

PROCEEDINGS
OF THE
NEW ENGLAND ZOÖLOGICAL CLUB

A NEW TURTLE FROM THE CHIPOLA RIVER,
FLORIDA¹

BY A. F. CARR, JR. AND LEWIS J. MARCHAND

FOR a long time the senior author has had a vague and not altogether rational notion that some sort of *Graptemys* might one day be found in the rivers of western Florida. This suspicion was engendered, not so much by Baur's curious and subsequently unsubstantiated claim (*Science*, 16(405); 262-263, 1890) that his *G. oculifera* and *G. kohnii* were both known from Pensacola, as by the general aspect of the panhandle terrain and the zoögeographic relationships of its fauna. It was thus a matter of uncommon interest to us when in 1939 Ross Allen collected a juvenile *Graptemys* in the Appalachicola River at Chattahoochee. This specimen, taken in a dipnet as it dropped from a log into the muddy waters of the river, remained for some time the only known representative of the genus in Florida.

Meanwhile, the junior author was obtaining good results in adapting a home-made, monocular face-mask to use in studying under water the habits of several species of *Pseudemys* and in collecting large numbers of specimens for marking. This collecting device was so successful that we determined to make an extended tour of the less turbid streams and spring runs of the panhandle, although

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we both had visited most of these on numerous occasions prior to the advent of the new method of collecting.

No more than fifteen minutes after our arrival at Merritt's Bridge, on the Chipola River near Marianna, the junior author had picked up a Graptemys, and within two hours we had collected sixteen specimens. Some weeks later a four-day collecting trip by canoe, from Bellamy's Bridge, ten miles above Marianna, Jackson County, to Clarksville, Calhoun County, yielded sixty additional specimens.

That this locally abundant population of a large and conspicuous turtle should have so long remained in obscurity is surprising, but an explanation may perhaps be seen in the excessive timidity of the animal when out of water and in its restriction to a type of environment which is but rarely encountered in Florida, and which has been relatively inaccessible to the collector. The Marianna area has been for years a favorite collecting locality for members of the Department of Biology of the University of Florida. Moreover, for several months it was the scene of active herpetological investigation by our friend Oather VanHyning, a collector of rare talent and distinction, who lived within two miles of the Chipola River. It is now apparent that the Chipola Graptemys escaped notice, in what we had naively come to regard as a well-collected area, because of its preference for relatively deep, swiftly flowing, rock-bottomed and snag-ridden reaches of the river, into which sunning individuals dropped at the slightest disturbance along the bank. Such individuals, not obtainable by the ordinary collector, were readily found and taken by the swimmer equipped with water goggles.

At Merritt's Bridge we found that turtles which had been frightened from log-jams or fallen trees seldom left the immediate vicinity of the sunning stations, but usually perched about among submerged twigs and branches or took refuge in cavities in the rocky river bottom. The larger individuals seemed especially inclined to conceal themselves in such depressions on the bottom, and when

approached and handled they made almost no effort to escape.

The above-mentioned canoe trip afforded the junior author the opportunity of making further observations concerning the habits and habitat preference of the new turtle. This trip demonstrated that the animals were not distributed evenly throughout the river, but were localized in areas in which the water was relatively deep (5-12 feet) and the bottom was made up of exposed, shelving limestone with numerous pits and depressions. Over and on such bottom as many as thirty individuals were seen within a radius of a hundred yards, whereas two days' travel over gravelly, boulder-strewn and silt-covered bottom yielded only two specimens.

Most of our specimens were taken on the bottom of the river. As was previously mentioned, these were almost without exception found resting in small basins and cavities in the rock, usually with heads and feet drawn in and eyes open. Strangely enough, a deposit of fine silt covered the shells of a number of these individuals, apparently indicating that they had not moved for considerable periods of time.

Although no information concerning the feeding habits of the form has thus far been obtained, the structure of the jaws and the marked abrasive wear to which they appear to have been subjected in old specimens would appear to indicate that the diet may consist largely of molluscs. This food preference, if definitely demonstrated, might be cited as further evidence that the relationships of the species lie with the *geographica* complex, as is suggested below.

It seems altogether proper and pleasant to associate with this new species the name of Doctor Thomas Barbour, who has contributed extensively to our knowledge of Florida reptiles and amphibians.

Graptemys barbouri new species

Type.—Museum of Comparative Zoölogy, 46,251; mature female from the Chipola River north of Marianna, Jackson County, Florida; length, 231 mm.; width, 184 mm.; height, 94 mm.; width of head, 59 mm.; length of head to posterior margin of tympanum, 58 mm. The allotypic male is Museum of Comparative Zoölogy, 46,252, from the Chipola River, south of Marianna. Its measurements are as follows: length, 111 mm.; width, 85 mm.; height, 45 mm.; width of head, 18 mm.; length of head to posterior margin of tympanum, 20 mm.

