Editorial Comment. – This section has been established as a forum for the exchange of ideas, opinions, position statements, policy recommendations, and other reviews regarding turtle-related matters. Commentaries and points of view represent the personal opinions of the authors, and are peer-reviewed only to the extent necessary to help authors avoid clear errors or obvious misrepresentations or to improve the clarity of their submission, while allowing them the freedom to express opinions or conclusions that may be at significant variance with those of other authorities. We hope that controversial opinions expressed in this section will be counterbalanced by responsible replies from other specialists, and we encourage a productive dialogue in print between the interested parties. Shorter position statements, policy recommendations, book reviews, obituaries, and other reports are reviewed only by the editorial staff. The editors reserve the right to reject any submissions that do not meet clear standards of scientific professionalism.

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A Clarification on the Activities of Projeto TAMAR, Brazil

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Recently Vogt (1994) published a number of opinions about temperature-controlled sex determination (TSD) as a tool for turtle conservation. In addition to the comments made by Mrosovsky and Godfrey (1995) relating to biological aspects and conservation strategies, there are other points in Vogt's note which require clarification, in particular, assertions about the marine turtle project, TAMAR, which has been running since 1979 in Brazil.

As is routine for conservation programs on marine turtles in Latin America, a priority for TAMAR is to increase hatching success and recruitment. Where nest predation is high because of human exploitation of eggs, the usual tool for turtle conservation is the transplanting of eggs from beaches to protected hatcheries. At TAMAR we are well aware that, when compared to natural nests, this form of manipulation *may* result in a reduction in hatching success, as well as alterations in the "natural" sex ratio and behavior of hatchlings. However, in areas where virtually no nests survive to hatching, the transplanting of eggs to hatcheries is the most viable, cost-effective conservation alternative, at least in the short term.

In order to reduce undesirable effects of manipulation, TAMAR hatcheries are located in the ecological beach zone in which most nesting occurs, and eggs are transplanted to the respective hatcheries within six hours of oviposition. Once removed from their natural nests, eggs are handled with the greatest possible care and transplanted into artificial nests made to resemble natural nests as closely as possible.

It must be emphasized that transplanting eggs is *not* the ultimate priority of TAMAR, but rather we are working to leave intact as many nests as possible where they are originally constructed by the nesting female. On beaches where nest predation is minimal, the policy is to leave all nests intact, except those clearly in danger of being flooded by high tides. Of the more than 8000 nests monitored and protected annually by TAMAR personnel on both continental and oceanic island beaches, approximately 70% are left *in situ*. However, on continental beaches alone, where predation is higher, in 1994 only 31.5% of protected nests (890 of 2826) were left *in situ*.

Contrary to Vogt's (1994) contention, we do *not* intentionally incubate eggs at 31°C (or at any other specific temperature); all transplanted eggs incubate at temperatures and conditions that are for all intents and purposes "natural," given the location of the hatcheries. At any rate, there is no deliberate manipulation of incubation temperature in any of the TAMAR hatcheries.

Whether 31°C is "low" for sea turtles in Brazil, as Vogt (1994) suggests, is unknown; studies of TSD are just beginning in collaboration with Dr. N. Mrosovsky. It is important to realize that five species of marine turtles nest in Brazil (*Caretta caretta*, *Chelonia mydas*, *Eretmochelys imbricata*, *Lepidochelys olivacea*, and *Dermochelys coriacea*), some of them over hundreds of km of coast, so there are likely to be differences in the pivotal temperature among species and nesting areas. All of these nesting areas in Brazil are characterized by tropical climates, as is the general case for most major areas of marine turtle nesting.

The reference to TAMAR as "a multimillion dollar project" (Vogt, 1994) is true only if one considers the total flux of monies involved in this project over its 16 years of continuous operation. In this respect it is essential to appreciate that the strategy of TAMAR is to use marine turtles as flagship species and, in this way, stimulate a nation-wide awareness and support for biological conservation. In addition to marine turtle conservation, other TAMAR priorities include identifying, designing, and administering coastal protected areas; carrying out conservation activities for diverse marine and coastal species needing protection or management; designing and executing programs on environmental education; training students and rural people in aspects of marine turtle and natural resource conservation; and designing and executing programs focused on rural community participation and development, while providing relevant and viable alternatives for livelihood. These activities are carried out by approximately 250 employees in 23 TAMAR bases, spread along 3000 km of Brazilian seaboard, with intensive monitoring of 1000 km of coast.

