

NUMBER 348

MARCH 12, 1937

OCCASIONAL PAPERS OF THE MUSEUM OF  
ZOOLOGY

UNIVERSITY OF MICHIGAN

ANN ARBOR, MICHIGAN

UNIVERSITY OF MICHIGAN PRESS

---

A NEW TURTLE FROM FLORIDA, WITH NOTES ON  
*PSEUDEMYS FLORIDANA MOBILIENSIS*  
(HOLBROOK)

BY A. F. CARR, JR.

As I have pointed out in a previous paper (1935), the two turtles hitherto known as *Pseudemys concinna* and *P. floridana* are northern and southern races of the species, *P. floridana*, described by LeConte (1830). *P. concinna*<sup>1</sup> is southeastern in distribution, its range extends into northern Florida. *P. floridana* inhabits the central and southern portions of the peninsula of Florida. In the northern sections of the peninsula the two forms intergrade.

In working out the distribution of these two forms in Florida, I was led to a consideration of their relationship with the so-called *P. mobiliensis* (Holbrook), a fluvial and estuarine form of the Gulf Coast rivers from Florida to Texas.

The affinities of *mobiliensis* have been variously interpreted. According to Holbrook (1842) it "is perhaps most nearly allied to *Emys rubriventris*." Gray (1844) considers it "very like *A. floridana*, but streaks broader." Agassiz (1857) states that "it is easily distinguished from the other species of the

<sup>1</sup> The name *concinna* as used in this paper refers only to the coastal plain phase. In his description of the species LeConte states clearly that he has never seen it below the fall line. It seems probable that there are racial differences between the piedmont and coastal plain populations.

genus by the great height of the anterior part of the back." Baur (1893) "found that they [the types] are very close to *P. concinna* LeC. The skull agrees exactly with that of *P. concinna*, but is considerably larger." Boulenger (1889) says the form is "distinguished from *C. concinna* and *C. rubriventris*, to which it is closely allied, by the greater elevation of the shell anteriorly." Brimley (1907) is "inclined to consider this form as merely, at the most, a large southern form of *concinna*."

Having studied *mobilensis* in several localities, from the southern limit of its range to New Orleans, I have concluded that it is made up of two distinct races: the northern form described by Holbrook, and a southern form typified by examples from the Suwannee River, and its tributaries. Further, I am convinced that these two races do not make up a distinct species, but are merely subspecies of *P. floridana*.

Some time ago it came to my attention that, throughout that portion of its range with which I was familiar, *mobilensis* occurred to the exclusion of *floridana*. In Florida, the former is found only in the rivers draining into the Gulf, along the northern half of the coast. The inland lakes and streams, the rivers of the east coast, and the rivers and drainage ditches of the west coast south of Tarpon Springs, are inhabited by *floridana*; as far as I know *mobilensis* has never been taken here. In the Suwannee, however, and in its tributary, the Santa Fe, *mobilensis* abounds, and I have never seen *floridana* below the swampy headwaters of these streams.

The southern race of *mobilensis* attains its maximum abundance in two distinct habitats, the clear calcareous streams of the west coast, and the shallow vegetated flats adjacent to the mouths of these streams. In Levy County, where the waters of Manatee Springs empty into the Suwannee River, I have seen literally hundreds of these creatures feeding on the *Philotrea* which forms great banks in the river bed. At certain tides and seasons they are just as numerous on the eel-grass flats off the mouth of Suwannee Sound. In Crystal River, fifty miles south of Suwannee Sound, and thirty miles farther

south in the Weekiwachee River, there is a progressive loss of racial characters, specimens from the latter locality being nearly typical *floridana*.

In the Apalachicola drainage are found forms whose characters are intermediate between those of the Mobile and the Suwannee River races, while in Mobile Bay the racial characters are superimposed on a stock obviously close to *concinna*. In the coastal rivers of Louisiana, Mississippi, and Alabama, *mobilensis* meets and intergrades with *concinna*.

Thus *P. mobilensis* of authors appears to be the coastal and fluvial representative of the inland and more lacustrine *P. floridana*, replacing *P. f. concinna* along the northern Gulf Coast, and *P. f. floridana* on the west coast of peninsular Florida.

