

OCCURRENCE OF A GIANT BISON, *BISON LATIFRONS*,
AND A SLENDER-LIMBED CAMEL, *TANUPOLAMA*,
AT RANCHO LA BREA

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ABSTRACT: *Tanupolama* is recognized as a new constituent in the Rancho La Brea fauna. A previously overlooked record of *Bison latifrons* is confirmed by additional material and its association with *Bison antiquus* is noted for the first time. The geographic range of the former species of *Bison* is extended to southern California and its chronologic range into later Wisconsin time.

INTRODUCTION

Despite the fact that the Rancho La Brea fauna is widely known, the richness of its contents has not yet been fully evaluated. In using this collection for comparative purposes, it was found that a specimen belonging to a camel other than the only heretofore identified species, *Camelops hesternus*, is present (Webb, 1965; Stock, 1963, p. 44). Although Stock (1963, p. 47-48) indicated that the only bison in the fauna is a moderate-sized species, *Bison antiquus*, a few elements of an extremely large bison are also in evidence. Additional species, even of large vertebrates, may yet be discovered in this extensive accumulation of Pleistocene life.

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DISCUSSION OF TAXA

***Tanupolama* Stock, 1928**

The recognition of *Tanupolama*, a slender-limbed camel, in the Rancho La Brea collection is based on a complete adult astragalus, Los Angeles County Museum of Natural History (LACM) No. Z 2717 (Fig. 1). Maturity is indicated by the clear definition of processes and ridges and the noncancellous exterior. This specimen is 59.2 mm in greatest length, 35.7 mm in greatest width across the proximal ginglymi and 39.5 mm in greatest width across the distal ginglymi. These dimensions are significantly smaller than the smallest

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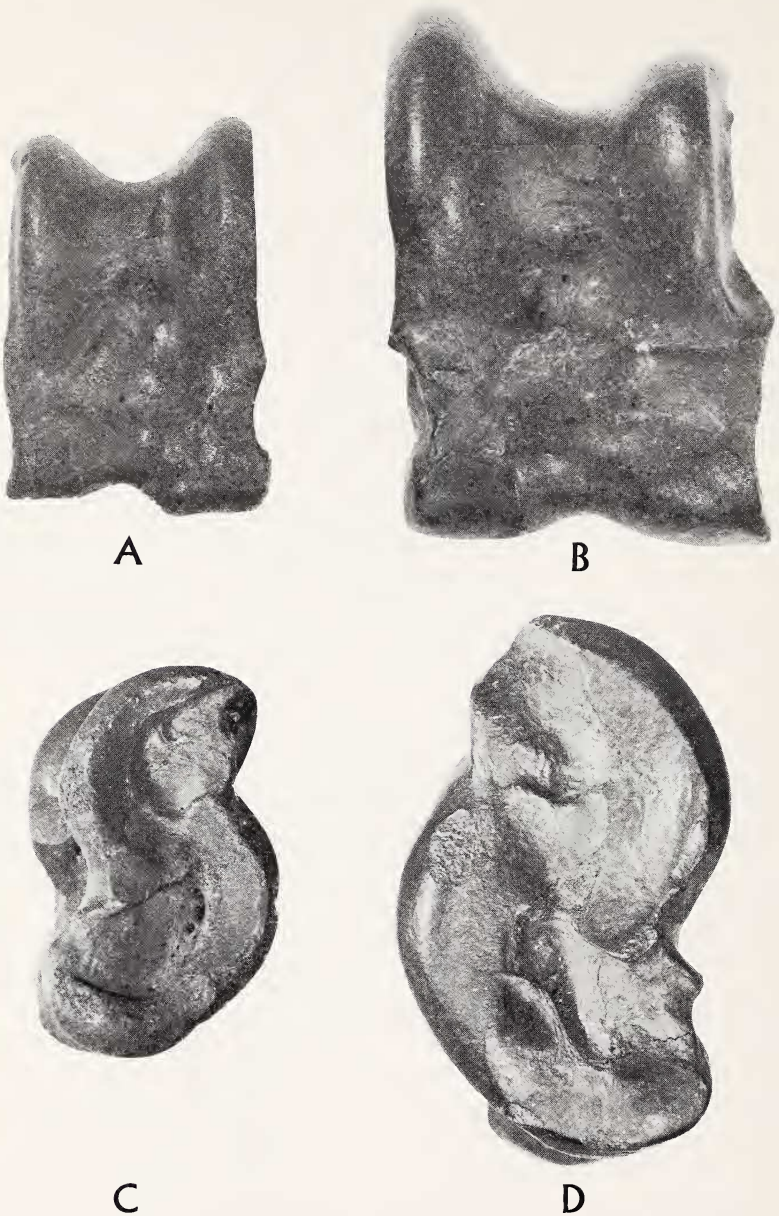


Figure 1. Comparison of camel astragali from Rancho La Brea. A, *Tanupolama*, anterior view. B, smallest adult *Camelops*, anterior view. C, *Tanupolama*, lateral view. D, smallest adult *Camelops*, lateral view. Scale $1\frac{1}{2}$ x.

