

BOOK REVIEW

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Book reviews express the opinions of the individual authors regarding the value of the book's content for Journal of Wildlife Diseases readers. The reviews are subjective assessments and do not necessarily reflect the opinions of the editors, nor do they establish any official policy of the Wildlife Disease Association.

Wildlife Forensic Investigation Principles and Practice. By John E. Cooper and Margaret E. Cooper. CRC Press, Boca Raton. 2013. 742 pp. ISBN 978-1-4398-1375-4 (hardback). \$129.95.

*Review by Danny N. Walker and
William J. Adrian*

Thirty years ago, the field of wildlife forensic investigation included only a handful of investigators, primarily in the US. As illicit trade in wildlife parts has grown, so have forensic investigation techniques and the number of investigators involved, although it is still a tight-knit group. Today, the field has grown to an international status, as seen by the 2009 formation of the Society for Wildlife Forensic Science (SWFS; <http://www.wildlifeforensicscience.org/>), an organization formed with the mission of developing wildlife forensic science into a comprehensive, integrated and mature discipline. Presently, there are 150 members representing 60 labs and 15 countries, which is a far cry from 30 years ago. Wildlife forensic scientists are no longer working in isolation but with the support of an international group of scientists with similar goals: to protect the world's wildlife resources from being lost through exploitation.

As the field has grown, so has the number of investigative techniques and tools available to wildlife forensic scientists. In fact, one investigator cannot keep up with the amount of information now available because, as in the field of human

forensics, you have to specialize in a specific discipline. The field of wildlife forensics has unique concerns and challenges because of its broad taxonomic reach and the legal framework that the practice supports when compared with human forensics (Huffman and Wallace 2012). The Society of Wildlife Forensic Science and its scientific working group, Scientific Working Group for Wildlife Forensics (SWGWILD), are organizations committed to developing rigorous best practices for the array of disciplines included under wildlife forensic science. The variety of evidence in wildlife forensic cases is vast, potentially encompassing the entire biodiversity of the planet. It can range from a van full of boots made from the hides of endangered sea turtles, to shipments of elephant tusks, coral jewelry, and shark fins, to trophy elk, oil-soaked birds, wild ginseng, or blood from a dog-fighting pit. In cases of seafood fraud, evidence can consist of an entire vessel load of frozen fish. Wildlife forensic science deals with activities, including illegal trafficking in protected wildlife, illegal, unregulated, and unreported fisheries, and the illegal timber trade, whose potential value has been estimated to total up to \$50 billion a year. Taken together, these activities comprise the third largest form of illegal international trade, after drugs and weapons (SWGWILD 2012).

Also, as the field has grown, so has the relevant literature and necessary training. At least three books have been published in the last 4 yr, attempting to cover all aspects of the various wildlife forensic

disciplines. These all suffer from one major defect: none have been authored or edited by a full-time practitioner of wildlife forensics. This book, *Wildlife Forensic Investigation Principles and Practice*, is the latest of these volumes. It includes 16 individual chapters and 11 appendices prepared by 28 individual contributors. The editors of the volume (John Cooper and Margaret Cooper) participated in the preparation of 13 of the 16 chapters and nine of the 11 appendices. Crime scene investigation, forensic entomology, and genetic methodologies (i.e., DNA) are the three topics for which the editors apparently did not feel qualified to discuss, despite the field being so complicated; one person cannot specialize in the entire field.

The book appears to be a comprehensive presentation of the whole field of forensic wildlife investigation techniques and will serve well as an introductory text for the field. However, it cannot serve as a stand-alone volume promising to teach one everything necessary to learn all about the field. The color photographs really add to the attractiveness of the volume, both in its appearance and understanding better the topics under discussion, and may be one of the most useful aspects of the volume. At the same time, detractions to the book included missing references cited (almost excusable because of the number but still should not have happened) and inconsistencies in how the index was developed. The subjects in the index appear to be comprehensive (20 double-column pages); but we question why an occasional author's name cited in the text was entered into the index, but no comprehensive index of author names was included. In a volume of this size, it would have been nice to be able to track exactly where authors' works were being cited.

Upon close examination, many of the individual chapters prepared by the volume editors are based on personal experiences in nonforensic or non-medico-legal situations, and one does wonder how

extensive their practical experience in forensic science really is. We would have preferred to see more of the individual chapters prepared by known and highly qualified experts in those fields, such as done with the three chapters that do not have the volume editors as coauthors. It does appear the senior editor is a highly qualified veterinary pathologist and the junior editor a well-qualified attorney; they present the material in an easily read and generally understood manner.

There is a lot of information presented in this volume, perhaps too much. However, that is the present nature of the field of wildlife forensics: it is much more comprehensive than any one person can totally comprehend, which is our cause for concern about the editors having prepared most of the chapters on a wide variety of topics. When one compares the crime scene, entomology, and DNA chapters, there is an obvious difference in both presentation and knowledge about the content. The exceptions to this, of course, are the various chapters related to the editors training: laws and courts, veterinary necropsy, and sample analyses.

Our biggest concern with the book is its major shortfall. The book presents the field in a manner suggesting anybody can easily get involved with wildlife forensics. This used to be the situation with human forensic science as well: obtaining a job and then on-the-job training will get you by. In fact, that is how many of the earliest wildlife forensic scientists started 40 years ago: by default because they were often the only trained biochemists in a game agency. The volume lacks a discussion emphasizing the years of both education and practical experience needed in any of the subdisciplines before one gains the skills necessary for qualification as a forensic scientist, either human or wildlife, in this day and age. The concept is alluded to throughout the book but deserves to have been presented as a stand-alone chapter. The concluding chapter does address this, but lacks a proper emphasis on how detailed the field has become.

This concept of forensic science qualifications is the reason the National Research Council of the National Academy of Science presented their 2009 report on the status of forensic science (National Research Council 2009); there were too many untrained and unqualified people calling themselves forensic scientists and causing problems with the court system during and after prosecution. While the National Research Council report primarily addressed human forensic scientists, the concept of the report did include wildlife forensics as well. This led to the formation of the SWFS and its associated SWGWILD. The latter group, since its formation in 2009, has been charged, along with many other scientific working groups mentioned in the volume, with development of certification and qualification standards for wildlife forensic scientists. Because of the ongoing development of these standards for 5 yr, the editors have been remiss in not including a major discussion on such qualifications and certification in this book published in 2013. In fact, while SWFS appears twice in the index, as far as we can tell, the SWGWILD and its development of certification standards is not mentioned in the volume; if so, it must be in passing with no

discussion of its mandate. Huffman and Wallace (2012) devote an entire chapter on the concept and need for certification of wildlife forensic scientists. In contrast, Cooper and Cooper suggest wildlife forensics is an easy field to enter; while that may be, it will take a lifetime of study to become a qualified wildlife forensic scientist.

LITERATURE CITED

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