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BOOK REVIEW

JERVIS M. & KIDD N. (eds): INSECT NATURAL ENEMIES. PRACTICAL APPROACHES TO THEIR STUDY AND EVALUATION. Chapman and Hall, London, UK, 1995, 491 pp., ISBN 0-412-39900-8. Price (HB) GBP 69.00.

Two entomologists from the School of Pure and Applied Biology, University of Wales, Cardiff, edited this book, which was contributed by their British colleagues M.P. Walton (Cardiff), W. Powell (Rothamsted), and M.J.W. Copland (Wye), and two Dutch colleagues from Leiden, J.J.M. van Alphen and J. van den Assem. The book comprises six major chapters, each of which was written by one to three authors. One great accomplishment of the book is that the chapters do

not overlap and rarely repeat statements and definitions, which is unusual in multi-author books; the chapters even cross reference each other.

The space restraints led to some limitations in the scope; thus some topics that could contribute to the understanding and evaluation of beneficial insects were omitted. Readers will not find a discussion of dormancy and/or hibernation in the book, and the treatment of systematics is negligible. Corresponding to special expertise of the authors, the focus is on hymenopteran parasitoids, while predatory insects are much less dealt with.

The subtitle implies that this volume is not purely a theoretical ecological textbook. Neither is it a recipe book that instructs how to perform a particular experiment. In fact, readers will mainly learn about topics of interest in the biology of predators and parasitoids and only in a general sense about methods that are employed to perform experiments. Individual chapters describe specific disciplines of insect biology and provide a survey of problems that are frequently studied or need further study. In some cases, the authors describe relevant methodology including measurement devices (like olfactometers and traps) and discuss the goals and possible pitfalls of previously published studies. Detailed statistical treatments of data is not included, rather, the GLIM software package is frequently recommended for data analysis. In a few cases, mathematical models (equations) are provided, and listings of Quick Basic programs, written by the authors, are published in the appendix of a particular chapter (i.e., for calculating development and growth rates and temperature constants).

The first chapter describes foraging behaviour, host specificity, oviposition decisions, and sex allocation of parasitoids and predators. The second chapter, entitled "life cycle", describes anatomy and function of the reproductive system, growth and development of immature life stages, and the longevity of adults. The next chapter dwells on many aspects of mating behaviour. The fourth chapter, entitled "populations and communities", mainly covers sampling techniques and advanced methods of species identifications, while it almost omits the rich theoretical background of this ecological discipline, and the trendy concept of tritrophic systems. The fifth chapter deals with population dynamics, including mathematical modelling of predator (parasitoid) / prey interactions, and provides a valuable practical guide of selection criteria for possible use in biological control of an insect population. The last chapter deals with a feature that is usually overlooked in the study of predator and parasitoid biology – their phytophagy. The chapter lists plant materials that carnivores feed upon, discusses the importance of flowering plants in pest management, and analyzes the role of insect enemies as pollinators.

Searching for a particular piece of information in the book is assisted by the extensive indices: the author index lists about 1,240 names; the genus and species index lists about 490 lower taxa along with their family affiliations; and the subject index has about 2,090 items, with many subjects repeated in alternative wording to make the search as easy as possible.

The book is aimed at students and professionals that are investigating the biology of entomophagous insects, and is an especially valuable resource for post-graduates.

Reading the title of the book, I was thinking about the meaning of the term "insect natural enemy". It is often and widely used in applied entomological literature, but the meaning of the term may vary. In this book, the attribute "insect" refers to those insect species that are predators or parasitoids of other insects, although in different sense it could also include song birds, spiders and many other organisms that are important in the control of many insects, including economically important ones.

The attribute "natural" is appropriate for those antagonists that occur naturally with the prey/host in their original ecosystem and region; it may also be used for such species in cases of classical biological control, i.e. introduction of an antagonist to control a pest that has invaded a new region and ecosystem where a natural prey/host relationship exists. However, the term has been inappropriately used in cases of classical biological control when the introduced predator or parasitoid is of a different origin than that of the pest.

O. Nedvěd