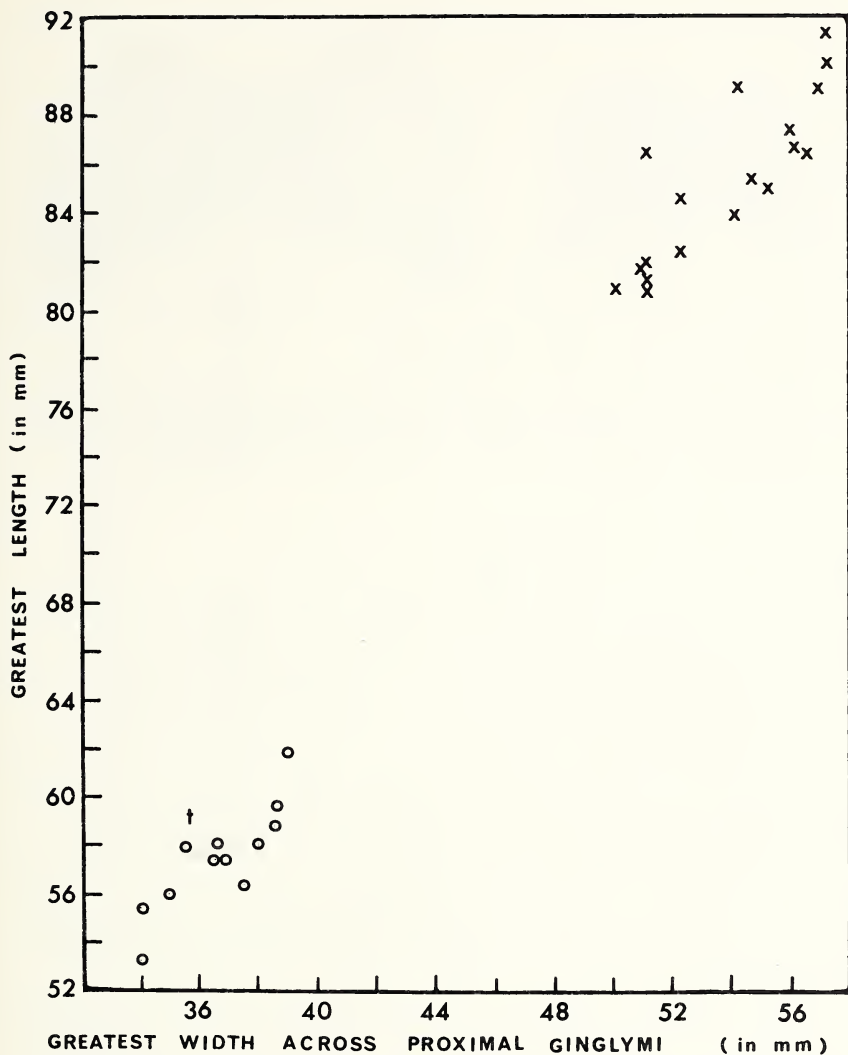


Figure 2. Scatter diagram of camel astragali. x = *Camelops* from Rancho La Brea; o = *Tanupolama* from McKittrick; t = *Tanupolama* from Rancho La Brea.

adult *Camelops* astragalus in the Rancho La Brea collection (Figs. 1 and 2), and even much smaller than the smallest juvenile observed. However, they are well within the range of those noted for *Tanupolama* from McKittrick, California (Fig. 2), the locality of the genotypic species. The only other genus of

camel recognized in post-Blancan deposits of North America is *Titanotylopus* (Webb, 1965, p. 44-45). This camelid is larger than *Camelops* and greatly exceeds *Tanupolama* in size (Barbour and Schultz, 1934, p. 291).

