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BIRDS OF NEW GUINEA

BRUCE M. BEEHLER, THANE K. PRATT and DALE A. ZIMMERMAN; illustrated by Dale A. Zimmerman and James Coe. 1986. Princeton Univ. Press. 293 pp. Cloth \$100.00, paper \$58.15.

For a number of years I was one of a team of naturalists who worked on a cruise ship. During the idle days at sea we would regale each other with stories of wildlife and exotic lands: islands of seabirds adrift in cobalt seas, tawny savannahs alive with the bawling and clatter of migrating herds, winter landscapes with white bears and white foxes, and verdant forests glutted with life. The stories were often repeated, but the favorite was always the same, the favorite was always New Guinea — a Stone Age land of mysterious forests, undisturbed mountains and birds of paradise.

Birds of paradise are the loveliest of Papuan birds, remarkable for the ostentatious nuptial plumages of the males and their elaborate courtship displays. The males display in groups, each in an individual "court." Females visit the courts, select a male, are courted, mate and then depart. The resultant pressure on the males to be noticed and thus selected, has led to the evolution of elaborate visual effects. Among the 43 different birds of paradise there are spectacular epaulettes, fans, capes and twisted wires, often iridescent or brightly coloured and sometimes accentuated with colourful patches of bare skin.

Birds of New Guinea covers all of the birds of paradise as well as the 682 other species known to occur in the Papuan Region (New Guinea and its numerous satellite islands). The book is principally a guide to identification but as well as describing the birds the authors give information on habits, voice, range, and notes on similar species. I particularly appreciate the information included under similar species as I find it invaluable in a new region when I am just beginning to learn the birds and so many of them look alike.

The authors give an interesting account for each bird family and include details on the bird's behaviour, diet, nest and general adaptations. For example, "(Parrots) appear stocky because of their powerful flight muscles that carry them for long distances while foraging, (they have) very short legs for scrambling about in tree foliage, and larger heads with strongly down-curved and often massive beaks for chewing open seeds and excavating cavities in trees, in which they roost and nest."

Most bird guides begin with a simple description of the geography and climate of the region covered. *Birds of New Guinea* also begins this way, but the reader is given something more, 22 pages of Papuan natural history in which we receive valuable insight into the mechanisms of island life and the diversity and dynamics of the tropical forest.

Artists Zimmerman and Coe do a masterful job with the illustrations. There are 55 plates, of which all but 7 are in colour, and they cover more than 600 species. No birds, however are illustrated in juvenile plumage, but this is understandable since information on plumage development in Papuan birds is not well known.

The last guide to the birds of New Guinea was written by Rand and Gilliard and published in 1967. *Birds of New Guinea* expands on its predecessor with more information and superior illustrations. I own bird guides to 27 different regions of the world and *Birds of New Guinea* is one of my favorites. — Reviewed by Wayne Lynch, #304 528 15th Avenue S.W., Calgary, Alberta. T2R 0R2

THE MIGRATIONS OF HAWKS

D.S. HEINTZELMAN. 1986. Indiana University Press, Bloomington and Indianapolis. 369 pp. 5 maps and 17 figures. Hard cover. \$35.00 U.S.

The author's stated objective is "to organize and summarize the most important New World hawk migration literature and evaluate . . . our knowledge of these migrations". The book is in four parts. The introduction includes a brief history and various technical aspects of hawk migration and observation. The second and largest part summarizes U.S. and Canadian hawk migration by state and province, with chapters on Central America and the West Indies. The third part relates weather conditions to hawk migrations. Part Four discusses migration routes and the interpretation of count data. The sixty-page bibliography contains about 1700 references.

Heintzelman has certainly gathered a vast amount of scattered information on North American hawk migration. Organization of records by geography rather than species, however, makes it difficult to assimilate information on a particular raptor, even with the excellent index. More liberal use of figures, tables and maps could have avoided some dry, repetitive text, and made the information more digestible. A few hawk portraits — either drawings or black-and-white photographs — would also have made the book more appealing at little extra cost.

Heintzelman refers in the preface to the wonder of hawk migration, but the raptors rarely come to life in the text; animate specks in the sky are reduced to inanimate data points on paper. Science is often thus, but doesn't always have to be. There is a nice account of how raptors adjust their wing profiles to accommodate air currents. More passages of this sort, and more effort to relate migration to other aspects of the raptors' life histories, would have been welcome. Tantalizing snippets about non-migratory insular races of Broad-winged Hawks, for example, could have been combined and expanded.

The author comments that knowledge of hawk migrations in western Canada is very limited. This is certainly true, but some information that is available in Saskatchewan Natural History Society Special Publications, and similar local works, is not used. Publications of this kind are conspicuous by their absence from the otherwise impressive bibliography. Gerrard and Hatch's account of Bald Eagle migration (*Blue Jay* 41(3):146) includes information on Manitoba and North Dakota, but is cited only for its Saskatchewan content. This is especially unfortunate when only one reference to North Dakota hawk migration is cited. On the other hand, it is gratifying to see mention of the embryonic Manitoba Fall Hawk Watch.

