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Book Reviews

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BOOK REVIEW . . .

Diseases of Wild Waterfowl, 2nd Edition, Gary A. Wobeser. Plenum Press, 233 Spring Street, New York, New York 10013, U.S.A. 1997. 324 pp. $79.50 U.S. ISBN 0-306-45590-0.

The second edition of *Diseases of Wild Waterfowl* follows the same format as the first edition, with the Introduction discussing basic concepts of waterfowl diseases, followed by sections on Viral Infections, Bacterial Infections, Fungal Infections, Parasitic Infections. Toxicoses and Miscellaneous Conditions. The section on Investigative Techniques discusses the principles of disease investigation, describes necropsy procedures for waterfowl, provides information on the collection and preservation of specimens, and includes suggestions for obtaining assistance with waterfowl disease problems in the USA and Canada. The book discusses over 70 different conditions, including common and widespread diseases such as avian cholera and botulism, localized problems such as white phosphorus toxicosis of waterfowl at military firing ranges, and potential diseases of unknown significance in waterfowl such as vanadium poisoning, making it a comprehensive catalogue of the diseases of wild waterfowl.

Avian cholera, botulism and duck plague receive the most extensive treatment, followed by lead poisoning, reflecting the generally perceived importance of these diseases in wild waterfowl. The discussions of major diseases generally include etiology, epizootiology, clinical signs, pathology, diagnosis, prevention, control and treatment. However, even where the scientific literature is scant, such as in fluoride poisoning, the book provides the information upon which a diagnosis can be based.

The concise yet comprehensive discussions of waterfowl diseases make this book an important reference for anyone interested in waterfowl diseases. It likely will be used most extensively by those who work with naturally occurring waterfowl diseases in the field where a practical guide to diagnosis and control is a most valuable asset. The book also will be useful to laboratory diagnosticians, particularly those who occasionally receive wild waterfowl specimens but are not generally familiar with their diseases. Waterfowl disease researchers will find it helpful, although more as a guide to the scientific literature. Waterfowl biologists, students and others who are looking for basic information on waterfowl diseases will find the book very helpful. With the inclusion of discussions of diseases such as amyloidosis, gout, and wing deformities in young waterfowl, which are rare in free-flying wild waterfowl but relatively common in captive waterfowl, it also will be of interest to those involved with avicultural and game farm waterfowl.

Because it incorporates information on virtually all known and potential diseases of waterfowl in one volume, the book is an invaluable guide to those diseases. However, it is not a reference source for specific diagnostic techniques, for which standard laboratory texts will have to be consulted. Although the need, or lack of need, for control measures, and some control measures that may be applied, are discussed for many of the diseases, this is not a "cookbook" that will permit laymen to design disease control programs. Despite discussions of treatment for a number of the diseases, this is not a clinical text and clinicians will have to consult other sources for specific therapeutic agents and protocols.

With over 1,400 references listed, the book provides an extensive, although not exhaustive, guide to the scientific literature on waterfowl diseases, so it reveals both the strengths and deficiencies of the literature. Therefore, one of the most important contributions of the book may be in pointing the direction for future research and for developing better understandings of the epizootiology of waterfowl diseases. For example, the Introduction notes that, "[t]here is greater potential for the exchange of diseases between wild and domestic waterfowl than between any other domesticated animal and its free-living relatives," and it cites duck plague as a specific example of a disease where such exchange occurs. Those who attended the Wildlife Disease Association's 1994 Duck Virus Enteritis Symposium will recall the paper by Dr. Louis Leibovitz which pointed out that, because duck plague involves all categories of waterfowl, it serves as an excellent model for the study of the interchange of other diseases among different waterfowl groups.

In the Preface, the author cogently discusses the need to begin analyzing the accumulated data on waterfowl diseases, to develop testable hypotheses, and to evaluate the effectiveness of management practices in reducing disease losses. Duck plague again serves to illustrate this need. For example, in discussing the impacts of diseases on waterfowl populations, author Wobeser points out that, because the life history strategy of mallards (*Anas platyrhynchos*) provides a great ability to compensate for mortality, "a single die-off of about 50,000 birds . . . would likely be insignificant for the continental Mallard population." Coincidentally, the total recognized losses of wild waterfowl on

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North America from duck plague in the three decades since it was first diagnosed on Long Island have been less than 50,000 birds, about 42,000 of which were mallards. However, nowhere is there the citation of a reference discussing the impact of duck plague on wild waterfowl populations.

The need to evaluate the effectiveness of management practices in reducing disease losses also is illustrated by the literature on duck plague. In discussing "Waterfowl Diseases: State of the Art," G. A. Wobeser notes that, "death of a few ducks from duck plague in an urban park causes major concern and often results in depopulation of the area in an exaggerated fire-fighting response." However, in the chapter on Duck Plague, the only citation for control measures for outbreaks in urban areas recommends this same kind of exaggerated fire-fighting response. The discussion of control measures for duck plague outbreaks in free-flying wild waterfowl also reflects the status of the literature and is limited to two sentences reporting that dispersal and disinfection were employed in the 1973 Lake Andes epizootic and that no control measures were applied during the 1994 outbreak at Finger Lakes, without an evaluation of the results of either.

