



Focus article

Palaeolithic dogs and Pleistocene wolves revisited: a reply to Morey (2014)



Mietje Germonpré ^{a,*}, Mikhail V. Sablin ^b, Martina Lázníčková-Galetová ^{c,d}, Viviane Després ^e, Rhiannon E. Stevens ^f, Mathias Stiller ^g, Michael Hofreiter ^{h,i}

^a Directorate “Earth and History of Life”, Royal Belgian Institute of Natural Sciences, Vautierstraat 29, 1000 Brussel, Belgium

^b Zoological Institute RAS, Universitetskaya nab. 1, 199034 Saint-Petersburg, Russia

^c Department of Anthropology, Faculty of Philosophy and Arts, University of West Bohemia, Sedláčkova 15, 306 14 Pilsen, the Czech Republic

^d Department of Prehistory, USM 103 – CNRS UMR 7194, Institute of Human Paleontology, 1 rue René Panhard, 75 013 Paris, France

^e Institute for General Botany, Johannes Gutenberg-University Mainz, Müllerweg 6, D-55099 Mainz, Germany

^f McDonald Institute for Archaeological Research, University of Cambridge, Downing Street, Cambridge CB2 3ER, UK

^g Department of Evolutionary Genetics, Max Planck Institute for Evolutionary Anthropology, Deutscher Platz 6, D-04103 Leipzig, Germany

^h Institute for Biochemistry and Biology, Faculty for Mathematics and Natural Sciences, University of Potsdam, Karl-Liebknecht-Str. 24-25, 14476 Potsdam OT Golm, Germany

ⁱ Department of Biology, The University of York, Wentworth Way, Heslington, York YO10 5DD, UK

ARTICLE INFO

Article history:

Received 18 September 2014

Received in revised form

27 November 2014

Accepted 29 November 2014

Available online 10 December 2014

Keywords:

Canid morphotype

Dog

Domestication

Palaeolithic

Pleistocene

Wolf

ABSTRACT

This is a reply to the comments of Morey (2014) on our identification of Palaeolithic dogs from several European Palaeolithic sites. In his comments Morey (2014) presents some misrepresentations and misunderstandings that we remedy here. In contrast to what Morey (2014) propounds, our results suggest that the domestication of the wolf was a long process that started early in the Upper Palaeolithic and that since that time two sympatric canid morphotypes can be seen in Eurasian sites: Pleistocene wolves and Palaeolithic dogs. Contrary to Morey (2014), we are convinced that the study of this domestication process should be multidisciplinary.

© 2014 Elsevier Ltd. All rights reserved.

Despite considerable research, the timing of the domestication of the wolf remains controversial. The recent paper by Morey (2014) contests our results (Germonpré et al., 2009, 2012, 2013) that suggest that the domestication of the wolf was a long process that started early in the Upper Palaeolithic and consisted of a gradual transformation from wild wolves via Palaeolithic dogs to modern dogs, during which admixture could occur. Morey (2014) speculates that this domestication process could have taken place over a relatively brief time span; he considers that the domestication of the wolf was a rapid process during which wild wolves evolved relatively fast into dogs, which underwent quite rapidly an appreciable size reduction and morphological divergence compared to their ancestors. Morey (2014) notes that a directional

selection was operating, resulting in substantial changes relatively rapidly, but he fails to add how he views this domestication. Several models on the domestication of the wolf exist (e.g. Russell, 2012; Trutt, 1999). The two main important hypotheses can be summarized as follows: 1) “Self-domestication” by the wolves: Some wolves moved into a symbiotic relationship with prehistoric humans. They scavenged on the remains of the prey animals left by the prehistoric people at the human settlements or the kill sites. Those wolves that were less anxious and aggressive thrived, continued to follow the prehistoric humans and colonised the human dominated environments, generation after generation. Gradually, the first primitive dogs emerged from this group (e.g. Coppinger and Coppinger, 2001; Crockford, 2000; Russell, 2012). Surprisingly, not much research has been done to decipher the diet of those wolves that lived near Upper Palaeolithic hunter–gatherers, but see Germonpré et al. (2009) and Bocherens et al. (in press); 2) The Palaeolithic people actively selected wolf pups

