

ORNITHOLOGICAL LITERATURE

STUDIES OF BIRD HAZARDS TO AIRCRAFT. Canadian Wildlife Service Report Series—No. 14. Dept. of Indian Affairs and Northern Development, Ottawa, 1971: $8\frac{1}{4} \times 11$ in., 105 pp. paperback. \$1.25.

Aviation was still in its infancy in 1910, when a bird-airplane collision claimed a human life for the first time. Thereafter the problem probably increased with the number of aircraft, especially as faster planes were developed, but there was relatively little public concern until 1960 when more than 60 airline passengers were killed as a result of a bird strike. Suddenly, governments showed increased interest in supporting studies of bird migration, and well they should have. As Gunn and Solman predict in this report (p. 22), bird strikes are likely to be even more disastrous in the immediate future, as bigger, faster planes with bigger engines (to scoop up more and/or larger birds) carry ever more passengers.

In 1963 the National Research Council of Canada undertook, or encouraged intensive as well as broad investigations of the problem of birds and aircraft, and this book presents some of the results of those studies. The book consists of seven technical papers, which deal with one aspect or another of the subject of bird migration. Most of the observations were made in Canada, but the papers are fairly strong on literature review, which in effect, gives them wider geographic coverage. Specific direct information on bird strikes or birds as hazards to aircraft is presented in the first two papers only.

There are few illustrations, but they make forceful comment on the problem of aircraft collisions with birds (and vice versa). A photograph (p. 18) showing part of the inner workings of an airplane engine heavily matted with gull feathers is a sight to give any pilot (or airline passenger) a twinge of fear, and a picture of a cloud of gulls is at once esthetically appealing and insidiously fearsome in company with text that tells us of nine F-104 Starfighters and two other possibles (at 1.5 million dollars each) being downed by birds, plus a statement that even a small bird can cause serious engine damage and loss of power. For civil flights, about three-fourths of the bird strikes occur near airports. Plane damage from such strikes at Canadian airports has already been reduced by applying knowledge gained from bird studies. The bird-aircraft collisions that occur while a plane is enroute between airports represent a more difficult set of problems.

It is suggested in this book (p. 22) that all major airports need bird-warning systems, i.e., staff and equipment to forecast bird flights, and that ports lacking such systems are guilty of negligence. The cost of a warning system is not actually estimated, but Solman (p. 11) hints that it would more than pay for itself in reduced aircraft damage and reduced insurance claims, not to mention the less calculable value of human life.

Through radar and field studies one such bird-warning system (at Cold Lake, Alberta) was tested for accuracy in forecasting the peaks of bird flights by 1-2 hours, and up to 24 hours. The forecasts were considered 50 per cent accurate in spring, but only 35 per cent accurate in fall. (By comparison, meteorologists claim about 85 per cent accuracy on 6-hour weather forecasts.) Even an accurate prediction of relative numbers of birds flying is no guarantee of aircraft safety. Snow Geese felled one Starfighter at Cold Lake at the very hour when forecasters had *accurately* predicted low flight densities. The forecasts are based to a large extent on radar observations, but low flight densities on any scale may still mean hundreds of birds near the airport, and it

only takes one to drop a plane. Bird warning systems still have a very long way to go to become effective safeguards. Ultimately such systems are dependent upon detailed knowledge of the movements of hundreds, even thousands, of populations of birds, and toward this goal we are only well started. An excellent example of the kind of information needed comes from the nicely dove-tailed field and radar studies by Myres and Cannings (p. 23) on the flight of a Canada Goose population through British Columbia. The birds flew a narrow corridor at altitudes of 8,000 to 15,000 feet. This is important information for any pilot who flies in the area, and more so if the goose flights are predictable. That's fine as far as it goes, but when you realize that we do not even know the number of *other* populations that utilize that airspace, you get some measure of the complexity of forecasting bird flights.

The book deals at some length with the benefits and deficiencies of using radar in migration studies, and provides a good comparison between radar and lunar observations. We are repeatedly reminded that ornithological studies using radar are hampered because radar stations are operated primarily for meteorological work, and only incidentally for bird surveillance.

The best feature of the work is the wealth of information on migration in Canada, especially near the Alberta-Saskatchewan line, a strategic location for comparison with the two other areas (Illinois and New England) where major radar studies of migration have been made. Thus, for example, the dominant spring flight direction of night migrants is northeast in New England and Illinois, but northwest in Alberta. The Canada studies also provide the best year-around coverage of flight densities and directions available for the continent, plus good discussions of migration and weather. Migration was most consistently correlated with following winds, not with temperature, and not consistently with pressure change. There were also instances of reverse migration and an example of Canada Geese apparently compensating for wind drift. Clearly this is an important reference for all students of migration.

