

An Occurrence of the Puma, *Felis concolor*, from Svendsen Cave, Marion County, Arkansas

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ABSTRACT

A partial skeleton including fragmental skull and mandibles of the puma, *Felis concolor*, was recovered from Svendsen Cave, Marion County, Arkansas. The remains are thought to be of Late Pleistocene (Wisconsin) or Sub-recent age. Fossil records of the puma are rare and only one other Pleistocene or Sub-recent site in Arkansas, Conard Fissure, has yielded remains which could be assigned to this large felid.

INTRODUCTION

Remains of the puma, *Felis concolor*, were discovered in Svendsen Cave, Marion County, Arkansas, in January 1974 by John Svendsen, Yellville, Arkansas, and Ola Eriksson, Lund, Sweden. The remains were reported to the Arkansas Archeological Survey and collecting was carried out by the discoverers and members of the Departments of Anthropology and Geology and the University Museum, University of Arkansas, Fayetteville.

The skeletal elements were encased in a travertine ledge, which greatly hindered collecting. Recovery of the skeletal elements required that large pieces of travertine be broken off and removed to the University of Arkansas where the bone materials were freed from the matrix with 10% acetic acid. After removal from the matrix by acidizing, the remains were treated with Gelva-15 to prevent damage due to crumbling.

The skeleton was lying in a semiarticulated position in a small ledge approximately 5 ft above the present passage floor. The stream in the cave is in an active stage of fill-removal and is probably responsible for the absence of the rest of the skeleton.

LOCATION

Svendsen Cave is 3.5 mi southeast of Yellville, Marion County, Arkansas (Fig. 1). The cave is developed in dolomitic limestone mapped as the Everton Formation (Ordovician) and contains approximately 3000 ft of mapped passage. The remains were 500 ft from the present entrance in the main passage which is a low strenuous crawl including a siphon and two climbs, the highest about 18 ft (Fig. 1). It is probable that the cat entered the cave from an entrance now unknown and may have been washed to the depositional site.

AGE

No exact date can be assigned to the Svendsen puma although antiquity is suggested by the mode of occurrence and lack of metastable materials in the skeletal remains.

At the depositional site, the bone-bearing travertine is being solutioned and the sediments in the passage are being removed by the stream. Thus a climatic regime of less than the present level of precipitation, which allowed formation of a travertine ledge over part of the skeleton, is indicated for the cave area during the deposition of the puma.

Skeletal measurements (Table I) taken on the Svendsen

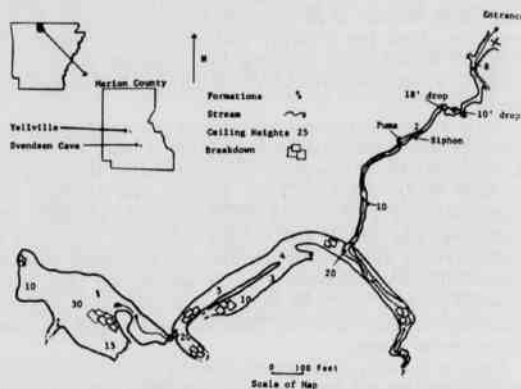


Figure 1. Location and map of Svendsen Cave showing site of puma remains. Mapped by Ervin, Svendsen and Eriksson.

Table I. Measurements (mm) of Dentition, Mandible and Humerus of *Felis concolor*

	Svendsen Cave	Recent Range
Dentition		
LP ^a crown length	22.3	18.9-27.2*
LP ^a crown anterior width	12.0	9.3-13.9*
LP ^a crown posterior width	8.6	
LP ^b length paracone	9.1	8.4- 9.8**
LP ^b length metastyle	8.5	8.4-10.3**
LP crown length	16.3	
LP ^a crown width	8.6	
LM ^a crown length	18.1	14.3-21.0*
LM ^a crown width	8.9	
Mandible		
Depth anterior to LP ₁	28.5	
Depth posterior to LM ₁	29.2	
Maximum thickness at LM ₁	12.9	
Distance LP ₁ -LM ₁	34.2	
Humerus		
Humerus length	237.4	
Width at distal end	52.5	
Maximum diameter at mid-shaft	24.6	

*Young and Goldman (1946).

