

beginning early in the Twentieth Century. Consequently, this species is known to host more parasites than any other softshell (trionychid) turtle.

There are only a few modern, book-length, published studies as single-mindedly devoted to recounting everything known about a single turtle species as this one. Gramentz's earlier (2005) book, *Die Nilweichschildkröte. Trionyx triunguis*, is another example. Books such as *The Alligator Snapping Turtle: Biology and Conservation* (Pritchard, 1989), *Life History and Ecology of the Slider Turtle* (Gibbons, 1990), and *Biology of the Snapping Turtle (Chelydra serpentina)* (Steyermark et al., 2008) also come to mind, although they are less slavishly devoted to completely recounting basic anatomical and physiological studies of the species in question. Such studies are valuable in bringing a great deal of information and related references together under one cover, but I will offer a caveat concerning such an approach in its strictest sense (as displayed by the Gramentz books), which I elaborate upon below.

This book begins its coverage of the Indian Flap-shelled Turtle with chapters and sections related to its identification, nomenclature, and taxonomic classification. A significant number of chapters and sections in the rest of the first half of the book are devoted to recounting the basic external appearance, coloration, external and internal anatomy, and related physiology of this species. Although unflinching in citing his sources, the author transferred the anatomical and morphological descriptions nearly unchanged from their original sources. The reasons for this are understandable, and explained by Gramentz in the Foreword. Most of the rest of the book is devoted to describing the sexual dimorphism, development, ecology, and behavior of Indian Flap-shelled Turtles. It may be surprising to some that more gaps exist in the fields of ecology and behavior, especially in such a widespread and common species, but field studies of turtles have lagged behind laboratory studies (as is the case for many other organisms). Gramentz remarks upon the surprising dearth of knowledge of some basic ecological and behavioral characteristics of this species (e.g., reproductive biology, basking behavior). In the final chapter, Gramentz discusses conservation concerns and efforts related to this still widespread and common species. In his final analysis, the author is concerned about the effects of mass slaughter, national and international commercial trade, and habitat destruction throughout its range on the long-term survival of this species. Given what we know concerning the vulnerability of long-lived, late-maturing organisms such as turtles to chronic, unnatural mortality (e.g., Congdon et al., 1993, 1994) this concern is not misplaced, and is a fitting way to conclude the book.

This book is well produced and well written. Within the limitations imposed by some of the subject matter (there are limits to the excitement that can be generated by anatomical descriptions of, say, the renal portal system), the book is interesting to read and typographical errors are few. I noted very little awkwardness in grammar and phraseology that might be attributable to German-English translation issues. The tables, line drawings, and especially the beautiful photographs of turtles and habitats are all clear, sharp, and well produced. Tables and figures are usually referred to in the text by number, but not consistently so throughout the book. Although it is usually easy to determine what graphic information the text is referring to in the latter cases, I found these discrepancies mildly disconcerting. The book is expensive and this may be a drawback to novice turtle biologists attempting to assemble a library with the latest scholarly contributions. The quality of the book, its

graphics, and its undoubtedly small production volume, inevitably and justifiably resulted in a higher price. I hope and recommend that research libraries purchase the book to increase its availability to turtle researchers.

My last point is not a criticism, but more a statement of my viewpoint. As stated in the Foreword, it was not the author's objective to compare aspects of the biology of the Indian Flap-shelled Turtle with those of other turtles in general, or with other softshells in particular. His objective was to compile an encyclopedic reference to the known biological attributes of this species solely, and in that he has succeeded admirably. As I read the book, however, I frequently found myself wracking my brain to try to remember how this fact or that description compared with those of other turtles I had read about previously, or had published on myself. I began to better appreciate that the acquisition of facts is admirable and valuable, but the placement of those facts in a comparative context (e.g., the guiding principle of comparative anatomy and physiology, etc.) is even more enlightening. This compilation on this interesting species will probably be ultimately most useful in providing a single source for a wealth of data that can eventually be integrated into a broader, comparative picture of chelonian biology. My challenge to the next generation of turtle biologists is to use this book to make this happen sooner rather than later.

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The Case of the Green Turtle: An Uncensored History of a Conservation Icon. A. Rieser. 2012. Johns Hopkins University Press. ISBN 9781421405797. 352 p. \$29.95 (hardcover).—Although the old adage that one should not judge a book by its cover is usually good advice, *The Case of the Green Turtle: An Uncensored History of a Conservation Icon* by Alison Rieser could be considered an exception. In this "case," the book's cover actually reflects its contents—both good and

not so good—quite well. As the title states, the book is indeed a “case,” steeped in details and heavy on conservation laws and policies. But the book’s depiction of the Green Turtle (*Chelonia mydas*) as an “icon” is better characterized by the murky, unattractive, confusing cover portrait: unclear and un compelling. To understand why the case of the Green Turtle became a watershed for the international conservation movement and launched 50-plus years of debate about “conservation through commerce,” one needs to understand how and why sea turtles achieved “iconic” status. Rieser does a fantastic job of making the “case,” but falls short of providing a deeper understanding of how Green Turtles were—and are—conservation icons, and what this means for conservation more broadly. Despite this shortcoming, the book is a worthwhile resource for any sea turtle specialist interested in how, when, and by whom the seeds of sea turtle conservation were first planted, and for anyone with a strong interest in wildlife management and policy.

