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Abstract

The Australian genera of Chrysomelinae are reviewed and redefined. A new genus of Chrysomelinae is described: *Alfius* **gen. n**., from Queensland, with three species, *A. hieroglyphicus* (Lea), *A. pictus* (Lea) and *A. pictipennis* (Lea), all transferred from *Oomela* Lea. The hitherto Papuan genus *Sphaerotritoma* Arrow, with two species, is removed from Erotylidae and placed in Chrysomelinae, and one Australian species added, *S. coccinelloides* (Lea), from *Oomela*. A key is provided for adults of the 42 native and 4 exotic genera of Chrysomelinae occurring in Australia. Information on host-plants and immature stages is listed where known.

Taxonomic and nomenclatural problems in the Australian or Papuan Chrysomelinae are resolved, as follows:

(i) new or confirmed generic synonyms, senior name first: *Callidemum* Blanchard (= *Augomela* Baly, = *Clidonotus* Chapuis **syn. n**., = *Kurumela* Gressitt, = *Stethomela* Baly); *Chalcomela* Baly (= *Cyclomela* Baly **syn. n**., = *Micromela* Baly), *Dicranosterna* Motschulsky (= *Trochalodes* Weise **syn. n**., = *Paropsimelina* Daccordi **syn. n**.), *Oomela* Lea (= *Nannoda* Weise), *Paropsimorpha* Lhoste (= *Thaumalegastra* Daccordi **syn. n**.), *Paropsis* Olivier (= *Procrisina* Aslam **syn. n**.), *Paropsisterna* Motschulsky (= *Chrysophtharta* Weise **syn. n**., = *Sterromela* Weise **syn. n**., = *Xanthogramma* Weise **syn. n**.), *Platymela* Baly (= *Macelola* Selman **syn. n**.), *Trachymela* Weise (= *Chondromela* Weise);

(ii) reversal of synonymy (*sensu* Daccordi 1994) by removal of: *Phola* Weise from *Chalcolampra* Blanchard; *Rhaebosterna* Weise from *Faex* Weise; *Platymela* Baly from *Callidemum* Blanchard;

(iii) replacement of species homonyms: *Phyllocharis ewani* **nom. n**. for *Phyllocharis abdominalis* (Jacoby, 1894) nec Baly, 1867; *Tinosis leai* **nom. n**. for *T. fasciata* (Lea, 1915) nec Weise, 1908b;

(iv) new species synonymy, senior name first, in the original combination with present placement in square brackets if different: *Aesernia* [*Promechus*] *australica* Jacoby (= *Aesernia bipunctata* Weise **syn. n**., *A. mjoebergi* Weise **syn. n**.); *Australica* [*Platymela*] *digglesi* Baly (= *Platymela mjoebergi* Weise **syn. n**.); *Australica* [*Paropsides*] *erudita* Baly (= *Paropsis complicata* Blackburn **syn. n**.); *Augomela* [*Paropsimorpha*] *elegans* Baly (= *Stethomela armiventris* Lea **syn. n**.); *Chalcolampra rufipes* Jacoby (= *Phyllocharis fulvifrons* Jacoby **syn. n**.); *Chrysomela* [*Gastrophysa*] *viridula* Degeer (= *Lamprolina unicolor* Jacoby **syn. n**.); *Eugastromela metasternalis* Lea (= *E. flavitarsis* Lea **syn. n**.); *Grammicomela quadrilineata* Lea (= *Stethomela rara* Lea **syn. n**.); *Micromela* [*Chalcomela*] *cupripennis* Baly (= *Stethomela purpureipennis* Lea **syn. n**.); *Notoclea* [*Chalcomela*] *splendens* Macleay (= *Chalcomela illudens* Baly **syn. n**.); *Oomela* [*Tinosis*] *bicolor* Wilson (= *Nannoda femoralis* Weise **syn. n**.); *Oomela trimaculata* Lea (= *Nannoda bimaculata* Weise **syn. n**.); *Oomela variabilis* Lea (= *Nannoda variabilis* Weise **syn. n**.); *Paropsis* [*Dicranosterna*] *circe* Stål (= *Paropsis pedestris* Chapuis **syn. n**.); *Paropsis* [*Peltoschema*] *delicatula* Chapuis (= *Peltoschema vestalis* Daccordi & De Little **syn. n**.); *Paropsis* [*Paropsisterna*] *semifumata* Blackburn (= *Xanthogramma pellucida* Weise **syn. n**.); *Chalcomela* [*Sphaerotritoma*] *nigripennis* Baly (= *Sphaerotritoma laeta* Arrow **syn. n**.);

