

Original article

Canis accitanus nov. sp., a new small dog (Canidae, Carnivora, Mammalia) from the Fonelas P-1 Plio-Pleistocene site (Guadix basin, Granada, Spain)[☆]

Canis accitanus nov. sp., un nouveau petit canidé (Canidae, Carnivora, Mammalia) du gisement plio-pléistocène de Fonelas P-1 (bassin de Guadix, Grenade, Espagne)

Guiomar Garrido^{*}, Alfonso Arribas

Museo Geominero, Instituto Geológico y Minero de España, Ríos Rosas 23, 28003 Madrid, Spain

Received 23 May 2007; accepted 23 May 2008

Available online 26 September 2008

Abstract

This paper reports a new species of dog (*Canis accitanus* nov. sp.) from the Fonelas P-1 site (dated close to the Plio-Pleistocene boundary) in Granada, Spain. This new taxon shows cranial features more similar to coyote-like dogs (*C. lepophagus*, *C. priscolatrans*, *C. arnensis* or *C. latrans*) than to wolf-like dogs (*C. etruscus*, *C. mosbachensis* or *C. lupus*), such as a long and narrow muzzle, a little-developed sagittal crest and frontal bones raised only a little above the rostrum. However, it also shows a series of autapomorphic characteristics in its upper dentition, essentially in the first upper molar, which reflects a trophic adaptation towards a more abrasive diet than that eaten by other species of its genus. This new dog is the smallest representative of the genus *Canis* ever recorded for the European Pliocene or Pleistocene.

© 2008 Elsevier Masson SAS. All rights reserved.

Résumé

Ce travail décrit une nouvelle espèce de Canidé (*Canis accitanus* nov. sp.) du gisement de Fonelas P-1 (daté de la limite Plio-Pléistocène) à Grenade, Espagne. Ce nouveau taxon présente des traits crâniens plus proches de ceux des coyotes (*C. lepophagus*, *C. priscolatrans*, *C. arnensis* ou *C. latrans*) que de ceux des loups (*C. etruscus*, *C. mosbachensis* or *C. lupus*), tel qu'un museau étroit et long, une crête sagittale peu développée et des os frontaux ne s'élevant que très légèrement au dessus du rostre. Cependant, il présente aussi un ensemble de caractéristiques autapomorphiques au niveau de la dentition supérieure, notamment la première molaire, qui présente une adaptation trophique à un régime plus abrasif que celui d'autres espèces de son genre. Ce nouveau canidé est le plus petit représentant du genre *Canis* jamais décrit dans le Pliocène ou le Pléistocène européens.

© 2008 Elsevier Masson SAS. All rights reserved.

Keywords: Plio-Pleistocene boundary; Canidae; *Canis*; Fonelas P-1; Guadix basin; Spain

Mots clés : Limite Plio-Pléistocène ; Canidae ; *Canis* ; Fonelas P-1 ; Bassin de Guadix ; Espagne

1. Introduction

This paper reports a new species of dog (*Canis accitanus* nov. sp.) from the Fonelas P-1 site (dated close to the Plio-Pleistocene boundary) in Granada, Spain.

The fossil record of the genus *Canis* covers a period of some 4 million years from the Lower Pliocene to the present, during

[☆] Corresponding editor: Serge Legendre.

^{*} Corresponding author.

E-mail address: g.garrido@igme.es (G. Garrido).

which time different species have belonged to palaeocommunities worldwide with the exceptions of Antarctica and, until recently, Australia. The taxonomy of the genus' fossil members is complex due to their anatomical homogeneity, the multitude of species described, and the wide geographical distributions of their different populations.

The modern day members of *Canis* are medium to large size Caninae with a lower dental formula of 3-1-4-3. Eight species are currently recognised (Nowak, 1999), including the three jackals:

C. mesomelas Schreber, 1775 (the black-backed jackal of Africa, which has been found at Pliocene sites; for a review see Garrido (2002));

C. adustus Sundevall, 1847 (the side-striped jackal, also of Africa and also reported for the Pliocene);

C. aureus Linnaeus, 1758 (the golden jackal, whose Asian populations met those of *C. mesomelas* and *C. adustus* in eastern Africa at some point during the last 500,000 years [Van Valkenburgh and Wayne, 1994]).

The Ethiopian species *C. simensis* Rüppell, 1840, sometimes known as the Simien jackal, Ethiopian wolf or Abyssinian wolf, and of which to date no fossils have been found, seems to be more closely related to the wolf and the coyote than the remaining African canids (Gotelli et al., 1994; Sillero-Zubiri and Gottelli, 1994). It probably represents a relic of an ancestral wolf population that dispersed over North Africa and Eurasia. Nonetheless, some authors remain of the opinion that it is related to the jackals (Rook and Azzaroli-Puccetti, 1996). *C. simensis* is found only in the mountains of Ethiopia, where it is threatened with extinction due to the risk of hybridisation with domestic dogs, among other dangers to its existence.

