Eocene Turtles from the San Jose Formation, San Juan Basin, New Mexico

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E. D. Cope described the first Early Eocene turtles from the San Juan Basin during the 1870s. Hay (1908) subsequently (and last) reviewed these turtles, assigning them to 15 species in seven genera and five families. However, many of these species are based on nondiagnostic, fragmentary material and thus are nomina dubia. For example, we identify “Kallistra costalata” as a nomen dubium because its type material consists of fragments of two other species. Further, Platypeltis seralis is a nomen dubium because its type specimen has been missing since before the work of Hay (1908). We have revised the alpha taxonomy of the San Jose Formation turtles to conclude that there are six genera and six valid species of fossil turtles, all from the Regina Member “Almagre local fauna.” These include Baena arenosa and Hadrianus majuscules, because we return the species Geochelone (Manouria) majuscula to the genus Hadrianus and to its former specific epithet. We do not believe there is sufficient reason to combine Hadrianus and Geochelone (Manouria) given the enormous ghost lineage this creates for the genus. Further, Echmatemys lativertebralis and E. cibolensis are combined into E. septaria on the basis of non-diagnostic types lacking sufficient differences from the type of the genus to justify their separation as new species. This means that there are no longer any emydid turtle species known only from the San Jose Formation, as this species is also known from the Bridger Group in Wyoming. All San Jose Formation trionychid specimens lack diagnostic types and are referred to Plastomenus sp. These species were defined largely on their shell ornamentation, which is not diagnostic, as it can vary greatly within a species. Collections that post-date the work of Hay include fragments attributable to Baptemys garmani and Planetochelys ditheros. The matching bosses of the carapace and plastron make Planetochelys distinct and easily recognized. We believe that some specimens in the New Mexico Museum of Natural History and Science Collection are Planetochelys ditheros because they do not appear to be from a large enough turtle to represent another known species of Planetochelys. Comparison to broadly coeval turtle assemblages in Wyoming indicates that the San Jose turtle assemblage coincides to approximately the Lysitean sub-land-mammal “age,” (middle Wasatchian), in agreement with the previously assessed age based on mammalian fossils.

References:

Hay, O. P., 1908, The fossil turtles of North America: Carnegie Institute of Washington Publication, 75,