

gardens, with excellent tips on close-up photography and butterfly observations by the incomparable Edward Ross (*Enriching Your Personal Landscape and Butterfly Photography*) and additional intriguing ideas for butterfly watching by Robert Michael Pyle. Following a short *Afterword* by Pyle are two appendices: a list of nectar plants for North American butterflies and moths and an annotated list of the most familiar North American butterflies and their larval food plants. Resource lists for obtaining garden plants and entomological equipment, a lengthy bibliography, and an index to both scientific and common names complete this useful volume.

An attractive glossy cover adds an exquisite touch to this extraordinarily illustrated volume. Superbly written, this book offers an excellent mixture of conservation philosophy and biological common sense with a focus on butterflies and moths. With such a compilation of authors, the book is anecdotal, and if there is any fault, it is that parts of some chapters may appear redundant. However, such duplicate treatment is refreshing, inasmuch as different perspectives reflect the diversity of thinking on various subjects, such as appropriate nectar sources and problems encountered in rearing species. The Xerces Society and Smithsonian Institution are indeed to be commended for producing this volume. Through conservation, restoration, and management of native habitats initiated at the backyard level, we can increase public awareness of how complex yet fragile nature is and make a new beginning at protecting Lepidoptera.

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THE ONTARIO BUTTERFLY ATLAS, by Anthony M. Holmes, Quimby F. Hess, Ronald R. Tasker, and Alan J. Hanks. 1992. Toronto Entomologists' Association, 34 Seaton Drive, Aurora, Ontario L4G 2K1, Canada. 167 pp., 13 color plates. Soft cover, 20.5 × 25.5 cm, ISBN 0-921631-11-1. Available from the Association for \$29 Canadian (including taxes & p/h) or \$26 U.S. (including p/h) (no Master-Card or Visa).

This attractively covered paper-back culminates the efforts of the Toronto Entomologists' Association (TEA) by recording the skippers and butterflies found in Ontario. The title may be somewhat misleading, however, as this publication is more of an annotated checklist of Ontario Rhophalocera.

The preface, brief author backgrounds, and table of contents are followed by an introduction that describes the purposes of the Atlas: "to summarize . . . the distribution and some characteristics of Ontario butterflies . . . , to encourage . . . others to explore the distribution . . . , and as a reference for planning efforts to conserve . . . rare species. . . ." This introduction also includes information on TEA, nomenclature, timetables, habitat, status (employing symbols of occurrence used by the Nature Conservancy of Canada), records, figures showing counties and districts, physiographic features (Hudson Bay lowlands to deciduous forest region in southwestern Ontario), life zones (Hudsonian, Canadian, Transition and Carolinian), and problem species. The latter category includes several butterflies treated as species by some authors and as subspecies by others; also, because some species of *Erynnis* and *Satyrus* are difficult to identify, some records may be inaccurate.

The main portion of the *Atlas* treats 138 species, including *Basilarchia arthemis arthemis* and *B. a. astyanax* as separate entities. The authors make no attempt to differentiate subspecies except in a few cases. Each family is introduced with beautiful photographs of adults in natural settings or poses, with the exception of the Hackberry Butterfly on page 111 that suspiciously resembles a pinned specimen!

The authors devote a full page to each species, with brief notes on timetable, including broods and "hibernates," and occurrence, including habitat, food plant, distribution, and

status. Also included on the species page is an occurrence calendar-graph for each stage of the species and a map of Ontario showing distribution by dots placed in each county and district of occurrence. I wish the authors had included more biological information and "characteristics" of each species instead of devoting more than half a page to each distribution map. The 12 color plates include 2 habitat photographs and 27 individual photographs that show 7 larvae and pupa and 20 adults, representing 22 species.

Following the main species section is information on 19 stray species that have been vouchered by a single specimen (e.g., *Erynnis zarucco*) or rarely recorded (e.g., *Speyeria idalia*). It appears to me that these strays should have been included in the main species section, which already includes such strays as *Pyrgus communis*, *Hylephila phyleus*, *Battus philenor*, to name a few. Next is a section listing five unconfirmed species that may range into Ontario based on records from adjacent provinces and Michigan. This section might better have been called a hypothetical species list. The final species section has information on five doubtful species that have been erroneously referred to Ontario as a result of misidentification, improper labelling, or lack of a voucher specimen.

The last four pages of the *Atlas* comprise a bibliography, including check-lists, TEA publications, and general works, and a provincial ranking of status indicating number of occurrences within the province.

This publication is a valuable addition to the literature on Lepidoptera of the region from Hudson Bay to the Great Lakes, although there are a few questionable assertions. For example, the authors state that *Lycaeides melissa samuelis* hibernates "as a larva," but according to James Scott (*The Butterflies of North America*, 1986, Stanford University Press, CA), "eggs hibernate in ssp. *samuelis*..." And for *Danaus plexippus*, the authors mention "positive evidence for a cycle of abundance peaking about every 11 years." In both cases, the authors fail to include literature citations or to otherwise identify the source of this information.

This *Atlas* would have been more valuable if specific rearing experiences and personal food plant observations had been included. Furthermore, there is no discussion under *L. m. samuelis* or other rare or threatened species as to the authors' recommendations of proposed management methods and techniques to preserve or enhance existing populations. This shortcoming appears to be inconsistent with the authors' stated purpose "to provide a reference for planning efforts to conserve our rare species..." Also, I found it interesting that the authors assert that the food plants of *Erynnis persius* are "willows, poplars and aspens." In Michigan, *persius* feeds on lupine and most recent authoritative references state that lupine is the preferred larval food.

The Ontario Butterfly Atlas, with an 8 × 10" format, is printed on high quality paper with easy to read type and excellent photographs. I found no typographical errors or improper use of nomenclature. I recommend this publication to all students interested in the butterflies and skippers of Ontario and the Great Lakes region.

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OUT OF AFRICA

THE BUTTERFLIES OF KENYA AND THEIR NATURAL HISTORY, by Torben B. Larsen. 1992. Oxford University Press, Oxford, New York and Tokyo. xxii + 490 pp., 19 + A4 figures, 64 color plates. Hard cover, 18 × 25 cm, ISBN 0-19-854011-6. \$195.00.

BUTTERFLIES OF TANZANIA, by Jan Kielland. 1990. Hill House, Melbourne and London. 363 pp., 3 maps, 179 text figures, 68 color plates. Hard cover, 22.5 × 30 cm, no ISBN. \$120.00.