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BOOK REVIEW

GANGWERE S.K., MURALIRANGAN M.C. & MURALIRANGAN M. (eds): THE BIONOMICS OF GRASSHOPPERS, KATYDIDS AND THEIR KIN. CAB International, Wallingford (UK) and New York, 1997, xiii + 529 pp. ISBN 0-85199-141-6. Price GBP 85.00.

Twenty-eight authors contributed to twenty-one chapters grouped into six sections (incl. Introduction, Systematics, Distribution, Habits and Behaviour, Physiology and Genetics, and Control and Conservation) in this collection of reviews. The editors state in the introduction that "The book is written from a broad, comparative biological, behavioural and evolutionary approach best expressed by the neglected term bionomics...". A switch from the current, ambiguous biology to bionomics is surely welcome, but such a broad extension of the meaning of the latter term is surely not. Why not to stick to its original meaning (still widely used in German) – "way of life"? Some sections of the book do not meet the requirements anyway.

A second general critical remark is the vague taxonomical delimitation of the scope. The book almost exclusively concerns the best known families of the Ensifera and Caelifera (= Orthoptera s. lat.). The particular group covered by any individual chapter is usually clearly stated within its title, but the vague terms "orthopteroid insects" and "orthopteroid orders" are to my liking too often used, sometimes meaning the Orthoptera, sometimes including – even topically – the Blattodea, Mantodea, and Notoptera as well, and in Storozhenko's contribution (Chapter 4, see below) used as synonyms for the "Polyneoptera". The term Acridomorpha is several times used but never explained, and the reader must guess whether it means all the Caelifera, or its acridoid families only. Any editorial touch is not apparent. Moreover, the claimed comparative biological approach is merely a fiction: the taxa most interesting for an evolutionary entomologist (Tetrigoidea, Tridactylidae, Cylindrachetidae, Myrmecophilidae, Haglidae, Cooloolidae, and the rest of the "Gryllacridoidea") are mentioned practically only in the systematic section. It appears that most of the contributors would not know or even care about them. Even information about the lack of data would be useful.

Let's turn now to the individual sections. That on the systematics is useful, but not good. V.R.Vickery (Chapter 2) provides an eclectic tabulation of the complex suprageneric classification of the modern Caelifera, and diagnoses of all the families (subfamilies of the Acrididae as well). D.A. Nickle and P.A. Naskrecki (Chapter 3) provide the same for the Ensifera, including also extinct taxa, but excluding diagnoses and authorships. No arguments and no cladograms are included, synonymy (allowing for easy understanding of earliear literature) is excluded, and treatment of non-grylloid and non-"gryllacridoid" ensiferan taxa as a single family Tettigoniidae with numerous subfamilies is comfortable, but hardly phylogenetic. S.Yu. Storozhenko (Chapter 4, for some reason included in the section on Distribution) has summarized the results of phylogenetic (not cladistic!) interpretation of relationships and resulting classifications of all the higher extant and extinct taxa of the "polyneopteran complex" as understood by the Russian paleoentomological school. The summary and list of references are extremely useful, but the approach is definitely outdated; there is no character support for the many dendrograms included. The chapter is out of the context with the book and covers many orders never mentioned elsewhere. No attempt to collate classifications, nomenclature, and format in chapters 2–4 is noticeable.

The section on distribution starts with two fascinating chapters (5, 6) on ecology of rangeland (= territorial?, non-migratory?) grasshoppers and on the grasshopper and locust population dynamics in the prairie environment, written by J.A. Lockwood. In both of them, the grasshopper communities represent merely the background model groups, while the emphasis is on the discussion, review, and questioning of modern approaches to the ecology of distribution in time and space; the subject is covered in depth in a way clearly understandable to an outsider to the field. These chapters should be read by everybody even marginally interested in the general ecology. The next two chapters deal with orthopterans in relation to ecogeography and landscape change, and offer reviews particularly of

Russian and South African achievements. The emphasis is on the ecological rather than on the historical explanation, which is thought to be applicable only to the insular situations.

The section on habits and behaviour includes good and stimulating reviews on the feeding behaviour and host selection in the grasshoppers and locusts, on polyphagy, and on the acoustic behaviour in Orthoptera (largely excluding structural aspects and review of unusual mechanisms). Really excellent and comprehensive reviews are of grasshopper oviposition by T.W. Stauffer and D.W. Whitman, and on the evolution of mating in the ensiferans by W.D. Brown and D.T. Gwynne. The latter is the only chapter dealing with its respective subject in truly phylogenetic context.

Chapters on endocrinological aspects of diapause-related strategies in the Caelifera, on molecular evolutionary genetics (relying heavily on case studies) of Orthoptera, and on the chromosomal differentiation of individuals, populations, and species of Orthoptera form the next section. The last of these chapters is by J. Gosálvez et al., and is excellent but has managed to avoid the critical issue of the relationship between chromosomal change and various modes of speciation (the actual term never appears), though the hybrid zones are treated in detail.

The last section on control and conservation is well organized, containing chapters on the history of chemical control, phytochemical management strategies, biological control, and crop-centered integrated pest management (all focussed primarily on locusts). The chapter on conservation biology has seemingly little to say except for generalities or very specific cases, but it is important in two respects. First, the large size and restricted distribution of many endangered orthopterans make their conservation more similar to that of the vertebrates than to other arthropods. Second, there is a specific situation of some locusts who suddenly become gregarious pests, and then suddenly become extinct.

The book is excellently indexed and referenced, and is recommended to all the orthopterists, general entomologists and ecologists, and students of behaviour. My critical comments aimed particulary at the systematic part and treatment of minor, odd taxa do not diminish the value of the book. However, I cannot but help to add another comment. In a book concerning bionomics and claiming to be comparative, I (and undoubtedly many other readers as well) would like to see a simply-written chapter summarizing recent knowledge of the ways of life of the group, e.g. organized data on major habitat preferences, food requirements, modes of communication, enabling mechanisms as well as other bionomically important features. I know that these subjects have been covered many times in monographs and textbooks and are extractable, but imagine the unnecessary efforts of a comparative entomologist and the ease with which an experienced otrthopterist could put the data together.

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