A synopsis of Projeto TAMAR was presented in 1992 during the IV Encontro Brasileiro de Herpetólogos and subsequently published (Baptistotte, 1994). One of TAMAR's consistent priorities has been to develop collaborative arrangements with national and international organizations, investigators, and conservationists, and this policy continues to prevail.

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Systematics of the *Pseudemys concinna-floridana* Complex (Testudines: Emydidae): An Alternative Interpretation

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The complex relationships among the many forms of cooters (i.e., the *Pseudemys concinna-floridana* complex) in the southeastern United States have served as fodder for turtle systematists for decades (e.g., Carr, 1935, 1937, 1938, 1952; Crenshaw, 1955; Ward, 1984; Dundee and Rossman, 1989). Unfortunately, several recent authors (Frost and Hillis, 1990; Collins, 1991; Seidel, 1994) may have depended at least in part upon inadequate information for their summaries or analyses, which I believe led them to erroneous conclusions.

While I respect Seidel's (1994) innovative attempt to address one of chelonian systematics' most vexing questions, years of personal field observations of these turtles, mostly in northern Florida and adjacent states, as well as knowledge of their osteology as a result of conducting an extensive study of their fossils (Jackson, 1977), have led me to different conclusions. An examination of Seidel's morphometric data, based on museum specimens, has not caused me to alter these conclusions.

I have not conducted an exhaustive systematic analysis of the genus, nor have I examined specimens from throughout its range. I primarily address disagreements I have with Seidel's conclusions as they relate to cooters in northern Florida, an area where I have studied the taxa in question for two decades.

Because he believes that cranial musculature and osteology "are of little use in field identification or in evaluation of fluid-preserved material," Seidel quickly dismissed the analysis of Ward (1984), which relied heavily on these characters. While not in complete agreement with Ward's findings, I nonetheless affirm the importance of such characters in systematics. Surely Seidel would not deny the value of such characters as karyotype, electrophoretic pattern, vocalization, and behavior in systematics, yet which of these is useful with preserved specimens? Based on years of observation of thousands of *Pseudemys*, I long ago concluded that their high levels of intraspecific variation in scute and shell proportions diminish the overall utility of morphometric relationships in systematic analyses, although certain characters (e.g., nuchal scute proportions) are diagnostic. It is principally among largely homogeneous turtle groups (e.g., the genus *Kinosternon*, members of which are relatively uniform in shape and coloration) that biologists have been forced to rely extensively on such tools. Seidel (1994) noted that "many of the character states in *Pseudemys* are based upon continuous variables with considerable overlap." Nonetheless, despite extensive variation, color patterns do exhibit certain central themes that seem especially useful in discriminating species (e.g., Conant and Collins, 1991).

Further, other generally used characters vary more than is typically appreciated. For example, the upper tomial notch and bordering cusps, often used to distinguish the *Pseudemys rubriventris* group, occur in the *P. concinna* line as well, not just throughout such western taxa as *P. texana* and *P. gorzugi*, but even as an intrapopulational variant within rivers of the Florida panhandle (e.g., the Wakulla and Apalachicola). The frequency of these characters in this lineage may increase as one moves westward; they are seemingly absent in peninsular Florida, infrequently present in the Florida panhandle, and common in western forms such as *P. texana*. Additionally, I noted earlier (as cited by Seidel, 1994) the unreliability of trophic structures such as these as taxonomic characters for this group of emydids (Jackson, 1978).

Below, I address my three principal disagreements with Seidel (1994): the elevation of both *P. concinna suwanniensis* and *P. floridana peninsularis* to specific status and the combining of the remaining *P. concinna* and *P. floridana* into a single species with two subspecies, *P. concinna concinna* and *P. concinna floridana*.

The *suwanniensis* Problem

Although he was not the first to do so (see Frost and Hillis, 1990; Collins, 1991), Seidel's elevation of *P. c. suwanniensis* to specific status was based on limited and inaccurate information. Seidel admitted that "few characters