

Techniques for Wildlife Investigations and Management

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Source: The Condor, 109(4) : 981-983

Published By: American Ornithological Society

URL: [https://doi.org/10.1650/0010-5422\(2007\)109\[981:TFWIAM\]2.0.CO;2](https://doi.org/10.1650/0010-5422(2007)109[981:TFWIAM]2.0.CO;2)

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Techniques for Wildlife Investigations and Management.—edited by Clait E. Braun. 2005. Sixth Edition. The Wildlife Society, Bethesda, MD. 974 pp. ISBN 0-933564-15-5. \$85.00 (cloth). (TWS member price \$70.00).

Techniques for Wildlife Investigations and Management is the sixth edition in an edited series published by The Wildlife Society, beginning with the first edition in 1960. This sixth edition contains 34 chapters, including updates for all but one of the 28 chapters present in the previous edition, as well as nine new chapters. Clait E. Braun, past president of The Wildlife Society and former editor of *The Journal of Wildlife Management*, does an admirable job editing a large volume with an impressive list of contributing authors and reviewers. Contributors to this edition include individuals in academia, state and federal agencies, and nongovernmental organizations. While most chapter revisions include at least one of the previous coauthors, there are many new authors as well, which results in an updated perspective and new information for most topics. It was 11 years between the publication of the fifth edition in 1994 and this latest edition. During that time, wildlife professionals made considerable progress in the techniques and technology used to study wild animal populations. The advent and improved applicability of satellite tags, new and improved remote sensing products and new software and statistical applications for analyzing spatial data, the use of radar techniques for population monitoring, stable isotope techniques to determine diet composition, and general advances in statistical approaches and modeling techniques are just a few of the recent developments in wildlife research and management addressed in this new volume.

Most chapters in this book include a thorough literature review that covers both the relevant theory and the technical specifics about how to apply a wide variety of data collection, analytical, or management techniques relevant to wildlife research and management. Thus, many chapters will serve as an excellent basic reference for anyone interested in gaining a basic understanding of a new wildlife research or management topic, and will provide a valuable resource for a wide range of wildlife professionals, including teachers, researchers, managers, and graduate students.

The organization of the sixth edition is similar to the fifth, with chapters grouped into five sections titled "Teaching and Communication Skills," "Design and Analytical Techniques," "Wildlife Investigational Techniques," "Wildlife Management Techniques," and "Wildlife Habitat Management." The "Teaching and Communication Skills" section and

the two chapters it contains are new for this edition. Chapter 1, "Teaching Wildlife Research and Management Techniques," by Ryan and Campa is a really good addition, as it synthesizes recent developments in our understanding of the learning and teaching processes and makes these concepts available in an introductory format that many Ph.D. students and recent graduates beginning their teaching careers in higher education will find very useful. At first glance, this may seem like a strange chapter to include in a wildlife techniques manual, but given the degree of professional development and general mentorship that occurs outside academics, I think these concepts will prove useful for agency administrators, environmental educators, and researchers training field crews every year.

In addition, Chapter 2, "Communications for Wildlife Professionals," should become a staple of graduate advisors as they provide guidance to their students regarding the most effective ways to disseminate their research. Most of us learn to disseminate information through the example of others; when a communication class is required in fisheries and wildlife curricula, it usually does not focus on the dissemination of science information. However, this easily accessible chapter provides information on the general principles and considerations associated with effective communication of scientific and environmental material in a well-organized, highly readable format.

The "Design and Analytical Techniques" section of this book contains four chapters addressing experimental design, general analysis of data, estimating animal population size, and general population analysis in wildlife biology. All four of these chapters are strong additions and provide a thorough synopsis of statistical considerations associated with wildlife research. I particularly liked Chapter 5, "Estimating the Number of Animals in Wildlife Populations," by Lancia et al. This was a very strong chapter in the fifth edition and contains much of the same, useful information, with some additional discussion of model selection procedures, point counts, and mark-recapture methods. Estimating animal abundance is crucial to wildlife conservation and management and it is among the most difficult population parameters to measure precisely and accurately. This chapter does a great job of laying a solid foundation of terminology and theory, before addressing specific sampling and analytical techniques for estimating animal abundance. The authors conclude with a summary to help managers and researchers choose the appropriate methodology in relation to underlying assumptions and sampling requirements, while considering the costs and efficiencies associated with specific study designs.

The third section in this book, "Wildlife Investigational Techniques," is the largest, with 18 chapters on topics such as "Care and Use of Wildlife in Field Research," "Capturing and Handling Wild Animals," "Criteria for Gender and Age," "Measuring Availability and Vertebrate Use of Terrestrial Habitats and Foods," and "Techniques for Wildlife Nutritional Ecology." Most chapters in this section are revisions from the fifth edition, and they all

address specific techniques associated with data collection. Three new chapters in this section include Chapter 16, "Radar Techniques for Wildlife Biology," by Larkin, Chapter 23, "Animal Behavior: Its Role in Wildlife Biology," by Young, and Chapter 24, "Conservation Genetics in Wildlife Biology," by Oyler-McCance and Leberg. One noticeable deletion from this section compared to the fifth edition is a chapter on invertebrate sampling. It's unclear why this chapter would be omitted in this edition, as understanding the availability of aquatic and terrestrial invertebrate food resources for wildlife must still be a priority for many researchers and managers.

Section four, "Wildlife Management Techniques," includes four chapters addressing management practices associated with wildlife harvest, small populations, wildlife in urban habitats, and wildlife damage concerns. Chapter 26, "Ecology and Management of Small Populations," by Mills et al., generally replaces Chapter 20 in the fifth edition titled "Restoration and Management of Endangered Species." This revised chapter in the sixth edition is greatly expanded and explores a variety of topics relevant to the management and conservation of small populations. Content includes how to define a small population, the legal mandates that must be considered, the factors affecting population persistence, and predicting risk to small populations. A discussion of population viability assessments, their use and implementation, and specific management actions that can be employed to conserve small populations round out this chapter, which makes a nice addition to this volume and includes a lot of new information.

The final section, titled "Wildlife Habitat Management," includes six chapters, with some impressive updates from the previous edition. As someone familiar with wetlands, I was particularly impressed with Chapter 30, "Managing Inland Wetlands for Wildlife," by Laubhan et al. Laubhan and colleagues have many years of research and management experience with freshwater wetlands and they provide an excellent review and synthesis of the current state of our knowledge regarding freshwater wetland ecology and management. In addition, the small section on coastal wetlands present in this chapter in the fifth edition has now been expanded into a chapter of its own: Chapter 31, "Managing Coastal Wetlands and Wildlife," by Chabreck and Nyman. This is a useful new addition, likely reflecting the increased awareness and emphasis in the last 11 years on coastal wetland conservation and management.

In conclusion, this new edition is an excellent update for a series that has become a staple on the bookshelves of a wide variety of wildlife professionals. Most of the chapters in this book do a very thorough job providing the practical information necessary to apply many of these techniques, as well as solid theory explaining how and when techniques are appropriate and applicable. This book is also very reasonably priced, particularly given the large amount of information it contains. However, as the volume of material continues to increase, the efficiency of producing this kind of book in an affordable, hard copy format may become difficult. The Wildlife Society might consider converting the

next revision to a digital format, which would allow more frequent updating and increased accessibility and exposure to a new generation of wildlife professionals that seem to do more and more of their research on-line, using electronic formats.—KATIE DUGGER, Department of Fisheries and Wildlife, Oregon State University, 104 Nash Hall, Corvallis, OR 97331-3803. E-mail: Katie.dugger@oregonstate.edu