

adequate glossary and one references section subdivided by subject (e.g., field guides, Pennsylvania environments) and taxonomically by family. for many users or potential users of this book, the lack of keys to either skins or skulls will be a serious omission.

Overall, this attractive book is informative, clearly written, and has been effectively edited (I

noticed no typographical errors). It should be especially useful in Pennsylvania, but deserves a wider audience as well.

DAVID A. LOVEJOY

Department of Biology, Westfield State College,
Westfield, Massachusetts 01086

The Kookaburras' Song: Exploring Animal Behavior in Australia

By John Alcock. 1988. University of Arizona Press, Tucson. x + 200 pp., illus. U.S. \$19.95.

John Alcock is well known as a researcher in the behavioural ecology of insects and the author of a successful text. He is a vigorous adaptationist, believing that the characteristics of organisms (be they morphological, physiological, or behavioural) contribute to the production of surviving offspring. In the present work Alcock groups 27 essays, dealing primarily with endemic mammals, birds, and insects, under five headings: On Adaptation, Nuptial Puzzles, Machismo and the Competitive Male, Primitive or Degenerate, Life with Others, and Adaptive Altruism. Amid travelogue narrative and accounts of cockatoos, wallabees, and weaver ants, he illustrates the interest of behavioural ecologists and evolutionary biologists in a wide assortment of topics including animal communication, the functions of sex and mating systems, the nature of territoriality, patterns of reproduction and parental care, phylogenetic trends, radiation of species, and evolutionary convergence. There are suggested readings and an index, and the useful illustrations include range maps of the species under discussion.

This book belongs to the venerable didactic tradition of providing lessons in biology in the

form of entertaining vignettes. The nineteenth century produced such conversational volumes as "Dialogues between Mrs. Dinsdale and her two Daughters" while a host of contemporary writers, pre-eminently Stephen Jay Gould, whose criticisms of adaptationism have often led to a crossing of literary swords with Alcock, provide zesty essays on diverse subjects.

Alcock's essays afford easy reading and serve as a light introduction to both the natural history of Australia and focal points of current research activity. Appropriately for a book which takes an evolutionary perspective, it is printed, as the cataloguing information assures us, on "alk. paper". The view of Australia presented is a purely terrestrial one, and it is perhaps surprising that aquatic highlights such as stromatolites and the Great Barrier Reef, which Alcock visited, are not included. The description of a honeyeater as having a sweet tooth also gives pause. Overall the book succeeds as a popular introduction to Australian wildlife and issues in contemporary field biology.

PATRICK COLGAN

Biology Department, Queen's University, Kingston
K7L 3N6

Atlantic Fishes of Canada

By W. B. Scott and M. G. Scott. 1988. Canadian Bulletin of Fisheries and Aquatic Sciences No. 219. University of Toronto Press, Toronto. xxx + 731 pp., illus. \$45.

Atlantic Fishes of Canada is the long-awaited replacement for Leim and Scott's *Fishes of the Atlantic Coast of Canada*. It was well worth waiting for. The new volume includes 538 species (all but 10 treated in the text), as opposed to about 290 species in the earlier work, and contains 246 more pages. Information is increased for a number of species.

The book is divided into a Forward; Background information (Introduction, Acknowledgements, Review of fisheries and fisheries research, Oceanography, Area covered, Species account, and How to preserve specimens); Family and species accounts; Checklist; Keys; Glossary; Abbreviations; Metric conversion tables; Information on specimens illustrated; References; and an Index to names.

The Background Information section is a mine of information. I learned that commercial fisheries contribute over a billion dollars to Canada's

economy, that there are over 50 000 registered fishermen on the Atlantic coast, that the overall Atlantic coast catches peaked in 1968-69 at 3.5 million tonnes but have declined to less than 2 million tonnes in 1985. Fishing technology innovations and changes in surveillance are described. The list of regional fisheries research stations omits the Institute Maurice-Lamontagne. The oceanography of the region is summarized in two pages. The full species account is outlined: Biology (Habitat, Reproduction, Growth, Food, Predation and competition, Parasites and disease), Distribution, Relation to man, Description, Systematic notes, and common names. Abbreviated accounts are used for rare and unusual species, or those that are known only from larvae. Instructions on preservation conclude this section. A discussion of pollution, habitat loss, and conservation would have been desirable — e.g., conditions in St. Lawrence estuary and Halifax Harbour.