In the field notes taken by Wyman (1914, p. 50) during the excavations of the Rancho La Brea deposits, he states that the skull of a new camel was found, llama-like in structure. No further mention of the specimen was made, nor can any trace of it be found now in the collection. With the possible exception of proboscidean specimens, almost all the material from the pit of discovery (Pit 9) was unrecoverable due to ground water saturation. Possibly the specimen was never collected. The astragalus of the camel here identified as *Tanupolama* was recovered from this same pit near the location given for the skull. It occurred below a wood sample which was dated in excess of 40,000 years B.P. (Berger and Libby, 1966, p. 492).

Slaughter (1966, p. 86), in a table indicates the presence of *Tanupolama* at Rancho La Brea. He (1967, pers. comm.) has informed me, however, that this location was inadvertently listed and that the referred material came from the McKittrick deposits.

Bison latifrons (Harlan, 1825)

Wyman (1926) listed the fossils that had been recovered at Rancho La Brea and discussed the presence of a skull (p. 32) of *Bison latifrons* whose horn-cores measured a "full six feet from tip to tip." According to Skinner and Kaisen (1947, p. 205-206), *B. latifrons* is the only species of *Bison* with a horn-core spread this great. Unfortunately, the skull reported by Wyman disintegrated upon removal. Whether any of the fragments were saved is not known. In the Rancho La Brea field notes (p. 66), Wyman states that two metapodials of a very large bison were collected. These elements, as well as the skull, were taken from Pit 9. The only bison element that I have seen from this pit is the distal one-third of a metatarsal, LACM No. Y 2557. Its proportions exceed those of any others seen in the Rancho La Brea collection and the specimen probably is assignable to the species *B. latifrons* (greatest medio-lateral width at distal end, 87.0 mm; greatest anteroposterior thickness at distal end, 51.0 mm).

A few *Bison latifrons* bones are apparently also present in the material recovered from Pit 4. Its occurrence here marks the first time this species of *Bison* has been reported associated with *Bison antiquus* (no positive identification has been made of *B. antiquus* in Pit 9). Of further interest are the radiometric dates extracted from bone samples taken with these specimens from Pit 4, of 26,700 years B.P. at an eight foot depth and 28,000 years B.P. at a 15.5 foot depth (unpublished data currently being compiled at the UCLA Radiocarbon laboratory). This extends the chronologic range of *B. latifrons* into very late Wisconsin time. Material representing this species was recovered from a depth of ten to fifteen feet in Pit 4; *Bison antiquus* specimens have been

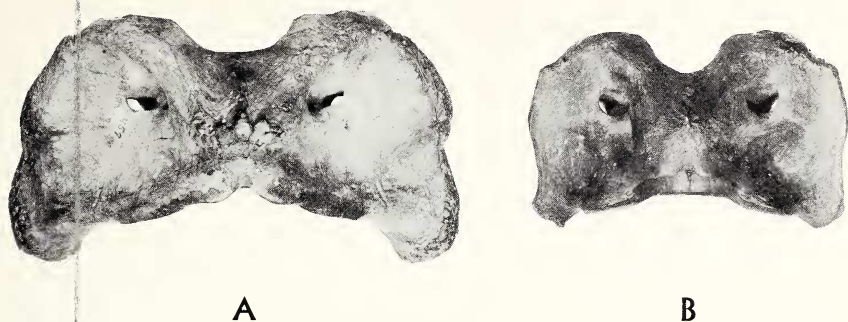


Figure 3. Comparison of bison atlases from Rancho La Brea, dorsal view. A, *Bison latifrons*. B, *Bison antiquus* (large specimen). About 1/2 x.