Diagnosis.—A large *Graptemys* with prominent vertebral tubercles; apparently most closely allied to *G. kobnii* of Louisiana, but distinguished from all members of the genus by the excessively enlarged heads and expanded alveolar pavement of jaws of the females and by the nature of the markings of carapace and plastron. Sexual dimorphism is more marked than in any other *Graptemys* known to us.

Description.—Carapace dull olive with pale, yellowish white markings on the costals and upper marginals. A roughly C-shaped figure occupies the central portion of each costal, the open side of the figure touching the posterior suture. On each upper marginal a crescentic mark extends from the antero-ventral to the postero-dorsal corner of the shield; these markings become obsolescent posteriorly. The vertebrals are unmarked in all but very young specimens, in which markings similar to those on the costals are vaguely and irregularly represented. The dorsal keel is strong, especially so in males and young specimens, in which the tubercles of the second and third vertebrals are markedly extended and usually dark brown in color.

Plastron light yellowish to whitish, very flat, and truncate anteriorly. The juvenile plastral pattern consists of a narrow black band along the posterior margin of each plate except the anals, there being no dark pigmentation along the longitudinal sutures. These markings tend to disappear in mature females. Lower marginals with an irregular, roughly concentric marking at each suture; bridge marked longitudinally with a variable but usually irregularly concentric black or dusky figure.

Ground color of soft parts very dark brown or black; markings cream-colored or nearly white. The markings of the head consist essentially of three usually broad but very variable areas of light color, one of these between the eyes and one behind each eye. The

median blotch is continued anteriorly as the sagittal stripe, while posteriorly it is in most specimens broadly or narrowly connected with the post-ocular color areas, each of which sends anteriorly beneath the eye a rapidly narrowing stripe. The twelve to sixteen stripes on the nape are narrowly connected with the post-ocular blotches. Ventral, horny surface of lower jaw marked transversely with a broad band. Anterior surface of fore limb with six stripes, that extending to the second toe the broadest.

Head of male small and narrow, that of female greatly enlarged, the snout short and the rami of the upper jaws meeting at an obtuse angle. Alveolar surfaces of both jaws extremely broad in the female, the line of contact between those of the upper jaw extending posteriorly almost to a point between the angles of the mouth. In males and juvenile specimens the upper alveolar surfaces are not, or at least not broadly, in contact. In old females the cutting edge of the lower jaw has usually been worn away, the edge being flush with the alveolar pavement.

Proportions: Length:height ratios, males 2.0:2.5, average 2.2; females 2.0:2.4, average 2.2; length:width ratios, males 1.1:1.3, average 1.2; females 1.1:1.3, average 1.2; length:width of head ratios, males 5.5:6.2, average 5.7; females 4.0:5.4, average 4.5.

The males appear to mature at a length of 95 mm. or slightly less, and we have seen no male specimen longer than 118 mm. The largest female collected is 267 mm. in length.

Paratypes.—Museum of Comparative Zoölogy 46,253-46,280, from Chipola River, Jackson and Calhoun counties, Florida; various localities and dates. Also five specimens in the collection of the Department of Biology, University of Florida, and six living individuals in each of the following institutions: New York Zoölogical Park, Philadelphia Zoölogical Park, National Zoölogical Park; these living specimens will eventually be deposited in museum collections.

When compared with *geographica* and *pseudogeographica*, the two best known, widely distributed, and presumably distinct species of the genus, *barbouri* is found to occupy a curiously intermediate position. The most striking differentiating characters which it exhibits—the tremendously enlarged head and expanded alveolar surfaces of the female—are actually an extreme exaggeration of features found in *geographica*. In plastral markings, also, *barbouri* and *geographica* are somewhat similar. The strongly tubercu-

late keel, on the other hand, is shared with *pseudogeographica*, and has frequently been mentioned as a character distinguishing this form from *geographica*.

This anomalous combination of characters is shared by *barbouri* and the Gulf Coastal *kohnii*, while the presence of a broad, transverse band on the horny ventral surface of the lower jaw is peculiar to *barbouri* and *oculifera*. With respect to head markings, *barbouri* is most closely approached by the type specimen of the neglected but possibly valid *pulchra*, described by Baur (*Amer. Nat.*, 27:675-676, 1893) from Montgomery, Alabama. However, photographs and sketches of the type (United States National Museum 8808), kindly furnished by Doctor Stejneger, appear to demonstrate that in other respects *pulchra* agrees most closely with *pseudogeographica* and is very different from *barbouri*.

It is possible that abundant material from various South-eastern localities might illustrate geographic intergradation between *barbouri* and one or another of the neighboring forms. However, since the large and remarkably homogeneous type series appears to be consistently distinct, we are inclined to believe that it represents another of the numerous disjunct forms characteristic of the biota of the Appalachian Valley.

EXPLANATION OF PLATES

Plate XIV. *Graptemys barbouri*. Male, paratype, showing pattern on head and carapace. Drawing by Norma Marchand.

Plate XV. *Graptemys barbouri*. Old female, paratype, showing conformation and pattern on head.