(v) type species designations: *Phyllocharis splendens* Guérin-Méneville for *Aesernia* Stål, *Chrysomela hypochalcea* Germar for *Augomela* Baly, *Chalcomela illudens* Baly for *Chalcomela* Baly, *Nannoda variabilis* Weise for *Nannoda* Weise, *Platymela sticticollis* Baly for *Platymela* Baly, *Promechus splendidus* Boisduval for *Promechus* Boisduval, *Stethomela submetallica* Baly for *Stethomela* Baly;

(vi) new combinations: *Alfius hieroglyphicus* (Lea) **comb. n.**, *A. pictus* (Lea) **comb. n.**, *A. pictipennis* (Lea) **comb.n.**; *Callidemum gibbosum* (Baly) **comb. n.**; *Chalcomela nigricollis* (Lea) **comb. n.**, *C. nitida* (Baly) **comb. n.**; *C. splendens* (Macleay) **comb. n.**; *Dicranosterna abdominalis* (Chapuis) **comb. n.**, *D. alessandrae* (Daccordi) **comb. n.**, *D. bicolor* (Daccordi) **comb. n.**, *D. bipuncticollis* (Chapuis) **comb. n.**, *D. circe* (Stål) **comb. n.**, *D. coccinelloides* (Olivier) **comb. n.**, *D. contracta* (Chapuis) **comb. n.**, *D. echo* (Blackburn) **comb. n.**, *D. globata* (Chapuis) **comb. n.**, *D. globulosa* (Chapuis) **comb. n.**, *D. hastata* (Chapuis) **comb. n.**, *D. hemisphaerica* (Chapuis) **comb. n.**, *D. lateralis* (Blackburn) **comb. n.**, *D. limbata* (Weise) **comb. n.**, *D. mimula* (Blackburn) **comb. n.**, *D. ngarinmana* (Daccordi) **comb. n.**, *D. nigrosuturalis* (Lea) **comb. n.**, *D. novemlineata* (Lea) **comb. n.**, *D. palmensis* (Blackburn) **comb. n.**, *D. prolixa* (Weise) **comb. n.**, *D. rubeola* (Chapuis) **comb. n.**, *D. selene* (Blackburn) **comb. n.**, *D. stali* (Chapuis) **comb. n.**, *D. subaeraria* (Lea) **comb. n.**, *D. trimorpha* (Lea) **comb. n.**, *D. umbrata* (Chapuis) **comb. n.**; *Ethomela adelaidae* (Blackburn) **comb. n.**, *E. arthritica* (Lea) comb. nov., *E. atropha* (Lea) **comb. n.**, *E. gyrata* (Lea) **comb. n.**, *E. hursti* (Blackburn) **comb. n.**, *E. impar* (Lea) **comb. n.**, *E. luteicornis* (Erichson) **comb. n.**, *E. nana* (Weise) **comb. n.**, *E. oblonga* (Lea) **comb. n.**, *E. parvula* (Wilson) **comb. n.**, *E. podagrosa* (Lea) **comb. n.**, *E. simillima* (Baly) **comb. n.**, *E. soror* (Lea) **comb. n.**, *E. xanthorrhoeae* (Lea) **comb. n.**; *Eulina micans* (Lea) **comb. n.**, *E. winnunga* (Daccordi) **comb. n.**; *Paropsides calypso* (Blackburn) **comb. n.**, *P. flavomarginata* (Lea) **comb. n.**, *P. gracilipes* (Blackburn) **comb. n.**, *P. hebe* (Blackburn) **comb. n.**, *P. rufimana* (Lea) **comb. n.**, *P. s-notata* (Lea) **comb. n.**, *P. tenuicornis* (Blackburn) **comb. n.**; *Paropsimorpha elegans* (Baly) **comb. n.**, *P. ignita* (Jacoby) **comb. n.**, *P. lawrencei* (Daccordi) **comb. n.**, *P. matthewsi* (Daccordi) **comb. n.**, *P. mirogaster* (Lea) **comb. n.**, *P. monteithi* (Daccordi) **comb. n.**, *P. punctifrons* (Lea) **comb. n.**, *P. ventralis* (Lea) **comb. n.