

BOOK REVIEWS

THE NEPTICULIDAE AND OPOSTEGIDAE (LEPIDOPTERA) OF NORTH WEST EUROPE. Fauna Entomologica Scandinavica, Volume 23, part 1 (text), part 2 (plates), by Roland Johansson, Ebbe S. Nielsen, Erik J. van Nieukerken, and Bert Gustafsson. 1990. E.J. Brill/Scandinavian Science Press Ltd., Leiden, New York, Kobenhavn, Köln. 739 pp., 111 + 1122 figures. Hardcover, 14.5 × 21 cm, ISSN 0106-8377; 55 Dutch Guilders (about \$30.00 U.S.)

As quality standards for systematic publications improve and new technologies become available, it becomes increasingly difficult for a single author of a monographic treatise to meet those standards or fully utilize those technologies. These challenges are often complicated further by a general downward trend in financial support for monographic studies. One obvious solution to such a dilemma is multiple authorship. A proper combination of co-authors—each providing their special expertise—can vastly improve as well as expedite a major work. This recently published two-volume review of the Nepticulidae and Opostegidae of North West Europe is a good example of what balanced cooperation among several authors can produce.

Although technically an "amateur," the senior author of this work, Roland Johansson, contributed significantly not only as a result of his lifelong interest in the systematics and natural history of Nepticulidae, but also by drawing the 186 beautifully executed color illustrations of the adults and over 900 line drawings. Ebbe Nielsen's general knowledge of most monotrysian families was an asset particularly in the preparation of the introduction and in co-authoring the section on the tribe Nepticulini. Nielsen also became the major editor and coordinator for the project. Erik van Nieukerken, certainly one of the leading researchers on Nepticulidae today, is acknowledged as being responsible for much of the most recent information on the evolution and higher classification of the Nepticulidae. The depth of his contribution is obvious to anyone familiar with his outstanding paper on the "Systematics and Phylogeny of Holarctic Genera of Nepticulidae" (Zool. Verh. Leiden 236:1-93; 1986). Nieukerken was also the author of the section Opostegidae. Bert Gustafsson's knowledge of larval Nepticulidae is reflected in the emphasis on larval morphology and systematics evident in this work.

The Nepticulidae and Opostegidae are among the smallest Lepidoptera in the world. The wing span of the smallest measure less than 3 mm. Because of their size they are not an easy group to work with and are especially difficult to dissect and to rear. Despite these obvious obstacles, as many amateurs as professional entomologists have concentrated on these tiny moths in Scandinavia, with the result that the Scandinavian nepticulid fauna is the best researched in the world. This work treats 121 species of Nepticulidae (ca. 20% of the known world fauna of nearly 600 species) and 4 species of Opostegidae (ca. 4% of the known world fauna of 102 species) in an area including Fennoscandia south to Paris, France, and the British Isles to and including Poland and the Baltic republics. Only 120 species of Nepticulidae are enumerated in the checklist (pp. 60-62) and elsewhere in the text because, for reasons unclear (a late insertion?), *Stigmella betulicola* (Stn.) and *S. nivenburgensis* (Preiss.) are listed as 6a and 6b respectively.

Most of the first 76 pages of the text are devoted to introductory material, which provides one of the best available summaries of the different life stages of the Nepticulidae. Reviewed in this section are the morphology of the adult and immature stages, biology, phylogeny, and distribution. Under biology, special emphasis has been devoted to host-plant relationships, parasitoids, and predators, with shorter discussions on ecology and conservation. The phylogeny of the Nepticuloidea is briefly reviewed at the family and generic levels (pp. 57-59) and is largely based upon the more extensive, manually derived treatment by van Nieukerken (1986), referred to above. Species keys are provided not only to the adults according to customary taxonomic groupings and based upon superficial male and female characters and male genitalia, but also according to host genera and larval/mine morphology. In addition, a brief synopsis for each species group is provided for the largest tribe, Nepticulini.

The species treatments are informative and concise with a strong emphasis on life

history. The latter represent an accumulation of knowledge for Nepticulidae unequalled for any other comparable region. The larvae are treated by Gustafsson and van Nieuwerkerken in a separate section from the adults. Descriptive synopses, supplemented by numerous, selective line drawings are provided for 101 of the total fauna of 121 species. The immature stages of only six, mostly rare species are completely unknown. Table 3 on pages 325–327 provides an excellent summarization of the body chaetotaxy for the 101 species studied. The main text of volume one concludes with the section on Opostegidae authored by van Nieuwerkerken. Only two genera and four species of Opostegidae are represented in the region covered by this series. Finally, the general distribution of each nepticulid and opostegid species is graphically summarized in a chart on pages 388–401. The text appears to be well edited, with a few typographical errors noted (e.g., on page 37, the dorsal calli referred to in text figure “58” should read “60”).

Because of the superb, collective expertise of all four authors and the relatively copious knowledge of the Nepticuloidea for the region treated, the importance of this publication exceeds that of a major faunal contribution. This work should be regarded as a primary source for anyone seeking information on the general biology and morphology of Nepticuloidea.

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DISTRIBUTION OF BUTTERFLIES IN NEW MEXICO (LEPIDOPTERA: HESPERIOIDEA AND PAPILIONOIDEA), by Michael E. Toliver (edited by Richard Holland). 1977 (1991). Published by the authors. Distributed by R. Holland, 1625 Roma NE, Albuquerque, New Mexico 87106. 239 pp., 1 text figure. Soft cover, spiral bound, 22.45 × 28 cm., no ISBN; \$10.00 (postpaid).

As one who has attempted to compile butterfly records for a large geographic entity, I recognize the *Distribution of Butterflies in New Mexico* as a labor of love. It is rare that information accumulated in one's notebook evolves into an invaluable printed list available to anyone interested in the region. Such compilations form a solid foundation for future investigations, be they distributional, ecological, or biogeographical. In addition, they provide a basis for planning trips by the general collector.

A short introduction is followed by species accounts presented in order of the checklist of C. F. dos Passos (1964, *Lepid. Soc. Mem.*, No. 1, 145 pp.), with specific location (listed by county), date, and source of the record. A literature cited section and an index by specific name, keyed to dos Passos (1964 *op. cit.*) checklist number, completes this volume. The major shortcomings of the list (14 years between completion and published appearance, nomenclature similarly dated), are noted by Holland in the preface. Collectors should be aware that the book does not incorporate the recent renumbering of most state highways.

The data were assembled by Mike Tolliver and include those for 269 species of butterflies through 1977; by early 1992, the butterflies known from New Mexico had increased to 314 species (*vide* R. E. Stanford). The majority of the records are those of the author and editor; these are taken at face value. Literature and other records are presented with or without comment; it would be helpful to know which, if any, were further verified, especially single state records or those from apparently extralimital localities. For example, why were the putative specimens of *Papilio troilus* not examined? The problem with the supposed New Mexico records of *Speyeria hydaspe* is mentioned; a similar problem for *Speyeria zerene* is not (see Scott, J. A., 1986, *The butterflies of North America*, Stanford Univ. Press, 583 pp.). One wonders why the determinations of *Systasea zampa* were not