The book also has some weaknesses. Perhaps most frustrating is the amount of time between the conference (1986) and the publication of the volume (1993). Another difficulty is that the quality of the chapters varies a great deal. Some chapters were very short, reporting on a small series of observations; whereas others reported results of detailed experiments or lengthy observations or were more synthetic in scope. Also, the book is expensive, which may prevent the wide readership that the book deserves (but there are always libraries).

The diversity of the book's coverage can be problematic but may also be a strength—there is something in it for everyone, from a student interested in conservation biology to a chemist interested in sequestration, to a person who just enjoys the biology of butterflies. Although this book is about the Monarch butterfly, it has articles and ideas with application to a variety of fields and areas of interest. One concern of mine is that the value to other fields will be lost because potential readers may judge from the title that it does not contain anything relevant to them. I would argue the opposite: that this book is valuable to biologists (and I use this term in the broadest sense, not just referring to professional biologists) in many areas of endeavor. I recommend it highly.

DEANE BOWERS, *University of Colorado Museum and E.P.O. Biology, Campus Box 334, University of Colorado, Boulder, Colorado 80309.*

Journal of the Lepidopterists' Society
50(2), 1996, 168–172

NOCTUIDAE EUROPAEAE, VOLUME 1. NOCTUINAE I, by Michael Fibiger (English text with French translation in apposition). 1990. Entomological Press, Sorø, Denmark, 208 pp., 14 text figures, 16 color plates, 130 distribution maps. Hardcover, 23 × 29 cm, ISBN 87-89430-01-8. DKK680 (Danish kroner, about $125 exclusive of postage and bank charges).

NOCTUIDAE EUROPAEAE, VOLUME 2. NOCTUINAE II, by Michael Fibiger (English text with French translation in apposition). 1993. Entomological Press, Sorø, Denmark, 230 pp., 32 text figures (including line drawings and black-and-white photographs), 11 color plates, 116 distribution maps. Hardcover, 23 × 29 cm, ISBN 87-89430-02-6. DKK680 (Danish kroner, about $125 exclusive of postage and bank charges).

NOCTUIDAE EUROPAEAE, VOLUME 6. CUCULLIINAE I, by Gábor Ronkay and László Ronkay (English text with French translation in apposition). 1994. Entomological Press, Sorø, Denmark, 282 pp., 218 text figures, 10 color plates, 60 distribution maps. Hardcover, 23 × 29 cm, ISBN 87-89430-03-4. DKK680 (Danish kroner, about $125 exclusive of postage and bank charges).

NOCTUIDAE EUROPAEAE, VOLUME 7. CUCULLIINAE II, by Gábor Ronkay and László Ronkay (English text with French translation in apposition). 1995. Entomological Press, Sorø, Denmark, 224 pp., 182 text figures, 4 color plates, 55 distribution maps. Hardcover, 23 × 29 cm, ISBN 87-89430-04-2. DKK680 (Danish kroner, about $125 exclusive of postage and bank charges).

All volumes sold and distributed by Apollo Books, Lundbyvej 36, ADK-5700 Svendborg, Denmark; subscription to series provides 10% discount.

This impressive faunal series attempts a comprehensive assault on the classification, identification, and distribution of European moths in the family Noctuidae. The first four volumes of the series, covering only the subfamilies Noctuinae and Cuculliinae, contain treatments for 368 species in 69 genera. Despite centuries of taxonomic work on the European fauna, these volumes contain descriptions for 2 genera, 4 species, and 21 subspecies that are new to science. Taxonomic action abounds, with resurrection of 2 generic

names, changes in status for 51 species-group names, and new synonymies for 104 species-group names and 3 genera!

All volumes are attractively and securely bound with pale gray covers, the spine lettering giving series and volume titles in bold black. Layout of the text throughout is in two parallel columns, the left in English and the right in French. Format, choice and variation of fonts, and integration of text with range maps is attractive and convenient. Volume 1 has a small number of incorrect spellings in the text, including at one point the author's own name, with occasional confusion between 'synonomy' and synonymy. The other volumes appear quite free of errors.

The presswork is exceptional, the text on glossy white paper of neutral pH, and the color plates on matte paper with high resolution and excellent rendition, much better than plates in earlier fascicles of the *Moths of America North of Mexico* series well known to American readers, and competitive with plates in more recent fascicles in that series. With few exceptions the specimens illustrated are in excellent condition, well prepared, and photographed *en masse* against a pale gray background without shadows, effectively contrasting with white or luteous wing margins. Plate captions bear full label data and repository information for all specimens.

