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## Review of: Infectious Diseases of Wild Mammals; Parasitic Diseases of Wild Mammals; and Infectious and Parasitic Diseases of Wild Birds

Robert L. Rausch

University of Washington, rausch@uw.edu

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**Infectious Diseases of Wild Mammals.** Edited by John W. Davis, Lars H. Karstad, and Daniel O. Trainer. Iowa State University Press, Ames. 1970. 421pp. \$18.00.

**Parasitic Diseases of Wild Mammals.** Edited by John W. Davis and Roy C. Anderson. Iowa State University Press, Ames. 1971. 364pp. \$15.00.

**Infectious and Parasitic Diseases of Wild Birds.** Edited by John W. Davis, Roy C. Anderson, Lars Karstad, and Daniel O. Trainer. Iowa State University Press, Ames. 1971. 344pp. \$12.50.

These volumes represent the first major effort to provide a basic reference on diseases and parasites of wild animals since publication in 1914 of *Die Wildkrankheiten und ihre Bekämpfung*, by Olt and Ströse. I believe that the contributors, all specialists in their fields, have succeeded fairly well in producing a synoptic review of the more important diseases of wild mammals and birds. Each chapter generally includes observations on the history, distribution, etiology, transmission, signs, pathogenesis, gross- and histopathology, diagnosis, treatment, and control of the viral, bacterial, rickettsial, mycotic, endo- and ectoparasitic, neoplastic, and toxic diseases considered. Thus, the new volumes should be helpful to individuals in diverse fields, although the technical detail in many of the chapters may be beyond the scope of wildlife biologists.

*Infectious Diseases of Wild Mammals*, the first of the series to appear, includes 41 chapters concerned with infectious diseases, one on cutaneous tumors in deer, and one on toxic substances. All

are concise, befitting a reference work that deals with a large number of entities, and all are fairly uniform in organization, an accomplishment not always seen in a work involving multiple authors. I should have preferred to see more discussion on disease in natural populations and less devoted to disease in man and in domestic and laboratory animals. Too, some of the chapters add little to information available in standard works on veterinary medicine and zoonoses, but this lack of new information may have been unavoidable in a work as general as this; the basic information, at least, is gathered here. Those seeking further knowledge will consult other texts.

Reasonably, the emphasis throughout has been placed upon conditions that occur or might occur in North America. There are deficiencies; for example, African swine fever, California encephalitis, and sarcosporidiosis might have been considered, while the inclusion of those that have not been recorded in free-living animals (for example, Aleutian disease in mink) might be questioned. The references usually indicate an adequate review of the literature, but information in some chapters deals with areas too restricted geographically. A presentation of patterns of naturally occurring diseases in wildlife from other geographic regions would have been enlightening; for example, in the Holarctic zone of tundra, rabies virus seems clearly to be perpetuated in foxes, without involvement of mammals of the family Mustelidae; and although the monograph on brucellosis by Rementsova (1962) was cited, a synopsis of her findings in wild mammals would have been of great interest. An outstanding section is that on plague, a chapter that also contains the only discussion in these volumes of the important concept of natural focality of disease, developed by E. N. Pavlovskii.

The inclusion of sections on diseases caused by protozoa in the first volume and in *Parasitic Diseases of Wild Mammals* attests to the difficulty in attempting to distinguish between *infectious* and *parasitic* diseases. Some diseases caused by tissue-invading helminths are included in the latter volume; by definition, these are infectious. The importance of parasites (= helminths) as pathogens is emphasized in the editors' preface, but I must add that, while such pathogenicity is important when it occurs, it has been demonstrated for only a few of the large number of species known.

In *Parasitic Diseases of Wild Mammals*, the chapter on metastrongyloid nematodes (*Lungworms*) is excellent and well illustrated, but the title might be misleading, since species occurring in extrapulmonary tissues are included. In the chapter on trichinosis, the omnivorous habits of certain arctic animals are attributed to exigencies produced by adverse climatic conditions. This assumption has

not been substantiated, nor has there been evidence to support the ideas that the prevalence of *Trichinella spiralis* is increasing in wildlife or that carcasses of wild carnivores are an important source of infection for domestic swine in the United States. Relevant here is the question of biological strains of *T. spiralis*, and this subject should have been mentioned, at least briefly. The chapters on verminous pneumonia of sheep and elaeophorosis are impressive in detail. The account of the cyclophyllidean cestodes of North American carnivores was well chosen, since these tapeworms and their larvae are those most likely to come to the attention of the wildlife biologist. Unfortunately, the authors omitted the important monograph on the Taeniidae by Verster (1965). Myiasis is treated in detail, with excellent figures and appropriate photographs of infested animals.

*Infectious and Parasitic Diseases of Wild Birds* contains 18 chapters on infectious diseases, two on metazoa, six on protozoa, and one each on tumors and toxic substances. This first edition is considered to be an experimental effort to fill the need for a reference that might stimulate more effective investigation of avian diseases, an aim that is to be heartily supported. The lack of knowledge in this field is probably its most outstanding element, and such a judgment might also be applied to knowledge, especially on control, of diseases in domesticated birds. The accounts of the same disease in this volume and in *Infectious Diseases of Wild Mammals* are usually complementary, but some unnecessary duplication occurs in the chapters on pseudotuberculosis. A lengthy discussion (48 pages) on nematodes is given, but cestodes and trematodes, which generally occur more commonly in birds, are not considered. With the exception of coccidiosis, protozoal diseases are discussed rather briefly; avian malaria is a notable omission. The conclusion that studies on avian disease have been inadequate is unavoidable, but this is a field with a bright future.

In all three volumes, unfortunately, the arrangement of the bibliography ending each chapter is not uniform. In some cases, foreign titles are translated into English; in others, only the original is given; and both original and translated titles appear occasionally. Numerous errors, especially in foreign-language titles in references and in scientific names in the text, are present. Lists of hosts are usually compiled from literature that extends back over many years, and thus often include scientific names that are no longer valid. The additional effort required to determine the validity of such names would seem to be well justified in a work of this kind, for the hosts are as important as their diseases. The illustrations are generally good, but I believe a revised edition should include

a better portrayal of a Negri body, and more photographs of gross lesions and of parasites *in situ*. The books are nicely printed on paper of high quality, but whoever selected the binding apparently assumed that the books would not be used as manuals or did not appreciate the usual working habits of biologists *sensu lato*. However, the extent to which the soft, absorbent covers become coated by organic substances will bear witness to the utility of the books and to the owner's enthusiasm. For all these faults, the editors have succeeded in producing a single source of basic information concerning the more important diseases and parasites of wild mammals and birds. The cost (a total of \$45.50) is high, but the volumes are probably worth the cost for the professional wildlife biologist, at least until the publication of a modern volume similar to that of Olt and Ströse, without the emphasis on intensive management of wildlife as practiced in some parts of Europe. These volumes would be more useful to such biologists if the curriculum in wildlife management were modified to provide a better background in wildlife disease.—ROBERT L. RAUSCH, Arctic Health Research Center, U. S. Public Health Service, Fairbanks, Alaska.