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BOOK REVIEW

TRAUTNER, J. and K. GEIGENMÜLLER. 1987. Carabid beetles, tiger beetles. Illustrated key to the Cicindelidae and Carabidae of Europe / Sandlaufkäfer, Laufkäfer. Illustrierter Schlüssel zu den Cicindeliden und Carabiden Europas. Verlag Joseph Margraf, Aichtel, FRG. 210 x 150 mm. Soft cover. 487 pp. 1200 text figures + 11 colour photographs. Price unknown.

Recently, through the generosity of a colleague in West Germany, I received a collection of European carabids, as well as the above book to facilitate their identification. Because of its wide geographical coverage and treatment of a large and widespread group of beetles, this book would be quite valuable to many systematists, ecologists and amateur beetle collectors.

The volume has several sections, beginning with an introduction, including a very brief history of the classification of Carabidae, ecology, and natural history. To increase its potential usage, the authors have divided the text into German and English, on alternate pages or columns on single pages. Following this preliminary material, the classification used in the book is given. The authors adopted the system of Kryzhanovskiy except that his subfamilies are regarded as families (*i.e.* Omophronidae, Brachinidae), and his supertribes are elevated to subfamily rank. No reasons are provided for these changes in rank. A key to families of European terrestrial Adephaga is provided, followed by a key to subfamilies/tribes of Carabidae (*sensu stricto*). The third key is the generic key, in which a total of 138 genera are actually keyed out, while 30 genera of blind, cave-inhabiting Bembidiini and Trechinae are keyed into two groups and mentioned by name only. Thankfully and also commendably, the page number of the treatment of each genus is given, thus preventing more page flipping. What follows is the bulk of the book: 377 pages of keys to species of the various genera. For most genera, each species is keyed out, but for several of the larger genera (including *Trechus* Clairville, *Duvalius* Delarouzée, *Bembidion* Latreille, *Pterostichus* Bonelli, *Agonum* Bonelli, *Amara* Bonelli, *Harpalus* Latreille, and *Brachinus* Weber;) reduced coverage is given. For these and other genera (total of 27), completeness of treatment varies from only references to more detailed taxonomic works, to only a key to subgenus, to keys to species of a more restricted geographical area.

For each genus, the following data are provided: author and date of publication of generic name, suprageneric classification, brief description including mainly colour and size, brief habitat characterization, and pertinent literature. The keys to species are for the most part clear, concise, and profusely illustrated with line drawings. The authors use unambiguous characters and most are effectively illustrated. Characters of the male genitalia are used only when necessary. A habitus drawing accompanies the treatment of all but very few genera. Distribution maps are provided for some genera but each species' couplet mentions the species' geographical distribution.

The book treats species whose distributions are within Europe except: Turkey, the western part of U.S.S.R., and the eastern parts of Bulgaria and Romania. As mentioned above, some genera are treated on a smaller scale, and this is mentioned with or without an accompanying map showing the smaller geographical area covered in the key.

There are also some noticeable problems, most of which are minor. The English translation of the original German is adequate, although in certain places it

is difficult to understand. The page numbers for several genera in the index are not actually the pages on which these taxa are treated in the text. Several of the references to taxonomic papers cited in the text are not listed in the references. A number of typographical errors are also evident, perhaps at least partly due to the translation. Two of the most commonly cited authors in the text are C. Jeanne and R. Jeannel, and in a few instances, these names are inadvertently switched. One glaring and inexcusable error is the consistent placement of all authors' names in parentheses. One would expect that the proper use of parentheses in dealing with authors and dates of published taxonomic names would be common knowledge to the authors of such a work. Hopefully this was just an oversight on their part.

This volume is intermediate between a field guide and taxonomic monograph. Therefore, its readership will have a wide range of interests. The book's main selling points are its good illustrations and easily followed keys. In fact, almost the entire text is occupied by keys and figures, and the fact that both have been prepared with care and accuracy ensures the value of this book. Not being an expert on Carabidae, I was still able to determine easily the lot of beetles that I received with the book. Although there are no actual descriptions with which one could be certain of a determination, the couplets in the keys are such that descriptions are unwarranted. Literature in which descriptions and/or more complete taxonomic treatment may be found is always given, in any case.

In conclusion, I have found this book's many merits outweigh considerably the few flaws. It is certainly not an easy task to prepare both brief and unambiguous taxonomic keys, especially when dealing with such a large number of genera in comparatively few pages. The authors have seemingly done a fine job of this, and the resulting work is highly recommended for those with even a cursory interest in this large and interesting group of beetles.

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BOOK NOTICES

FAUNA OF NEW ZEALAND. C. T. Duval, Series Editor. Science Information Publishing Centre, DSIR, P.O. Box 9741, Wellington, New Zealand.

