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BAUR

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# A TAXONOMIC REAPPRAISAL OF THE TURTLE *PSEUDEMYS ALABAMENSIS* BAUR

ARCHIE CARR

AND

JOHN W. CRENSHAW, JR.<sup>1</sup>

During a recent study of certain sections of the emydine turtle genus *Pseudemys*, Crenshaw made a search for new characters that might be brought to bear on the question of relationships among the complexes in the southeastern United States. One aspect of the study led to a re-evaluation of the placement of *Pseudemys alabamensis* Baur in the synonymy of *Pseudemys floridana mobilensis* by Carr (1952). The present paper proposes that, in spite of the fact that all its characters occur individually with greater or lesser frequency in one stock or another of the *P. floridana* group, *alabamensis* may be a real genetic entity occupying a continuous small range in the Gulf drainage of the southeastern coastal plain. If so, its retention in synonymy can only lead to the ignoring of a zoogeographic situation which, though by no means well understood, appears to be of extraordinary interest.

Crenshaw was successful, as will be shown below, in finding at least one character that seems as good as, or better than, any hitherto used in defining the *Pseudemys rubriventris* group. A reassessment of *alabamensis* in the light of the new criterion brings out or re-emphasizes four salient facts: (1) The diagnosis of *alabamensis*, formerly weak, is strengthened. (2) The characters of *alabamensis* suggest *P. nelsoni* of peninsular Florida as the nearest relative. (3) *P. alabamensis* appears to form with *nelsoni*, and with *rubriventris* of the Atlantic coastal plain north of North Carolina, a species complex with a curiously discontinuous distribution—a catena of stocks so closely knit that the gaps geographically separating the three forms seem incongruous. (4) *P. alabamensis* shares with *nelsoni* and *rubriventris*, and perhaps accentuates, a peculiar relationship with the *floridana* group, a section of the genus which, when judged by typical examples only, seems so divergent as to be of almost subgeneric level.

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TAXONOMIC HISTORY OF *PSEUDEMYS ALABAMENSIS*

Baur (1893:224) described *alabamensis* as a distinct species of the genus *Pseudemys* and noted that it was closely allied to *rubriventris*. He pointed out that the form had been treated by Agassiz (1857:433) under the name *mobiliensis*. Baur designated syntypes (without catalogue numbers) in the collection of Mr. G. Kohn of New Orleans; these were deposited subsequently in the collection of the United States National Museum.

Siebenrock (1909:469) suppressed *alabamensis* to a synonym of *rubriventris*, but Stejneger and Barbour (1917:120) ignored his action and treated it as distinct. Carr (1938:106, 107), noting the almost concurrent ranges of *alabamensis* and the *mobiliensis-suwanniensis* complex of the species *floridana*, and the agreement in coloration and conformation shown by "*alabamensis*" from various localities and the phase of *floridana* characteristic of those same localities, suggested that *alabamensis* might represent no more than an occasional variant of *floridana*. About the same time, Stejneger (1938:173), in clearing up certain errors of identification in the literature, referred to *alabamensis* as a subspecies of *P. rubriventris*; but subsequently he returned to his earlier opinion and treated *alabamensis* as a distinct species (Stejneger and Barbour, 1943:203). Carr (1952:280, 303) treated *alabamensis* as a synonym of *P. floridana mobiliensis* for the reasons given above, and his treatment has been followed by subsequent workers.

## INTERGROUP RELATIONSHIPS

Three more or less distinct groups of turtles of the genus *Pseudemys* occur in the territory under discussion: (1) the well-differentiated *scripta* group with no known morphologic overlap with either of the others; (2) the *rubriventris* group, composed of *rubriventris*, *alabamensis*, and *nelsoni*; and (3) the *floridana* group. Four forms meet in the territory occupied by *alabamensis*—the coastal strip from the panhandle of Florida to New Orleans. The turtles of the *floridana* group, in themselves zoogeographically puzzling, are dealt with by Carr in previous papers and most recently by Crenshaw in a detailed analysis now in manuscript form (Crenshaw, MS). The difficulties of interpreting relationships among the three major Floridian stocks, and among the many variant populations composing them, are bad enough when they are considered separately. Now, however, it appears necessary to evaluate them in the light of what appears to be



species" in the conventional sense. It is therefore doubly surprising to find that in occasional specimens, and in some populations, the distinction between the two groups weakens or breaks down completely.

