

## BOOK REVIEW

DROSOPoulos S. & CLARIDGE M.F. (eds) 2005: *INSECT SOUNDS AND COMMUNICATION. PHYSIOLOGY, BEHAVIOUR, ECOLOGY AND EVOLUTION* (with DVD). CRC Press, Taylor & Francis Group, Boca Raton, London, New York, 532 pp. ISBN 0-8493-2060-7 (hardback). Price: USD 139.95.

Insects are noisy animals. As one of the co-authors of the reviewed book points out, "their hardened exoskeletons click and tap or grind and crunch with nearly every movement, much like mechanical toys made of plastic". It is not surprising that they are predisposed for acoustic communication and that they have independently evolved an extraordinary array of sound producing devices. Their noises, sounds and songs often fall into the range of our own auditory sensitivities and have been extensively described, analysed and experimented on, particularly during the past 50 or 60 years. In addition, to the clearly audible songs of notorious noisemakers such as Orthoptera and some Hemiptera, the sounds produced by most other insects are inaudible to the human ear due to their low intensity, pitch frequency or the medium of their propagation. But even the insect sounds we can hear are incomprehensible, because our auditory analyser cannot decode its message. Moreover, insect-made vibrations propagated through solid substrates, which are now known to be very widely used in insect communication, completely escape detection by our senses.

This voluminous monograph (532 pp.) on insect sounds and communication is the first multi-author publication to comprehensively review the current state of research on sound communication within the most important insect orders. It examines insect acoustics in terms of evolution by examining its genetic bases and the role of communication in speciation. This book also examines insect sounds with respect to overall behaviour, showing how they have adapted and evolved in complex acoustic environments. Thirty-two chapters written by top specialists from all over the world cover general aspects of insect sounds, their relation to morphology, development and physiology, review techniques of sound analysis, and describe how different species generate and perceive sounds. The book is divided into two sections: Part I starts with a general introduc-

tion to insect sounds and acoustic communication, and discusses the technical aspects of recording, analysing and interpreting acoustic and vibratory signals produced by insects. Three further chapters describe the function of the sense organs and sensory systems involved in vibratory communication and orientation by substrate vibration. The impact of body size and temperature on insect sounds and vibrations is the topic of the two following chapters. Several remaining chapters of this section are devoted to various evolutionary, ecological and genetic aspects of insect mechano-communication. Rare information on seldom-studied groups, such as Neuropterida and Plecoptera is also included. The role of acoustic signals in host-parasitoid and prey-predator interactions, which are mostly based on eavesdropping on victim's signals, is also discussed.

The first eight chapters of Part II (Sounds of Various Taxa of Insects) are devoted to the acoustic or vibratory communication of various Hemiptera, namely several heteropteran families, treehoppers, cicadas, psyllids and whiteflies. One chapter reviews the advances in the study of communication by vibratory signals in Diptera, two chapters deal with the stridulation in Coleoptera and the final chapter summarises the knowledge of vibratory and airborne-sound signals in bee communication. The book provides a full list of some 1520 references, which constitute a comprehensive bibliography on the subject, and concludes with an index of over 3700 entries, which greatly facilitates orientation and searching the text. The volume is illustrated with numerous black and white drawings, diagrams, oscillograms, sonograms and photographs, and packaged with a DVD, which holds sound and video recordings of many of the insects discussed in the text and many colour illustrations that are not included in the book.

*Insect Sound and Communication* is an important milestone for all students of insect acoustics. However, it is written for a broader readership, including entomologists, evolutionary scientists, sensory physiologists and neuroscientists, and is also a welcome source of information for ethologists, ecologists and experts in audiosciences. Biology scholars with broad interests will also find it useful.

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