In a group of terrestrial animals, occupying extensive habitats, where one extreme of the range of the form extends into a region of different ecological conditions, geographical variation has frequently been noted, and between the individuals at the extremes of the range we expect to find a gradual, progressive change from one form to the other. In *mobilensis*, however, the change from north to south is apparently manifested in a series of steps, determined by the number of master streams which empty into the Gulf. I am convinced that intercourse between the members of each master-stream colony is restricted to the occasional individual wandering along the coast. This opinion is supported by several turtle fishermen of my acquaintance.<sup>2</sup>

<sup>2</sup> The Suwannee race is held in high esteem as an article of diet by the people along the river, where it is commonly known as the "Suwannee Chicken." Because of its restricted range, only a local market has been developed, but those who have eaten the meat consider it delicious. In my opinion the flavor is superior to that of any other southern freshwater turtle, and equal to that of the diamondback, *Malaclemmys centrata*.

An old Suwannee River fisherman, who had lived for many years in Mobile, once informed me that "the Suwannee Chicken eats a hell of a sight better than the Mobilian" (*P. f. mobilensis*). Although a trifle subjective to be of much taxonomic value, the fact that the distinction between the two forms finds gastronomic support is noteworthy.

I believe that the Suwannee River form is sufficiently distinct to merit recognition. I am describing it as a new race which intergrades on the north with *P. f. mobiliensis* and on the south with *P. f. floridana*.

***Pseudemys floridana suwanniensis*, n. subsp.**

**DIAGNOSIS.**—Differs from *P. f. mobiliensis* in the following characters: background of carapace darker, its markings reduced; ground color of limbs darker; outer surface of hind foot not striped; outer surface of fore limb with only two or three stripes; stripes on head and limbs lighter, more dilute yellow; plastral markings more symmetrical, following sutures more consistently; carapace of male wider and more smoothly globose. Differs from *P. f. floridana* and *P. f. concinna* in the possession of dark plastral markings.

**TYPE LOCALITY.**—Suwannee River at Manatee Springs, Levy-Dixie County line, Florida.

**HOLOTYPE.**—Adult male. Coloration: carapace black with pale, greenish yellow reticulations and faint irregularly concentric lines; each marginal with a pale vertical bar, some of them with vaguely defined auxiliary vertical bars or crescentic markings; head lustrous black, with greenish yellow stripes, five of these visible between the eyes; striping of side of the head similar to that in *mobiliensis*, *floridana*, and *concinna*; markings on throat and other soft parts very dilute yellow with a greenish tinge; outer surface of fore limb with three irregular lines, two of them faint and broken; outer surface of hind foot black, not marked; plastron and lower surface of marginals mottled greenish yellow and yellowish orange; each intermarginal suture bisecting a large elliptic black smudge with irregular light center; bridge with irregular longitudinal bar; plastral markings closely similar to those shown in Plate I, Figure 1.

Length, 252 mm.; width, 187 mm.; height, 82 mm.; greatest height of carapace anterior to middle of long axis; greatest width at posterior half of seventh marginal; outer edges of marginals forming a nearly smooth curve when viewed later-

ally. Upper jaw nearly smooth; lower jaw strongly serrate with a sharp cusp at symphysis. Second, third, and fourth nails on fore toes very long.

**ALLOTYPE.**—Adult female. Similar in coloration to the holotype; two lines on outer surface of fore limb; longitudinal bar on bridge broken; plastral markings absent along inter-abdominal and inter-anal sutures.

Length, 372 mm.; width, 270 mm.; height, 139 mm.; greatest height anterior to middle of long axis; greatest width at anterior half of seventh marginal. Upper jaw feebly serrate; lower jaw strongly serrate with a cusp at symphysis.

**VARIATION.**—In an adult male (University of Florida, Dept. of Biology No. 778) on one side the two dorsal head stripes join behind the eye, as is common in *P. f. floridana*. Variation in plastral markings apparently always amounts to a reduction of the basic pattern (see Pl. I, Fig. 1); the humero-gular, inter-humeral, and humero-pectoral bands are the most persistent portion of the pattern; the inter-abdominal band is the most frequently missing. Height into length and width into length ratios are as follows: nine adult males: L/H.: 3.00, 3.10, 2.84, 3.01, 3.07, 3.02, 2.94, 3.16, 2.91; L/W: 1.38, 1.36, 1.23, 1.34, 1.34, 1.31, 1.34, 1.36. (L/W for 3 adult males from Mobile, 1.49, 1.49, 1.44.) Eight adult females: L/H: 2.76, 2.72, 2.75, 2.72, 2.65, 2.61, 2.64, 2.67; L/W: 1.31, 1.27, 1.32, 1.30, 1.39, 1.41, 1.43, 1.37. The largest male and female that I have seen had carapace lengths of 282 mm. and 416 mm. respectively. There are no apparent differences between specimens from Manatee Springs on the Suwannee River and Poe Springs on the Santa Fe.