While a number of characters have been used in differentiating between *nelsoni* and the *floridana* stocks, only two seem to be consistently diagnostic. These involve the conformation of the anterior face of the upper beak and a feature of the head pattern brought out for the first time by Crenshaw (MS).

In *peninsularis* and *suwanniensis* the tomium of the upper jaw is entire, anteriorly, whereas in *nelsoni* there is a prominent symphyseal notch accentuated by a toothlike cusp on each side (fig. 2). With respect to head markings, in all three forms a supratemporal stripe passes from the dorsolateral area of the neck, anteriorly across the temporal region, thence above and immediately adjacent to the eye, and out along the snout toward the external nares. This stripe is often obscure in large *nelsoni*. Another pair of prominent stripes, the paramedians, are situated between the supratemporals, one on each side of the median line. In *nelsoni* the paramedian stripes usually pass from the neck anteriorly across the occipital region to terminate abruptly posterior to the level of the eyes. In *suwanniensis* the paramedians typically continue anteriorly from the neck, running between the eyes to a point well out on the snout. Some specimens of *peninsularis* show the same pattern, but more often the paramedians pass anteriorly from the neck to a point posterior to the eye where each bends laterally to join, or almost join, the adjacent supratemporal. Unfortunately, both of the above characters may break down in very young *nelsoni* which may exhibit both a smooth upper tomium and a head-stripe pattern typical of *suwanniensis*. The reduction of head striping characteristic of *nelsoni* seems to be correlated with increase in size, and it is possible that notch and cusp development may also be ontogenetic, although this has not been demonstrated.

Two additional characters now appear to be consistently useful in defining *nelsoni*. In *suwanniensis* and *peninsularis* the supratemporal head stripes either do not join anteriorly or the junction is faint and the stripes pass through or immediately adjacent to the nostrils (fig. 2). In *nelsoni* the supratemporals pass forward from the eye and join conspicuously well above and posterior to the external nares. A sagittal stripe passing anteriorly from between the eyes usually joins the supratemporal stripes at their confluence to form a prefrontal arrow-shaped figure (fig. 2). Of 79 specimens of *nelsoni* examined, only 14, all medium-sized or large specimens, had one or more breaks in the prefrontal arrow. The pattern was suggested in every instance.

To determine applicability of the character, a total of 45 *P. rubriventris* from Virginia, West Virginia, and New Jersey were examined. All of these individuals had a prefrontal arrow except five in which it was replaced by a prefrontal transverse stripe. Another had a