Parts Three and Four are interesting, although sometimes wordy and repetitive. It is sobering to see, at the end, how difficult it is to draw reliable conclusions about population trends from migration data, except for major declines or range extensions. It is also important to note that sex and age distributions, when they can be determined, may be much more useful than species totals alone.

The author's treatment of numbers is a little erratic. Some large numbers should have been rounded off, even if the original authors had not. The worst example, 89,585.7 hawks per day at one Texas site, implies an accuracy approaching one hawk in a million! At the other extreme is a South Dakota count of 0.04 hawks per hour . . . one every 25 hours! This certainly evokes sympathy for the observers, but is it really hawk migration? Elsewhere, notation such as "6.8 hawks per hour x 10", rather than 0.68 hawks per hour, is confusing.

If any Prairie hawk-watcher is looking for a research project, Ferruginous Hawk would seem to be a good bird to focus on. This species only receives two brief references. Is there really so little known about its migration, or has it lost out because the geographic organization of the book tends to over-emphasize the more abundant species?

I found a few typographical errors, such as "Stellar's" Sea-Eagle, but not sufficient to detract from the book. The overall quality of layout, printing and binding is very good. One final comment — the title really should include the qualifier "North American." There are an awful lot of migratory hawks on other continents.

In conclusion, this book is a valuable reference work for those who already have a serious interest in raptors, or are interested in initiating their own hawk migration watch. I cannot recommend it,

however, if you are a more casual hawk watcher. — Reviewed by *Peter Taylor*, P.O. Box 597, Pinawa, Manitoba. ROE 1L0

BEHAVIOR OF FLEDGLING PEREGRINES

STEVE K. SHERROD. 1983. *The Peregrine Fund, Inc.*, Ft. Collins, Colorado. 202 pp. 23 tables, 59 figures, bibliography, appendix. Illustrations by Karen Allaben-Confer. Paper \$10 U.S.

Despite the fact that few species of birds have as well-documented a life history as the Peregrine Falcon, comparatively little is known of the activity of the bird during its fledgling period. With this study, the author — who has worked with the Peregrine Fund at Cornell University's Laboratory of Ornithology and has over 15 years' experience as a falconer — hopes to supply information previously lacking and, incidentally, to add to the store of knowledge of predators in general.

Does he succeed? He does, but not unreservedly. The difficulty of observing such a fast-moving, wide-ranging species meant that some of Sherrod's conclusions were based on "a limited number of observations" and that these "may not be supported by the statistically conclusive data desired by most modern biologists." Also, much of the information in the study is available elsewhere. Yet the book will be valuable to raptor students because in it the author has collected and organized a vast number of disparate observations. Sherrod spent 2400 hours over four years gathering material for this work, which is in one sense a comparative study of the four wild Peregrine broods he observed

(two in Greenland, two in Australia) and the three captive-bred broods (all in the eastern United States). These latter three were part of the Peregrine Fund's program to restore the species to areas where it had been extirpated.

The chapters of the book discuss, in turn, the young leaving the nest, their behaviour in flight; the act of killing, food transfers from adults, food solicitation by the young and their aggression toward adults, interspecific aggression by adults and young, and the end of the dependency period. (That this period may, for some birds, continue through at least part of the first migration is one of the interesting conjectures of the author.) The book is strictly organized and scholarly.

The book opens with the young in the nest, which they leave for the first time — ponderously on their huge feet, like a man walking on skis. They make their first flight at the age of about 6 weeks. Sherrod queries the theory that the adult falcons lure their offspring into first flight by dangling food before them, just out of reach. He maintains that the parents merely seek to avoid injury from the talons of their highly aggressive youngsters and thus perform their food-bringing duties from a short distance. (As he points out elsewhere, interpretation is everything, where the behaviour of wild creatures is concerned.)

In his discussion of the ontogeny of the falcons' hunting behaviour, the author states that the birds, genetically programmed to kill, are "capturing" inanimate objects before they are even one week on the wing. They swoop down to grasp a treetop, sometimes succeed in breaking off a branch in their talons, and, after landing with it, administer the killing the neck of its avian prey and pluck its feathers prior to eating.

