

# Book of Abstracts

6th

**ICAZ-AGM**

Working Group Meeting

6th ICAZ - Archaeozoology Genetics and Morphometrics Working Group Meeting

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Faculty of Sciences  
University of Lisbon

# Organization

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**O17 - Shape variation in dogs and wolves scapula analysed by geometric morphometrics****Fabien Belhaoues<sup>1\*</sup>**<sup>1</sup>UMR 5140 - Archéologie des Sociétés Méditerranéennes, 390 Route de Pérols, 34970 Lattes, France

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This study contributes to the osteological distinction between dogs and wolves. No morphological study involving postcranial skeleton has ever been undertaken to determinate domestic and wild canids. In this work, geometric morphometrics analysis is applied in an original comparative study of dogs and wolves scapulas. Adults and sub-adults of moderns 86 dogs and 13 wolves were compared. The dogs sample consisted from 30 breeds. Wolves are both European and North American. Patterns of two-dimensional morphological variation were quantified using 10 landmarks. Results by relative warp analysis are highly predictive and allow to determinate > 95% of scapulas. The major difference concerns the acromion process, more extended ventrally in wolves. Thus wolves have a greatest scapular spine length for the insertion of the deltoid muscle, reduced in dogs after domestication. Scapula morphology constitutes the first morphological feature reliable to determinate large canids by the postcranial skeleton. This study is a part of a larger research on osteological diagnosis of domestic and wild canids, including foxes. Results will allow a better determination of canids remains from archaeological sites.

**Keywords: dogs, wolves, geometric morphometrics, scapula, archaeozoology, domestication**

**O18 - Palaeological Footprint: the origin****Eloísa Bernáldez-Sánchez<sup>1,2\*</sup>, Esteban García-Viñas<sup>1,2</sup>, Miguel Gamero<sup>1,2</sup>, Aurora Ocaña<sup>1</sup>, Jennifer Leonard<sup>3</sup>, Javier Porta<sup>4</sup>, José M. Porta<sup>4</sup>**

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During several years our Laboratory of Paleontology and Paleobiology (IAPH) has researched the paleobiological heritage preserved in Holocene archaeological sites in the South of Spain. Shells and bones are the most common biological remains in ancient rubbish dumps produced by humans societies. Studying these materials we attempt to quantify the human impacts on the environment throughout history: the Paleoecological Footprint. The results show some changes in Biodiversity, Biogeography and Morphobiometry of certain species. Nevertheless we could not resolve some questions using traditional tools in Paleobiology. Currently the application of new techniques and methodologies in fossils is allowing us to get more information. We are carrying out the research project “New technical and methodological approach for the protection and knowledge of organic archaeological heritage: Paleobiology, ancient DNA and physicochemical analysis” (UPO -IAPH) with main objective of to apply different experimental sciences in the study of bone records with a holistic view of the ecological changes since the Paleobiology, the Genetic and the Chemical analysis.

**Keywords: Paleoecological Footprint, Iberian Peninsula, Morphobiometric, ancient DNA**

**P2 - Morphometric analysis of the fresh water Turtles from 16th century. Human impact in wild species****Eloísa Bernáldez-Sánchez<sup>1,2\*</sup>, Esteban García-Viñas<sup>2</sup> and Miguel Gamero-Esteban<sup>1</sup>**

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The morphobiometric analysis of two species of reptiles from archaeological record could give us scientific criteria to understand the current state of Biodiversity of some ecosystems. Actually, we should consider the impact of our

ancestors on wildlife for understand the future. A good example of this impact on biodiversity is preserved in the archaeological record of the Santa Maria de las Cuevas Monastery (Seville). In this archaeological site we found 143 turtle shells from two fresh water species: *Mauremys leprosa* (Schweigger, 1812) and *Emys orbicularis* (Linnaeus, 1857). During the analysis of these remains, we observe the evolution experienced in both freshwater turtles populations from the 16th century to the present times. We made statistical analysis of the biometrical data of the xiphiplastron to compare of ancient turtles and present ones from of the Biological Station of Doñana (CSIC) and National Museum of Natural History (CSIC) of Madrid (Spain).

**Keywords:** Paleobiology, fresh water turtles, biometry, xiphiplastron, Iberian Peninsula, 16th century.

### I3 - On the origin of domesticated animals in southern Portugal... a view from the Near East

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Understanding the origin of our domesticated animals is one of the more exciting topics we zooarchaeologists study. With its rich zooarchaeological record we now know quite a lot about this topic in the Near East. In today's talk we attempt to compare what was apparently happening in that region with what we are beginning to understand happened here in Portugal. We ask when animals were first domesticated and why did our ancestors need to change to a lifestyle which involves much hard work?

The two principal indicators used by zooarchaeologists to recognise the beginnings of food animal domestication are first a drastic change in the spectrum of taxa present in the faunal succession (often including the presence of exotic ones), and second, a change in their size which can be detected in their bones and teeth.

A comparison of pre-Neolithic with Neolithic faunal collections in the Near East and here in Portugal reveals drastic changes in the course of time. The Near East saw a switch from gazelle and fallow deer to caprines. Portugal saw a switch from red deer and horse to caprines. The simple presence of sheep bones in Portugal has to represent a domestic fauna as wild sheep never inhabited the Iberian Peninsula. An important faunal collection currently under study from the early Neolithic site of Lameiras near Lisbon comprises predominantly sheep bones dated to the 6th millennium cal BC.

It is now clear that wild boar and cattle gradually decreased in size in the course of time, a change, beginning in the Neolithic, that marks their domestication. Closer scrutiny of the measurements of wild boar and aurochs in the Near East and red deer in Portugal reveals a substantial size *decrease* in the Mesolithic followed by a partial recovery. The Pleistocene to Holocene size decrease was possibly the result of two factors: environmental (temperature increase) and perhaps overhunting. The subsequent size recovery may reflect relaxed hunting pressure.

Zooarchaeological data such as the ratio of small to large animals and the proportion of juveniles culled in the Natufian-PPN-A of the Near East and Mesolithic of Portugal can be interpreted in terms of a general increase of pressure upon wildlife resources perhaps reflecting an increase in the number of human mouths to feed. And it was this that led to the eventual need for people to begin taking control of natural resources; i.e., husbanding plants and animals.

**Keywords:** Zooarchaeology, Osteometrics, Portugal, Near East

### O19 - The Value of Early- and Non-fusing Elements in Morphometry

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Medieval mass hunting of reindeer on the Hardangervidda mountain plateau in Southern Norway resulted in huge middens consisting of 99,8% reindeer bones. Three locations (Sumtangen, Store Krækkja and Ørteren) were selected for a detailed morphological study. Intensive marrow collecting left almost no bones intact: phalanges, along with