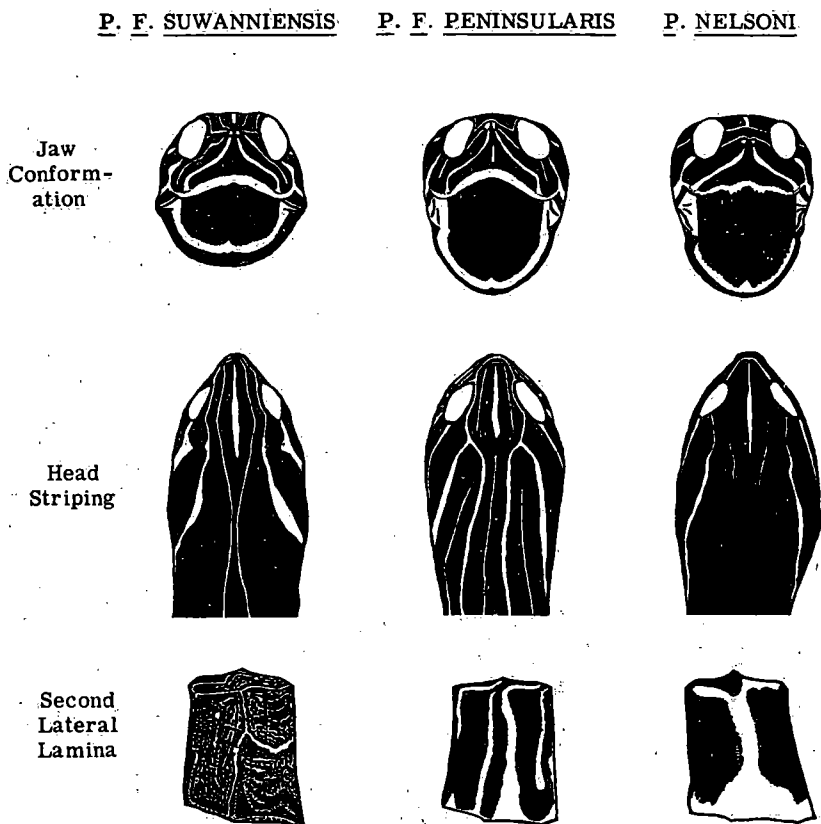


Figure 2.—Comparison of three Florida turtles of the genus *Pseudemys* with respect to upper jaw conformation, head striping, and color pattern of the second lateral lamina (left side).

slight break in the arrow pattern, and three with generally obscured head markings exhibited very faint arrows. Apparently, the prefrontal arrow is characteristic of the *rubriventris* group, and absent in the *floridana* complex. The prefrontal arrow is found also in the *Pseudemys scripta* group, but its frequency has not been studied.

The other character found to contribute toward intergroup diagnosis involves the color pattern of the second lateral (or "costal")

lamina of the carapace. It is primarily of aid in the separating of *nelsoni* and *suwanniensis*, but also distinguishes between some specimens of *nelsoni* and *peninsularis*. In the last two forms the basic pattern of the second lateral consists of a prominent, centrally located, light, transverse (vertical) stripe or band (fig. 2). This light band passes from the ventral (lateral) edge of the scale toward the apex of the dorsal (medial) edge. Just short of the apex it usually bends sharply posteriad and passes to the posterodorsal edge of the lamina. There may be another branch passing posteriad from the anterodorsal edge of the lateral lamina to join, or almost join, the posterior arm of the main transverse stripe, thus forming a Y-shaped figure. Rare variations include transverse bands which pass dorsad (mesiad) through the apex, or stop abruptly just short thereof without bending. In *peninsularis* there are usually two to six narrow, transverse stripes paralleling the central band; in adult *nelsoni* such accessory stripes are often lacking and, even if present, are faint and few in number. Juvenile *nelsoni* usually exhibit a number of accessory stripes which apparently fade with age.

In *suwanniensis* the basic pattern of the second lateral lamina is different from that of both *nelsoni* and *peninsularis*. As in the last two, a central, transverse light stripe may pass dorsad from the ventral (lateral) edge of the lateral lamina, bend posteriad short of the apex, and thence run to the posterodorsal edge (fig. 2). More important, a longitudinal stripe passes from the middle of the median stripe to the posterior edge of the lamina. The C-shaped figure thus formed by the upper half of the median stripe and the two horizontal stripes—one from the middle of the median stripe; one from the upper end—is virtually always present in *suwanniensis*. The lower half of the median stripe may be lacking, and other stripes may or may not pass from the outer bend of the C-shaped figure to any edge of the lateral lamina. Concentric light circles are often present within the C-shaped figure.

Thus, there are four characters which may be employed in differentiating among these three forms. Two of these, the prefrontal arrow and the notch and cusps of the upper jaw, are characteristic of *nelsoni* but rarely present in *peninsularis* and *suwanniensis*. A third character, the color pattern of the second lateral lamina, is of primary importance in recognizing *suwanniensis*, but is also of some value in distinguishing between *nelsoni* and *peninsularis*. Finally, although the head stripe patterns of all three forms differ on the whole, the pattern usually found in *suwanniensis* occurs too frequently in the other two to be of much help in the determination of that



form. However, the head stripe patterns described for *peninsularis* and *nelsoni* occur but rarely in other forms and accordingly are of some diagnostic value.

Another feature of particular use in differentiating between *suwanniensis* and *peninsularis*, is the more or less symmetrical and extensive pattern of dark markings always evident on the plastron of *suwanniensis*. In *peninsularis* dark plastral markings are usually lacking, and even when present they are rarely symmetrical and never extensive. While *nelsoni* may exhibit an immaculate plastron like *peninsularis*, or approach *suwanniensis* in regard to distribution of plastral markings, it typically lies somewhere between the two. Its plastral markings are usually markedly asymmetrical and not so extensive as in *suwanniensis*.