The type series comprises sixteen specimens. The holotype, allotype, and ten paratypes, five males and five females, have been deposited in the collection of the Mus. Zool. Univ. Mich. Six paratypes are in the collection of the Department of Biology, University of Florida. *P. f. mobiliensis* is an extremely variable race. It is very intimately associated with *P. f. concinna*, much more so than is *P. f. suwanniensis* with any other form. The only reliable character by which it may be dis-

tinguished from *concinna* is the presence of plastral markings. Extension of the range of *mobilensis* beyond the immediate vicinity of Mobile introduces a series of bewildering variations which prevent the forming of a clear concept of the race. A hurried examination of a large series of young and several adults from southern Louisiana, in the collection of the Southern Biological Supply Co., led me to the belief that examples from this region differ slightly but fairly constantly from Mobile specimens. The plastral pattern in some specimens resembles that of *suwanniensis* more closely than that of typical *mobilensis*. It is possible that the form described by Brimley as *P. vioscana* is a distinct Louisiana race.

#### *Pseudemys floridana mobilensis*

Holbrook's description and figure of *mobilensis* are based upon the female alone. Since there is no adequate description of the male in the literature, the following characters of an adult male from Mobile are mentioned here.

COLORATION.—Carapace dark brown with numerous broad-lined reticulations, bars, and concentric lines of yellowish orange. Plastron and lower marginals mottled, yellowish orange, reddish orange, and gray. Intermarginal smudges of *suwanniensis* lacking on first intermarginal sutures. Bar on bridge confluent at anterior and posterior ends with intermarginal spots; plastral patterns reproduced in Plate II. Head, neck, and limbs dark brown with yellow stripes; outer surface of fore limb with two broad and three narrow longitudinal bands; outer surface of hind limb with five yellow stripes; seven stripes between eyes.

Greatest width at suture between marginals 7 and 8; greatest height slightly anterior to middle of long axis; outer edges of marginals forming a sinuous curve in lateral aspect. Upper jaw weakly serrate; lower jaw strongly serrate with cusp at symphysis.

The races of *P. floridana* may be distinguished as follows:

- |   |   |
|---|---|
| 1. Dark plastral markings lacking ..... | 2 |
| Plastral markings present .....         | 3 |

2. Dorsal head pattern with two lines on either side usually confluent behind eye; marginal blotches solid; plastron and markings on head and limbs very light greenish yellow ..... *floridana*  
Dorsal head pattern of several parallel lines not confluent behind eye; marginal blotches with light figures within them; plastron and markings on head and limbs bright yellow or orange-yellow. *concinna*
3. In male, width in length ratio usually less than 1.4; five lines between eyes; two or three lines on outer surface of fore limbs; outer surface of hind limb black, unstriped ..... *suwanniensis*  
In male, width in length ratio usually more than 1.4; seven or more lines usually between the eyes; four or more lines on outer surface of fore limb; outer surface of hind limb dark brown with yellow stripes ..... *mobilensis*

Specimens examined: *P. f. suwanniensis*, Suwannee River, 75; Santa Fe River, 6. Intergrades (*suwanniensis*  $\times$  *floridana*), Crystal River, Citrus County, 4; Weekiwachee Springs, Hernando County, 4. Intergrades (*suwanniensis*  $\times$  *mobilensis*), Blue Spring Creek, Jackson County, 5; Pensacola, 1.

*P. f. mobilensis*, Pensacola, 1; Mobile, Alabama, 12; Plaquemine, Louisiana, 2; New Orleans, Louisiana, 44. Intergrades (*mobilensis*  $\times$  *concinna*), Mobile, Alabama, 2; Biloxi, Mississippi, 1; New Orleans, Louisiana, 16.

ACKNOWLEDGMENTS.—For the opportunity of examining material in their care, I wish to thank Mr. T. Van Hyning, Curator of the Florida State Museum; Dr. Norman Hartweg, Museum of Zoology, University of Michigan; Dr. A. H. Wright, Cornell University; Mr. Percy Viosca, New Orleans, Louisiana; and Mr. C. S. Brimley, Raleigh, North Carolina.