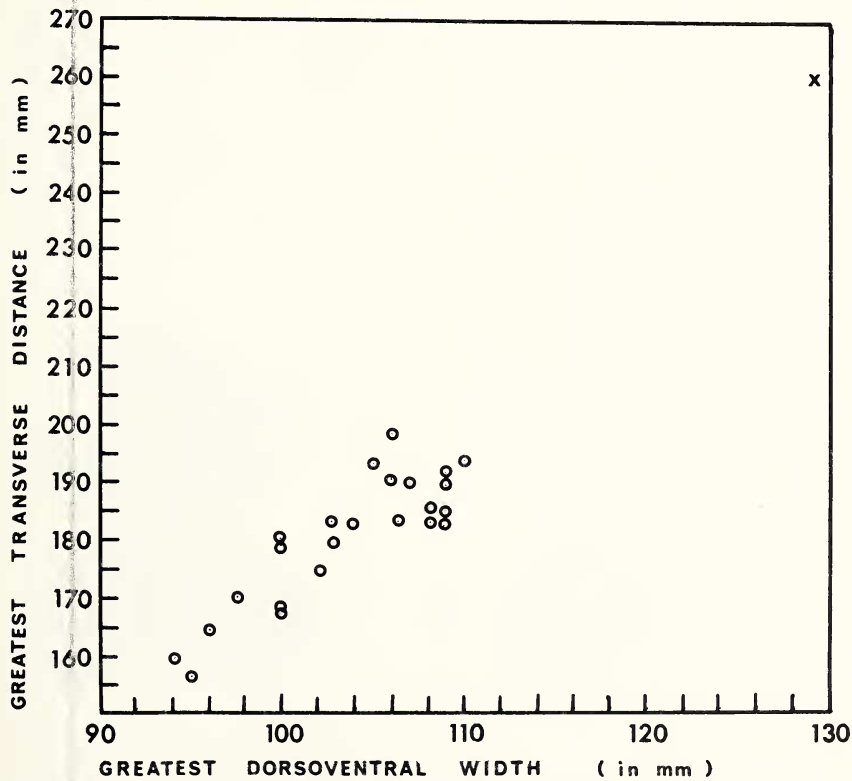
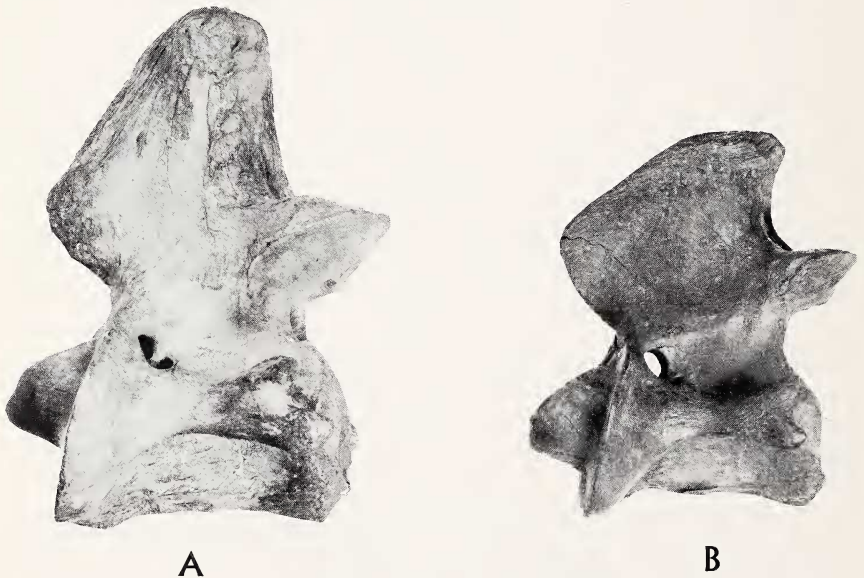


Figure 4. Scatter diagram of bison atlases from Rancho La Brea. o = *Bison antiquus*; x = *Bison latifrons*.

TABLE 1

Skeletal measurements of *Bison latifrons*
from Rancho La Brea

Atlas (Y 6737)	mm
Greatest width across wings	260
Greatest dorsoventral thickness (across tubercles)	131
Greatest transverse distance (across proximal articulating surface)	152
Axis (Y 6734)	
Greatest length of centrum (including dens)	148
Greatest width (across anterior articulating surface)	138
Greatest width of dens	059
Height of neural spine (superior border of neural arch to tip of spine)	124
Scapula (Y 6738)	
Greatest anteroposterior distance (across articular surface)	090
Greatest transverse distance (across articular surface)	075
Ulna (Y 6736)	
Greatest anteroposterior distance (through anconeus process)	126
Height of olecranon process (above sigmoid notch)	160
Mandible (Y 6710)	
Length of jaw (lateral border of C/1 alveolus to angle)	468
Depth of jaw (at anterointernal border of P/2 alveolus)	060
Depth of jaw (at posterointernal border of M/3 alveolus)	095
Length of premolar series (from alveolar borders)	068
Length of molar series (from alveolar borders)	115

Figure 5. Comparison of bison axes from Rancho La Brea, lateral view. A, *Bison latifrons*. B, *Bison antiquus* (large specimen). About $\frac{1}{2}$ x.

