | f |
| 7 | 62 | 90453 | 391 | HU | f | |
| 7 | H1 | 90457 | 426 | HU | | f |
| 7 | H1 | 90457 | 427 | HU | | f |
| 7 | H1 | 90457 | 428 | HU | | f |
| 7 | 61 | 90384 | 82 | RA | | f |
| 7 | 61 | 90454 | 124 | RA | f | |
| 7 | 62 | 90252 | 376 | RA | f | |
| 7 | H1 | 90457 | 429 | RA | f | |
| 7 | 61 | 90449 | 141 | MC | | f |
| 7 | 61 | 90454 | 228 | MC | | f |
| 7 | 61 | 90257B | 189 | MC | f | |
| 7 | 61 | 90454 | 133 | PE | f | |
| 7 | 61 | 90454 | 213 | PE | f | |
| 7 | 61 | 90383 | 156 | FE | | u |
| 7 | 61 | 90313 | 289 | FE | f | |
| 7 | 61 | 90449 | 142 | TI | | f |
| 7 | 61 | 90325 | 182 | TI | | f |
| 7 | 61 | 90257B | 190 | TI | | f |
| 7 | 61 | 90452 | 251 | TI | | f |
| 7 | 61 | 90454 | 230 | TI | f | |
| 7/8 | 61 | 90200A | 49 | TI | | f |
| 7/8 | 61 | 90200 | 97 | TI | f | |
| 7 | 62 | 90236 | 336 | TI | | f |
| 7 | 62 | 90333 | 387 | TI | f | |
| 7 | H1 | 90457 | 431 | TI | | f |
| 7 | 61 | 90383 | 158 | AS | f | |
| 7 | 61 | 90383 | 159 | AS | f | |
| 7 | 61 | 90325 | 183 | AS | f | |
| 7 | 61 | 90452 | 252 | AS | f | |
| 7 | 62 | 90220 | 399 | AS | f | |
| 7 | 61 | 90452 | 254 | CA | f | |
| 7 | 61 | 90454 | 232 | MT | f | f |
| 7 | 61 | 90263 | 86 | MT | | f |
| 7 | 61 | 90454 | 134 | MT | | f |
| 7 | 61 | 90449 | 143 | MT | | f |

*Appendix 3. Cattle: Post-cranial epiphyseal fusion (cont.)*

| Phase | Area | Context | ID | Element | Prox | Dist |
|---|---|---|---|---|---|---|
| 7 | 61 | 90448 | 303 | MT | | f |
| 7 | 61 | 90257B | 191 | MT | f | |
| 7 | 62 | 90333 | 388 | MT | f | |
| 7 | 62 | 90333 | 389 | MT | f | |
| 7 | 62 | 90453 | 392 | MT | f | |
| 7 | 61 | 90324 | 9 | P1 | f | f |
| 7 | 61 | 90384 | 83 | P1 | f | f |
| 7 | 61 | 90435 | 101 | P1 | f | f |
| 7 | 61 | 90454 | 135 | P1 | f | f |
| 7 | 61 | 90383 | 160 | P1 | f | f |
| 7 | 61 | 90383 | 161 | P1 | f | f |
| 7 | 61 | 90454 | 233 | P1 | f | f |
| 7 | 61 | 90452 | 255 | P1 | f | f |
| 7 | 61 | 90448 | 304 | P1 | f | f |
| 7 | 61 | 90325 | 23 | P1 | f | |
| 7 | 62 | 90250 | 410 | P1 | f | f |
| 7 | 61 | 90454 | 234 | P2 | f | f |
| 7 | 61 | 90313 | 291 | P2 | f | f |
| 8 | 61 | 90317 | 203 | P2 | f | f |
| 7 | 62 | 90231A | 408 | P2 | f | f |
| 7 | 62 | 90434 | 437 | P2 | f | f |

*Appendix 3. Sheep/Goat: Post-cranial epiphyseal fusion*

| Phase | Area | Context | ID | Taxa | Element | Prox | Dist |
|---|---|---|---|---|---|---|---|
| 7 | 62 | 90434 | 439 | O | AT | f | f |
| 7 | 61 | 90383 | 169 | O | AX | | f |
| 7 | 62 | 90453A | 51 | O | TV | f | f |
| 7 | 61 | 90435 | 109 | O | SC | f | |
| 8 | 61 | 90317 | 205 | O | SC | f | |
| 7 | 61 | 90452 | 257 | OVA | HU | u | f |
| 7 | 61 | 90263 | 87 | OVA | HU | | f |
| 7 | 61 | 90263 | 88 | OVA | HU | | f |
| 7 | 61 | 90252A | 74 | O | HU | | f |
| 7 | 61 | 90383 | 171 | O | HU | | fg |
| 7 | 61 | 9061 | 151 | OVA | RA | f | f |
| 7 | 61 | 90252A | 75 | O | RA | f | |
| 7 | 61 | 90386 | 36 | O | UL | u | |
| 7 | 61 | 90313 | 298 | O | PE | f | |
| 7 | 62 | 90465 | 419 | O | PE | f | |
| 7 | 61 | 90257B | 200 | OVA | TI | | f |
| 7/8 | 61 | 90075 | 21 | O | AS | f | |
| 7 | 62 | 90453 | 393 | O | AS | f | |
| 7 | 61 | 90384 | 84 | OVA | CA | f | |
| 7 | 61 | 90383 | 174 | O | MT | f | |
| 7 | 62 | 90453 | 394 | O | P1 | f | f |
| 7 | 62 | 90252 | 381 | O | P1 | | f |
| 7 | 62 | 90463 | 449 | O | P2 | f | f |

