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BOOK REVIEW

AMIET F.: FAUNA HELVETICA 23. VESPOIDEA 1 (Mutillidae, Sapygidae, Scoliidae, Tiphiidae). Centra Suisse de Cartographie de la Faune (CSCF/SZKF), Schweizerische Entomologische Gesselschaft (SES/SEG), Neuchâtel, 2008, 86 pp., 95 drawings, 24 photographs, 27 distribution maps. ISBN 978-2-88414-035-5, ISSN 1422-6367. Price CHF 30.00.

Fauna Helvetica is a comprehensive series of atlases, checklists, and identification keys on various groups of animals (especially invertebrates). They have been compiled by Swiss, French and German specialists and are based on their long-term research. Although they primarily describe the fauna of Switzerland, these valuable publications are of interest for researchers in the whole of Europe. As a specialist in Hymenoptera, I am familiar with the previous publications – Apidae 1–5, compiled by Felix Amiet, Mike Herrmann, Andreas Müller and Rainer Neumeyer. All volumes are of high quality and include not only information on the distribution and ecology of all bee groups in Switzerland, but also comprehensive identification keys for the bee species of central Europe. From personal communication with M. Herrmann and R. Neumeyer, I was aware that the sixth and last volume of Apoidea should appear in 2008 and would focus on the most numerous, and in terms very complicated bee genus *Andrena*. Then, I received the first volume on the Vespoidea, including the families Mutillidae, Sapygidae, Scoliidae and Tiphiidae.

Several years ago, these families were declared to be monophyletic, forming the fourth aculeate superfamily called "The Scolioidea" (e.g. Krombein et al., 1979). Now they are integrated into the Vespoidea, while recent taxonomic studies show that Tiphiidae, Mutillidae and Sapygidae undoubtedly form a monophyletic group and represent together with the small North American family Sierolocolpidae – the primitive lineage of Vespoidea. Otherwise, the Scoliidae seem to be the closest relatives of the true wasps – Vespidae, while their parasitizing scarabaeid larvae is only convergent with that of the Tiphiidae (Goulet & Huber, 1993). For European specialists, all these four families can be linked by two characters. First, they are innumerous, compared to the Vespidae, Pompilidae or Formicidae. Second, they are usually less studied, and regarded by many specialists as "simple" or "needless to study".

The 23rd volume of Fauna Helvetica is written in German, with appended keys to species in French. The Preface is written in German and French. The book consists of chapters on Morphology, Key to the families and on the four featured families: Mutillidae, Sapygidae, Scoliidae and Tiphiidae. These include paragraphs on the biology of the family, an identification key, classification and accounts of all the keyed species. These accounts are divided into descriptions of male and female, distribution in the world and in Switzerland, phenology and hosts (members of all four families are nest cleptoparasites or parasitoids). Also included are distribution maps, with the distribution pre- and post-1970 highlighted by empty and full circles, respectively. Determination keys include drawings of important characters and in some cases also of whole males or females. These figures were drawn by F. Amiet, and are exceptionally accurate and detailed.

There are 11 species of 5 genera of the family Mutillidae in Switzerland. This family is distributed worldwide with the highest diversity in tropical countries. Only three species, *Myrmosa atra*, *Mutilla marginata* and *Smicromyrme rufipes* (which are also the most common in central Europe) reach Scandinavia and Great Britain. The book unfortunately does not include most of the Mediterranean species, some of which also occur, e.g. in Austria, Czech Republic or Germany (e.g. *Ronisia brutia*, *Dasylabris regalis* and *Paramyrmosa brunnipes*). Surprisingly, several extremely rare "southern" species are present, e.g. *Cystomutilla ruficeps*, *Physetopoda daghestanica* and *P. scutellaris*. Therefore, the identification key is not useful for determining specimens from countries other than Switzerland. Furthermore, the key was not compiled by a specialist in Mutillidae. A few examples: (i) distinguishing females of *Nemka viduata* from those of *Smicromyrme rufipes* and *Physetopoda scutellaris* using hairy vertex and dark legs is not valid as many *Smicromyrme* and *Physetopoda* species have a hairy vertex (e.g. *S. sicana* or *P. sericeiceps* and some females of *P. scutellaris*); moreover, the hairy vertex is not well preserved in older specimens or those caught in pitfall or Moericke traps – much better is the shape and structure of the pygidium and scutellar tubercle; (ii) *Myrmosa atra* males have a "normal" abdomen with all segments equal (as do all Myrmosinae) but the other Swiss species are representatives of Mutillinae, with second gastral segment enlarged; (iii) colouration of the thorax is frequently used for determining *Smicromyrme* and *Physetopoda* males, but it is very variable in some species – especially *Smicromyrme rufipes* and *Physetopoda cingulata*, which exhibit nearly all possible combinations of red and black colouration. Intriguingly, similar variation occurs in males of other species, details of which are not yet published (especially those of *Physetopoda halensis* and *Smicromyrme sicana*). The shape of the clypeus and size of ocelli are much better characters (the former being very important especially in *Physetopoda lucasii* – sibling species of *P. halensis* not included in this key). The validity of *Mutilla laevigata* is another problematic issue, as this species is distinguished only by the length of the hairs on its body. All recent studies on Mutillidae (e.g. Lelej, 2002; Lelej & Schmid-Egger, 2005; Bogusch, 2006) regard this species to be synonymous with *Mutilla europaea*.