**Kurten (1965).

puma are well within the measurement parameters of recent subspecies of the modern puma, *Felis concolor*, and if the Middle Pleistocene (Kansan-Sangamon) puma were on the whole larger as indicated by Kurten (1965), a Late Pleistocene (Wisconsin) or Sub-recent (Altithestral) age of the remains would be most reasonable.

The fact that no odor was released from the remains during a "bone burn test" (Quinn, 1957) indicated an absence of metastable materials and therefore antiquity. Because the results of the test depend not only on age, but also on preservation conditions, care must be used in making final judgments on the bone materials and their age on the basis of this method.

The only associated faunal deposits with the Svendsen cat were fragmentary bat remains. A minimum of four individuals, based on left mandible fragments, identified as the small bat *Pipistrellus* sp. were recovered from the matrix surrounding the puma. Both geographic and time ranges of the genus *Pipistrellus* are extensive and offer no help as climatic or age indicators.

SYSTEMATIC PALEONTOLOGY

Order Carnivora Bowdich 1821

Family Felidae Gray 1821

Felis concolor Linnaeus 1771

Materials recovered: Partial skull with LP^a -LM¹ (UA #74-20-1); partial left mandible with P₁-M₁ (UA #74-20-2); left humerus (UA #74-20-3); scapula, ribs and vertebrae (UA #74-20-4). The partial skull, left mandible and humerus are illustrated in Figure 2. All materials are deposited at the University of Arkansas Museum, Fayetteville, Arkansas. Measurements of the important skeletal elements taken with vernier calipers are plotted in Table 1.

DISCUSSION

Although the puma has existed in Arkansas from at least the Middle Pleistocene (Kansan) to the present, its presence

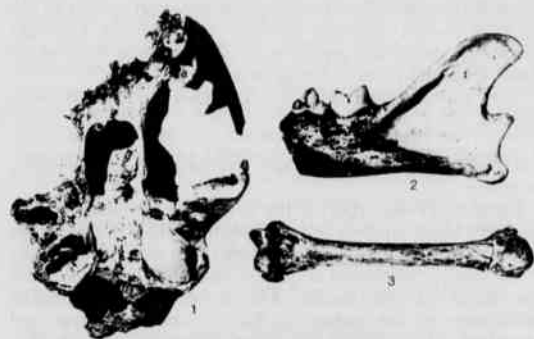


Figure 2. (1) Ventral view of partial skull of *Felis concolor* (UA 74-20) showing LP^a and LM¹, x0.87. (2) Lateral view of partial left mandible of *F. concolor* (UA 74-20) showing LP₁ and LM₁, x0.87. (3) Dorsal view of left humerus of *F. concolor* (UA 74-20), x0.38.

has been reported in only one other Pleistocene or Sub-recent site, Conard Fissure.

Brown (1908) reported puma-like cat remains, some of which he named a new species, *Felis longicrus*, and others he referred to the modern puma, *F. cougar* now recognized as *F. concolor cougar*, from Conard Fissure, Newton County, Arkansas. A Kansan age has been assigned, on the basis of micromammal biostratigraphy, by Graham (1975) to Conard Fissure. Simpson (1941) showed that the remains assigned to *F. cougar* by Brown (1908) from Conard Fissure should be reassigned on basis of size and morphology to *F. longicrus*. Simpson (1941) also synonymized *F. longicrus* Brown as a junior synonym of *Felis inexpectata* Cope (1899) and showed that many of the Pleistocene puma-like felids are within the variation range of the modern puma, *F. concolor*. Kurten (1965) recognized *F. inexpectata* as a subspecies of *F. concolor* encompassing the Middle Pleistocene pumas which appear to be generally larger but otherwise identical to the Late Pleistocene and present populations. Following Kurten (1965), the Conard Fissure puma materials should be recognized as *F. concolor inexpectata*.

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