The make-up of the book is extravagant of paper. There was an apparent effort to stretch the work into a book-sized publication. Several pages are actually or virtually blank, and many more are only one-half to two-thirds filled. This is a minor fault, however, beside the fact that one-third or more of the material presented has already been published elsewhere in essentially the same form by the same authors. One of the papers is an acknowledged duplication of a chapter in a 1968 symposium on the problems of birds as pests. In the history of science such wasteful duplication has never been acceptable, but at a time when many libraries are crowded with publications almost to the bursting point, and bibliographers are hard pressed to see even original works, such duplication is an extravagance that none of us should afford.—RICHARD R. GRABER.

THE MORPHOLOGY OF THE SYRINX IN PASSERINE BIRDS. By Peter L. Ames. Bulletin 37, Peabody Museum of Natural History, Yale University, New Haven, Conn., 1971: 7 × 10 in., paper covered, 194 pp., 21 pls. of pen and ink drawings. Price not given.

The literature of anatomy contains many descriptions of the syrinx in various species of birds, but almost nothing that goes beyond the descriptive stage of investigation. "The Morphology of the Syrinx in Passerine Birds" goes far beyond previous studies of this organ. In this study Dr. Ames describes details of muscle and cartilage structure in suboscine families and genera for which no previous descriptions are on record, and gives extensive references to earlier descriptions of these and other groups. He then uses these descriptions as bases for taxonomic and evolutionary interpretations.

In the first section of the book the author compares and relates the passerine taxa, a task involving a great amount of labor. Those who have worked with the syringeal morphology of this group of birds will appreciate the meticulous work and keen insight Dr. Ames used in bringing a large degree of order to passerine classification, based on his own findings in comparison with those of Garrod, Müller, Gadow, Ridgway, Peters, Wetmore, and others. He supports these authors in their use of the syrinx as a basis for passerine classification, and suggests certain shifts in taxonomic positions. He concludes (p. 153) that "Taken in conjunction with other anatomical characters, syringeal morphology suggests that the Passeriformes be divided into five suborders: Eurylaimi, Furnarii, Tyranni, Menuræ, and Passeres (Oscines)."

While Dr. Ames provides logical reasons for assigning positions to various families and genera, he points out possible errors due to the complete lack of fossil evidence, and the very meager understanding of the actual functioning of the syringeal muscles, cartilages, nerves, and other tissues. Almost nothing is known of interactions among morphology, behavior, and evolution of the syrinx. His discussion points to several areas in which research is lacking.

The book includes excellent line drawings illustrating muscles and cartilages of the syringes of 76 suboscine species in nine families, and one drawing of *Corvus*, illustrating the oscine suborder. Drawings of cartilage details illustrate 23 other suboscine species. There is a comprehensive list of references and a record of specimen sources.

This book is an extensive, but not an exhaustive, study of passerine classification. It will be a valuable asset to students of passerine morphology and taxonomy, and the sections on evolution and development will also be of interest to persons interested in these topics. Dr. Ames is to be congratulated on his presentation.—MILDRED MISKIMEN.

NATURAL RESOURCES AND PUBLIC RELATIONS. By Douglas L. Gilbert. The Wildlife Society, Washington, D.C., 1971: 6¼ × 9¼ in., xxiv + 320 pp., numerous text figures. \$6.50.

There presently exist two schools of thought among scientists as to the duty of the scientist in reporting his (her) findings to the public. If you believe, as I do, that a researcher is morally obligated to report any findings which bear upon the general welfare of the public to that public, then this volume will be most welcome. For in reporting to a non-scientific public there is a definite need for a background in public relations. Dr. Gilbert is attempting to provide just this type of background for workers in the field of natural resources.

The philosophy for the public relations approach is well stated by Dr. Gilbert (p. 162):

"Most research done in natural resources management is reported only for scientific consumption, if at all. Publication should be the last step of every research project. Publication in a popular or semi-popular magazine is as equally important to the professional and to the research worker as is publication in a scientific journal. Many scientific findings are made known to non-professional publics only when the resultant management methods are used or an attempt is made to use them."

Further, Gilbert writes (p. 163):

"... For example, most wildlife stories available today are the "how I got a full bag limit" type, or the "vicious killer meets death" kind. These should be minimized

and replaced by the good sportsman, the good management or the good research project kind. This problem is not the fault of the magazine publishers. The blame is the natural resource managers for not writing the stories."

