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**THE FIRST SOUTH AMERICAN HOMOTHERIINI  
(MAMMALIA: CARNIVORA: FELIDAE)**

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**ABSTRACT:** *The first South American Homotheriini (Mammalia: Carnivora: Felidae).*— Until now, among the South American Machairodontinae, only the genus *Smilodon* LUND, 1842, with an Ensenadan to Lujanian biochron, has been recognized. The North American machairodontine fossil record is much richer, and for the biochron we are interested in, at least three valid genera have been reported: *Xenosmilus* MARTIN et al., 2000 (Irvingtonian), *Homotherium* FABRINI, 1890 (Irvingtonian-Rancholabrean), and *Smilodon* (Blancan-Rancholabrean). We describe here a partial lower jaw from the Ensenadan (?) of Uruguay, which shows characters comparable to those of the recently described species *Xenosmilus hodsonae* MARTIN et al., 2000, from the Irvingtonian of Florida, and is identified as cf. *Xenosmilus* sp. Both species possibly share a similar biochron: Irvingtonian/Ensenadan. The Uruguayan specimen represents the first South American Homotheriini. It extends the range of the tribe from 28EN to 34ES, some 8,000 km from the southernmost record for a Homotheriini in the Americas.

**RESUMEN:** *El primer Homotheriini sudamericano (Mammalia: Carnivora: Felidae).*— Hasta ahora, entre los Machairodontinae sudamericanos, sólo se había registrado el género *Smilodon* LUND, 1842, con un biocrón Ensenadense-Lujanense. El registro fósil de los Machairodontinae norteamericanos es mucho más rico y, para el biocrón que nos interesa, se han señalado por lo menos tres géneros válidos: *Xenosmilus* MARTIN et al., 2000 (Irvingtoniense), *Homotherium* FABRINI, 1890 (Irvingtoniense-Rancholabrense) y *Smilodon* (Blanquense-Rancholabrense). Aquí describimos una porción de hemimandíbula del Ensenadense (?) De Uruguay, la cual muestra caracteres comparables a los de la especie recientemente descrita *Xenosmilus hodsonae* MARTIN et al., 2000, del Irvingtoniense de Florida y es identificada como cf. *Xenosmilus* sp. Posiblemente ambas especies comparten un biocrón similar: Irvingtoniense/Ensenadense. El fósil uruguayo representa en primer Homotheriini sudamericano y extiende la distribución de la tribu desde los 28°N a los 34°S, es decir, unos 8.000 km hacia el Sur desde su registro más austral hasta ahora conocido.

**Key words:** Carnivora - Felidae - Homotheriini - Pleistocene - Ensenadan - Uruguay

**Palabras clave:** Carnivora - Felidae - Homotheriini - Pleistoceno - Ensenadense - Uruguay

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## Introduction

The South American fossil record of the Felidae is relatively poor. The only synthesis on this family, included in a revision of the South American fossil Carnivora, was published years ago by BERTA & MARSHALL (1978:26-29), and a review is needed. Until now, among the South American Machairodontinae, only the Pleistocene genus *Smilodon* LUND, 1842 [including *Smilodontidion* J. L. KRAGLIEVICH, 1948; see BERTA (1985:2, 7), and CHURCHER (1967:255)], with an Ensenadan to Lujanian biochron, has been recognized (Berman, 1991:239). The occurrence of an Uquian (Plio-Pleistocene) record of *Smilodon* (MARSHALL et al., 1984:20) is disregarded by BERMAN (op. cit.).

The North American machairodontine fossil record is much richer, and for the biochron we are interested in, at least three valid genera have been reported: *Xenosmilus* MARTIN et al., 2000 (Irvingtonian), *Homotherium* FABRINI, 1890 (Irvingtonian-Rancholabrean), and *Smilodon* (Blancan-Rancholabrean). The first two belong to the tribe Homotheriini and the latter to the Smilodontini.