RELATIONSHIPS OF *PSEUDEMYS ALABAMENSIS*.—At the time Carr proposed relegating *alabamensis* to synonymy, his acquaintance with cusp-jawed *Pseudemys* from eastern Gulf drainages had involved six live individuals from New Orleans shown him by Percy Viosca; two live topotypes from Mobile in a lot of a dozen "Mobilians"—a local name for *P. f. mobilensis* plus *P. alabamensis*—plus a half dozen topotypes, including the type (fig. 3), in the collections of various museums; and two hatchlings "from brackish water" at Crystal River on the Gulf Coast of Citrus County, Florida. The point that stands out in Carr's notes is that, except that they all had notched jaws, the "*alabamensis*" at New Orleans looked strikingly like the local version of the *P. floridana* group (*P. vioscana* Brimley); those at Mobile resembled *mobilensis*; and the Crystal River animals seemed suspiciously similar to *suwanniensis*. When these observations were made, Carr knew nothing of the character proposed by Crenshaw—the oblique prefrontal stripes joining anteriorly to form, with the sagittal stripe, the prefrontal arrow. Moreover, a re-examination of the little Crystal River specimens (UF 1736) shows that they may well be the young of typical *P. nelsoni*. Besides this material Carr had seen another specimen, the evaluation of which, even in the light of the resurrection of *alabamensis*, remains a puzzle. A most surprising occurrence of the *alabamensis* phenotype is seen in an individual (ANSP 4521) from "Wolf River, Shelby County, Tennessee": no other example of a notch-jawed *Pseudemys* can be found from anywhere near this region. This unique specimen—more recently examined by Crenshaw and found to show the *alabamensis* head pattern—contributed toward the rationale on which Carr based his earlier decision to suppress *alabamensis* as some sort of spurious phenotype.

