

BUTTERFLY GARDENING: CREATING SUMMER MAGIC IN YOUR GARDEN, created by the Xerces Society in association with the Smithsonian Institution. 1990. Sierra Club Books, San Francisco, and National Wildlife Federation, Washington, D.C. xv + 192 pp., 118 color photographs, 4 diagrams. Softcover, 18.5 × 23.5 cm, ISBN 0-87156-615-X. \$18.95.

The cooperative spirit of this volume is reflected not only in the educational and conservation organizations involved in its production, but also by the wealth of individuals—authors, naturalists, and photographers—who so generously donated their time and efforts. *Butterfly Gardening* is dedicated to the broad scale conservation of butterflies and their native food plants. It also celebrates the diversity of nature and encourages all lepidopterists to observe ecology in action. With the loss of native habitats, there also has been a noticeable disappearance of butterfly species, which serve as indicators of major changes in ecosystems.

A brief *Introduction* by Dennis Murphy focuses on some of the problems in butterfly conservation, suggests possible solutions, and sketches the contributions of the other nine authors of the book. Such a conservation approach to butterfly gardening would be incomplete without a contribution from the Honorable Miriam Rothschild, the eminent entomologist who has devoted so much time to the study of butterflies and other invertebrates. Dr. Rothschild's keen insight has made naturalists more aware of conservation and of the significant role of wildflowers in ecosystems. Dr. Rothschild wrote three chapters for this book. The first describes the joys and challenges of *Gardening with Butterflies*; the second explores *The Visual Perception of Lepidoptera* and the importance of providing appropriate nectar sources in butterfly gardens; the third describes *The Life Cycle of the Large White Butterfly*. Some life history aspects crucial to the survival of butterflies and moths in nature—metamorphosis, mate recognition, migration, temperature regulation, natural predators, and defense through camouflage and cryptic coloration and mutualism—are discussed by Dave Winter in his erudite chapter (*The Struggle to Survive*). From a more personal perspective, Jo Brewer recounts her experiences as a butterfly gardener—providing descriptions of some of her more spectacular triumphs, sprinkled with the inevitable problems she encountered (*Notes from a Butterfly Gardener*). She also evaluates the propriety of introducing butterfly species into new habitats and discusses the use of native plant species versus exotic species in butterfly gardens.

Mary Booth, a landscape architect, with supporting text by Melody Mackey Allen, provides butterfly garden designs with emphasis on color. Four basic arrangements from simple to more sophisticated plans are provided and suggestions for flowering plants are included. Some do's and don'ts with regard to conservation and to introduction of plant species that may be difficult to control are also considered. This chapter (*Butterfly Garden Design*) concludes with a master plant list of 30 flowering plants that are common nectar sources and, in some cases, larval hostplants. This annotated list provides a description of the type (shrub versus hardy perennial), height, color, bloom season, exposure, and soil requirements for each species. The food requirements for moths are not neglected owing to the thoughtful inclusion of Dave Winter's chapter on nocturnal nectar sources (*Moths and the Garden at Night*).

Conservation issues concernign habitat are addressed in the chapter *Wildflowers in the Planned Landscape* by David Northington. As the Executive Director of the National Wildflower Research Center, he discusses the disappearance of plants and the resulting ecological consequences for animal species. The poignant discussion by Stanwyn Shetler in *Butterfly Gardening and Conservation* addresses these subjects from a naturalist's viewpoint and delves further into the importance of plant/insect interactions. Dr. Shetler actively supports increased public education and awareness of conservation efforts by promoting gardening to teach preservation, rehabilitation, and restoration of diverse natural habitats.

The final chapters offer suggestions for enhancing personal enjoyment of butterfly

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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Journal of the Lepidopterists' Society
48(1), 1994, 79-80

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