* Corresponding author. Tel.: +32 2 627 44 64; fax: +32 2 627 41 13.
E-mail address: mietje.germonpre@naturalsciences.be (M. Germonpré).

for several reasons: they could have been used as pets, they could have been kept for utilitarian, ceremonial and symbolic uses, as social storage, for combats and/or as “living tools” (e.g. [Crabtree and Campana, 1987](#); [Germonpré et al., 2010](#); [Russell, 2012](#); [Serpell, 1989](#); [Shipman, 2010](#)). The most docile or interesting animals could have been permitted to reproduce ([Clutton-Brock, 1995](#); [Germonpré, 2010](#); [Serpell, 1989](#)). After several generations of unconscious and later of conscious selection of human-defined behavioural traits, the first dogs emerged ([Trut et al., 2009](#)). This hypothesis is being tested in Novosibirsk since 1959 where foxes are being bred, generation after generation, for “tameability” ([Trutt, 1999](#)). However, the conditions in which the foxes live in Novosibirsk are, without question, very different from the living conditions the captive wolf pups had to endure in the Palaeolithic camps ([Trut et al., 2004](#)); although, just as the Novosibirsk foxes, it can be expected that only a small number of these wolf pups could grow up and reproduce. This most likely means that many wolf pups must have been brought to a large number of camps, implying that the keeping of young animals was probably a cultural tradition among the Upper Palaeolithic humans (cf. [Niskanen et al., 2013](#); [Pang et al., 2009](#)). Tamed born-wild animals that lived in captivity would then be available when needed for ritual/ceremonial purposes ([Simoons and Baldwin, 1982](#)) or for practical reasons (e.g.: fur: cf. [Stefansson and Wissler, 1919](#) p. 389). General comparative analogies about the keeping of young animals, including mammals such as bear cubs, fox and wolf puppies can be found in the anthropological literature on arctic and subarctic peoples ([Batchelor, 1901](#); [Drucker, 1951](#); [Paproth, 1962, 1976](#); [Gehring and Starna, 1988](#); [Hamayon, 2012](#); [Prokofyeva, 1964](#); [Sokolova, 2000](#); [Stefansson and Wissler, 1919](#)). Circumpolar bear ceremonialism involves the ritual treatment of bears to assure the future availability of game ([Hallowell, 1926](#); [Paproth, 1976](#); [Paulson, 1965](#); [Russell, 2012](#)). The origin of these bear rituals can be placed in the Upper Palaeolithic (see [Germonpré and Hämäläinen, 2007](#) and references therein). As noted by [Russell \(2012\)](#), the idea that domestication may have been motivated by the need for sacrificial animals deserves attention. This viewpoint is furthermore supported by several indications of the ritual significance of large canids (both Pleistocene wolves and Palaeolithic dogs) for Upper Palaeolithic people ([Germonpré et al., 2012](#); [Sablin and Khlopachev, 2002](#)).

We have shown that during the Pleistocene two sympatric canid morphotypes can be distinguished among the canid remains from several Upper Palaeolithic Eurasian sites. The differentiation between these two types is based on multivariate analyses of traditional morphometrics with a limited number of linear distances on skulls and mandibles, because of the fragmentary nature of the fossil specimens ([Germonpré et al., 2009, 2012, 2013, in press](#)). Nevertheless, although a single distance is a size measure, a set of multiple distances contains shape information and can be used to summarise a form ([Lele and Richtsmeier, 2001](#)).

One canid morphotype is most similar to recent wolves and is named by us “Pleistocene wolf”, while the second morphotype is distinct from extant wolves. Relative to wolves, the specimens from the latter morphotype are characterised by short skull lengths, short snouts, wide palates and braincases, and short mandibles as well as small lower carnassials. However, both the upper and lower carnassials of this latter morphotype are larger than those of modern dogs. It is this morphotype that we described as Palaeolithic dogs. We used the term Palaeolithic dogs to distinguish them from modern dogs. This terminology implies that the Palaeolithic dogs can, but need not be the direct ancestors of recent dogs while there existed an intimate relationship between humans and these canids, including the breeding of the latter by prehistoric people ([Germonpré, 2010](#); [Germonpré et al., 2013, in press](#); see also

above). Furthermore, a recent study on a limited subset of large canids from the Gravettian Předmostí site (Czech Republic) reveals that these two sympatric canid types differ not only in morphology but also had different diets, on the basis of the stable isotopes of their collagen. The studied Pleistocene wolves relied mostly on horse and mammoth, while the analyzed Palaeolithic dogs consumed mainly reindeer and musk ox ([Bocherens et al., in press](#)).