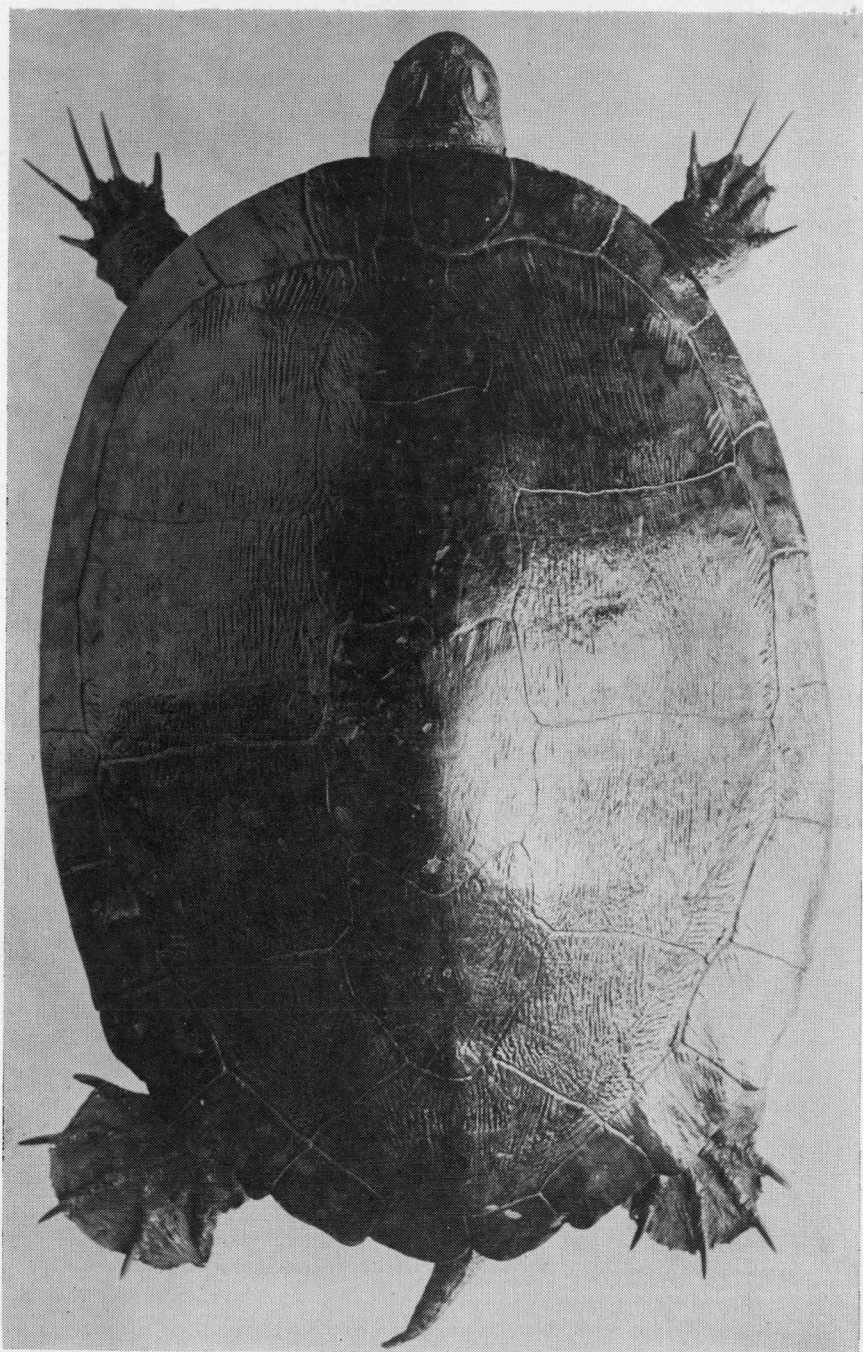


Figure 3.—Dorsal and ventral views of the holotype of *Pseudemys alabamensis* (USNM 20966) photographed prior to the



removal of the head. Note the dark plastral vermiculations which are also characteristic of adult males of both *rubriventris* and *nelsoni*.

Crenshaw has recently re-examined the holotype (USNM 20966), the only paratype (USNM 20967), 6 topotypes (USNM 55501 and 55736; MCZ 1660-1663) and 2 Floridian specimens of *alabamensis*—one from near Apalachicola (USNM 101090) and one from Wakulla Springs, Wakulla County (Crenshaw collection 1019-1). The skin of the heads of the holotype and paratype is now lacking, but in all the other specimens the prefrontal arrow is evident, while in all specimens of *P. f. floridana* and *P. f. mobilensis*, which are, respectively, the eco-geographical vicariants of *peninsularis* and *suwanniensis*, the prefrontal arrow is lacking. Moreover, the pattern of the second lateral in all specimens of *alabamensis* was basically like that of *nelsoni* and different from that of *mobilensis* (which is identical with that of *suwanniensis*). The subspecies *P. f. floridana*, which also occurs in the Mobile Bay area, is like *peninsularis* with respect to all the characters described above except that the pattern of the supratemporal and paramedian head stripes is like that of *suwanniensis*. The basic color pattern of the second lateral lamina of *floridana* is thus similar to that of *alabamensis*. Differences in the color patterns of the lateral laminae of the Mobile Bay examples of *alabamensis* and *floridana* are evident but are not so pronounced in preserved material as in fresh material. Table 1 summarizes some of the diagnostic characters for the six forms discussed above.

#### DISCUSSION

It appears unwarrantable to withhold taxonomic recognition from *alabamensis*. If there actually is such a form, the criteria at hand draw it readily into the *rubriventris* group and name as its nearest ally *Pseudemys nelsoni* of the Floridian peninsula. The only character known to distinguish consistently between the two is the section of the head pattern described above. In *nelsoni* the paramedian stripes end back of the eyes (fig. 2), but in *alabamensis* they continue anteriorly between the eyes and onto the snout as in *suwanniensis*.

Reasoning from the facts thus far presented, a fairly familiar zoogeographic design emerges. If intergradation between the northern Gulf coast *alabamensis* and the peninsular Florida *nelsoni* were established, and if the gaps separating the ranges of these forms from that of *rubriventris*—the coastal plain of the northeastern United States—were partially filled in, the characters common to the three would be taken as evidence that they are a formenkreis with geographic discontinuities due to incomplete collecting or to recent extinction at the hand of man.

TABLE 1.

SUMMARY OF SOME CHARACTERS OF SOUTHEASTERN REPRESENTATIVES OF *Pseudemys* *alabamensis*, *nelsoni*, AND *floridana*.

		alabamensis	nelsoni	f. floridana	f. peninsularis	f. mobilensis	f. suwannensis
Inhabits "panhandle" of western Florida		+		+		+	
Inhabits peninsular Florida			+		+		+
Notch and cusps on upper jaw		+	+	—	—	—	—
Prefrontal arrow		+	+	—	—	—	—
C-shaped figure on second lateral laminae		—	—	—	—	+	+
Dark plastral marks		+ or —	+ or —	—	—	+	+
Supratemporal and paramedian head stripes are:	Parallel, not reduced	+	rare	+	occas.	+	+
	Parallel, paramedians reduced	occas.	+	—	—	—	—
	Joined posterior to eyes	—	—	occas.	+	—	—

In 1942 Carr called attention to concurrence in geographic variation between *rubriventris* populations and those of the *floridana* group. Recent work by Crenshaw has turned up additional evidence of phenotypic duplication and suggests that the parallelism should not be attributed to independent genes similarly selected, but may be based on actual kinship.