For assistance in securing specimens I am grateful to my father, the Rev. A. F. Carr, Umatilla, Florida; Mr. Will Durant, Mobile, Alabama; Mr. R. C. MacClanahan, Pensacola, Florida; and Mr. Stewart Springer, Bass Biological Laboratory, Englewood, Florida.

*A. F. Carr, Jr.*

PLATE I

Variation of plastral markings in *P. f. suwanniensis*. I have never seen a specimen which lacked the markings entirely; in all those which I have examined the design has fallen somewhere between Figs. 1 and 4. Departures from bilateral symmetry are few and slight.

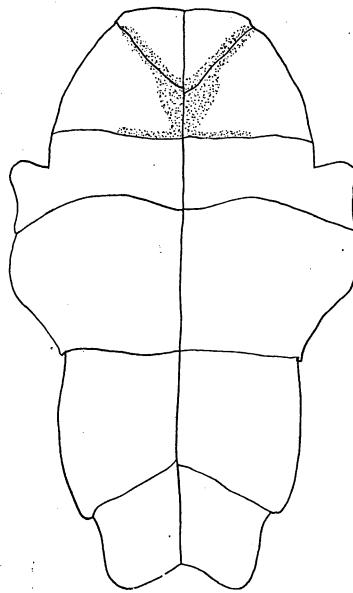
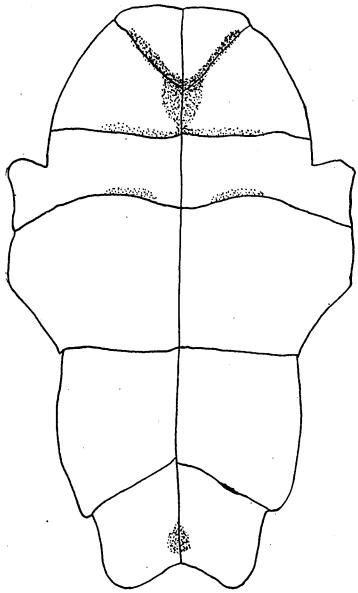
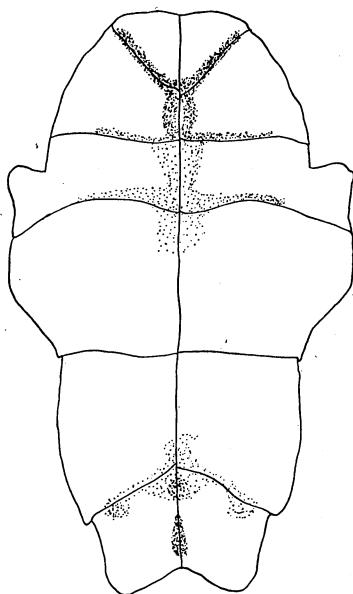
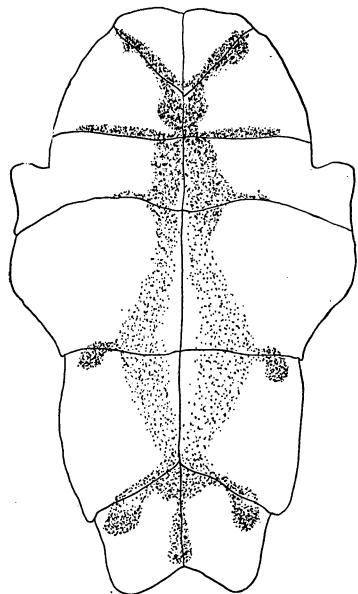
FIGS. 1 and 3. Adult males, Suwannee River.

FIG. 2. Adult male, Santa Fe River.

FIG. 4. Adult female, Suwannee River.

A NEW TURTLE FROM FLORIDA

PLATE I



*A. F. Carr, Jr.*

PLATE II

Variation in plastral markings in *P. f. mobiliensis*. There appears to be little adherence to a basic pattern. Variation is great and asymmetry frequent.

- FIG. 1. Adult female, Pensacola.
- FIG. 2. Adult male, Pensacola.
- FIG. 3. Adult male, Mobile.
- FIG. 4. Yearling, Mobile.
- FIGS. 5 and 6. Adult females, Mobile.

