

neous years or volume or page numbers, or misspelled author's names, she asks at once, "Which Johnsgard book did you get these from?" Perhaps his speed of preparation militates against careful checking and revision. In this volume, Borrer, Growe, Means, and Weins are misspellings for Borror, Grewe, Mearns, and Wiens. The chapter on furtive grass sparrows lists Knapton's three important papers on Clay-colored Sparrows under both Grasshopper and Vesper Sparrow, but not under Clay-colored Sparrow where they belong. David Duncan and Margaret Skeel's data on Sprague's Pipit numbers in Saskatchewan are not cited in references or in acknowledgements. There are minor errors in several tables (e.g., the highest North American densities involve six not seven North Dakota species and four not five Saskatchewan species). An occasional reader will be confused by the incorrect name of Breeding Bird Surveys, correctly used elsewhere, also being given to Breeding Bird Censuses (a study of a small area done several times each year).

Johnsgard admits to being highly selective in his choice of references, but in general he has surveyed

the literature well. Nevertheless, I detected occasional sweeping generalizations ("grassland soils are the most fertile on earth"), historical misrepresentations (the common or vernacular name of both the Franklin's Gull and Wilson's Phalarope derived from Dr. John Richardson's 1820s Saskatchewan River specimens, even though both later lost their priority as "type specimens"), physiological misunderstandings (owls cannot see in total darkness), habitat omissions (he fails to tell us that the Bobolink prefers wet meadows), and population oversights (no mention of the precipitous decline of Burrowing Owl populations in western Canada).

More than for any other bird guild, a high proportion of grassland bird species are showing population declines. This fact alone makes it important for birders and ecologists to understand these grassland species. Caveats aside, this readable and informative book is an excellent place to start.

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Ecology and Management of Large Mammals in North America

Edited by Stephen Desmarais and Paul R. Krausman. 2000. Prentice-Hall, Upper Saddle River, New Jersey. 778 pp., illus. U.S. \$59.95.

The Wildlife Management Institute (WMI), based in Washington, DC, is a private, nonprofit, scientific, and educational organization committed to the conservation, enhancement, and professional management of North America's wildlife and other natural resources. In 1978, the WMI brought together a group of North American wildlife biologists to produce a classic in the field of wildlife management: *Big Game of North America — Ecology and Management*, compiled and edited by John Schmidt and Douglas Gilbert. This text, published by Stackpole Books (Emmaus, Pennsylvania), was standard issue through three print runs to students in Wildlife Management courses from the time it first appeared until it went out of print a few years ago. I first encountered the book as a Wildlife Technician in Labrador in the early 1980s, but then went on to read it cover-to-cover during a course in Management of Large Mammals at the University of Minnesota in 1988. Schmidt and Gilbert's *Big Game* was a compendium that strove to be the 'authoritative volume' on the status, management, and future of large mammals in North America. It certainly succeeded, and was deserving of the praise and awards that it has received over the past two decades.

However, the science of wildlife management (or

wildlife ecology, whichever you prefer) has progressed considerably since 1978, and the status of many of our large mammals has changed. Even the name 'big game' has fallen out of use and has been replaced with 'large mammals' — for example, the course I took at Minnesota had been called Big Game Management until 1987. The WMI decided that too much of the information in Schmidt and Gilbert was dated, or even misleading, and did not proceed with a fourth printing, much to the consternation of those university lecturers and professors that taught wildlife management and ecology.

Paul Krausman (Professor, Wildlife and Fisheries Ecology, University of Arizona) and Stephen Desmarais (Associate Professor, Wildlife Management, Mississippi State University), were among those university faculty that were frustrated by the "out of print" status of Schmidt and Gilbert's text. The current WMI Vice-President, Richard McCabe, suggested to Desmarais and Krausman that they spearhead a project to produce a replacement text for *Big Game* with a commercial publisher. Following Schmidt and Gilbert's lead, Desmarais and Krausman solicited a select group of the continent's experts on individual species or management-related topics that were willing to share their time and expertise by writing separate chapters. They provided this list, along with a proposal and book outline, to the WMI and received its wholehearted encouragement and endorsement.