The reason such an explanation is hard to accept is the fact that

the two groups occupy the same territory and the same series of habitats, and the thought of their being interfertile or even being as closely related as the consonance would imply goes against accepted logic. We realize of course that barriers can be unseen as well as seen; but even so, it is not easy to visualize a relationship that allows two species to show so much evidence of genic interchange and still retain modal integrity in a common habitat. The distribution of characters within the *floridana* group alone is complex enough, with its multidirectional clines, its array of slightly differentiated stocks isolated to varying degrees by barriers both ecologic and geographic, and intergrading in some places but remaining sympatrically discrete or vicariating without intergradation elsewhere. But when phenotypic overlapping with the *rubriventris* group is added to this picture, the confusion of variables acquires a third dimension, and it becomes even more difficult to piece together the zoogeographic history of the animals.

A good place to illustrate this problem is in the Apalachicola drainage of western Florida. There are two forms of the *floridana* group in this area. One of these is the local version of the *mobilensis*-to-*suwanniensis* cline; and the other is close to what is known as *P. f. floridana*. The relationship between the two seems to conform to the pattern for the complex, of which a chief feature is the intergrading of "subspecies" in some sections of their adjacent ranges and their remaining disjunct in others. In the Apalachicola Valley a complicating element is superimposed on this pattern when one sees in the *floridana* population an emergence of what seems a strong tendency toward the characters of *Pseudemys nelsoni* of the *rubriventris* group.

We have four young specimens (UF 440-443) from "between Scotts Ferry and Blountstown," immediately to the north of the known range of *alabamensis* (taken by a collector in the employ of Ross Allen and presented to us by Wilfred Neill) that are indistinguishable, by any characters known to us, from *nelsoni* of the peninsula. The agreement is so close that it was hard to believe that a mistake had not been made in assigning the data. Conversation with Neill and Allen corroborate the locality however. Moreover, the small number of other specimens in hand from the area and the large series of live specimens casually examined at the Ross Allen Reptile Institute of Silver Springs, Florida show decided tendencies toward *nelsoni* and connect the four young specimens with the average of the local *floridana* stock in all respects except for the notched jaws and prefrontal arrows of the former. In spite of its similarity to *nelsoni*, the *floridana* population is consistently smooth jawed. In this character and in the joining of the clear-cut prefrontal stripes, all four of

the little turtles, as implied above, agree more closely with *nelsoni* than with the *nelsoni*-like *floridana* stock in their own area. The hatchlings may then be (1) real *P. nelsoni* from *nelsoni* parents, which would extend the range of that species northwestward some 150 miles, (2) variants from the modal condition of the local *alabamensis* or *floridana* stock resulting from chance mutation or recombination, or (3) representatives of a deme of the local *alabamensis* or *floridana* stock that our inadequate sampling from the area has not otherwise turned up.

In any event, consonance of the specimens with the local trend is interesting, and they call attention to the fact that Apalachicola *floridana* are like *nelsoni* in the following ways:

- (1) Lack of a reticulate pattern with dominant C-shaped marks on the lateral laminae.
- (2) Emphasis of a vertical light band across each lateral, with obsolescence of other light markings on the laterals.
- (3) Deepening of the dark ground color of the carapace to nearly black.
- (4) Variability in plastral markings, with adult specimens most often unmarked below.
- (5) Occurrence of intensely pigmented smudges on only a few inframarginal seams instead of rings or ocellated spots on most or all of the seams.
- (6) Abrupt termination of the paramedian head stripe behind the eye with reduction of head pattern generally.
- (7) Erythrism of the lower shell.