As stated in the Forward, this book is specifically designed for the workers in natural resources. It has been my experience that students in this general area definitely have a need for such background material. Dr. Gilbert touches on all aspects of communication in public relations, and presents in logical fashion the manner in which these various media should be handled; he also very candidly demonstrates how *not* to proceed. The 18 appendices provide a number of "tools" for use in public relations, although several are rather specialized and limited in value.

Although I welcome this needed volume, it is, unfortunately, full of printers' errors, and in my opinion somewhat excessive in certain respects. Citations are given for some rather commonplace statements (e.g. p. 84, line 13), resulting in a long section of literature cited. Also, it seems to me that too many illustrations have been included; many appear to detract from the text rather than clarify it. This despite Gilbert's statement (p. 115) that "Too many visual aids can complicate and confuse rather than clarify, and may be worse than none at all. Only those which are necessary and which will help the presentation should be used." I would like to see a revised edition published which would set higher standards of quality, and which would then be adopted by a wider segment of all scientists, including those involved in the natural resource area.—
KEITH A. ARNOLD.

SOFTBILLED BIRDS. By Clive Roots. Arco Publishing Co., Inc., New York, 1970: $8\frac{1}{2} \times 5\frac{1}{2}$ in., 158 pp., 36 col. pls. by Robin Brown, 30 text figs. \$5.95.

The preface of "Softbilled Birds" tells us that its object is "... to provide information upon the practical aspects of maintaining softbills" in captivity. Many ornithologists and all zoo curators would be grateful for a serious contribution to the literature of aviculture but *Softbilled Birds* is disappointing.

The book opens with a discussion of the term "softbilled," nevertheless we are left confused about which species it is intended to include. In fact, the author divides "softbills" into five dietary aggregations; nectivorous, frugivorous, omnivorous, insectivorous, and carnivorous. Most medium to large sized birds are excluded, whatever their tastes in foods, and so are parrots and finches. Although the book is largely concerned with tropical species, English common names alone are used throughout. Where an attempt has been made to utilize the scientific nomenclature of families or genera, it has often ended badly.

Softbilled Birds is organized into two parts, the first dealing with the acquisition and care of softbills, and the second with the five dietary groups noted above. Two extremely brief appendices offer interesting analyses of rations for softbills in captivity, and recipes for mixtures which Mr. Roots has found adequate. The book is illustrated with numerous line drawings of varying quality, and 36 birds are shown in color photographs. The photographs and their color reproduction are poor and do not add to the reader's understanding of the captive maintenance of wild birds.

Unfortunately, the text makes little attempt to bring together the now considerable body of avicultural observation or to relate it to ornithology generally. Although subject coverage is superficial, sensible counsel is presented on several aspects of bird-keeping suitable for hobbyists.—WILLIAM G. CONWAY.

BREEDING BIOLOGY OF CALIFORNIA AND RING-BILLED GULLS: A STUDY OF ECOLOGICAL ADAPTATION TO THE INLAND HABITAT. By Kees Vermeer. Canadian Wildlife Service Report No. 12, Dept. of Indian Affairs and Northern Development, Ottawa, 1970: 8½ × 11 in., paper covered, 52 pp., maps, charts, and photos. \$1.25. Catalog Number R65-8/12.

American sociologists and Canadians are aware of a rising tide of Canadian nationalism, identity, and independence; often the effects of these changing attitudes are directed at and felt by Americans. Canadians take pride in their work and products; often Americans are criticized for lack of common sense and a sense of aesthetics. The Canadian Wildlife Service can be proud of this report. Compared with American publications and monographs, it is tastefully packaged, skillfully edited, and lavishly illustrated. Where American studies tend to dull one's mind just because of the format, design, and details of presentation, this study is so well presented as to be exciting just because of the methods of design which were used. American editors could learn a good deal from examining the careful use of varying type styles, line drawings, and column placement of this publication. I have long wondered why so many of our American journals and monographs are so dully presented; this publication makes it clear that such pedantry is false and unnecessary. It is also remarkably free of detracting typographical and editorial errors. The graphic presentations are pertinent and easy to understand.

Voluminous data are presented. This research, which was performed pursuant to a doctorate at the University of Alberta, was apparently designed to fill the many gaps in our knowledge about breeding of these gull species in prairie colonies. As with many of us who research areas where we do not know enough to generate firm hypotheses before the field work, Vermeer used the "shot gun" approach—he collected data on all aspects that might be important. The result is information on many aspects of the biology of these gull species. Some data bear on the central question of adaptation to the prairie-lake habitat; some data do not.