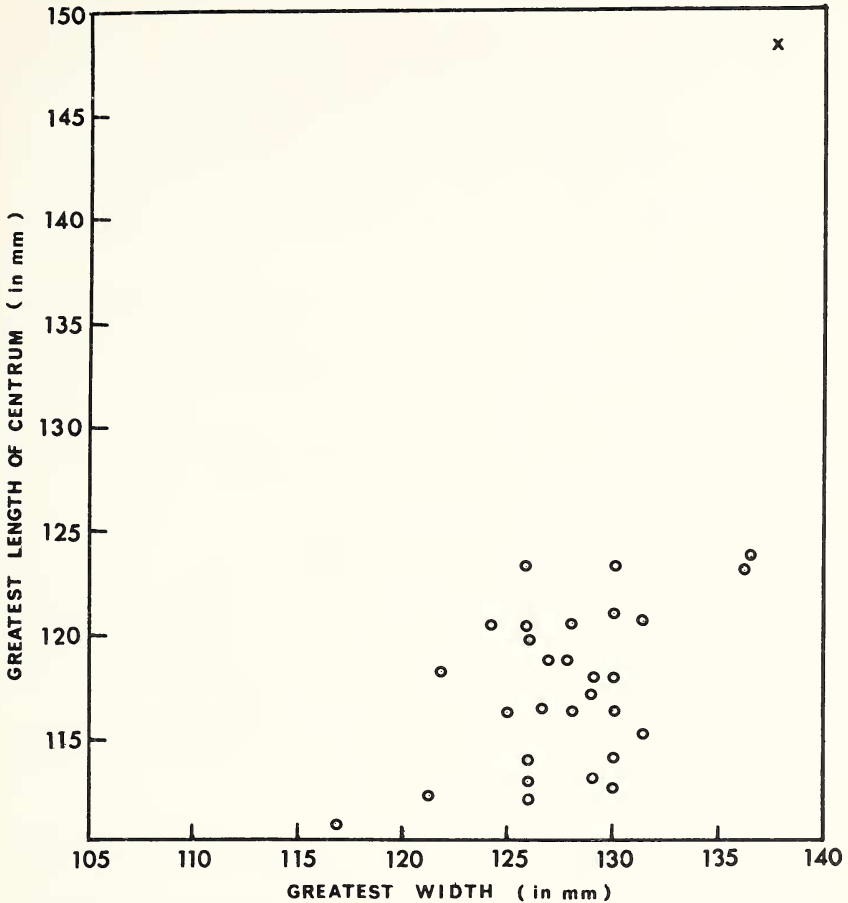


Figure 6. Scatter diagram of bison axes from Rancho La Brea. o = *Bison antiquus*; x = *Bison latifrons*.

taken from above and below this level. This record of the giant species of *Bison* now extends its geographic range to southern California. The first California record was reported by VanderHoof (1942) who described a complete skull from the northern part of the state. Savage (1951, p. 284) mentioned the presence of *B. latifrons* in Contra Costa County, California.

Recovered specimens from Pit 4 include an atlas, LACM No. Y 6737; an axis, LACM No. Y 6734; the proximal end of an ulna, LACM No. Y 6736; and a complete mandible, LACM No. Y 6710. All these specimens greatly exceed corresponding ones of *B. antiquus* in size and two show differences in proportions, the atlas and the axis (Figs. 3 and 5 and Table 1).

Atlas. This element far surpasses the equivalent one of *Bison antiquus* in size and further differs by being more rugose, possessing more massive ventral and dorsal tubercles and having a tendency toward a trapezoidal rather than a rectangular form (dorsal and ventral view). The present atlas was found to be identical to the corresponding element in *B. latifrons* specimens in the University of California Museum of Paleontology and the Los Angeles County Museum of Natural History collections. It is a little larger than the one of *Bison latifrons* and distinctly larger than that of *B. crassicornis* reported by Allen (1876, p. 14).

Axis. Like the atlas, this cervical vertebra is much larger than any similar element of *B. antiquus* in the Rancho La Brea fauna. It further differs by possessing a greater rugosity and a larger neural spine whose anterior edge is more steeply inclined (Fig. 5). The axis is indistinguishable from axes of *B. latifrons* used in comparison.

Scapula. The portion of this element available indicates a much larger bone but one whose proportions are similar to *B. antiquus*.

Ulna. Like the scapula, the proximal portion of the ulna compares favorably in shape to *Bison antiquus* but is much larger.

Mandible. The greater size of this element distinguishes it from lower jaws of *B. antiquus*. However, the teeth are relatively smaller, being about equal in size to many observed specimens of the smaller species. This observation was also made by VanderHoof (1942, p. 11); the complete jaw described by him is almost identical in size to the Rancho La Brea specimen.

Based on their large size, several postcranial juvenile specimens from Pit 3 of the Rancho La Brea deposits could possibly represent *Bison latifrons*.

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