Late Pliocene (Blancan) Vertebrates From the Camp Rice Formation in the Vicinity of Hatch, Doña Ana and Sierra Counties, Southern New Mexico

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Two Pliocene vertebrate faunas referred to the Blancan North American land mammal age, the Hatch Local Fauna (LF) and Arroyo Cuervo LF, are described from the Camp Rice Formation in the Hatch-Rincon basin west of Hatch in Doña Ana and Sierra counties, southern New Mexico. These two faunas occur in a stratigraphic section of the Camp Rice Formation about 70 m in thickness, primarily consisting of the axial-fluvial facies. The Hatch Siphon section of the Camp Rice Formation occurs in close proximity to the Pliocene vertebrate sites, and includes a dated pumice and magnetic polarity stratigraphy. The fossiliferous portion of this section encompasses much of the Gauss chron, ranging in age from slightly older than 3.33 Ma in the lowermost Gauss chron to the Gauss/Matuyama boundary at 2.58 Ma. The Hatch Siphon pumice, with a \(^{40}\)Ar/\(^{39}\)Ar date of 3.12 Ma, is located 28 m above the base of the section, within the Kaena subchron. The top of the Kaena at 3.04 Ma, about 30 m above the base of the section, marks the approximate boundary between the Arroyo Cuervo and Hatch faunas.

The early Blancan Arroyo Cuervo LF consists of 11 species of vertebrates: 2 land tortoises, Gopherus and Hesperotestudo; mud turtle Kinosternon; freshwater emydid turtle; and 7 mammals: horses Equus simplicidens and Equus small species; peccary Platygonus; 2 camels, Camelops and Hemiauchenia blancoensis; deer Navahoceros lascarucensis; and gomphothere proboscidean Rhynchotherium falconeri. The mammals from Arroyo Cuervo limit the age of this fauna to between 3.6 Ma (first appearance of Equus simplicidens, Platygonus, Camelops, Hemiauchenia blancoensis, and Rhynchotherium falconeri) and 2.6 Ma (last appearance of E. simplicidens in New Mexico). The absence of South American immigrant mammals that participated in the Great American Biotic Interchange indicates the Arroyo Cuervo LF is older than 2.7 Ma. Mammalian biochronology and magnetostratigraphy constrain the age of the Arroyo Cuervo LF to ~3.0–3.4 Ma (late early Blancan).

The late Blancan Hatch LF consists of 18 species of vertebrates: 2 tortoises, Gopherus and Hesperotestudo; mud turtle Kinosternon; snake Rhinocheilus lecontei; unidentified bird; and 13 species of mammals: glyptodont Glyptotherium texanum; 2 species of rabbits, Sylvilagus sp. and indeterminate small leporid; pocket gopher Geomys paenebursarius; badger Taxidea; indeterminate small cat; 3 horses, Nannippus peninsulatus, Equus cumminsii, and E. simplicidens; 2 camels, Camelops and Hemiauchenia blancoensis; pronghorn Capromeryx arizonensis; and indeterminate proboscidean. The mammals from Hatch limit the age of this fauna to between 3.0 Ma (first appearance of Sylvilagus and Geomys paenebursarius) and 2.6 Ma (last appearance of Equus cumminsii, E. simplicidens, and Nannippus peninsulatus in New Mexico). The presence of Glyptotherium texanum provides an important biostratigraphic indicator, with the first appearance of glyptodonts and other South American Interchange mammals in temperate North America at about 2.7 Ma. Mammalian biochronology and magnetostratigraphy constrain the age of the Hatch LF to ~2.6–3.0 Ma (early late Blancan).