

Professional Zooarchaeology Group (PZG) Minutes

Comparative Reference Collections, University of Sheffield, 6th February 2010

The tenth meeting of the Professional Zooarchaeology Group was kindly hosted by Dr. Kim Vickers and Tessa Pirnie at the University of Sheffield on Saturday, February 6th, 2010. The meeting enjoyed the largest attendance of any PZG meeting to date. The theme of the day was the use, construction and maintenance of comparative reference collections in zooarchaeology.

The morning began with a welcome address by Dr. Umberto Albarella (University of Sheffield), who proceeded to ask the audience “who needs a reference collection?” His presentation highlighted the fact that reference collections can not only aid research through aiding identification of specimens, but that they are also a valuable research resource in their own right. In addition to their use in research, reference collections are also an essential teaching tool, demonstrating morphological variability within, as well as between, species. To this end, the assembly and curation of a reference collection also aids continuing professional development. Having covered the ‘why’, Dr. Albarella then continued to emphasise the importance of the ‘how’ in reference collections, suggesting that the labelling and layout of a reference collection was not only the key to its accessibility, but that its organisation also served as a reminder in the identification process. This was illustrated with reference to the University of Sheffield reference collection, which is organised taxonomically and has gaps left for species not yet contained in the collection. This not only means that reorganisation is not required should they be acquired in the future, but that anyone accessing the reference collection is aware of absence of relevant comparative material.

Sheila Hamilton-Dyer (SH-D ArchaeoZoology) then followed this up by discussing the practicalities of creating a reference collection. Sources of specimens for curation in a reference collection include food, butchers, fishermen, wildlife parks, breeders, vets (although this can be complicated), pets, roadkill, friends and family and also buying and trading with others. The importance of labelling was again emphasised, as it should be the first part of preparation of any specimen. Other helpful tips included the drilling of holes in larger bones, in order to control for grease, using indicator dyes in fish bones in order to show morphological features more clearly and, again, the importance of labelling! Records and backups of records should be kept of the reference collection, including the original labels, and bones should be labelled directly. This helps to avoid losing or confusing specimens when using the reference collection.

Mike Revill (English Heritage) continued to discuss the practical aspects of creating a reference collection in his presentation “*Preparing Skeletal Material with the Enzyme Neutrase*”. Neutrase is a neutral bacterial protease manufactured by a Dutch company. It

removes flesh, etc. in half a day for most carcasses. The method follows that of Davis and Payne (1992). When using neutrase for this purpose it is imperative to use foil labels, which will not be consumed by the protease. Other considerations are: cutting open feet and defleshing animals to allow access for the neutrase; cooking animals before beginning (except fish) at a long, low simmer, since neutrase does not work well on uncooked meat; and draining off of fat after cooking. Other compounds used by Mr.Revill include biotex, which was used in a 0.1% solution at 43°C (aquarium heaters were suggested), soaking skeletons for three days in appropriate containers (plastic – metal containers are to be avoided with biotex) followed by a second three day soak. Biotex is good for removing grease from bones, but not flesh. Acetone can also be used for degreasing. Finally, indian ink was recommended for labelling bones. It was emphasised that no damage to the bones had been observed after their treatment with neutrase and a cheap source of the compound was recommended as the National Centre for Biotechnology Education.

Dr. Polydora Baker (English Heritage) then talked about the other practical aspect of creating and curating a reference collection – the legalities. There are a number of Biosecurity and Biodiversity regulations which relate to the trade in and possession of animal remains. Under the animal by-products regulations of 2005, it is not required for education and research institutions to hold a licence for skeletal remains, antler and horn (included in Category 3 materials). There are licensed collectors who must be used for disposal of animal remains – including any flesh removed in the early stages of curation and special regulations for fallen livestock – including the need to complete their traceability records and mandatory testing of cattle older than 48 months for BSE. On the subject of fallen animals, if a group of more than ten dead birds is found, then there is a requirement to contact Defra, whilst Natural England should be contacted for all wild animals. A licence for owning or trading in protected wild animals, or parts thereof, is required and is available from Natural England (exceptions exist for animals which were bred in captivity, died before 1994 or originate from outside of the EC). 25 year licences are downloadable from the Natural England website for research and education institutions and Natural England should be notified of any new acquisitions. Personal licences are issued for individuals or other organisations, whilst sellers must have an additional, separate licence and must notify Natural England of any sales. In addition, CITES covers the international trade in wild animals and specific forms must be completed for scheduled animals. Finally, in the UK there is a whale and dolphin Stranding Scheme, and the Natural History Museum should be informed of any cetaceans found on the shore. Following the PZG meeting, Angela Trentacoste noted that “specialists are allowed to move reference specimens about in the EU provided they are handled according to regulation regarding Category 3 materials (EC/1774/2002). Basically they need to be labelled and in their own container. The UK has a downloadable general (IMP/GEN/2009/03) license for their import, so bringing them back shouldn't be an issue.”

Rebecca Reynolds and Dr. Naomi Sykes (University of Nottingham) then posed the question “are digital collections the way forward?” A suggestion which would not only circumvent the physical and legal processing of animal remains, but also reduce the need for storage and increase access to comparative material when researching in the field. As a part of this presentation, the Archaeological Fish Resource was introduced, which aims to cover around eighty species of fish with high definition photo’s of both standard and special elements.

After a buffet lunch, Lorraine White (University of Sheffield) introduced her research concerning the effects of “*Maggots, microbes and molecules.*” This indicated that bacterial damage will not occur until skeletonisation, with damage occurring from inside the body. Butchered animals are unlikely to be affected as the gut has been removed. Maggots kill and eat bacteria – effectively sterilising the material – this attack occurs within 6 months of death and the attacks make no difference to the appearance of the bones.

There then followed a brief round-table discussion concerning the creation of a centralised database of accessible collections. The suggestion was made for English Heritage to provide a webpage of links to reference collections accessible to the public. It was decided that PZG members should inform Dr. Fay Worley of known collections for this purpose. Dr. Kim Vickers offered to undertake a “snapshot” database of reference collections as they stand and this offer was accepted by the members.

After a coffee break, Hannah Russ and Rebecca Reynolds gave demonstrations in the preparation of fish skeletons for inclusion in reference collections and tours of the University of Sheffield reference collection were offered.

References

Davis, S., Payne S., 1992 101 ways to deal with a dead hedgehog: notes on the preparation of disarticulated skeletons for zoo-archaeological use, in *Circaea*, **8(2)**, 95-104.)

Programme

Umberto Albarella - Animal bone reference collections: why and how?

Sheila Hamilton-Dyer – “...and here's one I did earlier: from creature to curation.

Mick Revill - Preparing skeletal material with the enzyme neutrase.

Polydora Baker - Preparing, trading and curating skeletal reference material- good practice and legal requirements.

Rebecca Reynolds and Dr. Naomi Sykes - Are digital collections the way forward?

Lorraine White - Maggots, Microbes and Molecules: The Microbiology of Death

Round-table discussion - Creating a centralised database of accessible collections.

Minutes submitted by Lee Broderick

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