

BOOK REVIEW

Cox M.L. (ed.): ADVANCES IN CHRYSOMELIDAE BIOLOGY 1. Backhuys Publishers, Leiden, 1999, 672 pp., 332 figs, 73 tables. ISBN 90-5782-028-5. Price USD 160.00.

This book is the sixth in the series dealing with biology of Chrysomelidae (started in 1988 by "*Biology of Chrysomelidae*"). The arrangement is similar to previous books in the series. The publication contains 35 original contributions by 57 authors, grouped under 8 broad topics: Paleontology; Phylogeny and relationships; Biogeography; Ecological studies natural enemies, defences, biological control; Community ecology, population ecology, conservation; Host-plant associations; Reproduction; General biological, ecological and biosystematic studies. This volume brings together a wide range of the most recent studies on the biology of Chrysomelidae.

The first part includes two chapters dealing with fossil Chrysomelidae. The list of chrysomelid beetles known from amber deposits is presented and preliminary analyses of chrysomelid paleodiversity are discussed. The second part starts with two molecular phylogenetic analyses.

Results of phylogenetic analysis based on 16S mtDNA, with special reference to the subfamily Chrysomelinae, support monophyly of *Timarcha*, *Chrysolina* + *Oreina*, and *Entomoscelis* + *Gonioctena*. It is in agreement with recent taxonomic studies. A preliminary phylogeny of Hispinae sensu lato was constructed using 12S mtDNA. The cladogram isolates hispine tribes in the basal part and cassidine tribes in the derived part of the tree. In the next chapter the first instar larvae of the Megascelinae and Aulacoscelinae are described for the first time. According to larval morphology, the Aulacoscelinae are related to the Orsodacninae, while the Megascelinae share many characters with the Eumolpinae. Henceforth, larvae of all chrysomelid subfamilies are described. The remaining three articles are devoted to phylogenetic studies based on morphological characters. Phylogenetic importance of internal structures of male genitalia for classification of the Eumolpinae is discussed. Both structural and chemical characteristics of egg chorion provide new insights into the taxonomy of North European Galerucini. Preliminary cladistic analysis of alticine subtribe *Disonychina* terminates this part of book.

Part 3 (Biogeography) consists of two chapters discussing ecological and biogeographical aspects of the Andalusian leaf beetle endemisms and biogeography of desert leaf beetles of Central Asia, respectively. Ecological studies are the subject of the next part. Organisms used as biological control agents against Colorado potato beetle *Leptinotarsa decemlineata* are reviewed. The next chapter mentions possible use of rickettsial bacteria of the genus *Wolbachia* for the biological control of Western crop rootworm *Diabrotica virgifera*. Chrysomelidae are heavily attacked by parasitoids and predators. Importance of chemical cues for successful host search is reviewed. Possible

defensive attributes against natural enemies, such as larval shield and mimicry, are also discussed. Larval shields are considered as important physical and chemical defending barriers, which enabled larvae to colonize leaf surfaces.

Leaf beetles represent conspicuous elements of the fauna of tropical rain forests. Increasing fascination of entomologists by rainforest canopies is also well documented in this book. Four articles deal with the community ecology of Chrysomelidae from Central Africa, South America and Papua-New Guinea. The contribution by Beenen about conservation and rehabilitation of chrysomelid beetles in a cultivated environment is one of the first papers dealing with this important topic.

The sixth part is devoted to the interactions between Chrysomelidae and their host-plants. Phylogeny of the *Chrysolina-Oreina* complex based on 12S and 16S mtDNA and CO1 sequences is compared with host-plant specialization and chemical defense. The original host-plants of *Oreina* clade would have been Asteraceae (Senecioneae). All molecular trees show a totally surprising result: *Chrysolina fastuosa* is included in the *Oreina* clade. However, the precise position of *Ch. fastuosa* needs additional investigation. The next contribution compiles information on larval biology and host-plant breadth of two galerucine genera *Acalymma* and *Diabrotica*. An article about Costa Rican leaf-mining Hispinae with special emphasis on their host-plants and description of the mines terminates this part of book. The section "Reproduction" partially fills the important gap in our knowledge of sexual behaviour of the leaf beetles. It consists of an extensive literature review of this problem and details results of observations of mating behaviour in Donaciinae.

The last part of the book is devoted to systematic and biological studies. Two taxonomical contributions deal with revising the North and Central American genus *Labidomera* and South African flea-beetles of the genus *Longitarsus* associated with the Boraginaceae. Detailed biological data including life-cycles, descriptions of immature stages and bionomics of both adult and larval stages are given for *Cryptocephalus anceps* and *C. moraei*, some members of the tribe Paropsini, several species belonging to the genera *Diabrotica* and *Procalus*, flea-beetle *Altica corni*, leaf-mining hispine *Octuroplata octopustulata* and two tortoise beetles *Conchyloctenia punctata* and *Stolas lacordairei*.

The book contains an author index, subject index and taxonomic index of animals and plants at the end which increases its readability. The volume is technically perfect, with a very high quality of both original and redrawn reproductions and graphical arrangement. The book is very stimulative reading, interesting not only for specialists in Chrysomelidae, but may be inspirational for entomologists in general.

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