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A color handbook of biological control in plant protection

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HELYER, Y., K. BROWN, AND N. D. CATTLIN. 2003. A color handbook of biological control in plant protection. Timber Press; Portland, Oregon, USA.126 p. ISBN 0-88192-599-3. Hardback, $39.95.

This slim book is the latest entry for a nontechnical handbook on biological control of pests of plants. It has four sections. The first, of 18 pages, is called crop environments. It deals with the environments created by cultivation of arable crops, orchards, and greenhouse-grown crops. It discusses naturally-occurring beneficial organisms and their conservation, the use of chemical pesticides, the use of augmentative biological control, and integrated pest management.

The second section, of 21 pages, is called pest profiles. It first provides small color photographs with accompanying brief text, to allow the novice reader to recognize some of the major groups of arthropod and mollusc pests. But, juxtaposed with the photographs of pests are photographs of beneficial organisms that may be found in the same habitat. Then follow the profiles of "common pest species", order by order, from Coleoptera through Diptera, Homoptera, Lepidoptera, Thysanoptera, Acari, Gastropoda, and Isopoda. These written profiles are in some instances to the level of family, in others to the level of order, depending upon appropriateness. All are accompanied by color photographs of adults, larvae, eggs, or damage caused by the group of pests in question. The pests illustrated are identified to the species level.

The third section, of 63 pages, is called beneficial arthropod profiles. This is where the book exceeds any that I have seen by writing about and illustrating with color photographs, so many beneficial organisms—not just the usual pictures of adults and larvae of *Chrysoperla carnea* and a coccinellid species or two, but scores of predatory insects, mites, and spiders. There are 235 photographs. As in the previous section, almost all the organisms depicted are identified down to the species level.

The fourth section, of 10 pages, is called entomopathogens. It deals with nematodes, bacteria, fungi, and baculoviruses and how these affect their arthropod and mollusc hosts. It, too, is illustrated by color photographs. The book is complete by a page of references, a page of a further reading list, (including websites), a glossary, a taxonomic index, and a subject index.

After lauding the book for its virtues—I think it is very well thought out—I have to admit there is a little snag for readers who live outside western Europe. The fauna illustrated is British. Quite a few of the species photographed and identified down to the species level do not occur in the USA. This is truer of the beneficial organisms than of the pests. How much that matters depends upon whether the reader expects to make a species-level identification simply by using the book.

I think that it would be unrealistic to expect try to identify beneficial organisms down to the species level from this book or any like it. If there are about 25,000 species of terrestrial arthropods in the British fauna, how many can be identified from the 340 photographs in this book? If there are about 100,000 species in the fauna of the USA, how many could be identified to the species level with a book four times this size representing USA species? The book does not pretend to be an identification manual. In that sense, it does not matter that it is British species that are illustrated—they are just representative examples. If the reader wants an identification manual for the terrestrial arthropod fauna of the USA, that will be a whole long shelf of books that have not yet been written.

What we might hope is that authors will use this model as a guide to how to prepare similar volumes for the USA. To keep the bulk and price down, such USA volumes might best be written for regions of the USA instead of trying to cover the entire country with its diverse climates, fauna, and crops, in just one volume. This book's sale price of $39.95 is modest for such a well-illustrated hardbound work with such a mine of useful information. It should be useful to farmers, growers, horticulturists, gardeners, extension agents, and students.

As to errors, I found very few. There is a question of the identity of the beetle larva illustrated in photograph 118 and attributed to Carabidae. It looks remarkably like a staphylinid larva to me, but I could not see its structures in fine enough detail to be sure, because of the screening process used in printing the photographs.

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