THE STATUS OF *DEIROCHELYS FLORIDANA* HAY WITH COMMENTS ON THE FOSSIL HISTORY OF THE GENUS

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ABSTRACT

Hay (1908) described an extinct species of chicken turtle, *Deirochelys floridana,* from Pleistocene beds (formerly considered Pliocene), along Peace Creek, Hillsborough County, Florida. His description is based upon a single, complete nuchal bone. A comparison of the type specimen with modern skeletal material demonstrates conclusively that this fossil is not *Deirochelys,* but should be consigned to the genus *Pseudemys* Gray. On the basis of data presently available the fossil cannot be placed with certainty in the extant species *Pseudemys nelsoni* Carr or *Pseudemys floridana* Le Conte, although it is slightly closer to the mean values of the former in some of its proportions.

With *D. floridana* Hay referred to the genus *Pseudemys, Deirochelys* would lack a fossil history except that a partial nuchal element definitely referable to this genus recently has been found in a Pleistocene deposit in Marion County, Florida.

I. "DEIROCHELYS FLORIDANA Hay"

Comparison of a cast (UF 3556) of the type of *D. floridana* Hay (USNM 16679) to a series of nuchal bones of the extant *D. reticularia* (Latreille), reveals striking dissimilarities in most characters. In *D. reticularia* the nuchal bone is a thin, plate-like element, which lacks the massive antero-lateral thickening found in all species of *Pseudemys* available for study. The relatively greater width of the posterior border (and ratios utilizing that dimension) of the nuchal bone of *D. reticularia* further indicate that the fossil was assigned incorrectly to the genus *Deirochelys.* The sculpturing of fine ridges and grooves which has been considered diagnostic of *Deirochelys* and is certainly common in that genus, is duplicated in series of both *P. nelsoni* and *P. floridana.* The type of *D. floridana* is easily distinguished from *Pseudemys scripta* (=*Trachemys scripta*) on the basis of lacking deeply-impressed scute sulci and an even moderately-developed median dorsal keel. From *Pseudemys concinna* it differs in the shape of the anterior border, which also results in a quite different median length—maximum width ratio. It cannot be distinguished clearly from either *P. nelsoni* or *P. floridana.* However, a comparison of series of nuchal bones of *P. nelsoni* and *P. floridana* indicates that the mean widths of their posterior borders (as well as ratios derived