*Appendix 3. Pig: Post-cranial epiphyseal fusion*

| Phase | Area | Context | ID | Element | Prox | Dist |
|---|---|---|---|---|---|---|
| 7 | 61 | 90448 | 312 | AT | f | f |
| 7 | 61 | 90435 | 117 | SC | u | |
| 7 | 61 | 90330 | 282 | SC | u | |
| 7 | 61 | 90449 | 144 | HU | | f |
| 7 | 61 | 90448 | 313 | RA | f | |
| 7 | 61 | 90325 | 187 | PE | f | |
| 7 | 61 | 90330 | 283 | PE | f | |
| 7 | 61 | 90326 | 18 | PE | u | |
| 7 | 61 | 90383 | 163 | FE | u | |
| 7 | 61 | 90454 | 241 | TI | | f |
| 8 | 61 | 90317 | 207 | TI | | u |
| 7 | 61 | 90264 | 69 | AS | f | |
| 7 | 61 | 90325 | 188 | AS | f | |
| 7 | 61 | 90320 | 29 | MT | f | |
| 7 | 61 | 90386 | 271 | MT | f | |
| 7 | 61 | 90449 | 145 | P1 | u | f |

## *Appendix 4. Cattle: Third molar measurements*

| Area | Phase | Context | ID | L | W |
|---|---|---|---|---|---|
| 61 | 7 | 90454 | 225 | 36.4 | 16.4 |
| 61 | 7 | 90454 | 216 | 37.2 | 16.0 |
| 61 | 7 | 90454 | 215 | 37.5 | 16.3 |
| 61 | 7 | 90454 | 129 | | 15.4 |
| 62 | 7 | 90220 | 398 | | 16.4 |

## *Appendix 4. Sheep/Goat: Tooth measurements*

| Area | Phase | Context | ID | Taxa | dP4L | dP4W | M1W | M2W | M3W |
|---|---|---|---|---|---|---|---|---|---|
| 61 | 7 | 90320 | 26 | O | | | 6.4 | 6.7 | |
| 61 | 7 | 90325 | 186 | O | | 5.8 | | | |
| 61 | 7 | 90386 | 272 | OVA | | 5.7 | | | |
| 61 | 7 | 90435 | 106 | CAH | 17.1 | 6.3 | | | |
| 61 | 7 | 90436 | 267 | O | | | | | 7.4 |
| 61 | 7 | 90448 | 315 | OVA | | 6.1 | | | |
| 61 | 7 | 90257B | 195 | OVA | | 5.5 | | | |
| 61 | 7 | 90257B | 196 | OVA | | 6.4 | | | |
| 62 | 7 | 90333 | 467 | O | | | | | 7.4 |
| 62 | 7 | 90231A | 404 | O | | | | | 7.0 |

## *Appendix 4. Pig: Tooth measurements*

| Area | Phase | Context | ID | dP4W | M1WA | M1WP | M2WA | M2WP | M3WA | M3WC |
|---|---|---|---|---|---|---|---|---|---|---|
| 61 | 7 | 90330 | 281 | | | | 12.4 | 13.6 | 13.6 | 13.1 |
| 61 | 7 | 90435 | 112 | 8.2 | 9.3 | 10.0 | | | | |
| 61 | 7 | 90448 | 311 | | 9.3 | 10.5 | 12.1 | 12.4 | | |
| 61 | 7 | 90454 | 240 | | | | | | 14.7 | 15.3 |

## *Appendix 4. Scapula measurements*

| Taxa | Area | Phase | Context | ID | GLP | SLC |
|---|---|---|---|---|---|---|
| B | 61 | 7 | 90330 | 275 | 61.3 | |
| O | 61 | 7 | 90435 | 109 | | 17.4 |
| O | 61 | 7 | 90317 | 205 | | 17.2 |

## *Appendix 4. Humerus measurements*

| Taxa | Area | Phase | Context | ID | BT | HT | HTC |
|---|---|---|---|---|---|---|---|
| B | 61 | 7 | 90454 | 122 | 63.8 | 38.7 | 27.4 |
| B | 61 | 7 | 90454 | 123 | 75.3 | 42.8 | 32.3 |
| B | 61 | 7 | 90454 | 226 | 65.1 | 36.1 | 27.6 |
| B | 61 | 7 | 90454 | 227 | | 34.7 | 26.4 |
| B | 61 | 7 | 90238 | 374 | 64.2 | 37.8 | 27.4 |
| B | 62 | 7 | 90237 | 371 | 64.9 | 38.2 | 28.9 |
| B | H1 | 7 | 90457 | 426 | 62.1 | 37.5 | 28.1 |
| B | H2 | 8 | 90457 | 427 | 62.2 | 37.7 | 27.9 |
| OVA | 61 | 7 | 90452 | 257 | 24.5 | 14.3 | 10.8 |
| OVA | 61 | 7 | 90263 | 87 | 27.0 | 17.3 | 12.7 |
| OVA | 61 | 7 | 90263 | 88 | 25.9 | 15.9 | 11.8 |
| S | 61 | 7 | 90449 | 144 | 30.9 | 26.4 | 17.9 |

