

subfamilies, the Procrinae, Chalcosiinae and Zygaeninae, each with their constituent taxa and currently accepted names. The diagnosis of the family is followed by a dichotomous key to the three subfamilies of the western palaeartic Zygaenidae. Under Procrinae there is a list of the constituent genera and characters that separate the procrinids from other subfamilies; these general characters and their variation are then described in more detail. A dichotomous key to the genera of the Procrinae is presented. Each genus and subgenus, where applicable, is described in terms of diagnostic characters, followed by a detailed standardized description of the constituent species. The pertinent details of each species include a reference to the imago by referring to plate number, length of fore wing, brief description of both sexes, including descriptions and drawings of their genitalia, similar species, individual geographical and ecological variation, and its distribution, including a range map for every species. Where known, details of the immature stages, including food plants, are also given. Every species is illustrated in color. Dichotomous keys to species, sometimes between sexes, are presented. The treatment of Chalcosiinae is as for Procrinae. The Zygaeninae are introduced by a diagnostic overview of the subfamily and the genus *Zygaena*, followed by a dichotomous key to the species of the western Palaeartic. Descriptions of the various species are then presented. An "Appendix" provides information on the recently described *Jordanita (J.) fazekasi*. A comprehensive "Index" concludes the text.

The overall design of the book is excellent. The book is well bound with a quality decorative cover. The text, text figures, and photographs are on glossy paper and provide excellent detail. The text is

in an easy, well-organized reading style. The 178 text figures consist of an array of diagrams, drawings and photographs; for every species a distribution map is also given. The color reproduction of the plates is of the highest quality, accurate, and shadow-free. Plates 1–6 illustrate 318 set specimens, often more than one exemplar of a species, at life size with facing pages giving the species or subspecies, sex, locality and reference page number. Plates 7–8 show imagoes resting, *in copula* or feeding; various aspects of behavior are shown on plate 9. Plate 10 is devoted to larvae. Plates 11–12, depicting various habitats, will put shame to any tourist brochure! The book has been well proofed and I could spot only smaller errors (misspelling of Somabrachyidae (p. 14), alkaloids (p. 15) and food plants (p. 16)). The only distraction is that the entry for the last species ends in mid-sentence (p. 262), interrupted by the plates, to continue on p. 288; the plates could have been bound following p. 290.

This book is beautifully produced and reasonably priced. Its comprehensive treatment resulting from the combination of authoritative authorship and editorial care guarantee that this work will be the standard reference on the zygaenid fauna of the western Palaeartic for many decades to come. This book should not only be on the bookshelf of lepidopterists, but it will also be of interest to students of biogeography and evolutionary history of Lepidoptera and other insects from a highly interesting faunistic region. I recommend this book enthusiastically.

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FORESTER MOTHS, by K. A. Efetov and G. M. Tarmann. 1999. Apollo Books, 192 pp., 12 color plates with 241 illustrations, 174 line drawings, 24 × 17 cm. Available from Apollo Books, price: 460 Danish Kroner, excl. postage (hardback).

As a worker on the other half of the superfamily Zygaenoidea (i.e., the limacodid group), the publication of two books on Zygaenidae at roughly the same time is like meeting your lost relatives. For those of us that have large quantities of unsorted palaeartic zygaenids, this is a welcome event indeed. It is also a major benefit for those interested in the biologies and life histories of these beautiful diurnal creatures and makes literature more accessible to the English-speaking lepidopterist.

The scope of the two books on western palaeartic Zygaenidae overlap in part, which at first glance is a bit confusing. "Forester Moths" by Efetov & Tarmann is solely about the subfamily Procrinae (also known as foresters), and its four genera and 63 species from the western palaeartic. "The Western Palaeartic Zygaenidae" (1999, C. M. Naumann, G. M. Tarmann and W. G. Tremewan, Apollo Books) covers the same 4 genera, but only 44 species of Procrinae, in addition to the Zygaeninae and Chalcosiinae. In fact, one might question why the two books could not have been combined because of the overlap of the Procrinae and in genitalia drawings, checklist, and keys.