The family Sapygidae is one of the smallest aculeate groups worldwide. Its representatives are nest cleptoparasites, usually of bees of the family Megachilidae. This family is represented by only 4 species in this book, which is all of the European species of the subfamily Sapyginae. The second subfamily, Polochrinae, is represented by a thermophilous and in Europe rare species *Polochrum repandum* (it previously occurred in Hungary and southern Slovakia), which is not mentioned in this publication. The only recent monographs on Sapygidae were published by Kurzenko & Gusenleitner (1994) and Gusenleitner & Gusenleitner (1994). The first was surely the author's main source of information. Determination of Sapygidae is not complicated, so the key is useful even for central European species. Furthermore, only one of the four species, *Sapyga similis*, is rare (but in Switzerland not rarer than *Sapygina decemguttata*, which in contrast is more abundant in Germany or Czech Republic). Kurzenko & Gusenleitner (1994) place the species *S. clavicornis* in a separate genus *Monosapyga*, which was rejected recently but adopted in this book.

Similarly for the Scoliidae, only 5 species are mentioned in the key of which 2 occur only outside Switzerland. No more species are known from central Europe. Furthermore, these 5 species are (like most other Scoliidae) large, colourful and easily distinguished by a beginner. Thus this identification key is not necessary. The Scoliidae of Germany were keyed by Oehlke (1974) and those of Europe and the Mediterranean Area by Osten (2000). However, only the first mentioned publication was used as a source of identification characters by the author of Fauna Helvetica.

The last family – Tiphiidae is a numerous group and members of three subfamilies occur in Europe. Most of the species are thermophilous with their northern distribution boundary in south or central Europe and only *Tiphia femorata* occurs throughout the continent. Six species are keyed (one of them, *Meria tripunctata*, occurs only around Switzerland). The key is excellent for Swiss species, as the poor central European fauna of Tiphiidae is not difficult to identify. In contrast, determination of the south European species is very complicated. Also the taxonomy of this family has not been well studied by hymenopterists, but Agnoli (2005) has taxonomically evaluated European Methochinae and Boni-Bartalucci (1997, 2004) resolved many taxonomical uncertainties and errors in Myzininae. However, the last taxonomical study on European Tiphiinae describes new taxa and genera from Romania and is now outdated and is of low quality (Nagy 1967), so very little is known about the European species of this subfamily. Fortunately, several authors have recently started to study the Tiphiinae of Europe and North Africa. The author of Fauna Helvetica used the correct names for many taxonomically difficult species, e. g. *Methocha articulata* and *Tiphia unicolor*, and also included the colour varieties of *Tiphia femorata* correctly under this species, citing Tournier (1889) as a source. The only incorrect name is that of *Tiphia villosa*, as Achterberg (1988) re-designated this name as the valid one and previously used *T. morio* (first used for *T. femorata*) denoted as a synonym. Nagy (1967) also placed this species in a new described genus *Ludita*, which is generally not accepted by recent authors and should be re-evaluated.

Although the book shows several, mainly taxonomical mistakes, and the author does not refer to some recent publications on these groups (e.g. Arbouw, 1985; Osten, 2000; or Bogusch, 2006), I can sincerely recommend it to all specialists in Hymenoptera, as well as people interested in these insects. Last, I hope the authors of Fauna Helvetica will continue in their creditable effort and compile the other aculeate groups in following volumes.

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