## *Appendix 4. Radius measurements*

| Taxa | Area | Phase | Context | ID | Bp | BFp |
|---|---|---|---|---|---|---|
| B | H1 | 7 | 90457 | 429 | 71.7 | 66.4 |
| S | 61 | 7 | 90448 | 313 | 26.2 | |

## *Appendix 4. Tibia measurements*

| Taxa | Area | Phase | Context | ID | Bd | Dd |
|---|---|---|---|---|---|---|
| B | 61 | 7 | 90449 | 142 | 51.0 | 40.9 |
| B | 61 | 7 | 90452 | 251 | 57.0 | 40.4 |
| B | 61 | 7/8 | 90200A | 49 | 52.0 | 39.1 |
| B | 62 | 7 | 90257B | 190 | 54.2 | 42.3 |
| B | 62 | 7 | 90236 | 336 | 48.1 | 34.9 |
| B | H1 | 7 | 90457 | 431 | 52.9 | 39.3 |
| CEE | 62 | 7 | 90257B | 202 | 48.2 | 38.2 |
| CEE | 62 | 7 | 90251 | 420 | 50.0 | 38.4 |
| EQ | *61* | 7 | 90436 | 268 | 67.9 | 42.8 |
| OVA | 62 | 7 | 90257B | 200 | 23.2 | 18.0 |
| S | 61 | 7 | 90454 | 241 | 28.0 | 24.5 |

## *Appendix 4. Astragalus measurements*

| Taxa | Area | Phase | Context | ID | GLl | GLm | Bd | Dl |
|---|---|---|---|---|---|---|---|---|
| B | 61 | 7 | 90383 | 158 | 60.8 | 54.5 | 41.1 | 34.2 |
| B | 61 | 7 | 90383 | 159 | 55.2 | 49.5 | 35.6 | 30.5 |
| B | 61 | 7 | 90325 | 183 | 54.5 | 50.1 | 34.8 | 29.5 |
| B | 61 | 7 | 90452 | 252 | 59.2 | 54.1 | 37.4 | 32.6 |
| CEE | 61 | 7 | 90454 | 231 | 58.9 | 54.5 | 37.1 | 31.8 |
| S | 61 | 7 | 90325 | 188 | 40.3 | 37.8 | | |

## *Appendix 4. Calcaneum measurements*

| Taxa | Area | Phase | Context | ID | GL | C | C+D | DS |
|---|---|---|---|---|---|---|---|---|
| B | 61 | 7 | 90454 | 126 | | 26.9 | 46.7 | 42.9 |
| B | 61 | 7 | 90452 | 253 | | 25.1 | 41.6 | 41.9 |
| B | 61 | 7 | 90452 | 254 | 116.7 | 24.8 | 43.3 | 41.2 |
| B | 61 | 7 | 90436 | 265 | | 24.0 | 44.6 | |
| B | 61 | 7 | 90313 | 290 | | 22.0 | 41.3 | 38.4 |
| B | 62 | 7 | 90465 | 416 | | 22.8 | 41.4 | 37.1 |
| OVA | 61 | 7 | 90384 | 84 | 47.7 | 11.0 | 18.9 | 14.9 |

*Appendix 4. Metapodial measurements*

| Taxa | Area | Phase | Context | ID | Elem | GL | SD | Bp | BFp | BatF | Bd | 1 | 2 | 3 | 4 | 5 | 6 | a | b |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | 61 | 7 | 90449 | 141 | MC | | | | | | | 19.9 | 26.8 | 24.9 | | | 24.9 | 24.1 | |
| B | 61 | 7 | 90454 | 228 | MC | | | | | | 49.1 | 20.6 | 27.2 | 24.0 | 19.3 | 26.7 | 24.4 | 24.2 | 23.3 |
| B | 61 | 7 | 90454 | 232 | MT | 196.8 | 22.8 | 42.0 | 39.6 | 45.1 | 48.9 | 20.6 | 28.2 | 25.0 | 19.4 | 27.2 | 25.3 | 23.8 | 22.5 |
| B | 61 | 7 | 90454 | 134 | MT | | | | | 52.4 | 62.6 | 24.4 | 33.2 | 29.6 | 22.7 | | 28.7 | 32.6 | 27.2 |
| B | 61 | 7 | 90257B | 189 | MC | | | 46.6 | 44.7 | | | | | | | | | | |
| CEE | 61 | 7 | 90257B | 201 | MC | | | | | 38.9 | 39.3 | 19.5 | 27.2 | 24.3 | 18.0 | 25.9 | 23.8 | 17.7 | 17.7 |