

BOOK REVIEWS

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THE GEOMETRID MOTHS OF EUROPE. VOLUME 4. LARENTIINAE II (PERIZOMINI & EUPITHECIINI) by Vladimir Mironov. Apollo Books, Stenstrup, Denmark. 463 pages, including 16 color plates. Hardback. 2003. ISBN 87-88757-40-4. Price: DKK 720,00.

This is the second volume to appear in a series of six on the geometrid moths of Europe, a series that promises to provide a definitive, copiously illustrated foundation for future studies on the family. This volume is of particular importance as it includes the most diverse but taxonomically most challenging genus in the fauna, *Eupithecia* Curtis. This genus contributes 128 species (out of 1300 worldwide) to the European fauna. These make up about 85% of those treated in the volume, there being five more Eupitheciini and 18 Perizomini.

The author is eminently suited to produce such a work, having worked extensively on the Palaearctic fauna of the group, and provides an essentially eastern perspective, vital when so many of the generic centers of richness of the Palaearctic occur outside Europe. He divides *Eupithecia* into 35 species groups that are defined on genitalia characters.

All the species are illustrated 1.5 times natural size in 16 color plates. Several specimens of each species are illustrated, particularly where variability is encountered, and the text also includes half-tones that indicate key pattern characteristics distinguishing closely related species. The male and female genitalia are also illustrated by line drawings of very high clarity and quality. They have a distinctive style, but a colleague who also works extensively on the group testifies to their accuracy. In many instances the aedeagus vesica is shown everted. These illustrations are numbered with the species number in the main text, which makes it easy for the reader to track a given species through them, the only exceptions being the half-tones and venation diagrams in the body of the text. The distribution of each species is illustrated by a map within or close to the relevant text. This consists of spot localities within a more generally shaded range, though the spots also indicate outlying records.

The text itself is comprehensive, with: synonymy; description of facies and genitalia; details of distribution; phenology and biology, including host-plant records; records of parasitoids; habitat; particular diagnostic features relative to similar species; remarks on taxonomic matters, particularly 25 newly established synonymies.

There is a summary checklist that also notes 53

species from areas adjacent to Europe that potentially could occur there, though these are not illustrated. The reference list is extensive. There is an index to scientific names occurring in the main text, though this does not include synonyms, only taxa recognised at specific or subspecific level, so readers confused as to the fate of taxa newly established as synonyms will need to refer to the Abstract on p. 8. This Abstract also provides a summary of species newly recorded in particular European countries in the main text. The extensive list of Acknowledgements is testimony to the thoroughness and industry on which the volume is based and to the wealth of information resources distilled into it.

One topic where I was hoping for enlightenment but was somewhat disappointed was the treatment of the higher classification. The Larentiinae are the one geometrid group where the greatest species richness and tribal diversity occurs in temperate latitudes. It is from these latitudes, therefore, that clear definition of higher taxa is likely to be established. A treatment in depth of a major component of the larentiine fauna at a continental level might be expected to offer some insight in this area.

Xue & Scoble (2002), investigating the larentiine tribe Asthenini at a global level, found difficulty in distinguishing this tribe from the Eupitheciini, a problem that had previously confronted this reviewer (Holloway, 1997: 120). This book notes in the introduction that the Perizomini are also closely related to the Eupitheciini, and a genus is transferred to the Perizomini as it shows 'all the characteristic morphological features of the tribe'. In the 'Remarks' section of the tribal account, the Perizomini are distinguished from all other geometrids primarily by the presence of labides in the male genitalia. The corresponding account of the Eupitheciini lacks 'Remarks' but notes in the description of the male genitalia that there are labides! Labides are also seen in the Asthenini (Holloway, 1997; Xue & Scoble, 2002: 79-80). The female in Perizomini is distinguished by a heavily sclerotised band arising from spurs from the anterior apophyses and encircling the antrum; this is not present as a complete ring in the Eupitheciini, though the spurs are present. Another feature that appears to distinguish the two tribes is presence in the Eupitheciini of modification to the eighth sternite of the male.

