

BOOK REVIEW

AMIET F., MÜLLER A. & NEUMEYER R. 1999: FAUNA HELVETICA 4. APIDAE 2 (COLLETES, DUFOUREA, HYLAEUS, NOMIA, NOMIOIDES, RHOPHITOIDES, ROPHITES, SPHECODES, SYSTROPHA). Centre suisse de cartographie de la faune (CSCF), Neuchâtel, 219 pp., 280 figs, 98 distribution maps. ISSN 1422-6367. Hb: ISBN 2-88414-015-8. Price CHF 45.00.

At the London conference on "Conserving of Europe's Bees" in 1995 Christopher O'Toole [in Matheson A. et al. (eds.): The Conservation of Bees, IBRA, pp. 227-232] argued that the study of bees, especially solitary bees, is poorly developed compared with that of other insect groups. He attributed this to the few courses on apidology given by universities and the lack of literature, especially good keys, which would make it easier for beginners. The German entomologists C. Schid-Egger and E. Scheuchel responded by publishing 3 keys for identification of species living in Germany and Austria belonging to the families Andrenidae, Anthophoridae, Melittidae and Megachilidae. Keys to the family Apidae, especially bumble bees and cuckoo bumble bees, have been published by many authors in different countries, and F. Amiet has published a key to the family Apidae in "Fauna Helvetica".

The book that is currently being reviewed includes identification key to the species living in Switzerland of the genera: Colletidae: *Colletes*, *Hylaeus*; Halictidae: *Dufourea*, *Nomia*, *Nomioides*, *Rhophitoides*, *Rophites*, *Sphecodes*, *Systropha*. As the key for *Halictus* and *Lasioglossum* (published by Ebmer in 1969-71) needs updating it is still difficulty to identify species belonging to these genera.

The book is written in two languages: German and French. Each chapter deals with a particular genus and they are ordered alphabetically to make easy for people unfamiliar with the taxonomy. Every chapter consists of: *Introduction* – the general morphology of the genus, the number of species living in Switzerland and remarks on the compilation and structure of the key; *Descriptive biology* of the genus; *Identification key* for females and males illustrated with original schematic, even diagnostic pen-and-ink drawings, numbered identically with the key couplets for easy orientation; *Supraspecific classification* of the genus is presented at the end of the key. A French translation follows. *Commentary* on individual species is presented at the end of every chapter, and contains the species' names, the author and the date, the most frequent synonyms, morphology of a female and a male, the species distribution in the Palaearctic region and in Switzerland. The frequency of occurrence of species is expressed verbally – for example: "häufig", "verbreitet", "verbreitet aber nicht häufig", "eher selten", "selten", or by citing the latest record. The active period and a cuckoo bee or a host are listed if they are known. At the end of the Commentary there are remarks on the biology of each species, e.g., forage plants, or problems connected with the taxonomy. Their distribution pre- and post-1970 in Switzerland are shown on a map. References and a species index are at the end of the book.

The authors emphasise and illustrate the characters used to distinguish sibling species, e.g., *Colletes marginatus* – *C. sier-*

rensis, *C. hederæ* – *C. succinctus* and species belonging to the *Sphecodes*, i.e., *S. alternatus* – *S. reticulatus*, *S. ruficrus* – *S. rubicundus*. It is important to discriminate between species *S. pseudofasciatus*, *S. croaticus* and *S. crassus*, which is done by reference to characteristics of male genitalia, which Warncke (1992: Die westpaläarktischen Arten der Bienengattung *Sphecodes*. 52. Bericht der Naturforschenden Gesellschaft Augsburg 195: 9-64) did not mention. To be able to distinguish the sibling species is the first requirement for any biological study of *S. pseudofasciatus*, a host for which has yet to be discovered. The data extracted from Šustera's article (1959: Bestimmungstabelle der tschechoslowakischen Arten der Bienengattung *Sphecodes* Latr. *Acta Soc. Entomol. Čechoslov.* 56: 169-180) make a very useful comparison with the key of Warncke (1992), who ignored Šustera's conclusions.

The authors use several characters that have not previously been used in identification keys, such as the reduction of the medial carina on the head of female *Sphecodes croaticus* or the shape of clypeus in the females of *Hylaeus pilosulus*. Unfortunately, the authors did not use the form of the vertex and gena (supraspecific characters) to identify *Hylaeus pilosulus* even though these characters are typical of the species group within the subgenus *Dentigera*, to which *H. pilosulus* belongs. The illustration of the gonostylus of male *Sphecodes* is a great achievement as it is difficult to draw (as mentioned by Blüthgen and Šustera). The elimination of some reliable but difficult characters will be appreciated: e.g. the "presence or absence of hairs on the 1st tergite" in *Hylaeus* females, which is perceptible only in fresh specimens.

None of the identification keys were compiled in agreement with supraspecific classification. This has only been done by Prof. Dathe for the genus *Hylaeus*. Compiling keys without using supraspecific characters results in an unusual key structure. This emphasises the need for further studies on supraspecific taxonomy. In some cases, unfortunately, the authors did not use simple but distinctive characters. For example, typical characters – such as punctuation on the vertex, length of malar space and sculptures on the terminal areas of the propodeum are not used to discriminate between females of *Colletes mlokoszewiczi* and *C. daviesanus*. The drawing of the head of *Sphecodes pseudofasciatus* shows the correct eye configuration but the excessive vaulting of vertex is more typical of the closely related *S. zangherii* Noskiewicz, 1931. Further, it would be useful to consider using good photographs of male *Sphecodes* genitalia, which are truly difficult to draw.

This book will help people interested in insect ecology who have difficulty identifying bees. Specialists will appreciate the detailed faunistics. The book should be purchased by entomological libraries. Above all, this book must be included in school libraries, which are often visited by young students interested in the study of bees but discouraged from studying them because of the lack of information.

The book can be ordered at the following address: Centre suisse de cartographie de la faune (CSCF/SZKF), Terreaux 14, CH-2000 Neuchâtel, Switzerland.

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