This book’s strengths are in describing the origins of sea turtle conservation, as well as the major players and their various conservation philosophies, motivations, and biases that are evident today in publications, conferences, and policies regarding sea turtle conservation and biology. It is indeed a case; it reads like a thesis or legal document, with a linear, facts-based approach that stops short (for the most part) of editorializing or opining. But what the narrative lacks in rhetorical flourish, vivid imagery, and gripping action and suspense, it more than makes up for with a coherent and carefully constructed narrative that tells the story of how Green Turtles became global research subjects and management targets at the same time that the world was trying to figure out how to assess and protect species, particularly in the face of complex and wide-reaching wildlife trade issues. Rieser’s painstaking detective work weaves together countless letters, books, interviews, and other resources describing the history of Green Turtle management long buried in personal and institutional archives. This impressive effort provides the reader with a vivid picture of the people involved and the discussions that took place, all of which is important context for current efforts to address threats to sea turtles and other shared wildlife resources.

For any sea turtle specialist, this book should be required reading. As a current member of the IUCN Marine Turtle Specialist Group (MTSG), and one who is intimately involved in the MTSG’s present-day efforts to assess sea turtle status under the Red List, I devoured Rieser’s recounting of the origins of the MTSG. She transports the reader back to the MTSG’s initial meetings, which showed how individual experiences and perspectives, personality differences, and behind-the-scenes machinations among meeting participants influenced discussions about fundamental issues facing sea turtle conservation. Having participated in several MTSG meetings in recent years, it’s safe to say that some things haven’t changed (much). Similarly, I couldn’t help but smile sympathetically while reading about how Archie Carr, often recognized as the founding father of sea turtle biology and conservation, and a main protagonist of Rieser’s case—“had difficulty applying IUCN’s endangerment classification scheme” (p. 130), and struggled to shoehorn what he felt was relevant information about exploitation rates and recommended protection strategies into IUCN’s rigid headings. He would not be surprised (but perhaps a bit disappointed) that the MTSG continues to debate internally and with the IUCN about the (in)appropriateness of the Red List criteria and categories for

assessing sea turtle conservation status (see Seminoff and Shanker, 2008 for review).

There are so many other fascinating anecdotes in these pages that sea turtle specialists will enjoy: the first efforts to apply tags to sea turtles to figure out whether they nest annually, multiple times per season, show site fidelity, and migrate away from breeding areas; professional competition and ego clashes boiling over to cause internecine rifts in the sea turtle conservation community; the always sensitive use of scientific data to defend sometimes contradictory management strategies; and even basic aspects of sea turtle biology that were focus of great speculation then and continue to elude scientists decades later, such as age at maturity.

In addition to those of us with a special affinity for sea turtles, this book provides a fabulous history of the origins of some of the most consequential conservation laws and frameworks ever created, namely the Convention on International Trade in Endangered Species (CITES), the International Union for the Conservation of Nature and its Red Data Book (which evolved into the modern-day Red List of Threatened Species), and even the US Endangered Species Act of 1973. Many readers might be surprised to learn the central roles that sea turtles—Green Turtles in particular—played in how each of those policies or assessment frameworks were constructed and applied. For example, the present-day, interagency coordination framework used by the US government to manage sea turtle populations—the US Fish and Wildlife Service (USFWS, Department of the Interior) is responsible for terrestrial life stages (e.g., nesting, eggs, nests, and hatchlings), while the National Marine Fisheries Service (NMFS, Department of Commerce) is responsible for marine environments—actually arose as a compromise between the two agencies while trying to decide how to list Green Turtles on the US Endangered Species List. Rieser adeptly describes the roots of this confusing arrangement, which persists today and continues to complicate sea turtle management issues.

Of course, the main theme of the book—whether turtle farming could be a viable conservation strategy—should be interesting and thought-provoking reading for anyone interested in wildlife trade and management. Arguments for and against are presented throughout, typically in the words of those scientists involved in the original debate. The benefits and drawbacks of each side are characterized fairly enough that an open-minded reader can understand why this issue was—and is—so difficult to resolve whenever it arises. Indeed, the question of whether “conservation through commerce” (i.e., limited, legal, commercialization of animal products to reduce pressure from illegal harvest on wild populations of the same species) remains highly relevant. The recent auction of a single permit to hunt a Black Rhinoceros (*Diceros bicornis*) in Namibia raised international debate and attracted global press around the question of whether a threatened species should ever be the subject of a legal hunt, even if there are benefits to the overall population. In this case, proponents of the hunt pointed out that the single animal to be killed is an older male, which can be a threat to other individuals in the population, and the auction for the permit raised thousands of dollars to support efforts to protect Namibia’s remaining rhinos from illegal poaching (<http://www.cnn.com/2014/01/16/us/black-rhino-hunting-permit/>). Even in the sea turtle community, the question of whether to allow harvest of Hawksbill Turtles (*Eretmochelys imbricata*) for their commercially valuable carapace material, or bekko, to be sold to

generate revenue for conservation in countries where such harvest is legal was argued vigorously in recent years (Bowen et al., 2007a, 2007b; Godfrey et al., 2007; Mortimer et al., 2007).