We describe here a partial lower jaw from the Ensenadan (?) of Uruguay, which shows characters comparable to those of the recently described species *Xenosmilus hodsonae* MARTIN et al., 2000, from the Irvingtonian Haile 21A Local Fauna of Florida (MORGAN & HULBERT, 1995; MORGAN, LINARES & RAY, 1988). The Uruguayan specimen is the first record of the tribe Homotheriini from South America.

**Institutional abbreviations.** AMNH, American Museum of Natural History, New York, USA; FLNHM, Florida Museum of Natural History, Gainesville, USA; MNHNA, Museo Nacional de Historia Natural y Antropología, Montevideo, Uruguay.

## Systematic paleontology

MAMMALIA LINNAEUS, 1758  
Order CARNIVORA BOWDICH, 1821  
Family FELIDAE (GRAY, 1821)  
Subfamily MACHAIRODONTINAE GILL, 1872  
Tribe HOMOTHERIINI (FABRINI, 1890)  
*Xenosmilus* MARTIN, BABIARZ, NAPLES & B HEARST, 2000

**cf. *Xenosmilus* sp.**  
(Plate I, Table I)

**Material.** MNHNA Coll. F. OLIVERAS 31561; Anterior portion of left lower jaw with part of alveolus of c, alveoli of p4 with tip of anterior root, and anterior root and partial posterior alveolus of m1.

**Locality.** Uruguay, Departamento of San José, coast of La Plata River near Puerto Arazatí (34° 30' S; 57° 03' W); November 2-4, 1945 (Fig. 1).

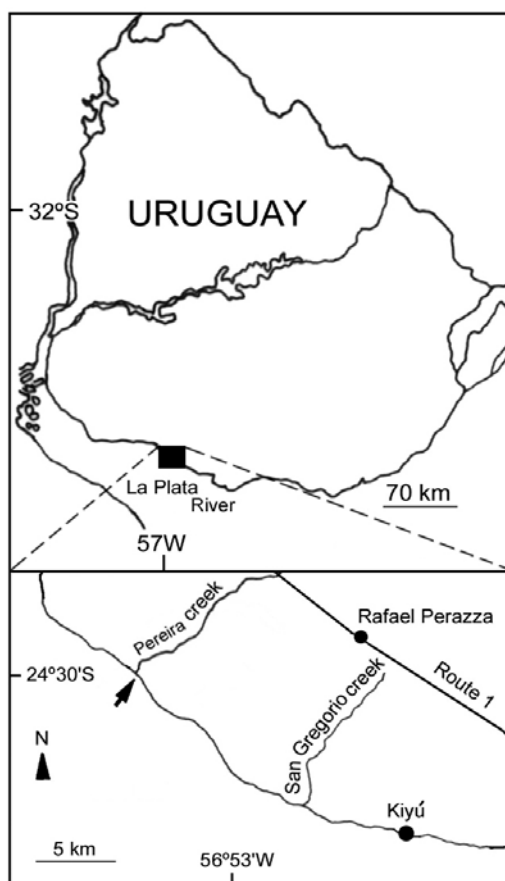


Figure 1. Sketch map of the locality from where the specimen of cf. *Xenosmilus* sp. was collected (arrow).

**Stratigraphy.** Though the specimen was found removed from the sediments, judging from its color it likely occurred in the Plio-Pleistocene San José Formation. This formation was first described by FRANCIS & MONES (1965), but GOSO (1966:366-367) referred to this unit as the Raigón Formation. It is composed of siltstones, claystones, medium-grained psammites, and medium to conglomeratic psammites, with siltstone intercalations. Originally it was assigned to the Pliocene, mainly based on remains of *Trigodon* (MONES, 1967), *Licaphrium* (BONINODE LANGGUTH & LANGGUTH, 1975), and *Cardiatheriinae* indet. (MONES, unpublished). However, recent studies have suggested the existence of Pleistocene levels, particularly based on the presence of *Doedicurus* and *Palaeolama* (MONES, 1988), *Plaxhaplous* (RINDERKNECHT, 1999), and *Scelidodon capellini* (TAMBUSSI et al., 1999:405). These fossils show that the

formation includes sediments that range from at least the early Pliocene (Montehermosan) to the early Pleistocene (Ensenadan). Bird remains from this unit, or attributed to it, have also been reported: Phorusrhacidae (TAMBUSSI et al., op. cit.) and Anhingidae (RINDERKNECHT & NORIEGA, 2002).

