The publishers of this book, the University of Chicago Press, make the following statements and claims on their website: “In recent years researchers have discovered that bats play key roles in many ecosystems as insect predators, seed dispersers, and pollinators. Bats also display astonishing ecological and evolutionary diversity and serve as important models for studies of a wide variety of topics, including food webs, biogeography, and emerging diseases. In *Bat Ecology*, world-renowned bat scholars present an up-to-date, comprehensive, and authoritative review of this ongoing research. The first part of the book covers the life history and behavioral ecology of bats, from migration to sperm competition and natural selection. The next section focuses on functional ecology, including ecomorphology, feeding, and physiology. In the third section, contributors explore macroecological issues such as the evolution of ecological diversity, range size, and infectious diseases (including rabies) in bats. A final chapter discusses conservation challenges facing these fascinating flying mammals. *Bat Ecology* is the most comprehensive state-of-the-field collection for scientists and researchers” (www.press.uchicago.edu/cgi-bin/hfs.cgi/00/15369.ctl, last accessed 9 Nov 05).

The claim is bold, immodest and assertive. Is it true, will it stand the test of critical review? Adams (2004), a north American reviewer, concluded that the book is “worth its weight in gold”. So, how does it look from an Australian perspective?

The editors, Thomas Kunz and Brock Fenton, have visited Australia. One of us (DL) has met both these bat biologists and their breadth of knowledge was indeed impressive, outstripped only by their boundless energy in talking about bats. Their influence on those Australians in their immediate hearing range was immense. We realised that our bat fauna could be viewed through international eyes, and that any findings would be immediately relevant. For fellow Australian mammalogists, who have worked on our marsupial fauna, the instant inclusion of bats in their group standing within earshot, and we are all beneficiaries of both their skills and their stunning network of fellow bat biologists.

The editors invited contributions from 30 bat biologists from around the globe, including Lindy Lumsden and Peggy Eby from Australia. This has ensured that Australian bat research has been well cited and gives balance to what could easily have been a northern hemisphere focus. In adding Lumsden and Eby, two new names have been added to the international stage where Les Hall and Greg Richards have done so much for so long in raising the Australian flag in international bat forums and reviews. Lumsden and Eby have done much within Australia to raise the consciousness of fellow bat conservationists and researchers, especially in government departments, of the importance and relevance of bats in assessing and conserving our mammal fauna. Their inclusion in *Bat Ecology* is a fitting acknowledgment to both their size as researchers and as conservation advocates. Since we can talk with some knowledge of these two fellow Australians, we can presume that the same depth of knowledge and commitment is part of every other author. In that case, a world list of the best bat biologists has been assembled. This allows the conclusion that the book is authoritative, up to date and well-researched. If there are gaps, intellectual weak spots, and missing ideas, then they are likely to be unstudied fields of endeavour, not of scholarship of the authors/editors in this book.

The one thing you will discover from *Bat Ecology* is the incredible diversity and complexity of bats. With approximately 1,100 species worldwide, bats make up approximately one-fifth of all known mammal species. They vary considerably in body size, morphology, flight performance, foraging behaviour and diet, their use of sensory cues and communication, roosting habits, hibernation and torpor, migration patterns, social behaviour, life-history and reproductive strategies and this book has captured it all.

*Bat Ecology* is in three parts. The first, entitled “Life History and Social Biology”, contains chapters on roosting ecology, sensory ecology and communication, sperm competition, bat migration, and life histories. The second part, “Functional Ecology” explores ecomorphology, bat-insect interactions, bats and flowers, bats and fruit, and physiological ecology. The third part, “Macroecology” includes chapters on evolution of ecological diversity, trophic strategies, niche partitioning and patterns of ecological organisation, patterns of range size, richness and body size, bats and diseases, and a final chapter on conservation
ecology. The chapters all provide a review of the most contemporary bat research in each discipline, and some (such as the chapters by Wilson and McCracken on sexual selection and sperm competition, and by Barclay and Harder on life histories of bats) also provide new analyses and experimental results.

The captivating chapter by Jones and Rydell on interactions between echolocating bats and their insect prey highlights the diversity of behavioural strategies employed by bats and how this has developed from complex evolutionary interactions between predators and their prey. It also deals with how insects have developed defences or strategies for avoiding bats, such as hearing in moths to detect ultrasound.

In the preface, Kunz and Fenton acknowledge that since the publication of the *Ecology of Bats* in 1982, there have been many technological advances that have fostered an increase in our knowledge. For ecological studies, the development of radiotracking and, in particular, the miniaturisation of transmitters, has been a major advance by allowing even the smallest species to be followed and studied. The major advance in acoustic detectors, such as ‘Anabat’, has also provided bat ecologists with a new survey technique and has changed the way in which bats are identified. Bat detectors are now a prominent part of bat ecological survey, but there are many issues still to be resolved with their use. Sampling bat populations is one of the biggest hurdles in bat ecology, so it is somewhat disappointing then, that these technological advances have not formed a chapter in the book.

Racey and Entwistle, in their chapter on conservation ecology, produced a thorough synthesis of the primary issues for conservation, and urged research in areas that are lacking, which they named. They point to the very recent growth in this subject, and for the sake of conserving bats, the more quickly this chapter becomes dated, the better off we shall be. To sustain the momentum in this endeavour, we make two points that we consider relevant to Australia that did not emerge crisply from this chapter. Firstly, the importance of managing commercial forests for bats, by such conservation measures as roost identification and conservation, could be more strongly emphasised. Secondly, we do not share their opinion that the action plan by Duncan et al. (1999) was successful for Australia “in defining management regimes for declining populations” (Lunney et al. 2003). Notwithstanding, if every action identified by Racey and Entwistle were carried out, the world of bats would be vastly improved. We particularly liked their management recommendation: “research focusing on commoner species as models to develop generic management guidelines.” To us, there is so much to be gained from this approach that is not captured by the pursuit of threatened species.

*Bat Ecology* provides a fabulous source of references for those wanting to delve further into particular areas. The authors were “invited to summarize and synthesize published works in their respective disciplines, focusing largely on discoveries made during the past 20 years”. This has certainly been achieved. For example, in the first chapter on roosting ecology, Kunz and Lumsden have cited over 370 sources, with 60% of these published after 1990. References are provided at the end of each chapter, but the editors have also compiled a useful author index with pagination for the citation at the end of the book.

Because *Bat Ecology* reviews the latest in bat research, it is comprehensive and technical and thus aimed primarily at professionals and students in ecology, behaviour, evolution and conservation. Our conclusions agree with the bold claims of the publisher and with the praise by Rick Adams. The imperative now is to sustain the momentum of research into the ecology of bats. This book does a great deal for those who are trying to see where bat ecology has reached and what is needed next. Fellow bat ecologists, add this book to your shelves, you will use it for many years to come.

**REFERENCES**


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