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Book Review:

Acuña Mesén, R.A. 1993. *Las Tortugas Continentales de Costa Rica*. San José, Costa Rica: Editorial ICER, 58 pp.

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It is surprising how few studies have been conducted on the freshwater and terrestrial turtles of Costa Rica. This may reflect the low species richness of Mesoamerican turtles or perhaps their poor representation in museum collections. This stands in marked contrast to the sea turtles, some of whose nesting populations have been monitored systematically in Costa Rica for many years. Notable exceptions are two articles on Costa Rican non-marine turtles (Pritchard, 1993; Moll, 1994) that have recently appeared in the pages of this journal.

Rafael Acuña Mesén, who has contributed much to our understanding and conservation of Neotropical reptiles in Costa Rica, has for many years studied both the natural history of Costa Rican turtles and the structure of turtle eggs. In this book, written in Spanish for non-specialists, Acuña Mesén provides an accurate description of the basic natural history of Costa Rican freshwater turtles.

The book consists of two sections: a brief introduction and a section containing species accounts. The text is illus-

trated with 18 figures and 8 color plates, but the illustrations sometime provide insufficient details and color for easy species identification. The first section includes a description of taxonomically salient characters of the shell. The second section begins with a list of the eight species in three families: Chelydridae (1 species), Kinosternidae (3 species), and Emydidae (4 species).

Each species entry includes common names, distribution, and collecting sites. Where available data permit, the author outlines the habitat, diet, predators, and some aspects of reproduction (breeding season, clutch size, and incubation period). There is a discussion of mating behavior for *Kinosternon leucostomum postinguinale*. The author makes brief mention of karyotypes and egg-shell ultrastructure.

Acuña Mesén includes a brief discussion concerning the effects of seasonal fires on populations of *Kinosternon scorpioides* and *Rhinoclemmys pulcherrima* in the northern Pacific versant of the country. During the dry season fires in Palo Verde National Park significantly impact local turtle populations, as they burn nearly half of the total habitat. The author calls for further protection of these areas to conserve the affected species.

I have only a few criticisms regarding this book; however, these are all minor in nature and are typical of many general works. (1) In-line citations would more accurately document certain statements in the text. (2) The *Chelydra serpentina* account includes some technical terms that should be explained in the introduction. (3) The list of food items consumed in captivity contains no indication as to whether they constitute an adequate diet. (4) Some vertebrates are listed as predators of turtles, but it is unclear whether their inclusion is based on probability or actual field observation. For example, Acuña Mesén cites *Iguana iguana* as a predator on *Kinosternon angustipons* and *K. scorpioides*. However, *I. iguana* is arboreal and folivorous during its adult life (Burghardt and Rand, 1985; Rand et al., 1990). The author may have confused it with *Ctenosaura similis*, a similar species that can feed on small vertebrates. However, the range of the latter does not overlap with that of *K. angustipons* (Fitch and Hackforth-Jones, 1983). (5) It would have been helpful if museum numbers of collected specimens had been included in the book. (6) Mention is made of the resemblance of the carapacial marginal pattern of *Rhinoclemmys pulcherrima* to that of coral snakes (*Micrurus*). Although there are a few empirical studies (Smith, 1975, 1977; Brodie and Brodie, 1980; Brodie, 1993), it should be noted that the majority of mimetic relationships have been outlined using indirect evidence only (Pough, 1988; Campbell and Lamar, 1989). (7) The list of scientific names suffers from minor orthographic errors. (8) Finally, it would have been useful to have included information regarding the zoogeography of Mesoamerican chelonians and a brief section discussing the ecological and economic value of Costa Rican turtles, along with a discussion of conservation priorities.

Despite these minor criticisms Acuña Mesén's book is a timely publication summarizing information about Costa Rica's freshwater and terrestrial turtles. It offers to the non-

specialist reader an introduction into chelonian biology precisely at a time when it is so important to educate the public on the preservation of biotic diversity.

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