## Description

Homotheriini with a robust lower jaw; it differs from the type of *X. hodsonae* in that it has a much narrower incisor row, a deeper (20-36%) and wider (16%) dentary, a longer diastema (33%), and smaller diameter of the canine alveolus (Table I). The ramus is very robust and comparatively as large as the largest representatives of the Homotheriini. The symphysis is very rugose and perpendicular to the axis of the jaw. The mandibular flange is thick with rounded edges similar to other Homotheriini, not thin and sharp as in Smilodontini. As in *Xenosmilus hodsonae* and *Homotherium serum*, our specimen has two large mental foramina below the diastema but placed somewhat more dorsal in relation to the lower margin of the jaw. The diastema is longer than in *X. hodsonae*, much shorter than in *Smilodon populator/fatalis*, and similar to the canine-premolar 4 distance in *Homotherium nestianum*. The labial portion of the jaw immediately posterior to the canine is slightly depressed, similar to that of the other scimitar-toothed cats, and not so extremely excavated as in *Smilodon*. Among Homotheriini, a non-pocketed anterior border of the masseteric fossa in combination with the absence of p3, is a diagnostic character for *Xenosmilus hodsonae* (MARTIN et al., 2000:43, and pers. comm., Nov. 2001). This combination is also found in the Uruguayan specimen.

Though incisors are missing, the alveolar jaw margin is narrow, suggesting that these teeth were reduced in size, number, or both. A reduced number of incisors unknown in felids and our specimen's jaw is broken in this region, so we can not confirm or reject it. The very large canine root, has an upright orientation (a character of Homotheriini), whereas in all the Smilodontini we compared, the root is always oriented posteriorly. As in *X. hodsonae*, the specimen lacks a p3 and a radiograph shows no vestige of this tooth. The absence of p3, so frequent in *Smilodon*, has also been observed in *Homotherium*, as illustrated by MEADE (1961:30, pl. 2(B-C)). ANTÓN & GALOBART (2000:784) refer to three jaws of *Homotherium latidens* from Spain with no mention of the presence of p3. At the alveolar level, p4 and m1 appear to have been similar in size to those of *X. hodsonae*. Both roots of p4 have a marked anterior orientation, whereas the anterior root of m1 is almost perpendicular to the axis of the mandible.

## Conclusions

The assignment of our specimen to the genus *Xenosmilus* reflects its greater morphological similarity to that genus than to other Machairodontinae genera. Better material might demonstrate that the Uruguayan fossil actually represents a different, as yet unknown genus, but we are convinced that the specimen belongs to the homotheriine clade.