The wolf *C. lupus* Linnaeus, 1758, was found all over Eurasia during the Upper Pleistocene and continues to be present over much of Palaearctic Eurasia and certain areas of North Africa, North America and Mexico. The domestic dog, *C. familiaris* Linnaeus, 1758, appears to have arisen from *C. lupus* about 15,000 years ago. Most authors regard it as a subspecies of the wolf and give it the name *C. lupus familiaris* (Van Gelder, 1978). The coyote, *C. latrans* Say, 1823, appeared in North America during the Lower Pleistocene, although its fossils are not abundant until well into the Mid Pleistocene. It currently occupies large areas of the American continent from Alaska to Panama. Finally, the red wolf, *C. rufus* Audubon and Bachman, 1851, has long been considered a relic of the Plio-Pleistocene species *C. priscolatrans* Cope, 1899, which lived only in North America. However, according to recent genetic analyses, this taxon arose from hybridisation between wolves and coyotes at some point during the last 10,000 years (Reich et al., 1999). Currently, the red wolf occupies small territories in the south of the USA, and is threatened by extinction.

The great homogeneity of the morphological characteristics of the members of this genus renders distinction between certain fossil species difficult. Indeed, great historical disparities have existed in the classification of materials. The oldest representative of the genus *Canis* “sensu stricto” –

C. lepophagus Johnston, 1938 – was recorded in early Pliocene North American sites, and has been phylogenetically related to the modern day coyote *C. latrans* (Kurtén, 1974). It is difficult to identify the first Euroasiatic record of the genus *Canis*, since there are numerous doubtful citations from Miocene and Lower Pliocene sites, these have engendered very different opinions regarding the genus to which these materials really belong. The oldest reference corresponds to the species “*Canis*” *cipio* Crusafont, 1950, from the Turolian (end of the Miocene) of the Iberian Peninsula. This taxon appears to be related to “*Canis*” *michauxi* Martin, 1973, of the Perpignan Pliocene (Torre, 1979). Both forms show very primitive characteristics and are quite different from the genus *Eucyon* Tedford and Qiu, 1996. Therefore, until this taxonomic problem is solved, they remain included in *Canis* “sensu lato”, although with some doubt. Morales (1981) identified *Canis* sp. at the Venta del Moro site, also from the end of the Miocene. However, these specimens were later determined to belong to *Eucyon monticinensis* (Rook, 1992). The species *E. davisii* (Merriam, 1911), *E. minor* (Teilhard de Chardin and Piveteau, 1930) and *E. odessanus* (Odzinow, 1967) were also originally classified as members of the genus *Canis*. Similar problems are seen with the African records. The oldest materials from the Pliocene and Plio-Pleistocene were originally classified as “*Canis*” *brevirostris* Barry, 1987, but are now included in *Eucyon* (Rook, 1993; Spassov and Rook, 2006). In the year 2000, Werdelin and Lewis described a canid species (*Canis* n. sp. A) from a Pliocene site at South Turkwel that represents the most ancient African testimony of this genus (Werdelin and Lewis, 2000, 2005).

With respect to the Asian continent, the oldest fossils assignable to the genus *Canis* come from deposits some 3.4 million years old in the Mazegu Formation of the Yushe Basin, China (Flynn et al., 1991). This form has anatomical characteristics similar to those of the Upper Villafranchian European species *C. etruscus* Forsyth-Major, 1877 (Tedford et al., 1991). Thus, although the genus *Canis* probably appeared during the Miocene, it is not until the Lower Pliocene that its presence can be confirmed in both the Old and New Worlds.

Later, the Chinese Villafranchian record contains numerous discrepancies. The species *C. chihliensis* Zdanski, 1924, has been described in the villafranchian deposits of Nihowan, and although it has been proposed a synonym of *C. etruscus* (Torre, 1967), some authors believe it to be more closely related to the *C. (Xenocyon) falconeri* group (Rook, 1993). The subspecies *C. chihliensis palmidens* Teilhard and Piveteau, 1930, was also described from Nihowan, but was later identified as an Asiatic representative of the European species *C. arnensis* (Rook, 1993). Torre (1967), however, proposed it to be synonymous with *C. etruscus*.

The Republic of Tajikistan was thought to be home to a site that held evidence of the migration of the genus *Canis* from the American continent towards Europe and Africa some 2.5 million years ago. It is from here that the species *C. kuruksaensis* Sotnikova, 1989 was reported, although it was later definitively related to the genus *Eucyon* (Spassov and Rook, 2006). The canid from the Upper Villafranchian of

Download English Version:

<https://daneshyari.com/en/article/4748474>

Download Persian Version:

<https://daneshyari.com/article/4748474>

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