

The Cheetah : Native American ???

Abstract: Two North American fossil species of large felids, hitherto regarded as Late Cenozoic *pumas* (mountain lion), are in fact closely related to the living cheetah, *Acinonyx*, of Africa and Eurasia. A new subgenus (*Miracinonyx*) is proposed for the American species. Cheetahs and pumas may have had a common ancestor in the Miocene of North America.



Appearing in the Sept 14th, 1979 edition of the Journal *SCIENCE*, (Vol. 205, pgs: 1155 -1158), this well researched and nicely supported study by Daniel B. Adams, from the Department of Paleontology at the University of California, Berkeley, presents the case that :

“Fossils of *Puma*-like cats are relatively common in the Late Cenozoic of North America (1). One species of supposed *Puma*, “*Felis*” *studer*, from the Pliocene of Texas panhandle, has long been recognized as distinct from *Puma concolor* because of morphological similarities with Old World cheetahs. But previous work has attributed the similarities to parallel evolution (1,2). Excavations at the Late Pleistocene deposits of Natural Trap Cave, Wyoming (3), indicated that another species previously referred to *Puma*, “*Felis*” *trumani* (4), also possesses several characters of dentition, skull, and limb architecture that are remarkably “cheetah like.” Again, the similarities were attributed to parallelism, and “*F.*” *trumani* was styled as the “cheetah-like cat” (3). Continued excavations at the Wyoming site have yielded hundreds of bones of this felid (5), and more recent work (6) has revealed numerous shared derived characters that link “*F.*” *studer* and “*F.*” *trumani* to Old World *Acinonyx*. Other work (7) has utilized multivariate comparison of upper and lower tooth rows to group the two American species; evolutionary affinities with Old World cheetahs were also suggested.

Except for size differences and several features which are interpreted as retained primitive characters, the fossils of “*F.*” *studer* and “*F.*” *trumani* are almost identical with Old World *Acinonyx* species (6). The points of similarity are so extensive and of such a complex nature that a hypothesis attributing their origin to other than common genetic descent would require pushing the concept of parallel evolution to an unprecedented extreme.

The systematic paleontology follows:

Family: **Felidae**
Genus: *Acinonyx*
Miracinonyx subgen. nov.

Derivation of name: From Latin “**mirus**” : surprising, amazing; and *Acinonyx* : Old World cheetah

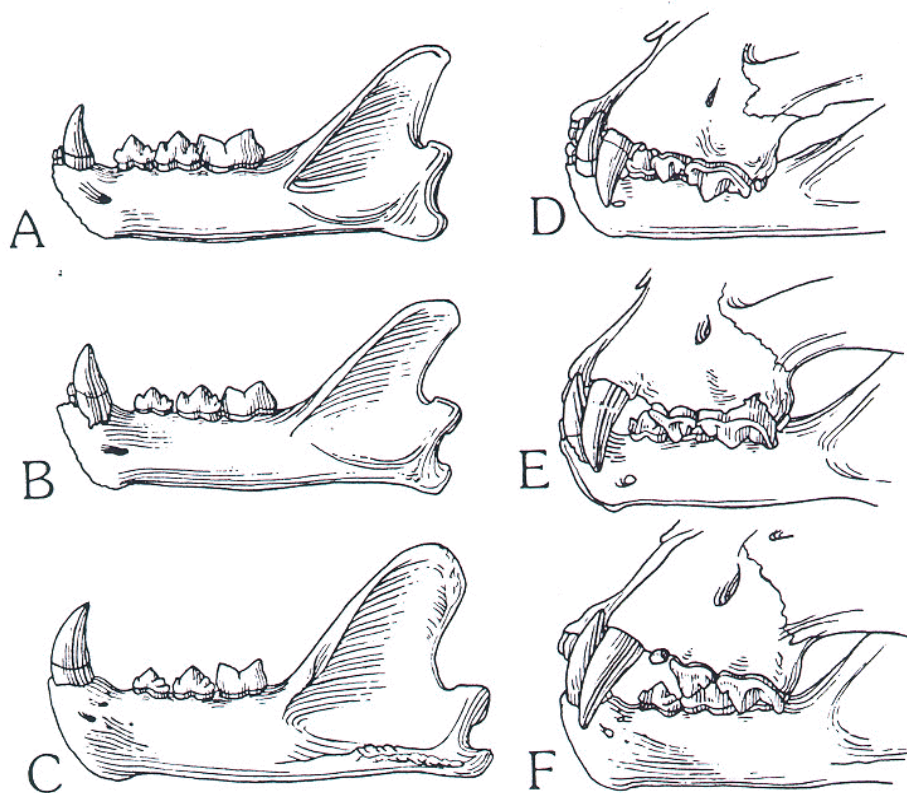
Geographic distribution: Western United States: Texas (2), Nevada (4), Wyoming (3).

Temporal distribution: Middle Blancan to Late Pleistocene

Description: detailed discussion of specific anatomical similarities presented in the article.

Although our present knowledge of the fossil record indicated that Old World cheetahs predate the American species, the possibility that *Acinonyx* originated in North America should not be overlooked. The ancestral stock from which *Acinonyx* and *Puma* are believed to have descended, the Pseudaelurini, is present in the Miocene and Pliocene of both Eurasia and North America. **The primitive nature of *Miracinonyx* and the apparent relationship with *Puma* (which is restricted to the Western Hemisphere) suggest that cheetahs originated not in Eurasia as previously believed (17), but in North America.** It seems unlikely that *A. pardinensis* was ancestral to *Miracinonyx* because of the derived features that separate it from the American species. An extensive study of North American Hemphillian (early Ruscinian) felids is needed before this question can be resolved. Many of the American felids from this time are represented only by fragmentary fossils and remain largely undescribed (2).

Left Lateral View of the Mandible and Tooth Occlusion of *Acinonyx* and *Puma* compared. "A & D" are Old World Cheetah (*Acinonyx Jubatus*, FMNH 34589) ; "B & E" are North American Cheetah Fossil (*Acinonyx Trumani*, holotype, WSI P3a/450) ; and "C & F" are North American Mountain Lion (*Puma concolor*, KUVV 13267)



The North American fossils share numerous derived characters with, and only with, the Old World felid genus *Acinonyx*, and referral to that genus is thereby warranted. Although now on the verge of extinction, *Acinonyx* has at various times been an important part of the faunas of Europe, Asia, Africa and North America, and was once one of the most widely distributed of land mammals.”

(Article includes 22 References and Notes)