

BOOK REVIEW

WICHARD W., ARENS W. & EISENBEIS G.: BIOLOGICAL ATLAS OF AQUATIC INSECTS. Apollo Books, Stenstrup, Denmark, 2002, 340 pp., ISBN 87-88757-60-9, hard cover, price DDK 490.00.

This volume is a good English translation of the original German edition of *Atlas zur Biologie der Wasserinsekten* (G. Fisher, Stuttgart etc., 1995), which was very positively received, not only by specialists, but also by a wide scientific public (see also *Eur. J. Entomol.* **94**: 136, 1997). Numerous textbooks and atlases on aquatic animals have been written and published but none of them, in our opinion, provide the scientific public with such an eye-catching and attractive collection of original SEM illustrations of the splendid structural diversity of aquatic insects. Moreover, this edition is not a mere translation (although the English term “Biwings” for Diptera – see content, p. 7, is rather unusual) as the authors carefully corrected most of the minor mistakes and incorporated new knowledge in this field. Unlike most other books on aquatic insects, which mainly deal with ecological aspects and environmental variables, this treatment is strongly physiologically based and the ecological relationships in water ecosystems are not neglected.

The volume consists of five principal chapters. The introductory chapter deals with three principal adaptations of insects (and hexapod arthropods) to an aquatic environment: respiratory, osmoregulatory and those that resulted in changes in life cycles. The second chapter (Systematics of the Aquatic Insects) describes morphological, physiological (and sometimes behavioural) adaptations of both aquatic insect orders/families or aquatic representatives of predominantly terrestrial taxa: Colembola, Ephemeroptera, Odonata, Plecoptera, Heteroptera (Nepomorpha, Gerromorpha), Megaloptera, Neuroptera, Coleoptera, Hymenoptera, Trichoptera, Lepidoptera and Diptera. Within the latter all aquatic representatives, i.e. Tipulidae, Blephariceridae, Deuterophlebiidae, Psychodidae, Ptychopteridae, Dixidae, Chaoboridae, Culicidae, Simuliidae, Chironomidae, Ceratopogonidae, Stratiomyidae, Athericidae, Tabanidae, Syrphidae, Ephydriidae and Muscidae, are treated. Although inevitably mainly European representatives are cited, important extralimital species or taxa are sometimes considered.

Following chapters (3–5) consist of a list of references referring to individual taxa, an index of scientific names facilitating orientation and reference to family, genus and species and a subject index.

Within the principal chapter devoted to individual taxa, text, line drawings, graphs and diagrams, mostly taken from the lit-

erature and figure legends are on the left-hand page, and original SEM micrographs of excellent quality, although slightly smaller than in the original edition (plate size 14.5 × 20.5 cm instead of the original 17 × 24 cm), are on the right-hand page.

For the mayflies (Ephemeroptera), for example, the following subjects are dealt with: life forms of larvae, chloride cells - morphology and ultrastructure, divergence, adaptations to varying salinities, feeding habits and mouthparts of larvae, tracheal gills, rheophilic mode of life, burrowing mayfly larvae with special emphasise on predatory or wood-burrowing larvae of *Dolania* and *Asthenopus*, respectively, and mayfly eggs with a typical example of an adaptation to eliminate the negative effects of downstream drift in aquatic insects in general. To show the full range of morphological adaptation, this chapter concludes (p. 40) with notes on the peculiar genera *Prosopistoma* and *Baetisca*, which are probably the most derived phyletic lineage of the order. As emphasized above, treatment of individual groups is not restricted to morphological or ultrastructural aspects but includes also data on larval development and growth, species traits and life cycle.

Naturally, some minor mistakes persist in this new edition. However hidden, they are inevitably apparent to a specialist. Within the treatment of aquatic bugs (Heteroptera: Nepomorpha and Gerromorpha), for example: Individual subchapters are rather general on the one hand but very specialized on the other. From p. 92 onwards hardly any important information is provided and the line drawing of *Ilyocoris cimicoides* seems to be rather schematic while the highly specialized information on chloride cell number on p. 96 saying nothing to scientific public although being of a high informative value. Some English or scientific names and terms seem to be incorrect (p. 90 – Salididae vs. Saldidae; p. 92 – Live vs. Life in heading; p. 114 – *Plea leachi* is a junior synonym of *P. minutissima* and still missing substantial literature sources, e.g., Savage, 1989, or Hutchinson, 1993). We understand that the extralimital but very important family Helotrephidae is not treated but why is it missing from Tab. 3? Respiratory adaptations of this group are worthy of our attention as well as the overwintering strategy of typical Gerromorpha.

The above critical remarks only concern the mostly formal aspects of this marvellous treatment of aquatic insects. The book is equally valuable and attractive for a large spectrum of readers, from students and amateurs to experts in hydrobiology and aquatic entomology.

T. Soldán & M. Papáček