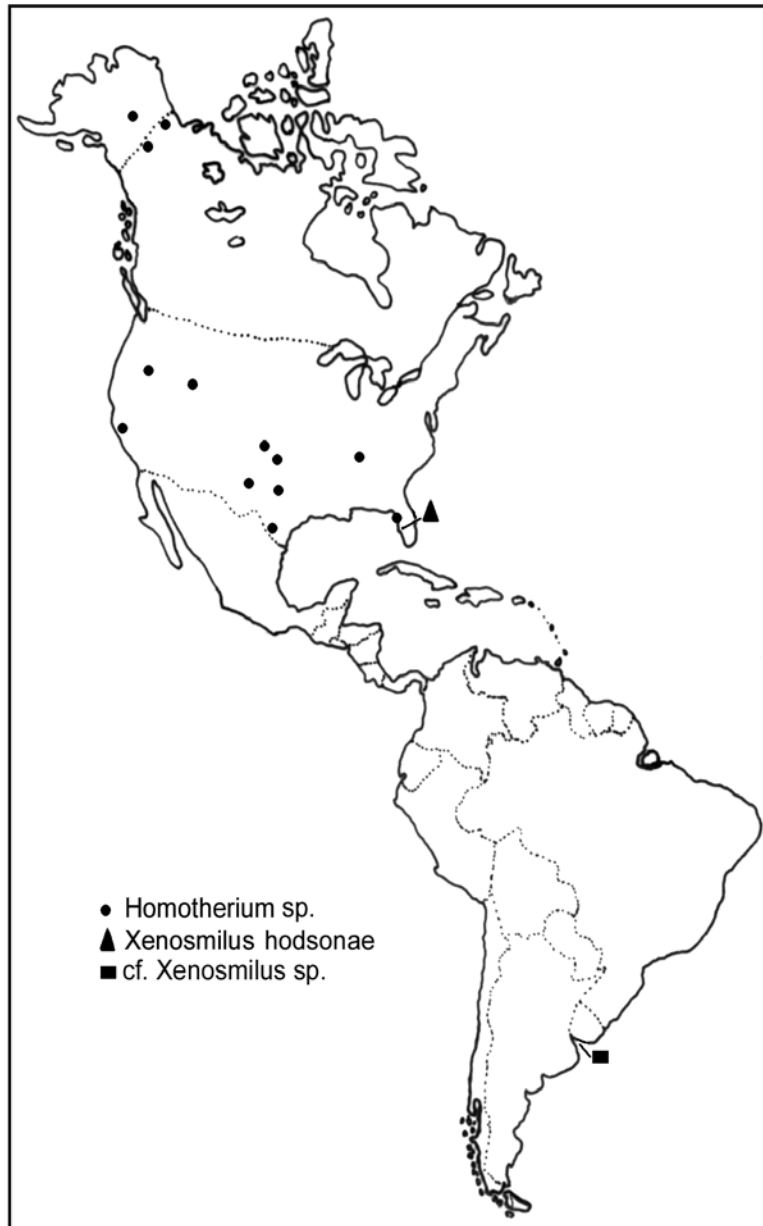


Figure 2. Map showing the geographical distribution of the Pleistocene Homotheriini in the Americas: *Homotherium* (modified from KURTÉN & ANDERSON, 1980:187, fig. 11.17), *Xenosmilus hodsonae* (see MORGAN & HULBERT, 1995:6, fig. 1), and cf. *Xenosmilus* sp. (this paper).

MNHNA Coll. F. OLIVERAS 31561 represents the first South American Homotheriini. It extends the range of the tribe from 28°N to 34°S, some 8,000 km from the southernmost record for a Homotheriini in the Americas (Fig. 2). On the other hand, both species, *X. hodsonae* and cf. *Xenosmilus* sp., possibly share a similar biochron: Irvingtonian/Ensenadan.

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TABLE 1. Measurements (in mm) of cf. *Xenosmilus* sp. and *X. hodsonae* (e = calculated/approximate)

	cf. <i>Xenosmilus</i> sp.*	<i>X. hodsonae</i> **
Depth of ramus at anterior border of alveolus of p4	48.5	48.5
Depth of ramus between roots of p4	47.1	45.5
Depth of ramus between p4-m1	46.5	44.7
Depth of ramus between roots of m1	49.2	39.4
Depth of ramus at center of posterior mental foramen	54.6	47.0
Depth of ramus at center of anterior mental foramen	73.8	57.0
Depth of ramus at center of canine alveolus	87.7e	56.0
Greater diameter of symphysis (vertical length)	75.9e	70.6
Greater depth of the symphysis from alveolar margin to base of flange	91.0e	72.1
Length of diastema between alveoli of c1-p4	62.5e	42.0
Length from posterior alveoli borders of c1 to p4	86.4	65.0
Length from posterior alveoli borders of c1 to m1	117.3e	99.2
Mesio-distal length of c1	19.0e	29.2
Bucco-lingual width of c1	11.5e	16.5
Minimum distance between mental foramina	21.4	11.2
Maximum diameter of anterior mental foramen	6.7	8.5e
Maximum diameter of posterior mental foramen	7.6	6.0
Width of ramus between mental foramina	19.9	18.8
Width of ramus between p4-m1	25.7	21.5
Width of symphysis at the base of ramus	31.0e	28.2
Width of symphysis at the lingual margin of canine alveolus	17.0e	28.4
Length of p4 (alveolar)	25.0	25.1
Length of m1 (alveolar)	34.5e	34.2

\*MNHNA Col. F.Oliveras. 31561.