"Forester Moths" by Efetov & Tarmann, perhaps the last book of the two to be published in 1999, mentions the other as a complementary text in its introduction. Indeed the focus on the Procrinae by Efetov & Tarmann provides more detailed information about this subfamily, including citations of misspelling and all known synonymies and homonymies. It should be noted that there is a lack of agreement between the checklists of the Procrinae regarding format

and inclusion of taxa. Efetov & Tarmann separate the subgenera into species groups and have subspecies, whereas Naumann et al. does not. The discrepancy between the procrinid species included (63 in Efetov & Tarmann and 44 in Naumann et al.) between the two books is in part due to the covered region and primarily concerns the genus *Adscita* Retzius. Naumann et al. only contains species from the Iberian Peninsula and North Africa to the Urals, including Turkey, Transcaucasia and Caucasus, but Efetov & Tarmann, in addition, include species from northern Iran and some countries east of the Caspian Sea of "the western and central parts of Asia (i.e., the western and central Palaearticis)."

"Forester Moths" begins with a concise introduction and definition of the Procrinae. This is followed by an intriguing chapter (III) on the characters of the subfamily including a chart and associated illustrations that review the broad variation of dorsal and subdorsal setae on the first abdominal segment in first instar larvae. This is reminiscent of the broad variation found within the entire limacodid group (Epstein, M. E. 1996. Revision and phylogeny of the limacodid-group families, with evolutionary studies on slug caterpillars (Lepidoptera: Zygaenoidea), Smithsonian Contributions to Zoology, 582). Next is a review of the chromosomal numbers in the subgenera. The final part Chapter III includes a novel character combination diagram and table, which divides the forester genera or subgenera into groups based on shared characters of adult and immature stages. These include biological (e.g., host plants, diapause stage) and chromosomal information, in addition to morphological data. There is also a similar table for genera and host plant families. These tables serve as a concise way to organize information on these genera, although do not necessarily reflect the relationships between the

forester moths. Chapter IV on phylogenetic relationships, while centering on the palaeartic genera of Procridinae, provides a useful review for future workers on the worldwide fauna.

Chapter V is a checklist where each species is numbered and corresponds to the species numbers in the next chapter, the systematic catalogue. The text is very telegraphic in the catalogue, but there is detailed information on the types (localities and place of deposition) and host plants. I applaud the authors who took care of nomenclatural business by designating 17 lectotypes. Distributional information is provided, but according to the authors, maps are forthcoming in an atlas which will complement the text. Two new subgenera, *Tremewania* and *Procrita*, are also described.

In the next chapter (VII), the authors have chosen to replace the usual descriptions of taxa with keys to genera and species, and provide large numbers of illustrations of key taxonomic characters, especially of the genitalia in Chapter VIII. These two chapters might have been more logically placed before the systematic catalogue, but this is only a minor inconvenience. Sadly, these excellent illustrations will be the last by V. V. Kislovsky who died during a heart operation at age 24, shortly before the book was published.

The penultimate chapter is on the immature stages and life histories of six species in the genera *Jordanita* Verity and *Adscita*. These include observations of the adults and biotype where the species occur, along with detailed life history information on the immature stages, with color photographs of each in the back of the book. The final chapter presents a table of new parasitic records based

on host identification by the authors and parasitic information by specialists for each group.

The book is made up of rag type paper, which has the disadvantage of having somewhat dull images for the color plates and taking up more space on your shelf than glossy paper for the same number of pages. In the back of the book are seven plates. The first five plates contain 130 paintings by N. V. Dyadenko of all included forester species shown at 2× natural size. This is followed by a plate with photographs of 16 of the 17 lectotypes designated in this book along with early stages and adults in natural settings of *Theresiminia* Strand, *Rhagades*, and *Jordanita*. The figure of the lectotype of *Ino paupera* Christoph would have benefited from a lighter background. The next two plates correspond to the life history information of *Jordanita* and *Adscita*, mentioned above. These are followed by a plate of beautiful zygaenid host plant photographs and three plates of scenic photographs illustrating the diverse biotypes of foresters of the western palaeartic.

I recommend both books on western palaeartic Zygaenidae for serious study, because it is clear that you would be missing a great deal of useful information on this group by owning just one of them.

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