From a technical viewpoint, I wonder about the appropriateness of several of Vermeer's implicit assumptions and choices of ways to deal with data. For example, to my knowledge, few if any investigators have used insecticide analyses of uropygial glands to indicate potential involvement of birds with pesticide poisoning. It is questionable whether uropygial fat (lipid) is ever used by birds as an energy source. Probably, most investigators interested in levels of pesticides will not be able to relate Vermeer's data to existing information on levels of body fat. For example, the data (Table 18) comparing levels of residues in brains and uropygial glands of eight Ring-billed Gulls suggest that the glands are a poor choice of tissues to estimate loads of residues in lipids. Usually there is a 10 to 20-fold higher level of residues in body fat than in brain tissues; these data suggest a 2:3 ratio of tissue residues in brain: uropygial gland. The significance is obscure.

There are some surprising oversights in literature citations on Ring-billed Gulls. Valuable comparative data were available to Vermeer on Ringbills in writings of Belknap, Bent, Kutz, F. E. Ludwig, J. P. Ludwig, Ryder, Southern, and probably others. Vermeer's comparison of the California and Ring-billed Gull populations he studied with *other species* of Laridae is excellent and insight-filled, but his comparison with other Ringbill populations and colonies is almost non-existent. As an example, Vermeer omits comparison of dates of first egg-laying from his study with the dates available in Bent's monograph (U. S. Natl. Mus. Bull., 113, 1921). My own data on food samples for

Ringbills were not referred to (Ludwig, Great Lakes Research Div., Univ. of Michigan, Pub. 15, 1966). Other comparative data are omitted as well.

My fundamental criticism of Vermeer's interpretation is that I do not accept his implicit assumption that "gulls" in general do not have adaptations to the inland habitat where California and Ring-billed Gulls nest. To be sure, most "gulls" nest on marine coasts and coastal islands. One *can* assume thereby that "gulls" in general are not adapted to the inland habitat, but *this is an assumption*. Vermeer moves from this assumption to comparison of largely marine gull species with the gulls he studied in Alberta, concluding that Ring-billed Gulls and California Gulls do not show many adaptations to the inland habitat. This is apparently true when these species are compared to other gulls. Because I dispute the assumption, I cannot fully accept Vermeer's conclusion. I am also disturbed by the apparent assumption that adaptation to the habitat of Alberta will be reflected in morphological or behavioral attributes of the species. I think a better argument can be made that almost *all* gull species are adapted to survival in the face of regular catastrophe. Except for a very few species, gulls have very high potential reproductive rates (three eggs per year) and very low adult death rates (8-13 per cent annual mortalities). Thus the catastrophic loss of an age class or two is insignificant to almost all gulls. Gulls are adjusted to catastrophe. In this light, both California and Ring-billed Gulls are *pre-adapted* to conditions of a capricious, often hostile prairie habitat. Thus, Vermeer's conclusion that California and Ring-billed Gulls show few *specific* adaptations to the prairie habitat may be correct. His implication that these species are not well adapted to the prairie habitat is most surely incorrect.

For the serious student of gulls, this is an important report. It provides abundant data. It is valuable for other workers who will wish to compare their larid studies with other studies. Vermeer's treatment of the adaptation problem is particularly valuable when he compares other species to those he studied. In summary—a tastefully presented valuable piece of work, subject only to criticism of detail and interpretation.—JAMES P. LUDWIG.

SIGNALS FOR SURVIVAL. By Niko Tinbergen and Hugh Falkus; drawings by Eric Ennion. Clarendon Press, Oxford, 1971: $8\frac{3}{4} \times 11\frac{1}{4}$ in., 80 pp. \$8.00.

This fascinating and informative book, liberally illustrated by photographs and drawings, deals with communications among Lesser Black-backed Gulls. The authors explain the intricate language of these birds, "a system of signalling, comprising posture, movement, sound and color," as they describe it. A gull colony on Walney Island off the coast of Lancashire is the location for the book. The life of this seemingly chaotic colony is shown to be very ordered, with the island divided into territories maintained by the male birds' unmistakable (to others of their species) calls and actions: loud trumpeting calls, much aggressive strutting, and fighting. The story of the gulls' behavior starts with these territorial border disputes and proceeds to the male's attraction of a female, their adjustment to each other, choice of a nest site, egg-laying, and hatching (illustrated by wonderful photographs of a chick breaking its way out of an egg). The account continues with the raising and protection of the young, the chick's recognition of its parents voice, food preferences of individual gulls, and finally the young birds' learning to fly and departure for Africa. All this is described and explained by a well written text and excellent illustrations. The book makes its information accessible to young readers and non-biologically oriented adults as well as to those who are already interested in animal communications.—SALLY LAUGHLIN.

This issue of *The Wilson Bulletin* was published on 30 May 1972