BOOK REVIEWS


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It is not often that one gets the opportunity to review eight books in one go. It is easy to agree to, but when the package of books arrives and one is faced with thousands of pages to read, the prospect is daunting. I was lucky though – the eight single-species monographs were interesting reading and I am substantially better educated for it. As the majority of them have chapters on conservation or management of the focal species, my reading exercise also provided me with food for thought about the pros and cons of single-species conservation efforts.

Faced with books on giant pandas, lion tamarins, gorillas, mountain goats, bison, racoons, koalas and tigers, it was difficult to choose which one to read first. I went with the goats: partly because I think they are the most charismatic of this collection of species, and partly because I was familiar with a previous edition of Douglas H. Chadwick’s *A beast the colour of winter*. I enjoyed this easy-going, relatively unscientific but well-written account of mountain goats living in the Northwest of North America, but I had a nagging feeling of *déjà vu*. This is because the book is simply a reprint of the 1983 publication of the same name, but with a different publisher and a new introduction. Although the book is based around Chadwick’s experience of working on mountain goats for seven years it does draw on other research. It is a shame he did not expand the book to include the past twenty-plus years of mountain goat research that has been conducted since he wandered the mountains. There is much that could have been added. It is also interesting that the book only briefly touches on conservation issues facing mountain goats. This is not because mountain goats are immune from the threats facing the species that feature in the other books, but is perhaps more a sign of our times. Certainly all the more recent books devote considerable chunks to presenting and discussing the conservation issues.

One species that has been the focus of substantial conservation interest is the giant panda. Although the *Smithsonian book of giant pandas* is aimed at the interested public rather than the scientific community, and is packed with great pictures, it contains a lot of information about pandas and the threats that face them. I liked this book and I liked what it succeeds in doing. It engages the reader in giant pandas, it made me want to see one in the wild and it made me care about the fate of the giant panda more than that of the mountain goat. This has nothing to do with the relative charisma of the two species; it has everything to do with the way the Smithsonian book is put together. I hope the book engenders a wide interest in the fate of the giant panda – which would surely do no harm for any future conservation strategies.

Another species whose numbers have dropped catastrophically over the past few decades is the tiger. The tiger is a species of conservation importance as it is a large, charismatic animal that is recognizable world-wide even though its range is restricted to a decreasingly small part of Asia. It is elusive, lives at low density and needs large areas of habitat supporting suitable prey for viable populations to exist. It is also probably on the road to extinction. In *Monitoring tigers and their prey*, edited by Karanth and Nichols, methods for collecting data on marked, elusive, large-ranging animals are presented. The book is a methodological tour-de-force describing how to collect and analyze data on cryptic, but individually recognizable animals. These are methods that have to a large part been developed by the two editors and applied to work on tigers. The influence of Karanth and Nichols in this field is obvious – one or both of them are authors on all chapters bar one. The book will prove a useful handbook to analyzing camera-trap data, but is deliberately narrow in focus. The book is marketed as being concerned with conservation, but in reality this is a red herring. Estimation of population parameters for a range of tiger populations is important, but will help little in removing the threats to these large cats. If you study large, individually recognizable cryptic animals, the methods will prove extremely powerful, but this will not appeal to a wide audience.

Tigers are in decline, and it is a braver man than I that would predict their existence in the wild in a couple of centuries’ time. Bison, in contrast, have survived an astonishing decline – just. There were probably between
25 and 30 million American bison in prehistoric times. Little more than one decade of mass slaughter decreased their numbers to a few hundred. Yet, the bison is becoming a conservation success story. They have become an emblem of North American wildlife and they no longer number only hundreds of wild individuals. The conservation concerns have moved on to declining levels of genetic diversity rather than the threat of demographic variation driving the species extinct. In Dale F. Lott’s engaging American bison: a natural history, the behaviour, ecology and conservation as well as the evolutionary and more recent history of the species are eloquently told. The book is the sixth volume in the University of California’s series on organisms and environment and is an excellent demonstration of one way of writing a great single-species monograph. If I had to keep just one of the eight books, this is the one I would choose.

My perception of these eight books is that those that are either written in their entirety by one or two authors, or where the editors have been involved in most chapters (as in Karanth and Nichol’s tiger book), are more coherent than edited volumes, especially if the volume is the result of a conference. Lion tamarins: biology and conservation (edited by Kleiman and Rylands) and Gorilla biology: a multidisciplinary perspective (edited by Taylor and Goldsmith) both contain a wealth of information, but lack a coherent theme tying them together. Just because all the chapters in a book are about related species does not necessitate a successful link. It is a pity the tamarin book (which is the better of the two edited volumes) is unlikely to reach a large audience, as there is much to learn from the conservation success story of the golden lion tamarin. It was brought back from the brink of extinction by a successful captive-breeding campaign, by slowing and in some places halting habitat destruction, and by the determination of a handful of researchers, especially as Russell Mittermeier notes in his forward, Adelmar Coinbra-Filbo.

The final two books are about species that can thrive in man’s modified habitat: Raccoons: a natural history and The koala: natural history, conservation and management. The books are structured in similar manners, introducing the species, describing their evolutionary pasts, their behaviours, and causes of variation in reproduction and mortality, before moving on to management issues. This is a tried and tested formula for writing a single-species monograph and it works well for both species.

