Archaeology: Latin America

A Preliminary Review of the Canid Remains from Junius Bird's Excavations at Fell's and Pali Aike Caves, Magallanes, Chile

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This preliminary note presents our review of the canid materials Junius Bird excavated from Fell's and Pali Aike caves in 1936–37 and his subsequent work at Fell's Cave in 1969–70 (Bird 1988). These materials are currently curated at the Division of Anthropology at the American Museum of Natural History (AMNH) under catalog entries 41.1/1993–1994 for Fell's Cave and 41.1/1891–1892 for Pali Aike. These remains along with Bird's other excavations at Cañadon Leona, Cerro Sota and the Navarino Island environmental samples (zooarchaeological, human remains, and soil samples) are currently being analyzed (Amorosi 2006; Amorosi n.d.; Amorosi et al. 2007; Prevosti and Amorosi n.d.; Wisner 2008).

Fell's and Pali Aike caves are a set of late-Pleistocene/early-Holocene rockshelters from southernmost continental Patagonia (Magallanes, Chile). They contain a large sample of canids. Some of these materials were studied by Clutton-Brock in 1978 and subsequently published in Bird (1988). Clutton-Brock identified the remains of gray fox (*Dusicyon griseus*), culpeo fox (*D. culpaeus*) and dogs (*Canis familiaris*). If the *C. familiaris* determination is reliable, this would be one of the oldest records of dogs in the Americas (Raisor 2005; Synder and Moore 2006). Other researchers, however, have questioned this assignment and suggest that these canids should be assigned to the extinct large fox (*Dusicyon avus*) (Caviglia 1978, 1986). Caviglia notes similarities between some of the canid remains from Fell's Cave and known examples of *D. avus,* specifically the absence of a cusp (entoconulid) between the metaconid and the entoconid of the m1. It must be noted that the presence of an entoconid in *Canis* m1 is not constant. Caviglia's work only included the data of Clutton-Brock's (1978) report and some of the canid remains deposited in Punta Arenas (Chile). He did not examine specimens curated at the AMNH and originally studied by Clutton-Brock. Thus it is

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necessary to review the specimens assigned by Clutton-Brock to investigate Caviglia's interpretation further.

Our review confirms the presence of *D. griseus*, *D. culpaeus,* and *D. avus.* Specimens of *D. avus* m1 can be generally characterized as larger than *D. culpaeus* m1. The m1 of *D. avus* has a large hypoconulid, the premolars have acute principal cusps, and p4 normally has a secondary distal accessory cusp and a high, acute distal cingulum (Figure 1). The specimens assigned to *C. familiaris* by Clutton-Brock agree with this description and differ from *C. familiaris* in the presence of more acute and weak cusps, the shape of the premolars, and a weaker horizontal mandibular ramus.

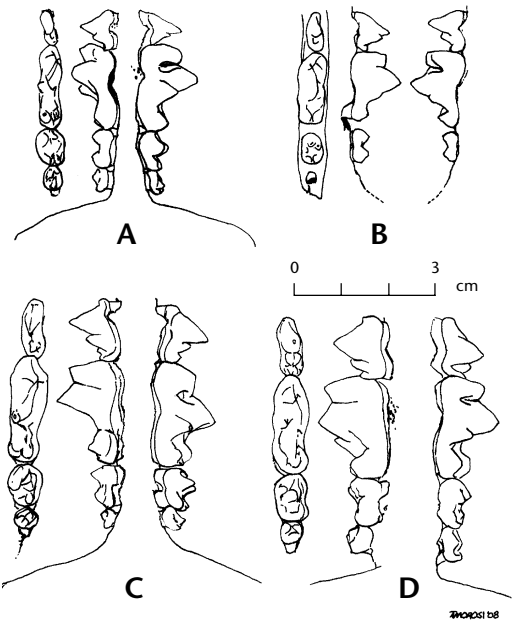

Figure 1. A comparison of the lower right premolar 4 and molars. **A,** *Dusicyon griseus*; **B,** *D. culpaeus*; **C,** *D. avus*; **D,** *Canis familiaris. Dusicyon griseus* from Pali Aike, Bird Field Designation P21, Level III, 54–60″, Area C, AMNH 41.1/1891–1892. *D. Culpaeus* from Fell's Cave, Bird Field Designation 20437, layer II, AMNH 41.1/1994. *D. avus* from Pali Aike, Bird Field Designation P14-4, Level III, 42–48″, Area D, AMNH 41.1/1891–1892. *Canis familiaris* from Amorosi reference collection, 3-40. (Modern specimen and the illustration were prepared by Thomas Amorosi.)

Our study concludes that there is no evidence for domestic dog at Fell's or Pali Aike caves. The AMNH collections coupled with the study of the variation in modern foxes will allow a careful revision of aspects of *D. avus* and the other foxes, including intraspecific variation in stratigraphic distribution, by means of determining diet through ecomorphologica, stable isotopic analysis, and probable aDNA analyses.

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