

Chapter 4 is a general overview of ecological data and conservation efforts. Much of the data are summarized in tabular form which will greatly facilitate the retrieval of information. Tables on reproductive ecology, diet, densities, and age and size at sexual maturity are particularly valuable. Chapter 5 summarizes variation in several behavioral attributes and Chapter 6 provides a guide to the care and maintenance of garter snakes for laboratory-based investigations. More than half of the book is devoted to species accounts, which include species-specific information on taxonomic history, identification, subspecies composition and distribution, description, and a summary of life history and ecology. Most species are illustrated by excellent colour photographs.

As a compendium, a quick check of the literature shows shortfalls. For example, garter snake distributions in the Chihuahuan Desert of Mexico are missing the distributional records from the authoritative work in the region (Morafka, 1977, Biogeographica Vol. 9), and the well-known, invaluable reference volumes to the Mexican herpetological literature by Smith and Smith are missing. Several prior referrals of *Thamnophis validus* as "*Nerodia valida*" are missing making the synonymy for this species incomplete; other examples also occur. Although these deficiencies exist, the consequences are minor, except for the systematist interested in taxonomic history.

Although this book will serve as a valuable resource, it falls short in achieving one goal; evolution is missing. In order to evaluate evolutionary trends in behaviour and ecology, a defensible genealogical hypothesis is required, and none exists. The authors do not present their own evolutionary

hypothesis but rather non-critically summarize older morphological and more recent molecular work. The most recent molecular hypothesis falls short owing to invalid methods of data analysis (presence/absence coding of alleles) and extensive missing data (sequence analysis). Although a wealth of behavioral and life history data are available in the book, these were not evaluated in light of opposing phylogenetic hypotheses to see if resolution of controversies could be made. Thus, the anticipated synthesis is missing. The three major sections of the book largely stand independent of one another. And, finally, the taxonomy has not been viewed in terms of more recent advances in species concepts - advances that allow diagnosable, allopatric populations to be considered as species. For example, *Thamnophis validus celaeno* is isolated on the southern tip of the Baja California, Mexico peninsula whereas all other subspecies occur on the mainland. The Baja California population is diagnosable and clearly not interbreeding freely with mainland conspecifics; it could be recognized as a species and likely so without protest from colleagues. In other cases, such isolated populations have been recognized.

In spite of these minor shortcomings, the book will serve as both an inspiration and starting point for future research. Its highly-readable text will be enjoyed by the curious, serious amateur and academic alike.

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Foundations of Animal Behavior: Classic Papers with Commentaries

Lynne D. Houck and Lee C. Drickamer. 1996. The University of Chicago Press, Chicago. xvi + 843 pp., illus. Cloth U.S. \$95; Paper U.S. \$34.95.

Two signs can indicate that a scientific discipline has reached maturity. One is international recognition, and the other is a tendency to look back at the path taken to get there. Both signs are exhibited by ethology, the study of animal behaviour. Recognition came in 1973, when the Nobel Prize in Physiology and Medicine was awarded to Karl von Frisch, Conrad Lorenz, and Niko Tinbergen, for their foundational contribution to ethology. This surprised the world because it was the first time that this prize was awarded to field biologists (to this day, it remains the only time). As to the historical perspective, it has been provided in book form by Gordon M. Burghardt (*Foundations of comparative ethology*, Van Nostrand Reinhold, New York) and Donald A.

Dewsbury (*Studying animal behaviour: autobiographies of the founders*, University of Chicago Press, Chicago) in 1985. Now comes this new, and equally valuable, collection of classic papers.

