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Disentangling a taxonomic nightmare: a revision of the Australian, Indomalayan and Pacific species of *Altica* Geoffroy, 1762 (Coleoptera: Chrysomelidae: Galerucinae)

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Abstract

The genus *Altica* Geoffroy, 1762, is revised for Australia, the west Pacific region and the Indomalayan Archipelago, with 6 valid species: *A. aenea* (Olivier, 1808); *A. birmanensis* (Jacoby, 1896); *A. caerulea* (Olivier, 1791); *A. corrusca* (Erichson, 1842); *A. cyanea* Weber, 1801; *A. gravida* (Blackburn, 1896). The following new synonymy is recognised, in original combinations, senior synonym first: *Galeruca aenea* Olivier = *Haltica ignea* Blackburn, 1889, **syn. nov.**, = *Haltica bicolora* Jacoby, 1904, **syn. nov.**, = *Altica jussiaeae* Gressitt, 1955, **syn. nov.**; *Galeruca caerulea* Olivier = *Haltica elongata* Jacoby, 1884, **syn. nov.**, = *Altica brevicosta* Weise, 1922; *Haltica corrusca* Erichson = *Haltica pagana* Blackburn, 1896, **syn. nov.**; *Haltica birmanensis* Jacoby = *Haltica indica* Shukla, 1960, **syn. nov.** *Altica brevicosta* and *A. birmanensis* are removed from synonymy with *A. cyanea* and *A. indica* is removed from synonymy with *A. caerulea*. The *Altica caerulea* of Maulik and subsequent authors (not Olivier) is a misidentification of two species, correctly named *A. cyanea* and *A. birmanensis*. The *Altica cyanea* of Maulik and subsequent authors (not Weber) is a misidentification, correctly named *A. aenea*. *Altica bicosta* Shukla, 1960, is removed from synonymy with *A. brevicosta* and regarded as a valid species. *Altica splendida* Olivier, 1808, and *Haltica ferruginis* Blackburn, 1889, are transferred to *Sutrea* Baly, 1876, as *S. splendida* (**comb. nov.**) and *S. ferruginis* (**comb. nov.**). The type species of *Sutrea* is designated as *S. elegans* Baly, 1876. *Altica albicornis* Medvedev, 2004, is transferred to *Phygasia* Dejean, 1836, as *P. albicornis* (**comb. nov.**). Lectotypes are designated for *A. australis*, *A. birmanensis*, *A. caerulea*, *A. cyanea*, *A. elongata*, *A. ignea* and *A. pagana*. A neotype is designated for *A. aenea*. *Altica caerulea* is newly recorded from Australia and *A. cyanea* is removed from the Australian fauna. *Altica corrusca* and *A. gravida* are endemic to Australia; all published records of these species from outside Australia refer to the widespread Asian-Pacific species *A. aenea*. The single record of the European *Altica oleracea* (L., 1758) from New Caledonia is regarded as a label error and this species removed from the Pacific fauna. A key, based primarily on genitalic structures, is provided for the six regional species and all are redescribed. Host plant records are reviewed: *A. corrusca* is a minor agricultural pest; *A. aenea*, *A. caerulea* and *A. cyanea* may be useful for biocontrol of weeds.

Key words: flea beetle, morphology, pest species, strawberry, rice, biocontrol, *Ludwigia*, *Melastoma*

Introduction

This paper is an attempt to rationalise 220 years of taxonomic work on six species by 15 workers from nine countries. It describes no new species, recognises only six valid species, and reduces the world's biodiversity by three species. The confusing nomenclatural changes are summarised in Appendix 1.

The alticines, or flea beetles, are a large and diverse group of the Galerucinae, the largest subfamily of Chrysomelidae (leaf beetles). Alticines are characterised solely by possession of a femoral spring mechanism (Furth & Suzuki 1994), a feature which has independently evolved several times within Coleoptera (Furth & Suzuki 1992). Unsurprisingly (for beetles at least), recent molecular research has shown conclusively that the flea beetles are polyphyletic, as the mechanism has been either lost or gained multiple times within Galerucinae (Reid 1992; Duckett, Gillespie & Kjer 2004; Ge *et al.* 2011). However, an internal classification of Galerucinae accommodating this information is still lacking, therefore it remains convenient to refer to three groups within the Galerucinae: (i) polyphyletic Alticini ('alticines') in the traditional sense, defined by presence of the metafemoral

abundant, but found that only the generalist predator *Gymnorhina tibicen* (Australian Magpie) had *Altica gravida* (both adults and larvae) in its stomach (Barker & Vestjens 1990).

Altica gravida has been collected in every month except July, but only 10% of collections were made in May to August and 60% in October to January, which appears to be the peak activity period. This species is attracted to light.

Taxonomic notes. *Altica gravida* was described from “Murray River district etc”, South Australia, based on an unknown number of specimens. We have seen four syntypes in the Blackburn collections (in NHML & SAM) and hereby designate a male lectotype to fix the identity of this species.

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APPENDIX 1. Summary of nomenclatural changes.

ALTICA Geoffroy 1762: 244

aenea (Olivier 1808: 646); **stat. rev.**

= *australis* (Blackburn 1889: 1493); **syn. nov.**

= *bicolora* (Jacoby 1904: 482); **syn. nov.**

= *cyanea* sensu Maulik 1926: 422

= *coerulea* [sic] sensu Weise 1923: 109

= *corrusca* sensu Bryant & Gressitt 1957

= *jussiaeae* Gressitt, 1955, 34; **syn. nov.**

birmanensis (Jacoby 1896: 254); **stat. rev.**

= *birmaensis* [sic]; Scherer 1969: 129

= *birmensis* [sic]; Kimoto 1971: 80

= *indica* (Shukla 1960: 80); **syn. nov.**

= *caerulea* sensu Gressitt & Kimoto 1963: 289 partim

caerulea (Olivier 1791: 590)

= *coelurea* [sic]; Kimoto 1972: 47

= *coerulea* [sic]; Kimoto 2000: 258

= *elongata* (Jacoby 1884: 28); **syn. nov.**