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Book Review

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BOOK REVIEW . . .

Disease and Threatened Birds, J. E. Cooper, editor. International Council for Bird Preservation Publications, 32 Cambridge Road, Girton, Cambridge, CB3 OPJ, UK, 1989. 200 pp. 14.5 pounds sterling (approx $26.00) A 14 by 22 cm, soft-cover monograph.

How important are diseases as mortality factors of wild bird populations? I don't believe anybody really knows. I recently asked a professor in a traditional wildlife ecology department, "Why isn't there more interest in studying the role of disease in population dynamics." The apologetically challenging answer was, "Nobody has ever convinced this department that disease is important." It seemed like a "Catch 22" situation, i.e., without facts they can't justify studies, but without studies, no one can get the facts. It would seem that there is enough descriptive data to generate hypotheses. Experienced diagnosticians, who have investigated hundreds of epizootics, assume that losses from diseases are important. But diagnosticians rarely see the piles of birds shot by hunters, nor birds that slip down the gullets of predators. More information about the role of disease is needed to convince population biologists.

Remnant populations of endangered species are a different kettle of fish. Thrice diseases have menaced propagation programs of endangered species: systematic coccidiosis in 1977 and encephalitis in 1984 in the whooping crane (*Grus americana*) program at the Patuxent Wildlife Research Center, Laurel, Maryland (USA) and inclusion body disease at the International Crane Foundation, Baraboo, Wisconsin (USA) in 1978. These events form cogent arguments that diseases are hazardous to endangered species. In 1986, at the annual meeting of the International Council for Bird Preservation in Kingston, Ontario (Canada), John Cooper convened a symposium to summarize and publicize the threats diseases pose to endangered bird species. This symposium included fifteen papers and two appendices. As befits an international platform, the authors (eight from England, seven from the United States, three from Mauritius, and one each from Australia, Canada, Scotland, South Africa, and Thailand) provided a strong international perspective.

Whether novice or expert in wildlife diseases, this monograph has something for everyone interested in diseases and threatened species. The broad diversity of topics, which range in complexity from simplistic to specialized, precludes an overview synopsis. Topics include introductory animal disease, basic microbiology, several research projects of specific endangered birds, and implications of international movements of birds. In the editor's own words, the first four papers are for ornithologists, ecologists and others unfamiliar with microbes. Epizootiological terms are defined; for instance, the term disease in this monograph means only infectious disease. Metabolic or neoplastic diseases are not included. Avian pathogens are reviewed briefly, survey methods are justified and discussed, and problems arising from the translocation of birds and their pathogens are introduced. Much of this information is based on poultry.

The fifth paper is a nice summary of the sparse literature available about diseases in free-ranging birds. The paucity of information is disheartening and one wonders why so little has been published. Is it because disease is not a problem very often, or because disease studies require unavailable skills, or some other reason? The sixth paper begins a series about specific species of birds or agents. Post-mortem findings in 25 free-ranging individuals of five Australian bird species, including the potentially devastating psittacine beak and feather disease, are reported. Then follows a brief review of avian hematozoology and an explanation that hematozoa are of limited concern in conservation programs except in certain special situations, such as translocations. This author also was concerned about extinction of the hematozoa! Next is the best example of the effect of disease on a threatened population, persuasive data that avian pox and malaria are preventing recovery of the Hawaiian Crow (*Corvus hawaiiensis*). This is followed by the life and times of the pink pigeon (*Columba mayeri*) of Mauritius, including putative inbreeding problems. Many of the diagnoses in this report seemed based on clinical signs and gross lesions, a hazardous business with birds. Last of the series is a concise report about the implications of eastern equine encephalitis for the whooping crane recovery plan.

The monograph continues with a theoretical discussion of the role of birds in the long-distance dispersal of infectious agents, a report of preliminary data that parasites do not pose problems for existing free-ranging or captive populations of the endangered green peafowl (*Pavo muticus*) of Thailand, and a report about fecal contamination of nest boxes for kestrels (*Falco sparverius*), a surrogate for endangered species which nest in cavities.

The last paper deals with the legalities of international movement of birds, eggs, semen, and

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tissues. Provincial investigators that are planning expansion into the international arena will find this report useful. Those who have not yet moved birds across international borders may be surprised at the amount of patience and paper work required for exportation, transportation, and importation. Although the examples in this report are mostly English, the principles apply to any country. The author explains the necessity of these regulations, why government agencies become involved, what types of permits are needed, and some of the potential sources of frustration.

The editor's concluding remarks repeat themes found throughout the monograph—that conservation projects must be multidisciplinary and include disease studies, and that more effort must be expended for surveying diseases among free-ranging birds. To aid biologists in these tasks, one appendix contains the addresses of laboratories or individuals with expertise for further consultation about diseases, and another appendix contains protocols for clinical or postmortem examinations and for field investigations. The 22 photos (trichomoniasis, pseudotuberculosis, mycosis, bacteriological plates, addled eggs, viral inclusion body, abnormal plumage, hematozoa, pox, embryo and a clutch of eggs) are of poor to good quality and of most value to those inexperienced with diagnostic work. The potential dangers of zoonotic infections for investigators is not given much attention in this monograph. In some figures, pathologists are wearing gloves and masks during examination, other figures include the ungloved handling of pigeons. Some wildlife disease experts claim that, because of the potential for human infection, only trained workers should examine sick or dead wildlife.

There is little information available about diseases in threatened bird popualtions. The rumors about trichomoniasis in the demise of the passenger pigeon (*Columba migratoria*) and unknown diseases at the end of the heath hen's (*Tetrao cupido*) reign are not mentioned in the monograph, but at one place or another, most known information is reviewed. The only significant omissions I noticed were the lack of mention of the herpesvirus epizootic at the International Crane Foundation, and a lack of information available about the causes of death of free-ranging bald eagles (*Haliaeetus leucocephalus*). However, I am aware that the editor tried strenuously to have this information included.

In this monograph, only inductive studies based on observational data are reported, because nothing else is available. The increased survey efforts solicited by the editor should not be made at the expense of other types of studies. In concert with the concerns of colleagues in The Wildlife Society (T. D. Nudds and M. L. Morrison 1991, The Journal of Wildlife Management 55: 757–760), perhaps it is time for researchers of wildlife diseases to move forward from inductions based on descriptive studies, to mensurative or manipulative experiments that actually test hypotheses about the role of disease. With threatened species it probably will be necessary to collate such research efforts with management programs (A.R.E. Sinclair, 1991, The Journal of Wildlife Management 55: 767–773). It is time to unequivocally determine the importance of wildlife disease considerations in traditional wildlife curricula among universities.

The choice of binding was unfortunate; pages were slipping from my copy by the time I finished the review. But this monograph is not very expensive and probably belongs in the libraries of everyone interested in diseases of wild birds.

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