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The Biology of Small Mammals *by Joseph F. Merritt*

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BOOK REVIEW

The Biology of Small Mammals. 2010. Joseph F. Merritt. Johns Hopkins University Press, Baltimore, MD. \$60.00; 336 pages, 63 b/w figures, 13 line figures. ISBN-13: 978-0-8018-7950-0.

Small mammals are unique in how they cope with a variety of environments, from the hot sandy deserts to the arctic tundra. Their small size and large surface-area-to-volume ratio prove to be challenging obstacles to survival. Joseph Merritt tackles the ecology and biology of small mammals in this well-researched volume.

What qualifies as a small mammal? Typically, when one thinks of a “small mammal,” a rodent or similarly sized animal comes to mind. However, Merritt limits his discussions to mammals that are ≤ 5 kg (~ 11 lbs.). The 5-kg boundary allows for discussions concerning mammals outside the realm of rodents, including carnivores such as kit foxes (*Vulpes macrotis*), primates, and marsupials. This book is not comprehensive, however, as the author highlights only those species and adaptations that he “personally has found most interesting and enjoyable to learn, teach, and write about” (p. xi).

The book is divided into 3 sections, (1) modes of feeding, (2) environmental adaptations, and (3) reproduction. Each section has 3–5 chapters covering a specific aspect of the title section. In the preface, the author provides his rationale for writing the book, explains why he has certain mammalian biases, and gives a succinct summary of the various chapters. In the introduction, the author explains what a small mammal is, what the advantages and disadvantages of being a small mammal are, and what various groups of mammals qualify. Merritt uses case studies on occasion to go into further detail on a certain topic and also provides specific research examples that explain a particular mammalian concept. Throughout the book, technical terms are highlighted in bold lettering and are defined in both the text and the glossary. Merritt recommends

Feldhamer et al. (2007) as a companion book to this volume.

Merritt, in his discussions of various small mammal adaptations, provides rich details that effectively illustrate mammalian biology. For example, the sections on ecogeographic rules (Allen’s rule, Gloger’s rule, and Bergmann’s rule) go into great depth, using several mammal species as examples of the exceptions to and validity of these rules. The section on modes of feeding is worth noting; rather than discussing a single key group (insect-eating shrews, for example), Merritt mixes in several orders and families of mammals that have similar eating habitats. For the insectivores, the discussions range from the bat-eared fox (*Otocyon megalotis*), which, although a member of the dog family, eats mainly termites (Clark 2005), to obvious insectivores that are well known for their dietary behaviors, such as shrews (Soricidae; pp. 40–43). The mixing of a multitude of species within a chapter provides a powerful biological survey of how small mammals adapt to a variety of ecological challenges within any environmental setting—from high in the treetops to life underground.

Another highlight of Merritt’s book is the dispelling of mammalian myths. For example, there is a discussion on how the 1958 Walt Disney documentary *White Wilderness* inaccurately portrayed lemmings as participating in suicidal marches, jumping into the sea to their deaths (pp. 249–250). To this day, many believe that lemmings actually do this! Another intriguing aspect of the book is how Merritt from time to time adds historical context and literary references to his small mammal discourses. In Lewis Carroll’s *Alice’s Adventures in Wonderland*, during the Mad Matter’s tea party, the sleepy behavior of the dormouse is referenced. Hibernation in dormice (Gliridae) may last up to 9 months, a behavior that gives dormice the reputation of being asleep most of the time, as evidenced in the French phrase *dormir comme un loir*, “to sleep like a dormouse” (p. 161).

Overall Merritt’s book is a sound read into the world of small mammal biology. Be prepared

for detailed discussions on water conservation, adaptations to heat and cold, feeding behaviors, reproduction, and other survival adaptations. As Merritt mentions in his preface, the book is “dedicated to the understanding of small mammals, of their fascinating adaptations that enhance survival in many different environments” (p. xi). The book is written to appeal to a broad readership, including naturalists, wildlife biologists, ecologists, and students of science. The book will certainly please those with a genuine interest in small mammal biology.

LITERATURE CITED

- CLARK, H.O., JR. 2005. *Otocyon megalotis*. Mammalian Species 766:1–5.
- FELDHAMER, G.A., L.C. DRICKAMER, S.H. VESSY, J.F. MERRITT, AND C. KRAJEWSKI. 2007. Mammalogy: adaptation, diversity, ecology. 3rd edition. Johns Hopkins University Press, Baltimore, MD.

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