The year 1988 was the twenty fifth anniversary of the Systematics Group, Department of Scientific and Industrial Research, of the Government of New Zealand. It was marked, among other events, by the appearance of Numbers 13 and 14 of the Fauna of New Zealand. Number 15 was published, as well. In 1989, Numbers 16-18 were published. These issues are of the same high quality and with the same desirable features as reported for previously published numbers (see Ball, 1983, *Quaestiones Entomologicae*, 19 (3-4): 487-488). Below, a citation is given to each number published in 1988 and 1989, with a few notes that draw attention to generalizing or other interesting statements in the text. Such statements by the authors extend coverage of these publications beyond that of identification manuals.

Each publication contains keys to the taxa treated, and each is illustrated extensively, principally with line drawings of high quality that are interpreted easily. In only two publications, however, are scales provided (Numbers 15 and 16), so that one can judge size of the parts illustrated.

It is gratifying to note that five of these publications treat relatively obscure groups (microlepidoptera and microhymenoptera). It is high time that such taxa receive the attention that is their due, for each has its own distinctive brand of biological importance.

These, and previous Numbers, may be ordered through: The Bookshop, DSIR Publishing, PO Box 9741, Wellington, New Zealand.

NOYES, J. S. 1988. Encyrtidae (Insecta: Hymenoptera). FNZ, Number 13, 187 pp. Price, US \$44.95.

Encyrtid adults are small (0.3-3.0 mm. in length) chalcidoid wasps. Most of the species as larvae are endoparasitoids or hyperparasitoids of coccoid bugs or arachnids. Most of the New Zealand species for which life history data are available are parasitoids of coccoids.

Thirty five genera and 70 species of Encyrtidae are recorded from New Zealand and the adjacent subantarctic islands. In this publication, four genera and 32 species are described as new.

Although a classification to subtribe is provided, the taxonomic treatments are alphabetical in sequence, based on generic names, and within each genus, on specific epithets. That is, the classification is not used in a meaningful way.

The author accounts for the marked intraspecific variation exhibited by the encyrtids of New Zealand by suggesting recent occupation of many ecological niches that have become available as a result of post-glacial speciation of the coccoid hosts.

Nearly half of the known encyrtid species of New Zealand probably are man-introduced, mostly from Europe and Australia. Of the 39 native taxa, eight occur in Australia also, and are postulated to be recent overseas arrivals in New Zealand.

The detailed treatment of taxa is useful not only for identification of New Zealand encyrtids, but also as a basis for comparison with the encyrtid fauna of other parts of the world. Another generally useful feature is the description of collecting methods, with its emphasis on yellow pan traps and Malaise traps.

Book Review

DUGDALE, J. S. 1988. Lepidoptera-- annotated catalogue, and keys to family-group taxa. FNZ, Number 14, 262 pp. Price, US \$49.95.

Appropriately, this publication begins with a dedication to "the memory of three amateur lepidopterists" whose combined efforts contributed so much to knowledge of the lepidopteran fauna of New Zealand: "George Vernon Hudson, 1867-1946, whose life work this publication attempts to keep evergreen"; "Alfred Philpott, 1871-1933, whose pioneering studies in Lepidoptera morphology are now assuming their true significance"; and "Kenneth John Fox, FRCOG, 1936-1986, who died before this catalogue reached full term but whose enthusiasm and insistence ensured its completion". A quotation from John Tyndall's 'Fragments of Science', published in 1876, reminds readers of the empirical basis of science: "I would advise you to get a knowledge of the facts from actual observation. Facts looked at directly are vital; when they pass into words half the sap is taken out of them". To that comment, I note that one living in the present age of published pap and propaganda must be concerned not only about the sap that is taken out when "facts" are published, but also about the polluted sap that may be interjected as facts by authors who are more concerned with self-aggrandizement than with honest exposition and appraisal.

This volume is a valuable historical account of knowledge of basic taxonomic aspects of the Lepidoptera of New Zealand. The 1761 species (1582 endemic) from New Zealand are assigned to family and the families are grouped into superfamilies. For genera, type species are indicated. For species, type specimens are indicated by label data, sex, and institution where housed. An appendix provides a list of the taxa of Lepidoptera recorded from the Kermadec Islands.

The excellent illustrations include habitus figures of representative specimens placed at the beginning of the text for each family.

An incisive discussion of the taxa of Lepidoptera above the level of superfamily outlines major classificatory problems, and provides an entrance to the literature about this subject. The author points out that "most species belong to "one division (Ditryisia) of relatively uniform structural organization", whereas "the remaining 1-2% show a great variety of structural and genital organization, and often profound differences between groups". The evolution of Lepidoptera is characterized by the Hennigian term "additive typogenesis", implying a gradual acquisition of group characters, from the primitive micropterygoids onward, culminating in the endoporian ditryisian suite of characters.

A discussion of the composition of the lepidopteran fauna of New Zealand emphasizes the marked endemism of the fauna and the good representation of the non-ditryisian groups which comprise at the species level 5 percent of the total fauna. However, a number of non-ditryisian families are absent, even though their food plants are present. More generally, the faunal relationships of the New Zealand taxa are varied, but such relationships have been determined for few groups. Much zoogeographical work remains to be done.

This scholarly work will serve well the development of study of the lepidopteran fauna of New Zealand. The discussion of relationships of the higher taxa will be of interest to systematic entomologists, generally. Those to whose memory this volume is dedicated are indeed honored.

