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BOOK REVIEW

THE PENTATOMOIDEA (HEMIPTERA) OF NORTHEASTERN NORTH AMERICA WITH EMPHASIS ON THE FAUNA OF ILLINOIS. J. E. McPherson. 240 pages. Southern Illinois University Press, Carbondale, 1982. \$30.00.

Among the most conspicuous of the true bugs are the pentatomoid Hemiptera, stink bugs and their relatives, many of which are large, or moderately so, and brightly colored. Unwary berry pickers probably can recount an unpleasant experience with fruit tainted by the noisome odor of a stink bug, and the characteristic, barrel-shaped eggs of most Pentatomidae, often ornate and arranged in neat rows, have evoked the wonderment of naturalists and prompted numerous technical descriptions from entomologists. Contributing to the importance of this group are the crop losses inflicted by certain plant-feeding species and the destruction of insect pests by predatory stink bugs (Asopinae).

Professor McPherson now has brought together the scattered literature treating biology and distribution of the Acanthosomatidae, Corimelaenidae, Cydnidae, Pentatomidae, and Scutelleridae occurring in the northeastern United States and Canada. His thorough review of host-plant and predator-prey records, many obscured in regional faunal lists, and his updated keys to genera and species will be useful to hemipterists and nonspecialists.

The introductory sections include a brief review of the Hemiptera-Heteroptera and the superfamily Pentatomoidea. There also is a short history of work on the North American pentatomoid fauna and a list of workers who have contributed to the taxonomy and biology of the group. Instead of names presented without distinction between major workers and those of passing interest in stink bugs, a reader might have been interested in knowing which hemipterists made the greatest contributions and something about their accomplishments. Other introductory comments are devoted to the derivation of the northeastern pentatomoid fauna, generalized life history and habits, and higher classification. Preceding the keys and species write-ups is a statement of methods: geographic coverage, collections examined, and format regarding synonymy, acceptance of host records, use of scientific and common names of plants, and insect nomenclature. The major part of the book, the keys and biology (p. 9-114), is followed by eight tables (checklist of northeastern species, selected list of faunistic surveys, species collected at light, in beach drift, at high elevation, and prey of *Podisus maculiventris* (Say), *P. modestus* (Dallas), and *P. serieiventris* Uhler), 102 morphological illustrations, and maps showing the Illinois distribution of 88 species or subspecies.

In the introductory section on biology there is almost as much information on morphology as there is on natural history. A reader might have gained a better feel for the habits of these bugs if it had been mentioned that certain members of *Banasa*, *Euschistus*, *Thyanta*, and other genera show a preference for developing or ripe fruits of their hosts and that nymphs of many cydnids are root feeders. Photographs of eggs showing their ornamentation and arrangement in clusters, and of predation by an asopine would have enhanced the value of the book for students and nonspecialists. A section on economic importance of stink bugs would have been useful. A reader also might like to know the rationale behind the geographic area chosen: "Labrador west to northeastern Manitoba, south through western Minnesota and western Missouri, and east to southern Virginia." Even though the work is regional in scope with an emphasis on the fauna of Illinois, it is good to see that several extralimital species are included in the keys and review of species. I cannot resist adding that given the relatively small number of pentatomoid species occurring east of the Mississippi, a treatment of the southeastern fauna would have been welcomed.

The remainder of the book is devoted to keys to higher categories and species and to a review of distribution, host plants (or prey records for predacious taxa), habits (including overwintering stages, spring emergence, mating, oviposition), and, when appropriate, comments on nomenclatural problems and references to descriptions of immature stages and to natural enemies. Some 120 species and subspecies are covered. The only one I found

omitted for which published records were available is the Old World cydnid *Aethus nigrilus* (F.), an introduced species recorded from Delaware (Hoebeke, USDA Coop. Plant Pest Rep. 3(29): 376, 1978) and Connecticut (Hoebeke, Ibid. 5(36):691, 1980).

The literature coverage is remarkably thorough; even the most obscure local lists are included. It may be appropriate here to mention a rather inaccessible mimeograph series in which western Pennsylvania records are given. J. L. Swauger has listed the stink bugs of Powdermill Nature Reserve in the Carnegie Museum of Natural History Education Releases No. 32 (1960) and 43 (1964), and Research Reports No. 6 (1961) and 32 (1973).

The keys, adapted from various sources but with several improvements, appear workable, well illustrated (a few habitus drawings or photographs would have helped), and free of confusing terminology. Even the common species of the "difficult" corimelaenid genus *Galgupha* can now be identified with some assurance! The nomenclature is sound, although some authorities are bound to dispute the validity of names used for certain taxa. McPherson clearly states that other sources are to be consulted for generic and specific synonymies, but it might have been useful to point out that the genus *Pitedia* Amyot is used in some recent works instead of *Chlorochroa* Say (see Sailer, Bull. Entomol. Soc. Amer. 26:40, 1980), or that *Elasmucha lateralis* (Say) often has been called *Meadorus lateralis*.

I found few errors in the recording of distributions; one that seems inaccurate is the Pacific Northwest record for *Neotiglossa cavifrons* Stal. Although Stoner (Canadian Entomol. 58:29, 1926) recorded this pentatomid from Victoria, British Columbia, his records pertain to *N. tumidifrons* Downes, or possibly also to *N. sulcifrons* Stal (see Downes, Canadian Entomol. 60:92, 1928). For *Nezara viridula* it might have been useful to note it is widespread in the tropics and is nearly cosmopolitan in distribution.

Host plants are thoroughly reviewed, but the listing of numerous plants for polyphagous species, in a few cases without much discussion, tends to obscure trends and to make it difficult for the user to pick out a particular host from the lists. It would be nice to know that some general feeder occurs most often on certain plants and seems to prefer, say, legumes. The addition of host plants (and prey) to the checklist of pentatomoid species (Table 1) would have been invaluable. In most cases common names are used for hosts so that the reader is apt to wonder about scientific names. An appendix giving botanical names and families (or added to an expanded checklist of pentatomoids and their hosts, possibly in place of the Illinois distribution maps) also would have been useful.

Host information that is potentially misleading occurs under *Banasa euchlora* Stal. This species is said to have been taken several times on "cedar"; then McPherson notes that he has seen a specimen with a *Juniperus* label. The cedar records undoubtedly refer to red cedar, *Juniperus virginiana* L. (or a related species), on which I have taken nymphs and adults of *B. euchlora*.

This 6 × 9 inch book is well bound and has an attractive stink bug embossed in gold on the cover; the paper quality is good. The book also is well indexed, and there are few problems with typographical errors, grammar, or syntax.

None of my comments should be construed as seriously detracting from this volume; my overall impression is favorable. McPherson's *Pentatomoidea* should be on the bookshelf of hemipterists and really anyone with an interest in the group. Indeed, it is indispensable for its compilation of the literature and updated keys. Now who said a book devoted to stink bugs had to be repugnant?

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