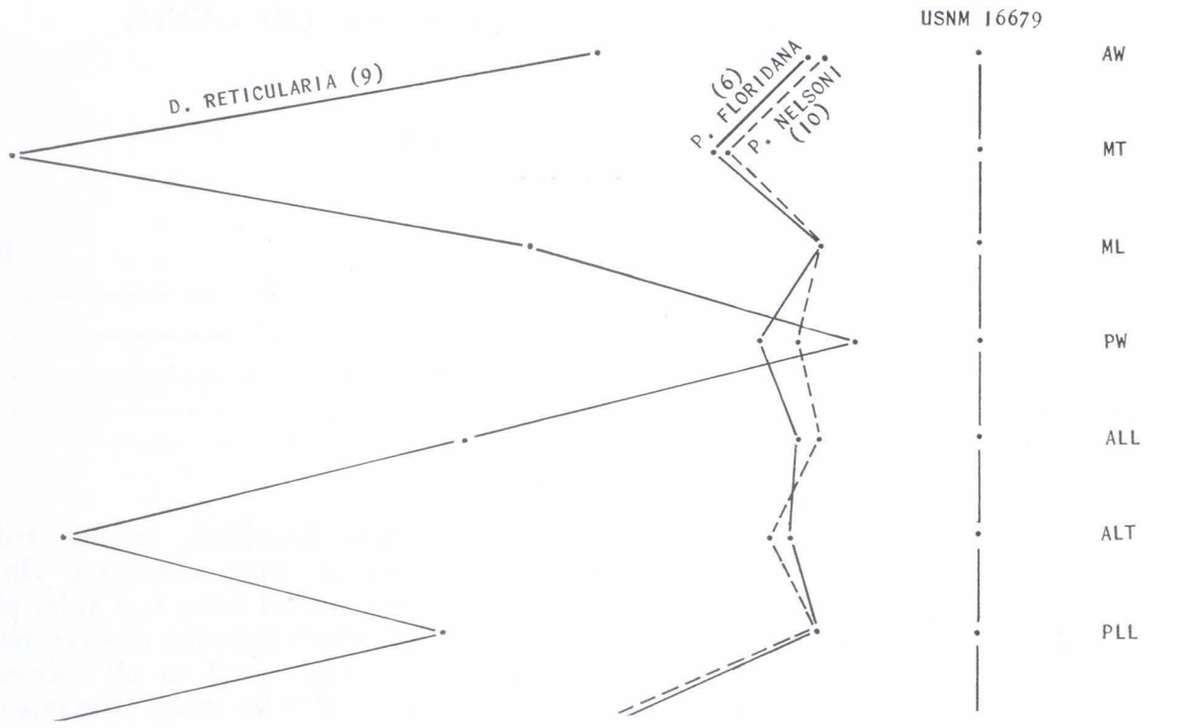

Figure 1. Ratio diagram of dimensions of nuchal bone in several turtles, as labeled. USNM 16679 is the holotype of *D. floridana.* Numbers in parentheses refer to number of specimens. A W = width of anterior border, M T = maximum midline thickness, M L = median length, P W = width of posterior border, A L L = length of anterolateral border, A L T = thickness of anterolateral border, P L L = length of posterolateral border, T P B = thickness of posterior border, M W = maximum width.

therefrom) differ somewhat but the overlap of values makes positive specific identification of single specimens uncertain. This is not surprising as Crenshaw (1955) experienced difficulty in consistently differentiating these forms on the basis of both preserved and living material, and agreed with Carr (1952) that occasional hybridization occurs between the species.

A ratio diagram (Fig. 1) shows the similarity in the proportions of the type of *Deirochelys floridana* and a series of nuchal bones of Recent *P. nelsoni* and *P. floridana.* The marked dissimilarity in proportions between the type specimen and a series of Recent *D. reticularia* is quite evident. The only appreciable deviation of the series of Recent *Pseudemys* from the proportions of the fossil is in the relative thickness of the posterior border. However, due to the large size of the fossil element, this difference may be more apparent than real. In only two of the Recent specimens examined, UF 18128 *(P. floridana)* and UF 5960 *(P. nelsoni),* are any dimensions of the nuchal equal to or greater than those of the fossil. Both were intact shells and the thicknesses of their midlines and posterior borders could not be measured.

II. Fossil Deirochelys reticularia

In 1961, a University of Florida field party under the direction of Clayton E. Ray collected a partial nuchal bone of *Deirochelys* (UF 9292) from a Pleistocene deposit of Illinoian age (Brodkorb, 1959) at the Cummer Lumber Company limestone pit near Kendrick, Marion County, Florida. In most respects the fossil agrees rather well with the nuchal bone of the extant form *D. reticularia.* Its dimensions are as follows: width of anterior border—27 mm; maximum width—approx. 64 mm; *i.e.,* 32 mm x 2; length of anterolateral border—41 mm;

Plate I

Dorsal view of nuchal bones of fossil and Recent *Deirochelys* and *Pseudemys:* A. Recent *D. reticularia* (J-131). B. fossil *D. reticularia* (UF 9292). C. *D. floridana* Hay (cast of type, USNM 16679). D. *P. nelsoni* (UF 17942). E. *P. floridana* (UF 17943).