In general, the series exhibits taxonomic rigor, including resolution of available type material, careful and detailed diagnoses, and extensive coverage of nomenclature. Species-group synonyms are regrettably listed without original generic combinations, but authors' names and year of publication provide citations to all original descriptions by way of the complete list of references at the end of each volume. Coverage is impressive for available names, as well as infrasubspecific ones, and includes many names not found in R. W. Poole's *Lepidopterorum Catalogus (New Series), Fascicle 118, Noctuidae* (1989, E. J. Brill/Flora and Fauna Publications, New York). For instance, all six synonyms listed for *Mesogona oxalina* are missing from Poole's compendium.

Recent proliferation of diverse notions concerning the phylogeny of Noctuidae has presented special problems for this serial publication, as have changes in the political boundaries of eastern Europe. Confusion over delimitation of genera, tribes, and subfamilies in the recent literature is rivalled only by readers' confusion over the political boundaries of the countries they inhabit, especially in eastern Europe.

The work suffers from the absence of any meaningful discussion on the classification of the family as a whole. Only a single paragraph introduces the family in Volume 1, and there are no keys to subfamilies or tribes in any volume. Evolutionary discussions are brief in volumes 1 and 2, largely limited to expressing confusion over how the sequence of appearance in the text should reflect concepts such as "most advanced" or "most primitive." Volume 1 offers no reference to J. D. Lafontaine's outline of evolutionary trends in the speciose genus *Euxoa* (1987, *Noctuoidea. Noctuidae (Part). Noctuinae (Part—Euxoa), Moths of America North of Mexico, Fascicle 27.2,* The Wedge Entomological Foundation, Washington, D.C.) based on features of the genitalia of both sexes, although speculation is offered on phylogenetic trends for some male features (harpe, sacculus, vesica). Expressions such as "[*Pleonectopoda* is] the second most primitive European subgenus" are quite mystical, as no clear phylogeny is postulated or discussed. Additional information on the phylogeny of the subfamily Noctuinae is promised in the still unpublished Volume 3. The absence of phylogenetic information in the early volumes contrasts sharply with similar introductions in other faunistic works e.g., Lafontaine (1987, *op. cit.*) for the subfamily Noctuinae, or E. Berio (1985, *Fauna d'Italia, Lepidoptera, Noctuidae. I. Generalità, Hadeninae, Cucullinae [sic],* Edizioni Calderini, Bologna) for the family.

Species accounts are broken into sections, including Taxonomic Notes, Diagnosis, Bionomics, Distribution, and Remarks. The sections entitled Taxonomic Notes are usually detailed, often providing comparative information useful for identification. The diagnoses are clear for each species, and are provided for each subspecies whenever trinomens are applied. In many cases for close species the diagnoses are incisive and useful, emphasizing subtleties of maculation, antennae, and size. Volumes 1 and 2 (Noctuinae) are relatively weak on genitalic information, but Volumes 6 and 7 (Cuculliinae) contain detailed description and illustration of genitalia where appropriate. In a few cases "differences in

genitalia" are referred to, but the actual structures are not, leaving readers to unravel those features for themselves.

The Bionomics sections are informative, elaborating on habitats, dominant vegetation, phenology, daily adult activity cycles, and, in some cases, resting postures and feeding habits of both adults and larvae. Foodplants are identified with scientific names whenever possible.

The geographic area of coverage extends from Iceland and the Azores to the Ural Mountains, but does not include Turkey, Cyprus, the Middle East or Northern Africa. A single standard base map depicting political boundaries for the entirety of Europe is used in all volumes to illustrate ranges for each species. The maps are not numbered, labelled only with a binomen, and are not cited in the text. Subspecies are not mapped separately and maps for species do not distinguish the presumably allopatric or parapatric distribution of subspecies. Distributions are presented as areas bounded by a thick line and shaded with broad stripes through which political boundaries within the range remain clearly visible. Ranges are stated to be schematic representations of more precise maps produced by a project entitled "*Faunistica Lepidopterorum Europaeorum.*" In fact, the shaded areas are quite generalized, leaving the reader with a feeling of uncertainty as to how literally one might interpret occurrence based solely on them.

The References section at the end of each volume is very complete and inclusive, but regrettably all periodical titles are abbreviated, making obscure references difficult to locate for readers without bibliographic experience or a friendly librarian. Indices wisely include names of the genus group as well as those of the species group, but in Volumes 1 and 2 no explanation is offered for the use of semibold page numbers to locate principal treatments. Indices for Volumes 6 and 7 correct this problem and add figure numbers for genitalia. Plate numbers are not included in the indices, and readers are forced to look up the species account in order to obtain plate citations. Unfortunately no index to foodplants is provided, and common names are not mentioned. Both features would have broadened the appeal of the series, and more importantly, increased its utility as a reference work for use by non-specialists.