What can single species tell us about conservation programmes? Are there any general lessons that we can learn? Given the fact that we may currently be experiencing the sixth great extinction, do we have time to save species one by one? Or can we draw useful generalizations that we can extend to unstudied species? Before reading these books, some of which describe remarkably successful conservation stories (the tamarins and the bison), others where conservation is failing to halt the decline in numbers (gorillas, tigers and pandas), and those where species may have benefited from anthropogenic change (the racoon and the koala), I assumed that certain life-history attributes would be the major correlate of conservation success. Although such correlates do exist, I am unsure of their practical importance. There are other factors that are probably equally important. For example, endangered species probably have greater chances of being the focus of successful conservation campaigns in the developed world than in the developing world. There are obvious reasons for this: people living in the developed world can afford to value mammals as a leisure commodity and offer species protection. This is not an option for the majority of people living in the undeveloped world, where rare mammals can cause substantial economic cost through damaging crops and may provide a saleable live commodity. However, even in the developed world, culture plays an enormous part in determining conservation success. Personally, I would rather be an endangered mammal in the USA than in Japan; the two cultures value wildlife in different ways. Where an animal lives is only part of the story though. Even being in the Western developed world will not guarantee survival for an endangered mammal.

Having a charismatic eco-warrior fighting for a species is also helpful. Drawing attention to the plight and ‘importance’ of a species is critical. If no one cares if a specific species goes extinct, then why should the threats that have led to its endangerment be removed? Popular single-species monographs do help highlight the plight of species, and this helps.

Even if the country the species occurs in is developed, and the species is well known and loved by the public, survival still is not guaranteed. If the species can successfully reproduce in captivity, that will further help its cause – but only if the captive-bred animals can then be reintroduced successfully in the wild. All these points are very obvious and common sense: for a conservation strategy to be successful it has to integrate multiple different aspects. One aspect of this is a solid understanding of a target species’ biology. Single-species monographs do provide such information. We have not got enough time to halt the current rate of loss of species one by one, based on solid understanding of their biology, but identifying the causes of success and failure across well-studied species should prove illuminating. For that, I would need a bigger sample size than just eight. I am eagerly waiting to receive more single-species monographs to review!

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Broadly speaking, most empirical biologists fall into one of two camps. Those in the first base their research around a particular question or group of questions and then cherrypick species or populations with which to test their ideas. The second focus their efforts (often careers) on a favourite species or group and set about describing basic parameters or apply their hard-gained specific knowledge to tackle generic questions. Despite snobbery by proponents of each approach, neither is superior, with each feeding off the another to advance the cutting edge.

That said, take a look at the marine mammal literature. The vast majority of authors belong firmly in the second camp. In other words, they are marine mammal biologists and furthermore often exclusively specialists on pinnipeds (seal/sealion/walrus), cetaceans (whale/dolphin/porpoise), polar bears, sirenians (manatee/dugong) or otters. Why so? Are marine mammals operating under such unusual constraints that their biology is of little interest to question-driven scientists? Of course not. The answer, I believe, comes from the history of marine mammal research. Marine mammals, with few exceptions, have been logistically hard and time-consuming to study. Compare, for example, the logistics of collecting a blood sample from a blue whale to those of a badger. In consequence, most aspects of the field have lagged several decades behind studies of terrestrial mammals and sizable chunks of the primary literature still retain an almost Victorian feel. Things are rapidly changing, however. A combination of new research tools (smart telemetry, photo-identification, molecular analysis, etc.), and an urgent need for conservation (with attached funds) have turbocharged marine mammal research. We now know vastly more about this mammal collective than we did just a decade ago. Undoubtedly a consequence has been the current outbreak of marine mammal biology review books that have sprouted toadstool-like upon the bookstore shelves. Marine mammal biology: an evolutionary approach joins, among others, The biology of marine mammals (eds. Reynolds & Rommel, 1999); Marine mammals: evolutionary biology (Berta & Sumich, 1999); Conservation and management of marine mammals (eds Twiss & Reeves, 1999); Marine mammals – biology and conservation (eds. Evans & Raga, 2001) and most recently The encyclopedia of marine mammals (eds. Perrin, Wursig & Thewissen, 2002).

So what then does Marine mammal biology: an evolutionary approach contain to distinguish it from the rest? With its 14 chapters, this volume encompasses a logical and broad range of topics: zoogeography, evolution, anatomy, physiology, reproductive and social strategies, ecology and conservation management. Where it differs from its neighbours is in its quality and focus. The 27 invited authors are clear leaders in the field and have done well in synthesizing an often convoluted literature. The accessible text is peppered, impressively, with fresh and stimulating insights and the underlying tenet has advanced a crucial step beyond the norm. Not only is the available information on the adaptations of these animals described and critically reviewed, but the adaptations themselves are examined in light of their potential consequences to fitness.

I hope that the production of this well-presented 430-page volume and the half-dozen other marine mammal books on the market is a symptom of the maturation of this field and, in time, will mark a significant turning point. No longer is it obligatory for a researcher to dedicate his/her career to studying marine mammals in order to contribute. There is now sufficient knowledge of these animals and their populations to entice the concept-driven research clan. As Hoelzel’s book so ably demonstrates, marine mammals have evolved to excel in an environment entirely different from that of terrestrial mammals, and offer us a panoply of fascinating adaptations. Complex brain development without tool use, social systems without dispersal, strategies to deal with separated foraging and respiratory sites, and so on: perfect material with which to test terrestrially derived paradigms. In this respect, for these books to take the field on to the next level they will need to act as a portal with which to entice a wider segment of the animal biology research community. For those researchers and new students, Rus Hoelzel’s edited volume would be an excellent place to start.

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