NAUMANN, I. D. 1989. Ambositrinae (Insecta: Hymenoptera: Diapriidae). FNZ, Number 15, 165 pp. Price, US \$39.95.

The Ambositrinae are one of the major hymenopterous components of the forest fauna of New Zealand. Probably, as larvae, all are parasitoids of the

immature stages of nematocerous Diptera (Mycetophilidae and Keroplatidae, for example), the members of which are also abundant in the litter and low vegetation of New Zealand forests. Wing reduction, a phenomenon that is common among islandic taxa, is marked in the Ambositrinae, with 89 percent of the New Zealand species being brachypterous or apterous.

The New Zealand component of this proctotrupoid subfamily comprises seven genera (three described as new) and 46 species. Thirty four species are described as new, and 11, known only from inadequate material, are not named formally.

Although keys are provided to the subfamilies of Diapriidae in New Zealand, to the genera of Ambositrinae and to the species of each genus, no information is offered about how one distinguishes the Diapriidae from other proctotrupoid families.

A reconstructed phylogeny, based on analysis of 45 characters, is provided for 13 groups of Ambositrinae (12 genera and the *Dissoxylabis* genus-group of seven genera). Within this assemblage, the genera of the New Zealand fauna range from the most archaic to the most highly derived. As the author indicates, this reconstruction must be viewed with considerable caution, because many of the branches are based on symplesiotypy, only.

The present-day austral disjunct distribution of Ambositrinae reflects a Gondwana radiation no later than the Cretaceous, and the marked structural divergence in the subfamily is evidence of a long evolutionary history.

The most appealing feature of this admirable study is the author's attempt to go beyond provision of a clear report about a group of very small and taxonomically difficult creatures. The reconstructed phylogeny and general observations about the geographical history of the Ambositrinae will serve well future workers in their endeavors to understand relationships and classification of this taxon.

DONNER, H. and C. WILKINSON. 1989. Nepticulidae (Insecta: Lepidoptera). FNZ, Number 16, 88 pp. Price, US \$22.95.

Nepticulid larvae are leaf miners. The species in New Zealand (28 in total, 14 described as new in this publication) are variously recorded from plants of eight families, with the majority of species mining leaves of the family Asteraceae.

All of the New Zealand species are assigned to the genus *Stigmella* Schrank. One species, *S. microtheriella* (Stainton) was introduced from western Europe. The remaining 27 species are endemic.

The illustrations of genitalia are especially well done, and are laid out in such a way that comparisons are made easily.

Unfortunately, no attempt is made to treat the New Zealand fauna by means of an evolutionary analysis. Comparisons, made in the text to ease the task of identifying these small moths (wing span 2-9 mm.), could have served as well as the basis for a reconstructed phylogeny.

NOYES, J. S. and E. W. VALENTINE. 1989. Mymaridae (Insecta: Hymenoptera)-- introduction and review of genera. FNZ, Number 17, 95 pp. Price, US \$24.95.

The family Mymaridae is represented in New Zealand by 160 species distributed among 42 genera. Known as "fairy flies", adult mymarids range in body size from less than 0.4 to about 4.0 mm. They are so small that effectively they swim through the air rather than fly. They can be carried for great distances as part of the aerial plankton.

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Most mymarids as larvae are egg parasitoids. Most mymarid species develop from eggs of sternorrhynchous Homoptera, but various species have been reared from the eggs of other Hemiptera, Coleoptera and Psocoptera.

The proportion of flightless species is high: at least 17 genera have species with flightless adults. The largest number of flightless species lives in leaf litter.

Of the 42 genera treated, 20 are known from New Zealand, only; four are shared with Australia, only; one is shared with South America, only; one is distributed through Australasia and ranges to South America; three reach the Indian sub-continent; and 13 are cosmopolitan.

NOYES, J. S. and E. W. VALENTINE. 1989. Chalcidoidea (Insecta: Hymenoptera)-- introduction and review of genera in smaller families. FNZ, Number 18, 91 pp. Price, \$22.95.

Treated taxonomically are the New Zealand genera of 15 families of Chalcidoidea. Also included is the Mymarommatidae (two genera, one in New Zealand), which is the putative sister group of the Chalcidoidea. A table provides data about hosts for this important group of wasps. Most chalcidoid parasitoids seek hosts among members of the suborder Homoptera. However, there are phytophagous taxa, such as members of the family Agaonidae. Also, phytophagous species appear in genera in five additional families.

The number of taxa is instructive. Described are 93 species in 75 genera. However, represented in collections in New Zealand are a total of 636 species in 202 genera. These latter figures represent a 2.7 fold increase for genera, and a 6-fold increase for species. One can conclude that much remains to be done, before the chalcidoid fauna of New Zealand is even tolerably well known. This publication is an important step toward attaining a more complete knowledge of New Zealand chalcidoids.

In conclusion, I am pleased to report that the Editors and authors continue to serve admirably, with their contributions to this outstanding series of publications, the entomological community not only of New Zealand but of the world. The individual volumes provide full value at their asking prices.

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