Genitalia are illustrated for only a few species in Volumes 1 and 2. Although citations for genitalia illustrations in other publications are given for many species, and a comprehensive set of illustrations is promised in a still unpublished Volume 3, the situation is frustrating for users who desire genitalic confirmation and have no access to other literature. Volumes 6 and 7 correct this problem with complete illustration of the genitalia for both sexes. These are accurate tracings of actual preparations reproduced at large size, only one or two per page, but in detail and presentation are not up to the illustration standards of other faunistic works.

VOLUME 1 primarily covers the Agrotini of Lafontaine (1987), and treats 137 species in 16 genera including prodigious assemblages in *Euxoa* and *Agrotis*. Systematically difficult taxa in *Dichagyris* and *Yigoga* (= *Ogygia* of Hübner) are treated in detail, complicated by the faunistic nature of the series which prevents thorough treatment of extralimital taxa for these Palearctic lineages.

Discussion of the *Hypericum*-feeding genus *Actinotia* in Volume 1 is informative, but the evidence presented makes its retention in Volume 1 enigmatic. American readers will wonder why the closely related New World genus *Nedra* is not mentioned, as the two genera are classic examples of how excessive adherence to single Hampsonian features (in this case tibial spinulation) can result in preposterous subfamilial placement of closely related lineages. Equally confusing, but less resolved, is the inclusion of the single European species of *Axylia*.

New World readers will recognize the distinctive flame-shouldered dart (*Ochropleura plecta*) in the plates. The genus *Ochropleura* is considered to be a basal lineage of Noctuini by Lafontaine (1987). Its generic limits are very broadly construed in Volume 1, although paraphyly of that grouping is acknowledged.

Two new species and nine subspecies are described in the main text of Volume 1, with authorship diversely credited to Fibiger, Moberg and Fibiger, or Fibiger and Moberg. All possible combinatorials in nomenclature are nearly attained in the Appendix, where an extralimital species, *Euxoa mobergi* Fibiger, is described!

VOLUME 2 treats 116 species in 27 genera, primarily those placed in Noctuini of Lafontaine (1987), but including *Peridroma,* a genus Lafontaine considered to be a basal lineage of Agrotini. Fibiger proposes one new genus, *Divaena,* and two other genera are resurrected from synonymy. Fifty-one species-group names are pronounced as new synonyms, and 14 undergo revisions in status. Six new subspecies are described. Volume 2, in contrast to Volume 1, benefits greatly from Fibiger's active communication with other specialists, especially with the world doyen of noctuine systematists, J. D. Lafontaine, who provides critical information on delimitation of many genera, including *Epipsilia, Rhyacia, Cyrebia, Protolampra, Eugraphe,* and *Coenophila,* as well as advice on relationships of *Peridroma* and the classification of the *Xestia* complex. American readers will appreciate illustration of two showy species recently introduced into North America, *Noctua pronuba* and *N. comes,* and will notice that North American *Xestia* (*Megasema*) *adela* Franclemont is considered a subspecies of *X. c-nigrum* (Linnaeus), with *X. dolosa* Franclemont treated as a distinct species.

The genus *Mesogona* is admittedly misplaced in Volume 2, but retained because it was included in the plates prior to recognition of its relationship to *Enargia, Cosmia, Ipimorpha,* and other genera historically placed in a polyphyletic Amphipyrinae or more recently in Ipimorphinae by European workers. A corrigenda in Volume 2 provides input from various active European specialists on errors of omission and commission in Volume 1.