This prompts me to air a more general complaint about sections headed 'Diagnosis' in taxonomic publications. I hope to find highlighted in such sections the diagnostic features that will enable me to distinguish the taxon concerned unambiguously from all others, either individually or in combination. However, I fre-

quently find myself wading through a lengthy general description of features that I suspect are also widely distributed outside the taxon in question, yet are unqualified by diagnostic remarks. In this particular book, the real diagnosis is usually found in the 'Remarks' and 'Similar species' sections and in the text figures; these are of sufficient quality to be truly diagnostic, the features indicated with 'Peterson' pointers, with the excellent illustrations of genitalia in support.

The book is well designed and printed in clear type, and the color values of the plates appear accurate. I can fully recommend it, and expect it to be indispensable in maximising accuracy in future identifications of European Eupitheciini.

LITERATURE CITED

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JEREMY D. HOLLOWAY, *Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.*

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LAS MARIPOSAS DE MACHU PICCHU. GUÍA ILUSTRADA DE LAS MARIPOSAS DEL SANTUARIO HISTÓRICO MACHU PICCHU, CUZCO, PERÚ, by Gerardo Lamas. Published by the Fondo Nacional para Areas Naturales Protegidas por el Estado (PROFONANPE), Lima, Peru. [iv] + 221 pages, 1 map, 569 color images (34 color plates). Softcover, glossy paper, 21.0 x 29.7 cm, 2003. ISBN 9972-778-10-X. Available for US \$25.00 (not including postage), from PROFONANPE, Fondo Nacional para Areas Protegidas por el Estado; Prolongación Arenales 722, Lima-18, Perú. Phone: (511) 212-1010; Fax: (511) 212-1957; e-mail: prf@profonanpe.org.pe; www.profonanpe.org.pe.

Claiming over 3800 species of butterflies, Peru arguably hosts the greatest diversity of butterfly species of any nation on Earth (Lamas 2000). While this new book treats only a small fraction of Peru's species, it treats a fascinating cross-section of Peru's butterfly diversity, of mid- and high-elevation Andean species.

Entirely in Spanish, the twelve-page introduction includes a brief historical review of natural history studies at Machu Picchu, including details of all previous lepidopterological expeditions to the area. A brief description of habitats found at Machu Picchu accompanies notes on butterfly morphology, diversity and biogeography in Cuzco and surrounding

Departments. The introduction concludes with information on the book's color illustrations, various sources of related information available on the internet, and acknowledgments.

Following the introduction, 69 pages are dedicated to detailed accounts for 194 genera and 377 butterfly species recorded at Machu Picchu. All taxon names include authorship and date of description, and taxonomy generally follows Lamas (in press). For each included genus, a brief summary of its total diversity and distribution is provided, and in a few cases, references to detailed revisions are included. For each species, notes on identification, distribution, habitats and foodplants at Machu Picchu are provided, along with citations to other publications where taxa have been cited as occurring at Machu Picchu.

The first 6 color plates include 54 images of live butterflies and larvae (of two papilionids), taken in the wild by David H. Ahrenholz. The following 28 color plates include 488 images of pinned specimens, representing all 377 species currently recorded from Machu Picchu. For most species, only one image is provided, though a few species that display strong sexual dimorphism are represented by multiple images. Images are not life size, but each includes a 1 cm scale bar to give an idea of true size.

Following the color plates is a brief two-page bibliography and four appendices. The first appendix is dedicated to descriptions of new taxa. A total of 13 new subspecies are described, in the Pieridae (2), Riodinidae (1), Satyrinae (3), Biblidinae (1), and Ithomiinae (6). The second appendix includes a list of all species recorded at Machu Picchu, indicating the distribution of each at 6 elevational intervals, from 1500 m. to over 4000 m. elevation. The third appendix includes a list of 1373 butterfly taxa currently recorded from the Department of Cuzco, and highlights 278 species that are expected to eventually be found at Machu Picchu. The fourth appendix provides specimen label data for each of the 488 illustrated pinned specimens.