The most extraordinary implication of this situation—with or without reinforcement by the four questionable hatchlings—is that *floridana* of the Apalachicola drainage, and indeed all *floridana* populations, are probably genetically much closer to the *rubriventris* group than any previous study has indicated. There is, in fact, no known character of the *rubriventris* group that fails to turn up somewhere, in the *floridana* complex. As an example of the sort of detailed "give-and-take" that occurs, the color pattern of the marginal laminae may be offered.

The upper marginal pattern of *nelsoni* comprises three extremely different sets of markings, as follows: (1) a predominantly ocellate pattern involving a C-shaped figure with the open side directed posteriorly and enclosing a light spot, an inverted L-shaped figure anterior to this, and a broad stripe along the lower edge of the lamina; (2) a pattern composed of three centrally located longitudinal stripes parallel to the same broad stripe involved in the preceding and thus

made up entirely of longitudinally oriented lines; and (3) a single conspicuous median vertical light band running from the marginal stripe toward or to the upper angle of the lamina and separating it into two fields that may be unmarked or with scattered irregular markings.

Selected typical examples of these three styles of patterns show great divergence indeed—much stronger, for instance, than the diagnostic divergence of many named races. And yet all three occur in sets of *nelsoni* siblings (e.g., UF 1168, six hatchlings from Lake County, Florida) in both typical form and in every possible intermediate combination; some specimens have all marginals marked with one or another of the patterns, while in others there is bilateral or antero-posterior replacement of one pattern by another.

This range of variation involves such marked differences and such complicated intergradations that it is astonishing to find, on top of all the other parallelisms, that in the area between northwestern Marion County and the base of the panhandle, *floridana* populations often show precisely the same spread in pattern type. When this coincidence in seemingly irrelevant and nonadaptive features is added to the examples of intergroup concurrence in variation already known it becomes increasingly difficult to see how the hidden isolating factors in these two sympatric stocks could possibly be operating to maintain the measure of disjunction that exists.

Although the present study has not included the extensive reappraising of material outside the southeast, certain known features of extra-Floridian sections of the *floridana* group clearly bear on the problem of character-sharing by this and the *rubriventris* group. Even the notch-and-cusp—the most trenchant distinctive feature of the *rubriventris* group—is diagnostic also of the westernmost representative of the species *floridana*, viz., *P. f. texana* of western Texas and adjacent parts of Mexico. The fact that this race actually represents the geographic and morphologic extreme among *floridana* turtles can be seen in the clinal nature of annectent *hoyi*, which has, not notched and cusped, but emarginate upper jaws. It has not been pointed out elsewhere that another conspicuous feature of *texana*—a tendency for one of the lateral head stripes to break up and reorient its tympanal segment to form a conspicuous spot or vertical band through the ear—can be seen in both notched- and smooth-jawed turtles from coastal Louisiana and Alabama (e.g., MCZ 1659).

Yet another character, of unknown significance, but involved in the problem, is the peculiar “marbled shell”—carapace and plastron evenly mottled by the disrupted and completely redistributed pattern



of pigmentation—found not only in a small percentage of *rubriventris* and *nelsoni* but also in the holotype of *alabamensis*. While no marbled specimen of *floridana* is now at hand, Carr has seen the tendency among turtles being hauled away from Lakes Tamonia and Jackson, Leon County, Florida, when they have gone dry in years past; and the late Leonhard Stejneger told him of having seen it in material sent by a collector from the same localities. Carr has recently re-examined two of these specimens (USNM 95765-766). Both seem to him intermediate between *nelsoni* and *floridana*. One (95765) even has a notched upper jaw, although no cusps are present. The pre-frontal arrow is lacking.

#### THE QUESTION OF NOMENCLATURE

If *Pseudemys nelsoni* ranges northwestward into the Apalachicola area (fig. 4) as a discrete genetic entity, then one might attribute the