Unlike Volumes 1 and 2 by Fibiger, Volumes 6 and 7 by Ronkay and Ronkay attempt to provide phylogenetic clarification for the lineage under discussion, the Cuculliinae. This subfamily is considered by them to contain five tribes of uncertain relationship, including Cuculliini (*Cucullia* and kin), Oncocnemidini, Psaphidini, Feraliini, and Episemini. Their phylogenetic conclusions are similar to those of R. W. Poole (1995, *Noctuoidea. Noctuidae (Part). Cucullinae, Stiriinae, Psaphidinae (Part), Moths of America North of Mexico, Fascicle 26.1,* The Wedge Entomological Foundation, Washington, D.C.) for the Nearctic fauna, although Poole treats the lineages as subfamilies (Cuculliinae, Oncocnemidinae, and Psaphidinae with Feraliini as one of six Nearctic tribes). Nomenclature enthusiasts will enjoy figuring out senior authorship for the flurry of family-group names being proposed, but phylogeneticists may conclude little with confidence as extensive comparative analyses have not yet been made, especially for pupal and larval structures that might clarify parallel trends observed in adults features, especially genitalia. Both works will introduce non-specialists to new subfamily classifications for trifine noctuids that contrast sharply with the traditional system in use for nearly a century based on Hampson's classic *Catalogue of the Lepidoptera Phalaenae in the British Museum* (1903–1913). Even novices will note the disappearance of *Lithophane, Eupsilia, Xylena,* and related genera of pinion and sallow moths from the "new" Cuculliinae, leaving only *Cucullia* and close kin, with the predominantly eremic oncocnemidines as a likely sister group. Relationship of the weaker-tongued sallow moths such as species of *Feralia, Brachionycha, Asteroscopus,* and *Lamprosticta* are much less convincing, but together they may constitute a lineage including Nearctic *Psaphida.*

VOLUME 6 begins with a comprehensive and fully revised checklist of the tribe Cuculliini for the Palearctic Region. Species accounts are provided for the entirety of the European fauna consisting of 60 species in just three genera, *Cucullia* (sensu stricto), its segregate *Shargacucullia,* and the monotypic *Calocucullia.* The former two genera are each divided into several species groups. Poole (1995) agrees that *Shargacucullia* may be monophyletic, but aptly questions the wisdom of separating it from *Cucullia* (s.s.) as together they comprise the long accepted and undoubtedly monophyletic genus *Cucullia* (sensu lato). Species accounts in Volume 6 are detailed and the diagnoses extensive, giving an impression of thoroughness, precision, and much thought by the authors. One new species and one new subspecies are proposed in Volume 6; 11 species-group names are given revised status, and six names are newly treated as synonyms.

VOLUME 7 contains treatments for 23 genera and 55 species, covering European relatives of cuculliine taxa placed by Poole (1995) in the Oncocnemidinae. One new genus and five new subspecies are proposed; three generic names and four species-group names are newly synonymized, and an additional 16 names undergo changes in status. As in Volume 6, species treatments in Volume 7 are quite thorough, with detailed discussion

and illustration of the genitalia of both sexes. The Bionomics sections are full of detail, including larval foodplants and comments on activity periods during the night reflecting the authors' substantial field experience.

The lineages covered in Volume 7 have their greatest diversity in the New World, and clear understanding of relationships must await revision of the extensive Nearctic fauna as well as resolution of enigmatic taxa from the southern neotropics. *Calophasia lunula,* a recent introduction to North America feeding on both alien and native species of *Linaria,* is stated to be holarctic without clarification of its history in the Nearctic.

Volume 7 does have some confusing problems in organization, such as Plate 4 and its caption on page 144 appearing before the conclusion of the caption for Plate 3 on page 145, or the 76 pages of plates and figures (pp. 136–211) separating the main text from its last four pages.

Funding permitting, additional volumes of *Noctuidae Europaeae* will soon appear. If these continue to improve in response to modern analyses of phylogeny while maintaining the current high quality of the published volumes, the series will become the most impressive regional fauna in existence for any family of moths. Encyclopedic coverage of the regional fauna, combined with superb color illustrations of adults and a comprehensive concatenation of literature and personal communications from world specialists, have already made this series a truly magistral contribution on the Noctuidae of Europe.

JOHN E. RAWLINS, *Carnegie Museum of Natural History, 4400 Forbes Avenue, Pittsburgh, Pennsylvania 15213-4080.*

Journal of the Lepidopterists' Society
50(2), 1996, 172

CORRECTION TO VOLUME 50

In the article by George Austin, "Hesperiidae of central Rondônia Brazil: three new species of *Narcosius*" which appeared in 50(1):54–60, the adults on page 56 are numbered incorrectly. The caption should read: "FIGS. 1–4. **1.** *Narcosius steinhauseri,* holotype male. **2.** *Narcosius odysseus,* holotype male. **3.** *Narcosius pseudomura,* holotype male. **4.** *Narcosius mura,* male (BRAZIL: Rondônia; 62 km S Ariquemes, linea C-20, 7 km E B-65, Fazenda Rancho Grande). On all figures, venter on left, dorsum on right." Similarly, on page 55, "(Figs. 3, 8)" should appear under *Narcosius pseudomura*; on page 57, under Diagnosis and Discussion, *Narcosius mura* should be noted as illustrated in "(Fig. 4);" and on page 57, "(Figs. 2, 6)" should appear under *Narcosius odysseus.*

Date of Issue (Vol. 50, No. 2): 5 July 1996