The need for rigorous testing of hypotheses regarding diseases is demonstrated by the discussion of the epizootiology of botulism, which focuses on the "maggot cycle." Maggots from decomposing vertebrate carcasses are the one source from which botulinal toxin consistently can be demonstrated during botulism outbreaks, and maggots from the decomposing carcasses of waterfowl dying of botulism undoubtedly can become the dominant source of toxin responsible for the escalation of outbreaks. However, the evidence supporting the statement that, "the death of vertebrates is more important than invertebrate deaths as an initiating cause" of waterfowl botulism appears less conclusive. For example, if botulism outbreaks are initiated by the random death of vertebrates, it becomes difficult then to explain why outbreaks of varying severity tend to occur on some prairie wetlands year after year, while few losses occur on adjacent wetlands despite the frequent interchange of ducks and the presence of toxic maggots on duck carcasses in the adjacent wetlands.

The book provides interesting insights into the changes that have taken place in the literature on waterfowl diseases over the past two decades. For example, there has been only one report of a duck plague epizootic in wild waterfowl since 1973, but it has not been published and, therefore, is not generally available to waterfowl disease investigators. Although a number of significant avian cholera epizootics have occurred in wild waterfowl in the USA over the past 20 yr, little information has been published on the epizootiology of those outbreaks. The book mentions that approximately 200,000 ducks died of botulism in Alberta in 1995 but provides no citation, and the most recent published report of a natural waterfowl botulism outbreak cited is 1970. The same is generally true of other diseases in wild waterfowl, as well. Thus, it appears that reports of investigations of naturally occurring disease events have fallen out of favor in the wild waterfowl disease literature as the focus has shifted to surveys and controlled experimental studies. Although this expansion into experimental investigations is welcome and necessary, it is important to recognize that there is a danger in the implied assumption that everything important already has been learned from the study of natural disease events. Not only does such an assumption fail to recognize that the epizootiology of these diseases may change over time, but it makes evaluation of the relevance of experimental studies difficult. Waterfowl disease data bases being developed at centers in the USA and Canada do not fully remedy this problem because they are not readily accessible to many waterfowl disease investigators.

The book is hard-bound and of high quality. Typographical errors are rare and, except for one incorrect word and one omitted word, insignificant. Grammatical errors also are rare and do not significantly detract from the overall high quality of the text, although some readers will note the frequent misuse of "effected" instead of "affected" and "compared to" instead of "compared with." With only 44 black and white photographs and nine drawings, the book is not profusely illustrated. However, the photographs are of good quality and they, as well as the drawings, have been thoughtfully selected to illustrate important points.

Like its predecessor, the second edition of *Diseases of Wild Waterfowl* represents a monumental effort and achievement for a single author, and Dr. Wobeser is to be commended for this unparalleled contribution to the field of waterfowl diseases.

Gary L. Pearson, Prairie Veterinary Hospital, 1305 Business Loop East, Jamestown, North Dakota 58401, USA.

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BOOK REVIEW . . .

Field Manual of Wildlife Diseases in the Southeastern United States, 2nd Edition, William R. Davidson and Victor F. Nettles. Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia, Athens, Georgia 30602, USA. 1997. XIV + 417 pp. $20.00 US plus $4.00 shipping and handling from American Association for Vocational Instructional Materials, 220 Smithonia Road, Winterville, Georgia 30683.

The authors have prepared a second edition of their excellent and well-received manual published in 1988. As was true of the first edition, this book was designed primarily for wildlife biologists in the southeastern United States. The purpose of the manual remains the same, that is "to aid biologists in the recognition of common wildlife diseases and parasites, to provide guidelines for the collection of diagnostic specimens, and to serve as a field reference when questions on wildlife diseases arise."

The book is dedicated to the memory of Frank A. Hayes who was director of the Southeastern Cooperative Wildlife Disease Study for 30 yr and contains a foreword by Milton Friend, former Director of the National Wildlife Health Center in Madison, Wisconsin. The general organization is similar to that of the first edition. It begins with a chapter on field procedures, in which practical guidelines are presented on how to initiate an investigation of wildlife mortality, obtain case histories, and collect and submit specimens. The next chapter is on toxicoses and includes general information on organophosphates, carbamates, organochlorines, oiling, and aflatoxicosis. The following 24 chapters are organized according to wildlife species and include sections on significant diseases and parasitic infections of a selection of mammals and birds, mainly those of regional economic importance. No information is presented on other vertebrates such as marine mammals, amphibians, reptiles, and fish. The last two chapters cover diseases of captive cervids and diseases of zoonotic importance. Each chapter is organized into sections on disease agents or parasites and includes information on causative agent, clinical signs, lesions, hosts, diagnosis, transmission, wildlife management significance, and public health implications. As in the first edition, a glossary of terms and a detailed index are provided. The book is the same size as before (11.5 by 18 cm) and has been produced on water-resistant pages with a waterproof soft vinyl cover.

