**Methods Statement: HumAnE Bioarchaeology**

Bioarchaeological evidence is a rich but precious source of information about human-animal-environment relationships. We are conscious of the non-renewable nature of the materials that we examine and therefore our policy is to ensure that the maximum amount of data is obtained from any archaeological assemblages that we analyse. This is particularly the case when we are deploying destructive analysis, which is necessary for DNA and isotope analysis.

**Full-suite analysis**

When specimens have been selected for destructive sampling, our approach is to conduct full-suite analysis. Unlike many labs, which conduct individual analyses on different specimens, we conduct all our analyses on the same specimens, thereby increasing the power of our results.

* **Contextual analysis:** Central to interpreting the scientific results of our analysis is understanding the physical and cultural context from which the bioarchaeological remains derived.
* **Osteological analysis:** We employ all the traditional techniques of osteological analysis – speciation, skeletal patterning, ageing, sexing, osteometrics and studies of palaeopathology and taphonomy. Having recorded all metrics and zooarchaeological data, we will then adopt a selective sampling technique for the following analyses.
* **Geometric Morphometrics (GMM):** This is a non-destructive technique that involves the analysis of bone shape in 2D and 3D using photographs. It provides even more detailed information than standard measurements. We will focus on the astragalus, calcaneus and tibia but would need to take these specimens off site for analysis in our GMM lab at the University of Exeter.
* **DNA:** Genetic analysis provides valuable information regarding the development of particular traits and answer questions about the introduction of different species and interactions between them. It will also allow us to test species designations made using the zooarchaeological and morphometric techniques discussed above. DNA analysis requires around 0.5g of bone and we seek to use specimens that have been 3-D scanned for GMM. Our DNA research is carried out in collaboration with Prof. Greger Larson, the University of Oxford.
* **Isotopes analysis**:Carbon and nitrogen isotopes are well-known tools for identifying the varying proportions of different sources of protein consumed by individuals. They can be used to detect aspects such as the ratios of marine and terrestrial food eaten, as well as the balance of plant and animal foods ingested. Oxygen and strontium isotopes, meanwhile, can be used to investigate patterns of migration and movements. For these techniques we propose to take samples of around 0.5g. Any bones may be used for this, although those with the greater density are more likely to produce successful results. Carbon and nitrogen analyses are undertaken at the University of Exeter, with our strontium and carbon work being carried out in collaboration with the University of Southampton.

**Data Repository**

We are committed to making all our data open access and, as part of our previous research, have developed a prototype database that is currently being migrated to the Archaeology Data Service. We are now developing a larger scale repository in collaboration with Exeter’s Digital Humanities Service which will allow all of our data, including our integrated full-suite analysis, to be stored and made publicly available.

**Collaboration and Publication Strategy**

The success of our research depends on collaboration with numerous colleagues across multiple disciplines. We are actively seeking new collaborators who share our research goals and values. Our approach to collaboration is to offer authorship on our papers to everyone who has assisted in the generation of ideas and data, unless you opt for an acknowledgement instead. We have found that this inclusive approach to interpretation and presentation of data aids the production of better papers, with friendly communication before, during and after publication.