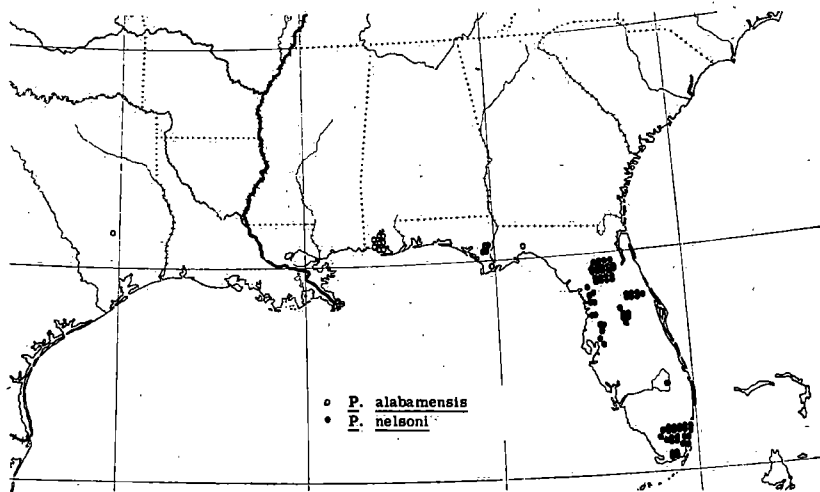


Figure 4.—Distribution of *Pseudemys alabamensis* and *P. nelsoni*.

*nelsoni*-like traits in the *floridana* populations there to occasional hybridization, or, as Crenshaw (MS.) proposes for similar populations elsewhere, to introgressive evolution. Moreover, if the notch-jawed Mobilians (*alabamensis*) ranging eastward to the Apalachicola area and slightly beyond likewise represent a separate form and not just an irregularity in the *floridana* matrix, and if *alabamensis* is, as it

seems, of *rubriventris* "blood," then one might conclude that *alabamensis* and *nelsoni* are a single varying species with an apparent distributional problem due merely to inadequate sampling. With the same line of reasoning the closely similar, but geographically separate, *rubriventris* falls into the design. A conventional nomenclatural picture of this situation would be shown by trinomial listing of the three, with the specific name derived from LeConte's *P. rubriventris*, which has priority.

But the situation is not quite so simple when the detail of our evidence is considered. With respect to the relationships of the north-eastern *rubriventris* to the other two forms, we know only that they are separated by an apparent broad hiatus across the states of Georgia, South Carolina, and North Carolina. We have not studied the morphological variation in *rubriventris* quantitatively and cannot state with any assurance that it is, or is not, genetically distinct. In view of the frequency with which interspecies reproductive barriers are transgressed in nature within the genus *Pseudemys*, we do not feel that probability of biological reproductive isolation is a criterion of usefulness in the present situation.

The relationship of *nelsoni* to *alabamensis* is not nearly so clear as it might be. From the "panhandle" of western Florida, lying between the principal ranges of *alabamensis* and *nelsoni*, we have a sample of six specimens, all with reliable collection data (fig. 4). Two of these specimens, both taken near the coast but from different localities, are typical of adult *alabamensis*. The other four, taken from a single locality some distance inland and north of the coast, are equally typical of juvenile *nelsoni*.

Our small and manifestly inadequate sample suggests that *alabamensis* and *nelsoni* overlap geographically in the Apalachicola area, behaving as perfectly good species, perhaps by virtue of microgeographic or ecological isolation. In view of the single known character difference between the forms, it seems possible that we have sampled an intergrading population and that chance alone has determined that our four specimens from one locality be unlike the two available from other localities.

When a trinomial is used, if it means anything at all, it means that a situation has been pretty well worked out, is understood, and is nothing to worry about any more. It should give grounds for a sense of security that in the present case would be wholly uncalled for. Looking only at *rubriventris* turtles, the move might be logical in spite of the geographic gap. Appraised against the background of the extra-*rubriventris* relations of the notch-jawed stocks, the situation seems

to call for a more noncommittal disposition. After some bickering between ourselves, therefore, we propose to eschew the trinomial-of-complacency and reinstate the notch-jawed Mobilian under a binomial-of-reserved-judgment, *Pseudemys alabamensis* Baur.

#### CONCLUSIONS

In the light of new criteria we propose the rehabilitation of *Pseudemys alabamensis* as a member of the turtle fauna of coastal areas of Alabama, Louisiana, and northwestern Florida, and perhaps of eastern Texas. Through one contiguous or sympatric relative or another, *alabamensis* appears to intergrade with stocks of both the *rubriventris* and the *floridana* groups. It may be that the much deplored morphological overlap of these turtles, which have confused naturalists for more than a hundred years, can best be exemplified by, and may eventually be largely explained through, study of the "*alabamensis*" phenomenon, which, whether a "good species," a sporadic variant, or merely a clumping of endpoints in several geo- and ecoclines, is bound to repay any attention given it.

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