Then, as now, the arguments against turtle farming, and the somewhat related issue of sustainable use, particularly from the perspective of organizations and conservationists from developed countries, are not necessarily rooted in objective evidence from population modeling that demonstrates declines in a species' numbers if trade or use were permitted under regulated circumstances. Such evidence rarely exists for any management strategy, although it should be noted that we now have several examples of sea turtle population declines owing at least in part to (illegal and/or unregulated) exploitation. Rather, the perennial lack of comprehensive population data is actually used as support for "using the simplest and least risky techniques of conservation," as David Ehrenfeld advised the World Conference on Sea Turtle Conservation in 1979 (p. 251). In other words, we shouldn't try to manipulate populations, or the market forces driving exploitation patterns, because we just don't know enough about how populations might respond. So, it's better to stick to conservative approaches to conservation, like protection, preservation, and, of course, ever more research. One wonders if such conservative conservation approaches always won out, whether we might have discovered temperature-dependent variation in sex ratios by dissecting the gonads of hatchling sea turtles, or attached satellite transmitters to track sea turtles across expanses of open ocean, among other high-risk, high-reward endeavors.

It is precisely in these discussions about turtle mariculture and sustainable use, and why the precautionary principle should prevail over all others in a data-poor world, that understanding how and when the "iconic" status of sea turtles and other species came to be is so important. Why was (and is) there such fervent opposition to conservation through commerce, even if—as in the case of the Black Rhino—doing so would benefit the population as a whole, both in terms of population growth as well as resources to protect the remaining individuals? If these biases reflect value judgments based on the intrinsic "charisma" of certain species, then why did sea turtles become lightning rods for debates about how to manage over-exploitation of marine resources, rather than sharks or tuna?

These are the kinds of questions that *The Case of the Green Turtle* was uniquely positioned to explore, but for some reason did not. While the cover's description of the book as being a "case" is spot-on, Rieser's effectiveness in characterizing Green Turtles as "conservation icons" is also very well reflected by the cover photo: a murky, underwhelming image that does not do its subject justice. (Of course the author cannot be blamed for the cover art, but bear with my comparison.) After reading "the transformation of the green turtle from food to icon . . ." in the book's final pages, I felt as though I missed a significant portion of the book that described that transformation. It was never quite clear to this reader that Rieser's history revealed how sea turtles came to be considered "icons" in the first place, or how their supposed "iconic" status influenced management decisions about their fate, let alone those of other species. Were sea turtles not considered "icons" by coastal communities that consumed turtle eggs and meat, long before Western notions of preservation arrived on the scene? Were they not "icons" that appeared on labels on cans of turtle soup, representing not only food, but status

and wealth? By describing the Green Turtle as "a conservation icon," did Rieser mean that many conservation policies came of age because of or in relation to the Green Turtle mariculture debate? Or was she confusing the term "icon" with one of the other myriad terms for charismatic species that receive disproportionate amounts of resources and attention from the international conservation community (e.g., flagship species, umbrella species)? Not exploring these questions while telling the story of how Green Turtles went from the highly exploited source of a multinational, commercial food trade to a symbol of protectionist conservation movements seems like a missed opportunity.

However, these flaws are minor compared to the great service that Rieser has done in adroitly summarizing the legacy of "a generation of scientists who sought divergent ways to prevent the green turtle from becoming rare or even extinct" (p. 12), not just for those currently following in their footsteps and engaging in the same debates, but for future conservationists as well. Rieser's *Case* is a superb reminder that wildlife conservation depends on science, but perhaps even more so, on scientists, their human experiences, visions, and values.

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Discovery, Diversity, and Distribution of the Amphibians and Reptiles of Sulawesi and Its Offshore Islands. A. Koch. 2012. Edition Chimaira. ISBN 9783899734324. 374 p. €49.80 (approximately \$68.00) (hardcover).—Sulawesi and its offshore islands are located on the western margin of the biogeographic region of Wallacea, spanning the Banda, Molucca, and Celebes seas. Comprised of the major islands of Sulawesi, the Lesser Sundas, Timors, Moluccas, and Celebes (as well as a number of smaller, associated islands), this region is effectively a filter zone between the major Oriental and Australian faunal regions. Consequently, islands of this