All Palaeolithic dogs that we studied and whose domestic status is now criticized by [Morey \(2014\)](#) are found in prehistoric sites dating from the Upper Palaeolithic. All these sites also yielded important quantities of lithic, bone, ivory and antler artefacts, ornaments and portable art. For more details on these sites the reader is referred to [Germonpré et al. \(2009, 2012, 2013, in press\)](#) and references therein. Surprisingly, [Morey](#) does not discuss the skulls we identified as Pleistocene wolves and he does not give comments on the differences between the skulls of this latter morphotype with the ones of the Palaeolithic dogs.

[Morey \(2014\)](#) criticizes our use of a size-adjusted Discriminant Function Analysis (DFA) in our first publication on Palaeolithic dogs ([Germonpré et al., 2009](#)). The measurements used in that DFA were size-adjusted because of the size differences between the reference groups ([Germonpré et al., 2009](#), p. 476). The use of size-adjusted data may allow the identification of differently sized individuals that have the same shape ([Jungers et al., 1995](#)). As reference material we selected canid skulls that had been described as early dogs and were as close as possible in time and space to the European fossil canids we wanted to examine ([Germonpré et al., 2009, 2013](#)). In the publication on the Předmostí canids, the first DFA used log₁₀-transformed dimensions, permitting size to be taken into account ([Germonpré et al., 2012](#), p. 189) and a second DFA was carried out on size-adjusted variables ([Germonpré et al., 2012](#), p. 190). In the latter paper, non-metric characteristics like tooth crowding, which [Morey \(2014, p. 302\)](#) considers as “... generally expected in early dogs”, were discussed ([Germonpré et al., 2012](#): Table 3). With tooth crowding we mean that the premolars are overlapping: P1 is overlapping with P2, and/or P2 is overlapping with P3, and/or P3 is overlapping with P4. Premolars that are merely in contact are not considered by us as representing tooth crowding. The occurrence of crowded premolars in the mandibles of Palaeolithic dogs is also noted in [Germonpré et al. \(in press, Table 6\)](#): about 60% of the lower jaws from Palaeolithic dogs show tooth crowding. Such tooth crowding can occur in wild wolves. In our data set, 5% of the mandibles of the recent Northern wolves present this trait ([Germonpré et al., in press, Table 6](#)). Crowded premolars also occur in 2.5% of the mandibles from a recent Serbian wolf sample set ([Dimitrijević and Vuković, 2012](#)) and this characteristic has especially been noted in hybrids between Serbian wolves and dogs ([Dimitrijević and Vuković, 2012](#)). However, this feature is more generally present in early dogs and in much larger frequencies ([Germonpré et al., 2012, 2013, in press](#), and references herein).

[Morey \(2014\)](#) evaluates our Palaeolithic dogs, using the individual measurements published in [Germonpré et al. \(2012\)](#), by comparing them with three series of wolves and one series of prehistoric dogs. These prehistoric dogs are already more evolved dogs as they date from the Middle Holocene and the vast majority is from North America. The series of wolves that are used in these comparisons are: one small sample from Holocene Danish wolves, one sample from a recent American subspecies of the grey wolf (*Canis lupus baileyi*) and a sample from the recent American Eastern wolf (*C. lupus lycaon*) ([Morey, 2014](#)). A recent DNA-study on the basis of high-quality genomes of several extant wolves and dogs ([Freedman et al., 2014](#)) has shown that the ancestor of the modern dogs might be an extinct population of Pleistocene wolves. The geographical origin of these Pleistocene wolves can be situated in Europe ([Thalmann et al., 2013](#)). Although [Morey \(2014\)](#) highlights

Download English Version:

<https://daneshyari.com/en/article/7442374>

Download Persian Version:

<https://daneshyari.com/article/7442374>

[Daneshyari.com](https://daneshyari.com)