



Restraint and Handling of Wild and Domestic Animals, Second Edition

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Restraint and Handling of Wild and Domestic Animals, Second Edition. By Murray E. Fowler, Blackwell Publishing, Danvers, Massachusetts, USA. 01923 ISBN-13 978-0-8138-1892-4/95. 383 pp. US \$94.99.

Review by David A. Jessup

Advances in the study of wildlife diseases have, in part, been made possible by the development of methods to trap, restrain, immobilize, anesthetize, and handle wild animals safely and humanely. In this context the 2008 reissue of the second edition of Dr. Murray E. Fowler's book *Restraint and Handling of Wild and Domestic Animals* is a significant contribution to wildlife disease investigations. The book has a new publisher but maintains the same general appearance of the previous classic editions. It is written for a professional audience—the veterinarian, the wildlife professional, and students aspiring to be both. As the title suggests, it is a book that includes methods of handling both domestic species as well as captive and free-ranging wildlife species. No other book on animal restraint is so taxonomically broad (essentially all major vertebrate species); the only area of weakness is that the book is perhaps a little light on its coverage of fish, and invertebrates are not covered. No other book on restraint has so many pictures (all black and white), tables, drawings and graphics of the equipment, techniques, mechanics, anatomy, physiology, and results and consequences of restraint and handling as this one. It delves into some subjects not covered elsewhere (like rope work) and is, on the whole, heavily referenced.

Three sections—General Concepts, Domestic Animals, and Wild Animals—contain 26 chapters: introduction; tools of restraint; rope work; chemical restraint; stress; thermoregulation; medical problems during restraint; horses, donkeys, and mules; cattle and other domestic bovids; sheep and goats; swine; dogs; cats; laboratory rodents and rabbits; poultry and waterfowl; introduction (to wild animals); monotremes and marsupials; small mammals; carnivores; nonhuman primates; marine mammals; elephants; hoofed stock; birds; reptiles; and amphibians and fish, followed by a number of appendices and an index.

One of the strengths of many of the chapters—for example, Chapter 2, “Tools of Restraint”—is that they contain information distilled from the long experience of the author and others. Much of this experience and most of the examples, however, such as

the discussion on psychological restraint, are with captive wildlife rather than with free-ranging animals. The discussion on flight distance does not include ways in which people can psychologically manipulate and move wildlife to help capture them, or mistakenly inhibit capture. Nor does it cover taming and conditioning wild animals for closer restraint and transport.

Chapter 4, “Chemical Restraint” has some of these same strengths and weaknesses. It shows pictures of many types of chemical restraint equipment and lists quite a number of drugs used for chemical restraint. But it emphasizes pole syringes and remote darting equipment that is somewhat outdated, cumbersome, and likely to injure smaller and thinner-skinned species. The diagrams and discussions of darts do not include some of the more advanced types used in North America or Africa. The graphics used to illustrate how dart injection systems work are somewhat generic and dated, and there is no discussion or comparison of injection and absorption problems. There is no discussion of dart weights, impact energies, and subsequent injury, or injection method and its consequences for absorption. Older and now less-used drugs like acepromazine and succinylcholine are discussed in some depth, while more modern and useful drugs like midazolam, butorphanol, azaperone, and alfaxon (A 3080) are only listed in a table with no discussion of use alone or in combination. The tremendous advances in safe and efficient wildlife capture have been based on advances in pharmacology, pharmaceutical compounding and availability, and artful combination of drugs and their antidotes, and most of this is missing. The newest references in this section are from 1990–1993. There is essentially no discussion or presentation of drug dosages or combinations in this section, and little in the book, unlike many of the newer books on chemical immobilization, which have extensive formularies for various species and often several alternative drug combinations and their relative values.

Chapters 5—“Stress,” 6—“Thermoregulation,” and 7—“Medical Problems During Restraint” are very complete, and everyone who is handling wild animals should read and understand this information before they start. A strength of these chapters is the extensive review and presentation of classic material, but it would have been nice if some of the recent advances in monitoring temperature, respiration, heart rate, blood pressure, oxygen saturation, and other vital signs were covered.

Chapters 8–15 on domestic animals are very good and contain the type of practical, useful information many students and professionals

without farm backgrounds lack and often must learn the hard way. For these chapters alone this book is worth its cost in embarrassment saved, injuries not suffered, confidence gained, and clients not lost.

Chapters 16–26 are on wild animals. Chapters 16 and 17 on small mammals and marsupials are quite excellent. Chapter 19 covers carnivores in captive situations well, particularly physical restraint and handling, but it lacks much information on capture, restraint, or anesthesia of these species in free-roaming circumstances. Table 19.3 provides general dosage information by carnivore family (and a few species) for ketamine, xylazine, combinations of these two, telazol, and medetomidine/ketamine, the most commonly used carnivore immobilization drugs and combinations, and a few recommendations for opiate use in bears, wolves, and hyaenids, but the most recent references and information date to 1993 and prior.

Of the remaining wild animal chapters (primates through fish), many are quite strong for the captive and clinical setting, but most lack applications for free-ranging species and newer methods, drugs, and monitoring techniques. Marine mammals and fish anesthesia and monitoring have advanced well beyond what is shown in this book. Similarly, wild

hoof-stock capture, particularly techniques developed in Africa, and new drug combinations and methods developed in wild and captive settings are now much more advanced than those discussed in the book.

The Index and Appendices are very good, but the names, supplier companies, and locations provided in Appendices D and E are somewhat outdated.

As noted, this book has good basic information on physical restraint tools, methods, and concerns on a breadth of species and some good basic information on chemical restraint. These are important considerations for the student and for people with relatively little experience in the field, and it could save your life or career, unless, like some of us, you only learn well by making your own mistakes. This is a reissue, not a new or significantly updated book, and does not contain a great deal of new or cutting-edge information for more advanced practitioners, but it is a classic everyone should have or read and one of the many legacy contributions Dr. Fowler has made to zoo and wildlife medicine.

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