Many of the fledglings' first pursuits of prey are directed toward inappropriate

targets — even deer have been set upon by immature Peregrines — but the falcons soon learn what is suitable and gradually they increase the ardour of the chase. At the moment of their first kill, according to Sherrod, they establish the connection between pursuit and food. The author notes that hacked Peregrines, which receive all the food they want, begin to pursue and kill prey at about the same age as wild birds. Indeed, in his conclusion he states that falcons fledged under human protectors "appear every bit as normal as those which have grown up in a wild family." Among the most interesting aspects of the book are Sherrod's speculations. During a hack-site experiment in which food was withheld from the fledglings, for example, the young searched cracks and crevices for possible caches, even though no food had been cached, and he suggests that that behaviour is instinctive. Moreover, once the birds were again satiated, they engaged in spirited aerial chases of potential prey, in contrast to the low-intensity (and therefore energy-conserving) chases when food was kept back. Hacked birds are independent sooner than wild ones, the author states, because the latter spend much time pursuing their parents and begging for food. Sherrod believes this extreme aggressiveness, which often results in outright attacks on the adults, continues until the young bird has built up a reserve of fat ample enough to see it through the potentially lean period of early independence.

The book, though, is hard to read. Sherrod's style is as dry as the title suggests, and nearly every page contains a sentence that must be read twice, because of some ambiguity or awkwardness, before the message emerges. The drawings are merely functional and the many tables and graphs are easy to read, but some of them are inconsequential, as though the author, desiring scientific credibility, used them merely for the sake of introducing data — any data. One table, for example, documents one of the hacked brood's at-

tempts at capturing insects, but the outcome of most of the attacks is unknown to the author and he admits that not all of the attacks were serious.

Although it is clearly not the purpose of the book to convey the considerable dash and aplomb of the Peregrine, some of this emerges nonetheless: "After statically soaring for 40 consecutive minutes on his first day of flight, an astounding feat, B of the Purr brood flew into the cliff side full force upon his attempted landing. He fell about 1 m to the ledge below, stunned but apparently unharmed."

We should at least hope, with Sherrod, that this superbly gifted species of falcon will, as B did, overcome its difficulties and take to the sky once more with all of its strength restored. — Reviewed by *Bob Kohlmeier*, R.R. 3, Group Box 224, Saskatoon, Saskatchewan. S7K 3J6

WILDLIFE 2000: MODELING HABITAT RELATIONSHIPS OF TERRESTRIAL VERTEBRATES

Edited by JARED VERNER, MICHAEL L. MORRISON and C. JOHN RALPH. 1986. Univ. of Wisconsin Press, Madison, Wisc.

This book is based on presentations at an international symposium on Modelling Habitat relationships of Terrestrial Vertebrates held in October 1984 in California. This book is, however, more than just the proceedings of the symposium. In the editing process some presentations were dropped and new papers solicited in order to "address the development and application of models intended to predict responses of wildlife to changes in their habitats" in a more balanced way.

Models are but a means to an end. They do not reproduce the real world, but they can be a valuable tool to help managers predict the results of their management practices. Nonetheless models can be misleading and, as Jack Ward Thomas pints out in his opening discussion on Cheers, Fears, and Introspection, there is a great danger of biologists who do not understand models accepting a model's predictions as gospel.

Habitat 2000 is divided into five sections:

- I. Development, Testing and Application of Wildlife Habitat Models
- II. Biometric Approaches to Modelling
- III. When Habitats Fail as Predictors
- IV. Predicting Effects of Habitat Patchiness and Fragmentation
- V. Linking Wildlife Models with Models of Vegetation Succession

One of the strengths of this book is the provision of two concluding discussions for each section, one from a researcher's and one from a manager's perspective. Authors of these concluding discussions point out many ways the division between research and application could be narrowed by researchers making models more directly applicable to habitat management.

Many of the 58 individual papers in this book will be of substantial interest and practical benefit to wildlife ecologists. For example section V deals extensively with combining forestry and wildlife management and should have applications in Saskatchewan. After reading Arnie Gotfryd and Roger I. C. Hansel's paper, "Prediction of Bird Community Metrics in Community Woodlots," most urban birders would, I expect, see applications in design of urban parks. The problem of making wildlife attraction a criterion in planning these areas, unfortunately, still remains.

One of the major problems facing wildlife managers today is loss of habitat and fragmentation of remaining areas. The issue of fragmentation has really not yet been addressed in Saskatchewan, although I believe it may be contributing to the disappearance of Burrowing Owls from some areas and undoubtedly affects other species. A series of papers on this topic will thus be useful in Saskatchewan as will single species habitat simulation models on Ruffed Grouse, Sandhill Crane and other species.

Habitat 2000 is an excellent book for the wildlife manager or researcher dealing directly with these topics. Indeed it is hard to conceive that each wildlife agency would not immediately acquire one for the book is heavy technical reading. You are not likely to read *Habitat 2000* for simple pleasure. Hence I do strongly recommend it to the professional wildlife managers working with habitat issues. — Reviewed by Dale Hjertaas, 919 Cook Crescent, Regina, Saskatchewan. S4X 2L9



Ruffed Grouse

Ken Lumbis