The contributions were chosen by the two editors and a board of six active researchers whose expertise covered a broad cross-section of subdisciplines. In all, 44 papers were retained. Most of the papers (39) date from the three decades that preceded the awarding of that famous Nobel Prize. An exception to this rule is the first part of the volume, where four book excerpts from before 1925 illustrate the historical origins of ethology. There follows five more parts, each of which contains 7-9 articles grouped under the following banners: (1) goals and methods of ethology; (2) the development of behaviour, including learning and genetic bases; (3) neuronal and hormonal mechanisms; (4) unusual sensory capabilities.

some of which allow exceptional feats of orientation and communication; and (5) the evolution and adaptive significance of behaviour. The chosen articles strike a good balance between conceptual and empirical contributions, as well as between European and North American researchers. Fittingly, each of the three Nobel winners is represented.

Each of the six parts is preceded by an enlightening commentary, 10–15 pages long, that places the chosen contributions in the historical context of the subdiscipline. These commentaries also enabled their authors to cite and comment upon other significant papers which did not make the final cut, for lack of space and not for lack of wanting.

Each paper is reproduced as it appeared in its original book or journal. From a historical point of view, this is a nice touch. Unfortunately, for those papers that were originally published on a larger page format than that of the book (16 × 23 cm), it also means a reduction in font size. In some cases, the let-

ters become no taller than 1 mm. People with weak eyes, beware.

In their preface, the editors point out that this collection of articles will be useful to students and teachers of ethology because it will take them beyond the dry textbook facts and give them a chance to imagine the excitement and wonder experienced by the founders. Students will benefit in other ways: all royalties from the sale of the book will be donated to the Animal Behavior Society to create student research awards. And I would suggest that established researchers can benefit too: in this book they will find a source of renewed inspiration as well as examples, for them to follow, of the high standards that have made ethology a reputable scientific discipline.

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Peterson Flash Guides: Backyard Birds, Atlantic Coastal Birds, Pacific Coastal Birds, Hawks, Eastern Trailside Birds, Western Trailside Birds

By Roger Tory Peterson. 1996. Houghton Mifflin Company, New York. A series of six laminated folding charts with colour illustrations on 24 panels, 11.5 × 21.75 cm. U.S. \$7.95 or Can \$10.95 each.

This series of "guides" is presented as "a revolutionary new tool for identifying birds. Unfolding in a flash, they show, at a glance, all the birds of a particular type (hawks, for example) or place (coast, mountains, or backyard)." This claim is partly true because each flash guide depicts only approximately fifty to 100 species for the various groups or areas. The typical illustrations of the time-honoured Peterson field guides are used to depict most of the selected species. A short text accompanies each illustration and gives a few details about the species. A series of symbols accompanies the text and shows the season when the species can be seen, in what ecoregion it occurs, and its feeding preferences. It means that the reader has to learn the meaning of the eighteen symbols used throughout the series before taking full advantage of the information they contain. Dimensions are given in inches only [perhaps, the flash guides are intended for the USA market only although the price in Canadian currency appears on the back panel!!!].

The quality of the illustrations is generally excellent particularly those previously used in the original guides. The text is easy to read but the information it conveys is so bland that the reader cannot expect to learn much about birds. Each flash guide contains twelve plastic laminated folding panels, much like a road map.

After having examined and looked at the "flash guides" for sometime, I have yet to find an answer to the question that I raised when I first saw them: "What for"? The only use I can see for this type of guide is for a person interested in birds but with little knowledge or desire to learn more about them than what is given on the panels. The flash guides may be intended for use in the field by those who have a general interest in birds and a limited knowledge or by school children who are initiated to the beauty of birds.

The public may find these guides useful but it is doubtful considering their price. The price of the series is very high and only a selected number of species are treated. One can get for approximately the same cost, or less, the two volumes of the Peterson eastern and western field guides to the birds of North America that have much more to offer and are easier to use. These guides have become classic references and continue, for good reasons, to be popular among naturalists and bird watchers, even beginners, because of their quality and the information they provide, particularly on identification. They are a much better all around value than this "revolutionary new tool." I therefore can recommend the acquisition of traditional guides to the birds, either the Peterson series or any of the other excellent ones that are now on the market, instead of the flash guides. Any of these traditional guides are a better value.

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