

PREDATORS WITH POUCHES. THE BIOLOGY OF CARNIVOROUS MARSUPIALS

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A REVIEW BY M.L. AUGEE

THIS book arose from a symposium on "Carnivorous Marsupials" held by the Australian Mammal Society in 1999. However it is not a symposium volume in the usual sense of being a compilation of papers presented at the symposium. Research papers on specific topics from the symposium have been hived off to the *Australian Journal of Zoology* 48(5) and to *Wildlife Research* 28(5). *Predators with Pouches* is comprised of review papers, some from the symposium but most apparently solicited. Like traditional symposium volumes, the papers included are of very different levels of coverage and quality of presentation. Most however present solid data and thoughtful reviews.

For me, highlights included two papers that did a splendid job of relating function (locomotion) to skeletal anatomy; "Convergence in ecomorphology and guild structure among marsupial and placental carnivores" by Menna Jones, and "Comparative anatomy of the Tiupampa didelphimorphs; an approach to locomotory habits of early marsupials" by Christian de Muizon and Christine Argot. I got a tremendous amount of material to crib for lectures from the paper "Biogeography and speciation in Dasyuridae; why are there so many kinds of Dasyurids?" by Mathew Crowther and Mark Blacket. For Australians, the paper "Early marsupial radiations in South America" by Francisco Goin provides a useful review of an area in which we are not generally well informed. This paper is not an easy read, but it is well worth the trouble. Another, different sort of highlight is found in the wonderfully graphic pictures of parasites in the paper "Parasites of carnivorous marsupials" by I. Beveridge and D.M. Spatt.

There are some low points. I cannot understand how the editors allowed the paper on the "Diversity and distribution of *Thylamys*" to be published using the long discredited, and deservedly short-lived, marsupial dental formula of 5 molars. This will be extremely confusing to students, especially if they take the paper at face value and then proceed to compare the dentition of South American marsupials with Australian. The literature cited to support this is from 1978 (and as repeated by Hershkovitz in 1992); the many subsequent papers that clearly discard this incorrect interpretation of P3 are ignored or unknown

to the author. The same paper attempts to work out relationships within the genus *Thylamys*, which is a difficult task with mostly weak taxonomic characters, barely appropriate to a field guide, being available. There is a table (Table 3) of diagnostic traits that includes only one truly discrete character and includes possibly the most useless character I have seen listed anywhere - "almost not narrowed". I am hesitant to dwell on this paper and I am not being highly critical of the author as it was very likely translated from Spanish, and I certainly could not write a scientific paper in any second language. However it is the duty of editors to ensure that papers are intelligible to most of the likely readers. This paper contains at least two complete paragraphs that are unintelligible. Characters are mentioned but not defined and possibly not used. Referees really should have picked these matters up, but ultimately it is the responsibility of editors.

Reproduction of a few photographs in Steve Wroe's paper "Australian marsupial carnivores: recent advances in paleontology", is poor. That does not detract from the quality of detail in Steve's interesting paper, which includes a summary table (Table 1) with details of extinct carnivorous marsupial species that will be of great use for fellow paleontologists and students.

Legends to figures and tables in too many papers are incomplete. That doesn't matter much when reading the paper as a whole, but in a book that is intended as a reference for "the next generation of students and researchers" it is extremely annoying to look up information in a figure or table and find it cannot be interpreted without hunting through the text. Editors should make sure legends allow figures and tables to stand alone.

In terms of coverage, let us be clear that this is not a book about predators with pouches, or as the subtitle says "the biology of carnivorous marsupials", but about SOME predators with pouches. The editors conclude, after much discussion, that "carnivorous" includes insectivory, arriving at the definition that would be accepted by almost all biologists anyway. They decide that, for purposes of *Predators with Pouches*, an animal must have more than half its diet comprised of vertebrates or invertebrates. Yet they

exclude bandicoots, the greater part of whose diet is made up of insects and other arthropods, but include a number of South American marsupials whose diet, as indicated by a paper in this book (de Moraes *et al.*, see especially Figure 1 page 234), falls below the 50% bar. On the basis of specialized dentition, fundamental to the interpretation of the fossil record, peramelids are clearly carnivores, and in their dental specialization for crushing the exoskeletons of invertebrates more so than many dasyurids. The decision to include thylacoleonids and borhyaenids was obviously made on dental characters. Dental characters certainly don't exclude peramelids, fossil or living. Monotremes of course get excluded by the "marsupial" in the subtitle, although they might be fitting subjects as "predators with pouches". It all depends on what is meant by "predator". This term is far more ambiguous in general usage than the term "carnivore". Does a predator have to run its prey down? Can it dig its prey up? In many peoples' minds a "predator" is much more restricted to feeding on vertebrates than a "carnivore". The title has clearly been chosen for catchy appeal rather than scientific accuracy. Indeed an honest title for the volume would have been *Selected Carnivorous Marsupials* although it is likely what was actually selected were the authors.

Many readers of this journal might want to compare *Predators with Pouches* with *Carnivorous Marsupials* (1982). Don't. There is simply no comparison, especially when it comes to production values. From the coloured frontispiece photos to the drawings of individual species that accompany the abstract of each paper, the 1982 publication is streets ahead. The 1982 book also has a taxonomic index, which is very useful. The 2003 version has no index, which markedly devalues its usefulness as a reference. Design work in the 2003 book is of the "gee whiz look at all the fonts I can use" school. The cover however is a nice design.

Obviously these matters of production and

presentation are peripheral to the scientific core. But when a book costs big bucks (185 of them) it is fair to expect a high level of both. And that brings us to the real problem with this book; it is very expensive. The cost restricts distribution. Perhaps the decision to go with a hard cover added significantly to the cost. If so, it was a very bad decision.

One thing that must be borne in mind is that the authors, the people who do the real work, are not paid. They put in the effort in order to facilitate the dissemination of information which they have collected or collated themselves. This is not facilitated by publication in an expensive and thereby limited access form (read Mike Archer's pertinent comments on this in the Introduction to *Carnivorous Marsupials* 1982). Scientific Societies, such as the Royal Zoological Society of New South Wales, have played a very important role in this regard in Australia. Government publications, such as the splendid series *Fauna of Australia* used to do the same. University Presses stand somewhere in between, and when you compare the price (\$70) and production values of *Prehistoric Mammals of Australia and New Guinea* (University of NSW Press, 2002), it is hard to understand the price of *Predators With Pouches*.

To end on a positive note and to encourage readers to make up their own minds, I note that the Preface to *Predators with Pouches* contains an excellent summary of each paper. Much better than I could have written. Before shelling out \$185, look through a copy at your neighborhood bookseller and make up your own mind.

Jones M, Dickman C and Archer M (eds), 2003. *Predators with pouches. The biology of carnivorous marsupials*. CSIRO Publishing, Melbourne (2003). 486 pages. Recommended retail AUD\$185 (ISBN 0 643 06634 9).

Augee ML, 2003. *Australian Mammalogy* 25: 217-18.