This edition is revised extensively. It contains updated or expanded discussions on diseases or disease conditions such as hemorrhagic disease, brain abscesses, toxoplasmosis, and capture myopathy in white-tailed deer (*Odocoileus virginianus*), trichinosis in wild swine (*Sus scrofa*), rabies in raccoons (*Procyon lotor*), *Echinococcus* infections in red foxes (*Vulpes vulpes*), cytauxzoonosis in bobcats (*Felis rufus*), *Sarcocystis* and *Besnotia* infections in opossums (*Didelphis virginianus*), skin diseases of gray squirrels (*Sciurus carolinensis*), hepatitis in woodchucks (*Marmota monax*), lymphoproliferative disease in wild turkeys (*Meleagris gallopavo*), and cryptosporidiosis in northern bobwhites (*Colinus virginianus*), to name a few. Three new chapters have been added on nongame and miscellaneous birds, captive cervids, and zoonoses. The chapter on nongame and miscellaneous birds has sections on avian pox, Newcastle disease, mycoplasmal conjunctivitis in house finches, salmonellosis in songbirds, eustrongylidosis in wading birds, tick paralysis, night-flight collisions, and disease prevention at bird feeders. The chapter on diseases of captive cervids includes sections on chronic wasting disease, adenovirus infections in deer, malignant catarrhal fever, brucellosis, bovine tuberculosis, Johne's disease, and elaphostrongylosis. The chapter on zoonoses has sections on arboviruses, cryptosporidiosis, ehrlichiosis, epidemic typhus, foodborne diseases, hantavirus pulmonary syndrome, histoplasmosis, Lyme disease, plague, psittacosis, Rocky Mountain spotted fever, and swimmer's itch. Authors other than Davidson and Nettles have written various sections and parts of sections in the nongame and zoonoses chapters, and appropriate credit is given when this was done. These revisions and additions have resulted in 29 new figures, most of which are in color, and close to 125 more pages of text.

In summary, the authors are to be congratulated on this new edition of what has become a classic of its kind. It is a fine addition to the literature on wildlife diseases and will be used extensively for years to come by wildlife biologists, ecologists, veterinarians, and many others interested in the management and conservation of wildlife resources. It is especially valuable for people living and working in the southeastern United States, but will be of value to people in neighboring states and other regions as well. The book is not only well-organized, well-illustrated, and well-written, it is also well-priced; the $20.00 US cost is a bargain.

Donald J. Forrester, Department of Pathobiology, College of Veterinary Medicine, University of Florida, Gainesville, Florida 32611, USA.

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BOOK REVIEW . . .

Proceedings of a Symposium on Lions and Leopards as Game Ranch Animals, published by the Wildlife Group of the South African Veterinary Association, P.O. Box 12900, Onderstepoort, 0110, Republic of South Africa, 24–25 October, 1997, Edited by J. van Heerden. 265 pp.

This soft-bound volume reflects the contents of twenty-six presentations given at a conference held in South Africa in 1997. The authors and presenters represent a variety of organizations and institutions, including several departments and faculties from the University of Pretoria, Kruger National Park, the South African Parks Board, the Onderstepoort Veterinary Institute, the South African Animal Rehabilitation Centre, the Medical University of South Africa, the University of California, the United States National Cancer Institute, the University of Minnesota, Cornell University, the Tanzanian Wildlife Conservation Monitoring Department and the Sokoine University of Agriculture, the Namibian Ministry of Environment and Tourism and the Tsumkwe Conservation Trust, private veterinary practitioners from South Africa and Namibia, a Zimbabwean rancher, and the Pretoria Evangelical-Lutheran Church.

The conference was launched with a biblical overview of lions, an unique and interesting beginning to this scientific meeting. The remaining papers covered many topics of relevance to the subject of consideration, the use of lions and leopards as game ranch animals. Topics covered included ecology, genetics, behavior, consumptive and non-consumptive utilization of these large felids, economics, veterinary management and diseases, and techniques on capture, reintroduction, hand-rearing, and census taking. In general, the papers were well organized and informative, often with tables and figures, and ranged from three to twenty-four pages in length. Each of the papers was well-referenced, providing avenues for additional specific information for interested readers. In addition, an impressive bibliography of the lion followed the presented papers, providing 877 additional references on a variety of topics. A useful index followed this, and finally, a bibliography of the leopard, with 402 references was found at the end of the volume.

The papers were written in a variety of styles, reflecting the diversity among the authors. Many papers addressed issues of direct relevance to the Republic of South Africa, although other African countries' viewpoints and concerns were viewed, as well. These proceedings assembled a large, somewhat diverse quantity of information on lions and leopards that has not been published together elsewhere, providing an integrated, multi-disciplinary approach to the question of utilization of these wildlife species.

Nancy D. Kock, Faculty of Veterinary Medicine, University of Zimbabwe, P.O. Box MP 167, Mount Pleasant, Harare, Zimbabwe.

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