The bulk of the text, some 570 pages, is occupied by accounts of families and species. Most species accounts include a black-and-white drawing or photo of the species, and, for the important commercial species, a shaded distribution map is appended. Occasionally an additional figure is added — eggs of the Hagfish, nest of the Ninespine Stickleback, or a herring weir; these add to the esthetics of the book.

The Scotts do not support the reported Canadian record for a 11.28 m specimen of the Great White Shark, *Carcharodon carcharias*, reported from near Grand Manan. They do report valid Canadian records of the species including one from Deer Island, New Brunswick, that had three porpoises in its stomach.

Thanks to the activities of the Huntsman Marine Laboratory and other agencies, a number of new records based on larvae are recorded for Canada for the first time, e.g., many new lanternfish records. Scott and Scott recommend against exploitation of lanternfishes as human food as these fish serve as prey for many commercial fishes, as well for seals and whales.

The Scotts are known and widely quoted for their thorough summaries of biological information in *Freshwater Fishes of Canada*. Many accounts in *Atlantic Fishes of Canada* are up to that measure (others because of space or lack of information are shorter). From their account of Atlantic Argentine, for example, I learned that they probably spawn in March and April in

Canada, and lay as many as 38 599 buoyant eggs up to 2.8 mm in diameter. Specimens may reach 29 years in age, though the largest specimen is only 49 cm long. Argentine feed on euphausiids or amphipods, rarely on small nekton or plankton. Although plentiful, delicious and nutritious, Canadians do not fish the Argentine. Instead, they are caught by foreign fleets.

The text is very readable and generally impeccably accurate. A rare omission or flaw occasionally creeps in. The white stickleback, an undescribed Nova Scotian species, is omitted, perhaps because of the recency of its discovery. Gill rakers do not number 43 in the Greenland Cod (better called in my view *Ogac*), but 19-22 (*vide* Claude B. Renaud who is completing a thesis on taxonomy of *Gadus*). A specimen of *Coregonus huntsmani* Scott, an endangered species, collected in the estuary of the Petite Rivière, Nova Scotia, and others occasionally reported there, suggest that there may be a tiny anadromous population surviving in that river, although they might represent expatriates washed down from the lake populations upstream. Bottom samples suggest that *Melanostigma atlanticum*, may inhabit burrows in the mud. The species called by Scott and Scott, and most previous authors, *Sebastes marinus*, should correctly be called *Sebastes norvegicus*. A character I have found useful in distinguishing *Myoxocephalus aeneus* from other sympatric species of the genus is the rather stiff first dorsal spines.

The book is well edited, the typography and layout is agreeable, the matte paper is superior to the usually glossy stock, and the book is well bound. Editors and publishers have done a commendable job. The illustrations are on the whole good. But the drawings do represent a variety of styles and are mixed with photos. Should the government have provided funds for a series of standardized illustrations for a book involving a billion dollar industry?

Scott and Scott's *Atlantic Fishes of Canada* is an especially fine faunal work and a great addition to our knowledge. It is very readable, provides authoritative summaries of data, and includes much new information. The Scotts can indeed be proud of this valuable reference.

DON E. McALLISTER

Ichthyology Section, Canadian Museum of Nature, P.O. Box 3443, Station D, Ottawa, Ontario K1P 6P4



McAllister, Don E. 1989. "Atlantic Fishes of Canada, by W. B. Scott and M. G. Scott [Review]." *The Canadian field-naturalist* 103(4), 618–619.
<https://doi.org/10.5962/p.356260>.

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