

Book review

Charles W. Heckman, 2006. **Encyclopedia of South American aquatic insects: Odonata–Anisoptera. Illustrated keys to known families, genera, and species in South America.** – Springer, Dordrecht. viii + 725 pp., 793 figures. ISBN 978-1-4020-4801-2. Price USD 299.00.

Rosser W. Garrison, Natalia von Ellenrieder & Jerry A. Louton, 2006. **Dragonfly genera of the New World. An illustrated and annotated key to the Anisoptera.** – Johns Hopkins University Press, Baltimore. xiv + 368 pp., 1626 figures, 124 maps, 8 colour plates. ISBN 0801884462. Price GBP 66.00.

The series *Encyclopedia of South American insects* is intended to 'provide keys to the aquatic insect species known from Brazil'. According to the author, this original goal was expanded to comprise all species of South America, and this is true for the present volume on the suborder Anisoptera of the Odonata (dragonflies). Heckman published similar synopses of the Plecoptera and the Ephemeroptera in this series.

The work consists of a general introduction, an introduction to the Anisoptera, including extensive descriptions of adult and larval morphology, a summary of the ecology, and chapters on preservation and examination of dragonflies, zoogeography, taxonomic problems and suggestions for improvement (of taxonomic studies). The keys to adults and larvae cover page 46 to 661, supplemented with 44 pages of references, and an index of taxonomic names.

There is a key to the genera in each family, followed by separate keys to the species per genus. The species distribution by country follows the name of the species in the key. Outline illustrations are provided for nearly all species, according to the author 'based on' original publications. The total number of illustrations is very large, but difficult to estimate; the 793 numbered illustrations each consist of about five details on average.

The taxonomic literature of South American odonates is very scattered, and it must have been an immense task to collect the original papers and summarize them adequately. Although not stated by the author, it seems that only works published before 2005 were taken into account. Students of odonates of South America should be grateful that Heckman has successfully finished this compilation of more than 500 primary publications, and no such work was available for this continent up to now.

A few remarks should, however, be made. First, a checklist of the species of South America is missing. I am not certain whether the author follows Rosser Garrison's (1991, *Argia* 3(2): 1–30, and updated on internet) widely accepted checklist in every detail. Various remarks, e.g. on the status of some species described by Carle in the Austropteliidae, at least suggest that Heckman used Garrison's list and annotations, since he does not refer to von Ellenrieder's (2005) revision of this family. Second, the text is extremely verbose. The general practice of a concise style without articles and verbs in keys is not followed. A further reduction of text would have been possible when using standard abbreviations, such as Ax for 'antenodal cross-veins'. Third, a final editorial check would have been useful, since I found quite some spelling errors, including a few repeatedly in authors' names (Bechley, Giejskes). My final remark is on 'good taxonomy'. The author himself spends many words on suggestions for improvement of present taxonomy, where 'the importance of good illustrations cannot be overemphasized'. To me, good illustrations are such that they can be compared in style, in magnification, and in view. Since the illustrations were copied from other works, diagnostic key characters are frequently not illustrated. Besides, the illustrations lack scale bar or magnification, while magnification of illustrated couplet characters is not necessarily the same.

This publication can now be compared with another recent publication on South-American odonates, which was extensively reviewed by Dijkstra (*Tijdschrift voor Entomologie* 149 (2006): 202). Garrison, von Ellenrieder & Louton (2006) provide a complete list of the species of the Americas, including synonymy. Keys are provided to the genera, with extensive illustrations of wing venation and other diagnostic characters, and distribution maps. For each genus, a summary is provided of distribution, characters, status of classification, potential for new species, and habitat. This work uses a classification different from traditional use, and also contrary to present practice of splitting and rank inflation. For instance, the Corduliidae and Macromiidae are here considered subfamilies of the Libellulidae, while there is, for instance, a tendency towards further subdivision of the Corduliidae into Austrocorduliidae, Corduliidae, Gomphomacromiidae and Synthemistidae. As another innovation in a synoptic work, Garrison et al. also use the wing terminology as introduced by Riek & Kukalová-Peck.

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Although I prefer the concise style and more adequate illustrations of Garrison et al., Heckman's *Encyclopedia* is far more complete for identification of adults to species level, and also for identification of larval stages. I would recommend both books for libraries; specialists in Odonata should first consider *Dragonfly genera of the New World*.

Jan van Tol

