Abstract

The family Tortricidae, with just over 9000 described species (Brown 2005), is the second largest lineage in the microlepidoptera, second only to the Gelechioidea, and by far the most important economically. A division into three subfamilies, Tortricinae, Chlidanotinae and Olethreutinae, has become generally accepted, though only the latter two are natural groupings defined by reliable characters (Horak 1998). The majority of tortricid caterpillars are leafrollers, but internal feeding is found in all subfamilies. Caterpillars boring in fruit, shoots, stems or roots are particularly prevalent in the Olethreutinae and the group includes many horticultural pests.

This volume reviews the 90 olethreutine genera occurring in Australia, presenting revised concepts of the six recognised olethreutine tribes (Microcorsini, Olethreutini, Bactrini, Enarmoniini, Eucosmini and Grapholitini) and a refined classification based on informal genus-groups for the Olethreutini, Eucosmini and Grapholitini. The revision of the Grapholitini and the new grapholitine taxa are jointly authored by F. Komai and M. Horak. The Australian Olethreutinae are largely derived from the Oriental fauna, and results from this study reflect on the classification of the Oriental Olethreutinae, with one revised and 80 new generic combinations established for non-Australian taxa.

The treatment of each genus includes synonymy, a detailed morphological description, diagnosis, reviews of distribution and biology, discussion of taxonomic history, monophyly and relationships of the genus, and a checklist for all named Australian species. Illustrations of wing venation, adult moths, head, genitalia, and diagnostic secondary sexual structures are provided, wherever possible, for more than one species. A general section contains brief reviews of olethreutine phylogeny, adult morphology and biology, diversity and distribution of the Australian fauna, and a key to genera.

Twelve new genera are proposed: Olethreutini: Cnecidophora, gen. nov., Atriscripta, gen. nov.; Enarmoniini: Aglaogonia, gen. nov., Pseudancylis, gen. nov., Toonavora, gen. nov.; Eucosmini: Melanodaedala, gen. nov., Whittenella, gen. nov.; Grapholitini (Komai & Horak): Notocydia, gen. nov., Apocydia, gen. nov., Archiphlebia, gen. nov., Commoneria, gen. nov. and Ixonympha, gen. nov. Ancylophyes is raised to genus level. Sixteen new species are named: Microcorsini: Collogenes albocingulata, sp. nov.; Olethreutini: Oxysemaphora notialis, sp. nov., O. hacobiani, sp. nov., Sorolopha johngreeni, sp. nov., Costosa australis, sp. nov.; Enarmoniini: Balbidomaga uptoni, sp. nov., *Cyphophanes gracilivalva*, sp. nov.; Eucosmini: Fibuloides phycitipalpia, sp. nov., F. minuta, sp. nov.; Eccoptocera australis, sp. nov., Eucosmophyes commoni, sp. nov.; Grapholitini (Komai & Horak): Leguminivora longigula, sp. nov., Notocydia niveimacula, sp. nov., Fulcrifera persinuata, sp. nov., Pammenopsis barbata, sp. nov., Microsarotis sanderyi, sp. nov. One revised and 41 new generic combinations are proposed for Australian species. Lectotypes are designated for Argyroploce thystas Meyrick, Helictophanes uberana Meyrick and Hermenias epidola Meyrick.

Notable outcomes of this study are the inclusion of the Gatesclarkeana-group in the Olethreutini, the reassessment of the Bactrini as a highly derived rather than an ancestral group, and the discovery of a very diverse enarmoniine fauna in Australia, allowing a much more comprehensive definition of this tribe. Recognition of two seemingly monophyletic genus-groups, the predominantly Oriental Acroclita-group and the Australia-centered Spilonota-group, is a major step towards understanding the phylogeny of the Eucosmini. The Australian Grapholitini are surprisingly diverse with several endemic genera, two with a unique biology, feeding on Loranthaceae. Whereas the bulk of the Australian Olethreutinae have strong Oriental relationships, the eucosmine Spilonotagroup on Myrtaceae and several endemic genera in the Grapholitini represent Australian radiations.

M. Horak

CSIRO Entomology GPO Box 1700 Canberra, ACT 2601 Australia

F. Komai

Department of General Education Osaka University of Arts Kanan-cho, Minamikawachi-gun, Osaka 585–8555 Japan