The result is *Ecology and Management of Large Mammals* and the editors have again succeeded in providing "a valuable textbook and reference for students and a record of contemporary practices for wildlife historians."

Ecology and Management of Large Mammals consists of 778 pages and 33 chapters written by 52 contributors (including the two editors). It can be divided into two main sections: Chapters 1 to 15 cover a variety of topics related to various aspects of large mammal ecology and management and Chapters 16 to 32 are detailed accounts of individual species native to North America, while Chapter 33 covers exotic species. In contrast, Schmidt and Gilbert (1978) had 494 pages, 27 chapters and 2 appendices, and was written by 28 authors.

The topic chapters include: Taxonomy and Conservation of Biodiversity, Human Values, Population Parameters and Estimation, Population Modelling, Nutritional Ecology, Carrying Capacity, Behaviour, Harvest Management, Genetics, Ranching, and Management on Tribal Lands. Chapters on Predators and Predator Control and on Habitat Management that were included in the 1978 book are noticeably absent from the new volume. The former is hardly surprising, given changes to the North American public's view of predators and predation in natural systems, whereas the lack of an overview on management of habitats does seem to be a considerable oversight on the editors' part. After all, the founder of the discipline we now call wildlife management, Professor Aldo Leopold, pointed out that habitat management (i.e., control of food and cover) is the highest and most intensive of his five levels of wildlife management.

Some of the first 15 chapters are more "cook-book" in nature and provide overviews of the methods used by wildlife biologists to obtain estimates of various population parameters, such as population size, age and sex ratios, mortality, etc. Much of this information can be found in other texts aimed at undergraduate and graduate students in wildlife and ecology. However, it is still valuable that these topics are included in this volume since so much of the efforts of wildlife biologists and managers across the continent are devoted to these areas. I found the chapters on Human Values, Human Dimensions and Conflict Resolution, Game Ranching, Management on Tribal Lands, and the history of large mammal management to be the most interesting, although the treatment of some of the subjects is rather sparse and, naturally, has the United States as the main focus. For example, Czech's chapter on aboriginal peoples and wildlife management barely touches on the co-management regimes now in place across much of northern Canada and where he does write

about Canada, he refers to the Inuit as 'Inuits.' White's chapter on ranching and sport hunting provides much food-for-thought, with statements such as: "Big game farming has a bright future in Canada" providing a lively springboard for debate among both wildlife professionals and the general public!

The individual species chapters are likely to be the most appealing part of the book for most people. The account for each species generally includes taxonomy and distribution, life history, diet, behaviour, reproduction, population dynamics, habitat requirements, and management. The chapters for some species, such as moose and white-tailed deer, are more detailed than others on jaguar and muskox, for example, simply because so much more work has been done on moose and deer. Again, there is an understandable lack of detail in the information provided, since entire books have already been published on species such as moose, mountain sheep, white-tailed deer, and elk. The reference lists will point the student or reader who wishes to know more in the right direction to obtain information that could not be covered in each chapter. Overall, the chapter authors are to be commended for finding a balance between brevity and scope.

One feature I particularly liked in the layout of the book is that references are provided numerically in parentheses, as opposed to the more familiar author(s) and year within parentheses. This reference format makes reading the text substantially easier and a complete list of references is provided at the end of each chapter. Figures and tables are clear and generally add to the text. An appendix lists all common and scientific names of animals mentioned in the text and there is a comprehensive index.

Despite its rather daunting cost, this book will take its proper place as a much-referred to text on the shelves of wildlife professionals across Canada, the United States, and Mexico. It should also find its way into the hands of keen naturalists who wish to have a comprehensive overview of our large mammal species and the whole business we call wildlife management on our continent. The editors, chapter authors, and the WMI are all to be commended for providing this volume that should see us through at least the next two decades, or until such time as it becomes apparent that another revision is required.

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