**; *Paropsisterna agricola* (Chapuis) **comb. n.**, *P. albicans* (Chapuis) **comb. n.**, *P. ambigua* (Daccordi) **comb. n.**, *P. amica* (Newman) **comb. n.**, *P. amoena* (Clark) **comb. n.**, *P. annularis* (Blackburn) **comb. n.**, *P. atalanta* (Blackburn) **comb. n.**, *P. aurea* (Blackburn) **comb. n.**, *P. basalis* (Chapuis) **comb. n.**, *P. bimaculata* (Olivier) **comb. n.**, *P. captiosa* (Clark) **comb. n.**, *P. cassidoides* (Boisduval) **comb. n.**, *P. cernua* (Chapuis) **comb. n.**, *P. chlorotica* (Olivier) **comb. n.**, *P. citrina* (Chapuis) **comb. n.**, *P. cloelia* (Stål) **comb. n.**, *P. coccineipennis* (Weise) **comb. n.**, *P. conferta* (Chapuis) **comb. n.**, *P. crocata* (Boisduval) **comb. n.**, *P. debilis* (Chapuis) **comb. n.**, *P. decolorata* (Chapuis) **comb. n.**, *P. deflorata* (Chapuis) **comb. n.**, *P. fastidiosa* (Chapuis) **comb. n.**, *P. flaveola* (Chapuis) **comb. n.**, *P. flavolimbata* (Daccordi) **comb. n.**, *P. geniculata* (Boisduval) **comb. n.**, *P. gloriosa* (Blackburn) **comb. n.**, *P. hectica* (Boisduval) **comb. n.**, *P. inconstans* (Blackburn) **comb. n.**, *P. insignita* (Newman) **comb. n.**, *P. interlita* (Newman) **comb. n.**, *P. interrupta* (Chapuis) **comb. n.**, *P. interstitialis* (Chapuis) **comb. n.**, *P. io* (Blackburn) **comb. n.**, *P. laesa* (Germar) **comb. n.**, *P. lignea* (Erichson) **comb. n.**, *P. maculicollis* (Clark) **comb. n.**, *P. m-fuscum* (Boheman) **comb. n.**, *P. minerva* (Blackburn) **comb. n.**, *P. nobilitata* (Erichson) **comb. n.**, *P. obovata* (Chapuis) **comb. n.**, *P. pallida* (Olivier) **comb. n.**, *P. philomela* (Blackburn) **comb. n.**, *P. pictipes* (Chapuis) **comb. n.**, *P. polyxo* (Blackburn) **comb. n.**, *P. proxima* (Chapuis) **comb. n.**, *P. purpureoaurea* (Clark) **comb. n.**, *P. raucicollis* (Blackburn) **comb. n.**, *P. rufescens* (Chapuis) **comb. n.**, *P. seminigripes* (Lea) **comb. n.**, *P. simsoni* (Blackburn) **comb. n.**, *P. subcostata* (Chapuis) **comb. n.**, *P. suspiciosa* (Baly) **comb. n.**, *P. tenella* (Chapuis) **comb. n.**, *P. testacea* (Olivier) **comb. n.**, *P. trimaculata* (Chapuis) **comb. n.**, *P. variicollis* (Chapuis) **comb. n.**, *P. vittata* (Blackburn) **comb. n.**; *Peltoschema caloptera* (Lea) **comb. n.**, *P. carbonata* (Boisduval) **comb. n.**, *P. cardinalis* (Lea) **comb. n.**, *P. didyma* (Lea) **comb. n.**, *P. erythrocephala* (Lea) **comb. n.**, *P. flavoinclusa* (Lea) **comb. n.**, *P. haematosticta* (Lea) **comb. n.**, *P. immaculicollis* (Lea) **comb. n.**, *P. isolata* (Lea) **comb. n.**, *P. macrosticta* (Lea) **comb. n.**, *P. maculiventris* (Lea) **comb. n.**, *P. medioflava* (Lea) **comb. n.**, *P. mediorufa* (Lea) **comb. n.**, *P. platycephala* (Lea) **comb. n.**, *P. prosternalis* (Lea) **comb. n.**, *P. ziczac* Lea (1924) **comb. n.**;

