

Book Review

Freshwater Turtles of Australia.

John Cann and Ross Sadlier. 2017.

CSIRO Publishing, Australia.

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Almost 20 years since *Australian Freshwater Turtles* was first published (Cann 1998), this new edition by John Cann and Ross Sadlier is a fabulous catalogue of more than 50 years of passion and dedication to Australian freshwater turtle conservation and natural history. John Cann is truly a doyen in our field and, without John, our knowledge of Australian freshwater turtles would be next to nothing. John Cann is a true champion to both the amateur and academic worlds of turtle conservation and natural history. Like in his first book, the personal experiences are a delight for the reader, and shed vital information that is usually cut from most scientific journal articles. This book is a perfect home for this information, and any budding junior herpetologists would find inspiration from almost every page. Overall, the book is significantly more detailed than the previous edition, which was visually outstanding, with an amazing collection of photographs and images. Although the photographs and images are still extensive throughout the latest edition, the amazing full or double page images in the original large portrait book format were more spectacular.

Fittingly, the book begins with the challenges that most of our freshwater turtles are facing, with the imminent extinction of many of species because of factors such as fox predation, water resource management, riparian and aquatic habitat degradation, cane toads, and disease, which are threats that were first elucidated more than 30 years, but have not been seriously addressed. Many of Australia's freshwater turtle are in decline and listed as Endangered or Critically Endangered. Chapter one, Australian Freshwater Turtles and Aboriginal Culture, is a highlight of the book. The cataloguing of the artwork, most of which is part of John Cann's collection, truly demonstrates the importance of turtles to indigenous communities. John Cann also documents his own experiences with indigenous communities in the eastern suburbs of Sydney.

The book then deals with the major clades of freshwater turtles, starting with the long- and short-necked turtles and finishing with the western swamp turtle and the pig-nosed turtle. The last chapter is primarily a photo-catalogue of the turtles of New Guinea. Each chapter follows a general format of historical context, description, distribution and natural history of each species. For many species, reference books, or observations by John Cann are the only published information on them. With a distinct lack of research on most species in Australia, it is likely that some species in remote areas remain to be discovered,

however, John Cann's lifetime dedication to Australian freshwater turtles means that he has probably found them all (and might even know them individually).

As a taxonomic reference though, I am of the view that this book does not serve as reference for the current taxonomic status of Australian freshwater turtles, in fact, it undoes much of the progress and stability achieved in the last 20 years. The IUCN Turtle Taxonomy Working Group has produced "Turtles of the World: Annotated Checklist and Atlas of Taxonomy, Synonymy, Distribution, and Conservation Status (8th Ed.) (Rhodin *et al.* 2017,)", which should remain as the reference for the current taxonomic status of Australian freshwater turtles. Cann and Sadlier take issue with the application of allozyme electrophoresis for delimiting species boundaries (Georges and Adams 1996; Georges *et al.* 2002). As Georges (2018) points out, Georges and Adams (1996) established a "local" benchmark for the Australian Chelid turtles to assess differences consistent with variation among populations of a species, between closely related species, and between species in different genera. The local benchmarks inform the judgements on species delimitation for the Australian chelid turtles. The criticisms in this book are not sustainable and their arguments for the creation of subspecies or re-incarnating historical species, is weak at best.

The implications of using this book as the taxonomic reference for Australian freshwater turtles are significant. A simple google search of Australian turtles for sale reveals up to 100% increases in the cost of common short-neck (Emydura) "species", many of which are recognised in this book, but are not recognised in the IUCN Checklist. To the public, this is reality, and public reality is a significant factor driving local conservation programs and government policy. The conservation of Australian freshwater turtles will be negatively affected by these reclassifications. The most poignant example has occurred with turtle populations on the North Coast of NSW. The Bellinger River Snapping Turtle (*Myuchelys georgesi*) is on the brink of extinction following a disease that may have occurred due to a combination of changing climates and increased competition for food with the introduced *Emydura macquarii* (Spencer *et al.* 2018). *Myuchelys georgesi* is now Critically Endangered (Department of the Environment 2018) and is one of the most imperilled freshwater turtles in the world (Stanford, C.B. *et al.* 2018). The introduced *Emydura macquarii* was once known as the Bellinger River Emydura and identified as a distinct

taxon in the Action Plan for Australian Reptiles (Cogger *et al.* 1993), as well as in an earlier version of this book (Cann 1998). However, the Bellinger River *Emydura* has been identified as an unremarkable representative of the widespread *Emydura macquarii* (Georges *et al.* 2011), and they are increasing in numbers, as well as hybridizing with the now Critically Endangered *Myuchelys georgesi* (Georges and Spencer 2015). Cann and Sadlier still consider that an endemic *Emydura* in the Bellinger River existed, despite scientific evidence otherwise (Georges *et al.* 2011). Similarly, the east coast sub-species of *Emydura* in this book are not remarkable and are not supported by the IUCN Checklist (Rhodin *et al.* 2017).

Whether or not this book has been subjected to a scientific review processes, caution should be used before citing it as a scientific reference. I would advise otherwise, and recommend the IUCN checklist. This sets up a new problem, how should one refer to the species names in this book, especially as the authors do not offer the IUCN list as a point of comparison, eg a table of alternate names. How did this problem arise? The scientific names used in this book are primarily based on those of the most recent edition of Cogger (2014), although Cogger recognised that the taxonomy was complex in some lineages (eg. *Myuchelys/Wollumbinia*). Hal Cogger has been a leading figure in herpetology, and his book has been an invaluable part of every herpetologist's bookshelf since its first edition

in 1975. However, both these books complicate an already complicated and divisive field and adopting the IUCN checklist, which has been subjected to extensive peer review, should ensure ongoing clarity and uniformity for the taxonomy of Australian freshwater turtles.

Notwithstanding the taxonomic standoff, this book is the culmination of a life's work dedicated to turtle conservation and nothing should diminish the efforts of both authors to convey important natural history of imperilled taxa, document countless hours of observations in the field and portray beautiful illustration and photography. Many of our turtles are on the verge of extinction and this book should inspire any budding herpetologist, but it is not a taxonomic reference for Australia's unique freshwater turtles. Identifying species or sub-species, whereas in fact they are likely to have been introduced, harms the conservation efforts of species that are truly endemic in small numbers, or have limited ranges. As a young scientist at the time, the previous version of this book inspired me to dedicate much of my career in conservation biology, as this book will also do. But I can now look at these books as both a scientist and lover of our native animals and understand the scientific limitations, but remain inspired to help conserve these beautiful animals.

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