

BOOK REVIEW

WAJNBERG E., BERNSTEIN C. & VAN ALPHEN J.: BEHAVIORAL ECOLOGY OF INSECT PARASITOIDS. FROM THEORETICAL APPROACHES TO FIELD APPLICATIONS. Blackwell, Malden, MA & Oxford, 2008, 445 pp., ISBN 978-1-4051-6347-7. Price EUR 60.80, GBP 45.00.

The need to reduce chemical treatments in pest management has recently enhanced publication of compendia on the natural enemies of pests. Although a new edition of the general volume on natural enemies has been published recently (Jervis, 2005), the present book with a more specialised topic has been much needed, 14 years after the last similar title (Godfray, 1994), and 22 years after the general compendium on parasitoids (Waage & Greatheads, 1986).

Research on behaviour has much progressed in recent years, promoted by the need for basic knowledge essential to conducting modern types of biological control (such as augmentation and conservation), following some retreat from classic biocontrol by introductions of exotic species. Practically all researchers, who created the important progress in the field, are among the editors and chapter-authors: P. Bernhardt, C. Bernstein, G. Boivin, M.B. Bonsall, J. Casas, L.-A. Giraldeau, H.C.J. Godfray, R.F. Green, P. Haccou, I.C.W. Hardy, G.E. Heimpel, L. Hemerik, M. Hilker, T.S. Hoffmeister, A.R. Ives, M. Jervis, A.R. Kraaijeveld, J. McNeil, N.J. Mills, P.J. Ode, J.-S. Pierre, B. Roitberg, W.E. Snyder, M.J. Strand, J.J.M. van Alphen, M. van Baalen, L.E.M. Vet, E. Wajnberg.

The volume contains 18 chapters, each authored by two specialists, and grouped into three parts. Ten basic topics of behavioural ecology are presented in 10 chapters of the first part, from the link between foraging behaviour and efficient biological control, to the estimation of fitness and decision making, intra-

guild relations, and the role of semio-chemicals and physiological mechanisms. Finally, four additional important aspects of foraging are addressed: host and food searching, patch time allocation and risk assessment.

Four chapters of the second part (Extension of behavioral ecology of insect parasitoids to other fields) relate behavioural ecology to the multitrophic context, control of sex ratio, population dynamics and development of host resistance. The last four chapters in the third part (Methodological issues in behavioral ecology) address the importance of state-dependent aspects, the use of Bayesian approaches, genetic algorithms and statistical methods.

As already mentioned, the book is timely. The problems of behavioural ecology of insect parasitoids are addressed by combining modern evolutionary theory with recent insights into the structure of ecological interactions. It integrates the wisdom developed by different research groups and will certainly promote further progress in the field by generating original ideas, opening new avenues of research and suggesting useful modern methods. I am sure that the volume will become indispensable both for students in basic research and workers in biological control.

REFERENCES

- GODFRAY H.C.J. 1994: *Parasitoids. Behavioural and Evolutionary Ecology*. Princeton University, Princeton, 488 pp.
JERVIS M.A. (ed.) 2005: *Insect as Natural Enemies: A Practical Perspective*. Springer, Dordrecht, xiv + 748 pp.
WAAGE J.C. & GREATHEAD D. (eds) 1986: *Insect Parasitoids*. Academic Press, London, xvii + 389 pp.

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