

National Seashore, Georgia, and Canaveral National Seashore, Florida. Carapace measurements were made according to the methods discussed by Graham (1979). Body depth was measured from the top of the carapace to the bottom of the plastron using the center of the carapace bridge as a reference point for the caliper bar. The data were grouped according to the rookery beach on which the turtles were measured and the mean, range, standard error and 95% confidence intervals were calculated for the three parameters (Table 1). The means were tested for significant differences using a "students t" test for unpaired samples of unequal size and variance (Li, 1969). The results of this test are presented in Table 2.

The mean carapace length and width dimensions, as expected, were not significantly different among the three groups of nesting turtles. The mean body depth dimensions were significantly different ($P > 0.05$) among all three groups of nesting loggerheads. The body depth data indicate the existence of morphological variation in the adult female segment of the Atlantic Loggerhead population. These data also indicate that body depth decreases significantly on a north to south gradient.

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D. L. STONEBURNER, NPS Cooperative Research Unit, Institute of Ecology, University of Georgia, Athens, Georgia 30602.

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THE TRIONYCHID TURTLE *TRIONYX STEINDACHNERI* INTRODUCED IN HAWAII?

This note is prompted by the acquisition of a recent publication on the amphibians and reptiles of Hawaii by McKeown (1978), a popularized account with excellent colored photographs. One of these photographs (p. 65) without question depicts a juvenile of the wattle-necked softshell, *Trionyx steindachneri* Siebenrock. The introduction of the Chinese softshell, *Trionyx sinensis* Wiegmann, in Hawaii is well documented (see references in Smith and Kohler, 1978:12). McKeown's photograph, under the guise of *T. sinensis*, suggests that *T. steindachneri* also has been introduced in Hawaii. The two species of *Trionyx* are compatible in view of their geographic sympatry in southeastern China, the island of Hainan, and adjacent northern Viet Nam. The occurrence and status of *T. steindachneri* in Hawaii requires further investigation.

Trionyx steindachneri seems to have been a frequent overseas export in view of its occurrence in California and description as a new species in 1889 (see Webb, 1975). Previous records for softshell turtles in Hawaii presumably represent *Trionyx sinensis*. McKeown (1978:64), at least, substantiates the occurrence of *T. sinensis* in Hawaii by providing a colored photograph of a large adult. A review of the salient distinguishing characters would seem in order to help alleviate the occasional confusion of the two species. The juvenile pattern on the head in both species consists

of narrow black, preocular and postocular stripes (in addition, *T. sinensis* usually has an interorbital line, absent in *T. steindachneri*); *T. steindachneri*, however, is easily identified by the contrasting, broad yellow bands on the rear of the head and side of neck (absent in *T. sinensis*) as shown in McKeown's photograph. These juvenile patterns persist to some extent in adults. Large adults of *T. steindachneri* possess a conspicuous raised mass or clump of coarse rounded tubercles (the so-called wattles) laterally at the base of the neck (absent in *T. sinensis*); this group of tubercles is illustrated in Pope (1935:548, pl. 4). The clump of tubercles develops with increasing size (not evident in specimen in McKeown's photograph captioned as a hatchling), and is discernible in turtles with carapace and plastron lengths at least as small as ca. 55 and 40 mm, respectively (British Museum Natural History 1924, 12, 9, 203). The morphology of the anterior edge of the carapace is also different in the two species with *T. steindachneri* having a mostly double row of tubercles, and *T. sinensis* having a smooth anterior margin that may be creased to form a single row of blunted tubercles only in the nuchal region.

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ROBERT G. WEBB, Department of Biological Sciences, University of Texas at El Paso, El Paso, Texas 79968, USA.

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