Phyllocharis wollumbina (Daccordi) **comb. n.**; *Platymela bimaculiceps* (Lea) **comb. n.**, *P. cephalotes* (Lea) **comb. n.**, *P. digglesi* (Baly) **comb. n.**, *P. flavescens* (Blackburn) **comb. n.**, *P. flavida* (Lea) **comb. n.**, *P. hasenpuschi* (Daccordi) **comb. n.**, *P. maculiceps* (Lea) **comb. n.**, *P. monochromatea* (Lea) **comb. n.**, *P. quadripustulata* (Baly) **comb. n.**, *P. transversa* (Baly) **comb. n.**; *Rhaebosterna interruptofasciata* (Baly) **comb. n.**; *Sphaerotritoma coccinelloides* (Lea) **comb. n.**, *S. nigripennis* (Baly) **comb. n.**; *Tinosis bicolor* (Wilson) **comb. n.**; *Trachymela echo* (Blackburn) **comb. n.**;

(vii) lectotype designation for *Oomela hieroglyphica* Lea;

(viii) recognition of two unavailable **nomina nuda**: subtribal name Calomelina Daccordi & De Little; generic name *Gastromela* Daccordi;

(ix) listing of *lapsus calami* with their attempted identification.

Key words: Chrysomelinae, genera, nomenclature, taxonomy, Australia, New Guinea, host-plants

Introduction

The leaf-beetle family (Chrysomelidae) is one of the largest families of Coleoptera, with the subfamily Chrysomelinae the fifth largest of its 11 subfamilies (Reid 2000), after Galerucinae, Eumolpinae, Cassidinae and Cryptocephalinae. Chrysomelinae are most speciose in temperate regions and relatively under-represented in the tropics. In the temperate northern hemisphere the majority of species feed on annual or perennial herbs, whereas the temperate southern hemisphere fauna is largely on woody shrubs and trees. In Australia, most of the >750 species of Chrysomelinae feed on one of the three predominant tree taxa, *Corymbia*, *Eucalyptus* and *Acacia* (personal observation), which in combination include more than 1600 species of tree and shrub (Orchard 1999).

There are no comprehensive keys to the Australian genera of Chrysomelinae and the taxonomy remains untested by any systematic analysis. Available keys are out of date or incomplete (Blackburn 1896–1901a; Lea 1903, 1916; Selman & Lowman 1983; Matthews & Reid 2002; Daccordi & De Little 2003; Reid, Smith & Beatson 2004). Lea (1916) was the last to attempt all Australian genera: 26 compared with the 42 given here. But Lea treated most of the subtribe Paropsina (*sensu* Daccordi 1994) as a single genus (Lea 1924). Many undescribed species are present in recent large collections of Chrysomelinae from surveys throughout the continent, particularly those deposited in the Australian National Insect Collection, Canberra, and the Queensland Museum, Brisbane. Since 1916, new genera have mostly been described from this material (Selman 1975, 1976, 1977; Selman & Lowman 1983; Daccordi 1994, 1996a, 2000, 2003b; Reid 2002b). Furthermore, four exotic genera have been introduced in the last 50 years for biological control of weeds (Julien & Griffiths 1998), but only one has been included in keys to the Australian fauna (Matthews & Reid 2002).

In this review, the classification of the Australian Chrysomelinae is revised with regard to the principles of systematics, but with reference to the immediate biogeographic neighbourhood, and without formal phylogenetic analysis.

