



## **Handbook of Wildlife Chemical Immobilization International Edition**

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## BOOK REVIEW . . .

**Handbook of Wildlife Chemical Immobilization International Edition.** By Terry J. Kreeger, Jon M. Arnemo, and Jacobus P. Raath, Wildlife Pharmaceuticals, Inc., Fort Collins, Colorado, USA. 2002. 412 pp. \$50.00 (paperback).

This handbook is an easy-to-use quick reference for chemical capture of wild animals. The “International Edition” is an updated version of the first edition of Kreeger’s “Handbook of Wildlife Chemical Immobilization,” which focused primarily on recommendations for North American species. The expanded coverage now includes an extensive list of over 400 wildlife species and species groups. From this guide, wildlife veterinarians and biologists can find specific drug dose recommendations for everything from aardvark to zebu, literally.

In addition to specific drug dosing recommendations, this edition provides useful overviews of drug possession and use, drugs and equipment used for wildlife capture, standard field procedures for handling animals, and responses to both animal and human emergencies that may be encountered in the course of immobilizing wildlife. The book opens with a review of drug handling and possession rules that offers a legal context for wildlife chemical immobilization; the coverage is a useful introduction to the rules and constraints associated with using drugs to capture wildlife (at least for the United States, Canada, Europe, and South Africa). This is followed by an excellent overview of drug classifications, as well as class characteristics and their basic pharmacology. The section on capture equipment and its use describes advantages and disadvantages of various drug delivery systems, and details some aspects of equipment use not typically covered in pharmacology texts. The checklists of necessary equipment (and vendors) also should be invaluable to those responsible for organizing and running capture operations. This book also includes quick reference guides to potential field emergencies. Animal emergencies are outlined by common condition and described in terms easy for a novice to follow; for each emergency condition, its definition, causes, signs, and treatment are outlined. Similarly, the quick reference guide for responding to accidental human drug exposure is organized by drug to expedite use in a field emergency. As with the rest of the book, the brief format of these sections is designed for quick field reference and not for in-depth understanding.

The main feature of this book is its extensive coverage of recommended drug doses for im-

mobilizing a wide variety of wildlife species. Designed for easy field reference, this book lists drug doses by species. The drug doses provided for each species indicate “recommended,” “supplemental” and “antagonist” drugs, as well as “alternative” drugs. Another useful piece of information for field personnel is the estimated adult weight ranges provided for each species. Although the recommendations are brief, references for these dose recommendations are provided. Because the text is designed for brevity, the drug choices offered are sometimes limited. Perhaps a more serious shortcoming, recommendations appear to emphasize injectable anesthetics (perhaps because of the heavy field emphasis) to the exclusion of inhalant anesthetics that may be preferred in birds and most small mammals; availability of highly portable vaporizers has made gas anesthesia a practical alternative to injectable anesthesia in recent years, and these approaches may deserve more complete consideration in future editions. Although individual species coverage is brief, this work is more than just a literature review and synthesis of others’ data. This point is perhaps best illustrated by the sometimes extensive “comment” sections provided for many species, which offer helpful tips and observations that are clearly based on the authors’ extensive experiences.

In general, I found the recommendations provided by Kreeger et al. both useful and reliable (at least for those species where I have independent experience for comparison). However, those unfamiliar with contemporary issues related to drug formulations and availabilities within some jurisdictions may be frustrated by occasionally incongruous or impractical recommendations for a particular species. For example, the “recommended drug” for immobilizing mule deer is a combination of ketamine and medetomidine. Although this is an excellent drug combination for immobilizing mule deer, the formulations of these drugs commercially available in the western United States would require 1.9 ml ketamine and 7.5 ml medetomidine to drug an average-sized adult mule deer (75 kg) and would be difficult to deliver in a dart any smaller than a harpoon. In contrast, the list of “alternative drugs” includes a combination of Telazol® and xylazine that is also quite effective in immobilizing mule deer, is readily available throughout native mule deer range, and at 2 ml total volume is readily delivered in a dart. The introductory paragraphs of the section on “Drug Doses” does mention that these “alternative drugs” are typically no

less effective than the “recommended drugs” listed, but in haste it’s likely that this disclaimer might be overlooked. Thus, readers need to be at least somewhat familiar both with the text and with local resources in making decisions on the application of Handbook recommendations.

I’ve found this book (as well as the previous edition) invaluable both as a field reference and as a training manual for introducing biologists and field officers to chemical immobilization of

wildlife in Colorado. I highly recommend *Handbook of Wildlife Chemical Immobilization International Edition* as a useful, affordable, and portable reference text for those involved in wildlife capture virtually anywhere in the world.

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