\*\*AMNH 116921 (Paratype cast of the original skeleton kept at FLMNH UF60.000).



**PLATE**

**PLATE I**

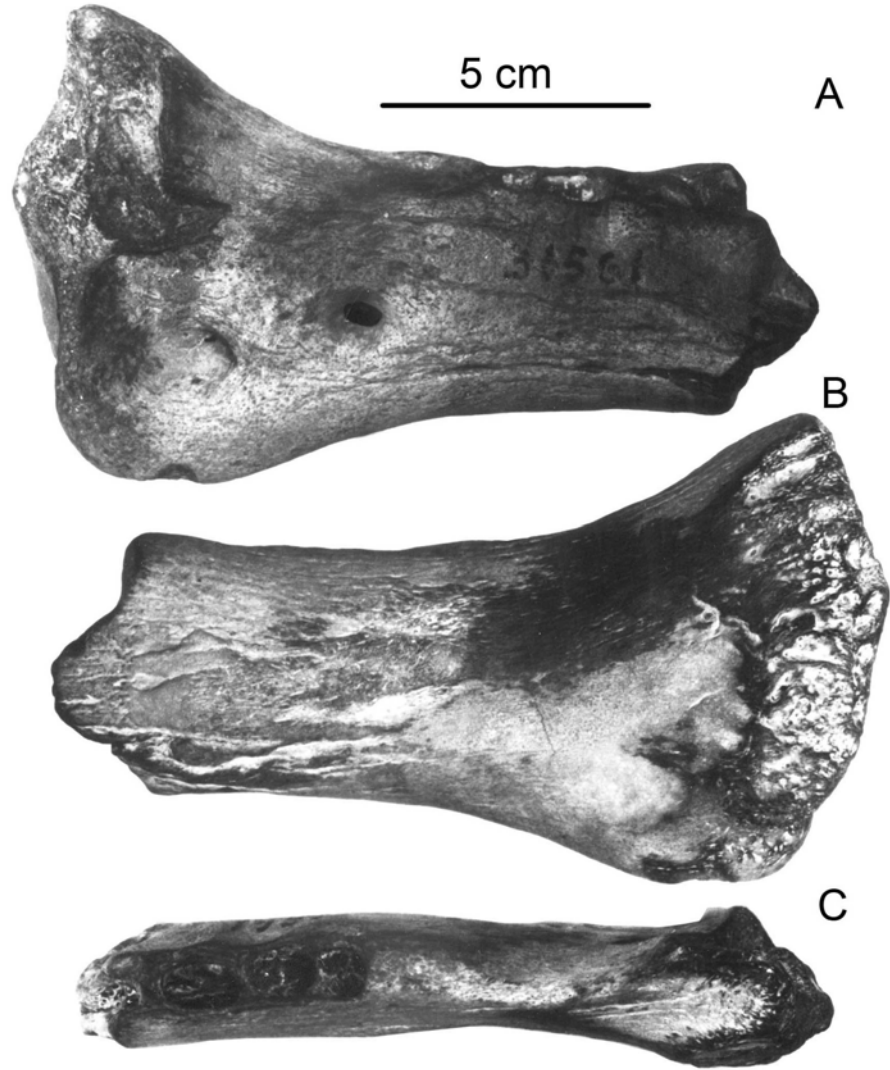
Portion of left lower jaw of cf. *Xenosmilus* sp.  
(MNHNA Coll. F. Oliveras 31561).

Figure A. Labial view.

Figure B. Lingual view.

Figure C. Occlusal view.

Scale: 5 cm.



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