This is perhaps the first book to treat and illustrate the entire known butterfly fauna of any single South American locality. Due to its large size, it is not really a field guide, but nevertheless, this book belongs on the bookshelves of anyone interested in Neotropical butterflies, whether or not they have intentions of traveling to Machu Picchu or elsewhere in Peru. Some of the illustrated taxa are not illustrated elsewhere, and the excellent quality of the illustrations make the book visually quite appealing. Considering its low price, this book is a bargain; the 108 color images of correctly determined skippers, alone, make

the book well worth the cost. All information in the book is accurate, the taxonomy and nomenclature is up-to-date (though about mid-2002), and I was unable to find any errors. In conclusion, I strongly recommend this book.

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ANDREW D. WARREN, *Department of Zoology, Oregon State University, Corvallis, OR 97331 USA.*

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THE BUTTERFLIES OF ZAMBIA, by Alan Heath, Michael A. Newport & David Hancock. 2002. Published by the African Butterfly Research Institute, Nairobi, Kenya, and The Lepidopterists' Society of Africa. xvii + 137 pages, 3 maps, CD-ROM (PC format) with 2287 color images. Softcover, 20.8 x 29.1 cm, ISBN 0-620-29211-3. Available from The Lepidopterists' Society of Africa for US \$50.00, price includes airmail shipping from South Africa. Send book order with shipping address, along with evidence of completed electronic fund transfer (EFT), to Dave L. McDermott, Public Relations Officer, dave@copywise.co.za. Direct EFT of US \$50.00 to: NEDBANK, Johannesburg, South Africa, Florida Branch; Branch number 190-541; Account number 1095-032617, indicate "for Zambia book" as reference.

How does a team of authors working with a limited budget go about publishing a tremendous volume of information on 839 species of tropical African butterflies, including multiple color illustrations of virtually every species? The authors of this book found a solution, using a CD-ROM for all illustrations. The book consists of a short introductory text, 137 pages of annotated checklist, a bibliography and index. The CD contains two folders. The "Zambia images" folder includes 2287 color .jpg images of museum specimens of Zambian butterflies, arranged alphabetically. The "Zambia labels" folder contains a .pdf file giving label data for each specimen.

The 17 introductory pages (pp. i-xvii) provide general information on recent books treating the butterfly fauna of other southern African nations, the

underlying philosophy of the authors towards the presentation of the book, and a brief explanation of the classification and nomenclature used in the book. Several pages discuss Zambia's topography, climate, 13 major different vegetation types, and a brief political history of the nation. The introduction also includes information on butterfly conservation, the history of butterfly collecting in Zambia, extensive details on the annotated checklist over its 26 year development, a list of the collections consulted, a list of abbreviations used in the checklist that indicate other published sources with illustrations of treated species, and acknowledgments. A brief summary of taxonomic changes made in the annotated checklist is provided, however, discussion of these is provided in the checklist itself. Revised status is proposed for 12 taxa, and one new species of *Charaxes* Ochseneimer is described by S. F. Henning. The introductory pages conclude with a three-page gazetteer of Zambian localities, and three maps of Zambia.

The 122-page annotated checklist fills the majority of the book, and treats all species recorded from Zambia in detail. A brief summary is given for each family, subfamily and genus that occurs in Zambia, including the authorship for each taxon, and in many cases, brief taxonomic discussions. Below each generic summary, Zambian species and subspecies are listed, again, with authorship indicated for every taxon. Below each listed species or subspecies are abbreviations indicating other works in which that taxon has been illustrated, along with a diagnosis listing important characters for identification. For each taxon, a summary of distributional and phenological data is provided, known foodplants are listed, and for some taxa, a lengthy discussion of variation or taxonomic issues is included. Two pages are dedicated to a discussion of unsubstantiated records. An extensive bibliography of over 100 sources, and 12 pages of index are given at the end of the checklist.

The CD-ROM is in a jacket attached to the inside of the back cover, and can be read only by a PC, not by Macintosh machines. For many species, images of dorsal and ventral surfaces of one specimen are provided, especially when those species display little or no sexual or seasonal variation. For many species, dorsal and ventral surfaces of male and female specimens are illustrated. For some species, seasonal or geographic variation is illustrated in detail, with up to a dozen images. Images are high quality and show well-prepared specimens.

The butterfly images and list of specimen data can be printed, and images can be copied and arranged