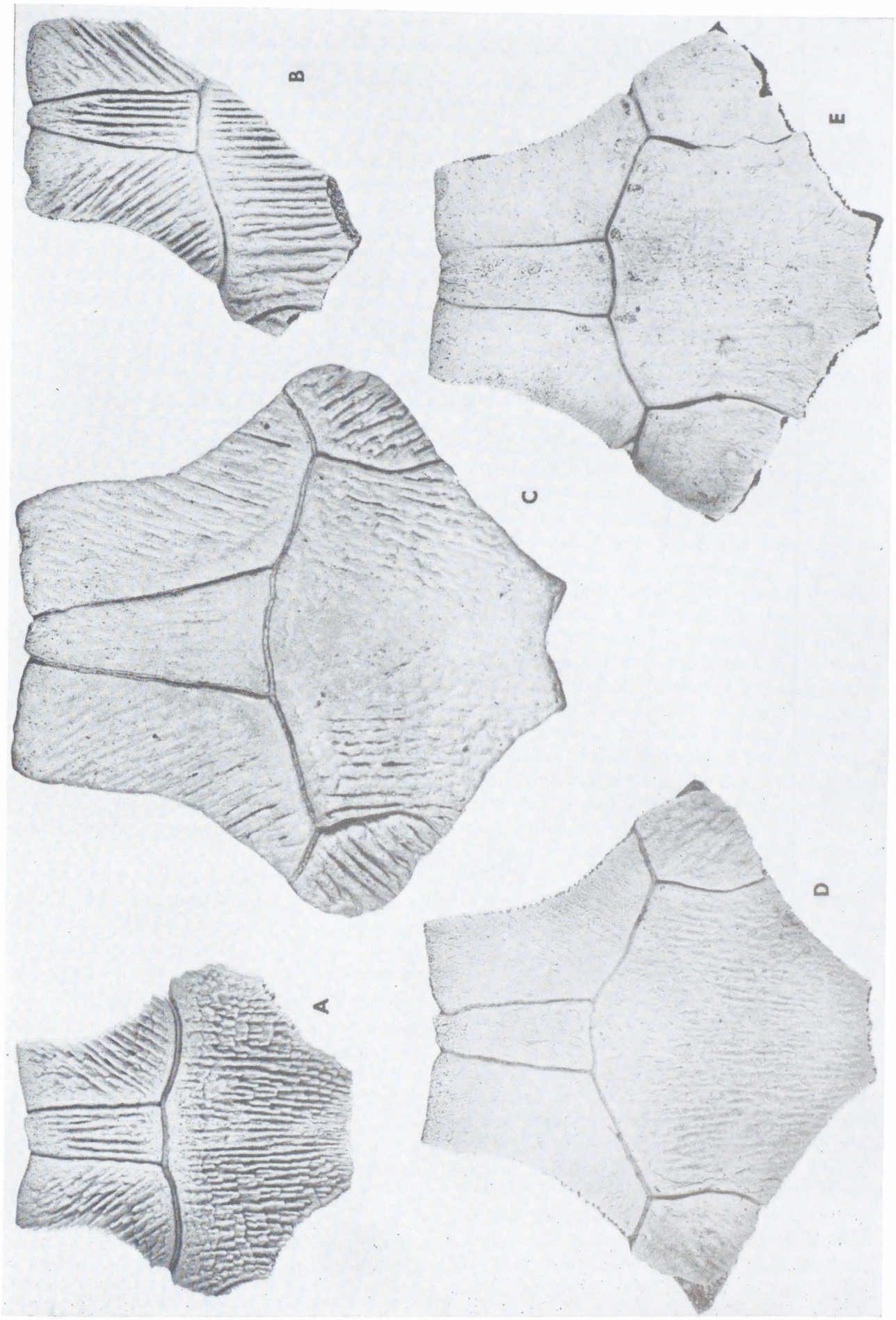

PLATE I

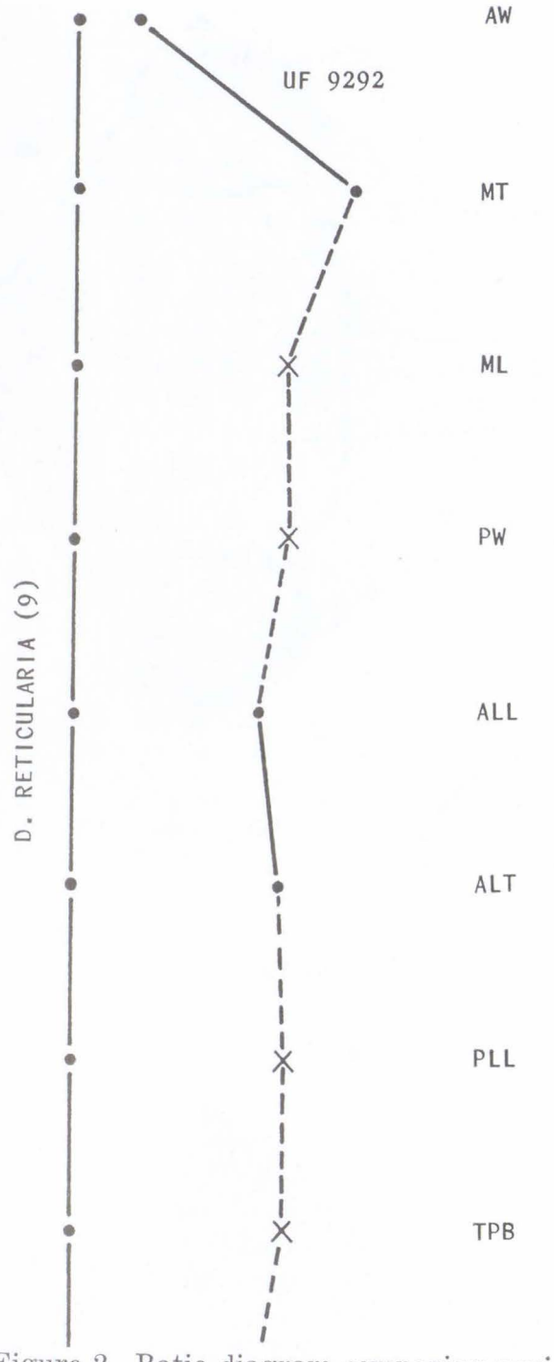

Figure 2. Ratio diagram comparing various dimensions of fossil *Deirochelys* (UF 9292) and a series of Recent *D. reticularia*. Abbreviations same as in Fig. 1. X = estimated dimension.

thickness of anterolateral border—10 mm. Dimensions which could not be measured because of the partial nature of the specimen are estimated in the ratio diagram (Fig. 2) which compares the fossil element with a series of Recent *D. reticularia.*

In Plate I the dorsal views of the isolated nuchal bones of the holotype of *D. floridana* and the Marion County fossil fragment (UF 9292) are compared with those of *Deirochelys reticularia, Pseudemys nelsoni,* and *Pseudemys floridana.* Unfortunately, the only large isolated nuchal bones of the latter two species presently available for photographing do not have the ridged-and-grooved sculpture pattern very well developed. The dorsal surface of the fragment is sculptured with fine parallel ridges and grooves of a type commonly observed in very large individuals of *D. reticularia* but which also occurs frequently in species of the genus *Pseudemys.* The size of the fragment indicates a chicken turtle rather large by Recent standards. However, in this instance absolute size is not considered of any taxonomic significance. In only one character is the fossil unique. The proportionate width of the anterior border is conspicuously less than that found in any specimen of the series of *D. reticularia* examined. This may not be particularly significant as Walter Auffenberg (personal communication) informs me that in specimens of land tortoises possessing an extra pair of peripheral bones, the relative dimensions of other elements in the circumcarapacial series are usually greatly altered—particularly the anterior and posterior members.

Thus, with the exception of the relatively narrow anterior border, the fossil appears to represent a large *Deirochelys reticularia* (Latreille). It is considered conspecific with that form until better material is available that might suggest otherwise. Based on this specimen, a fossil history extending to at least the middle Pleistocene of Florida is established for the monotypic genus *Deirochelys.*

Specimens examined in this study are deposited in the collections of the United States National Museum (USNM), The University of Florida (UF), and the author's personal collection (J). Mr. Robert McFarlane kindly made the photographs.

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