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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.**; 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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.

The primary purposes of this paper are to define the described Australian chrysomeline genera, allowing placement of all species, and to eliminate all remaining nomenclatural problems. One new genus is erected, from described species, and a New Guinean genus is added to the Australian fauna. A number of outstanding problems remain concerning the small species, with revisions required of *Peltoschema* Reitter and *Geomela* Lea and allied genera. All new nomenclatural decisions are summarised in Table 1, together with a list of unidentifiable *lapsus calami*, which are of nuisance value as they suggest overlooked available names. A complete catalogue of all Australian Chrysomelidae names is available on the web (Reid 2006).

Fourty-two native genera of Chrysomelinae are recognised in Australia, which include about 750 Australian species. 29 genera (69%) are endemic to Australia, of which 10 are monotypic. Conversely, four genera each hold more than 70 species (*Paropsis*, *Paropsisterna*, *Peltoschema* and *Trachymela*). It is not surprising that host records of these large genera are predominantly for the megadiverse plant taxa *Eucalyptus s. lato* and *Acacia s. lato*, each with more than 600 species. However, greatest generic diversity of Australian Chrysomelinae lies in the warm temperate to tropical rainforests of the east coast, in habitat that by definition excludes *Eucalyptus* and *Acacia*. Locally endemic Australian genera are confined to the following biogeographic areas of endemism (Crisp, Linder & Weston 1995): Atherton (*Gibbiomela*, *Hysmatodon*, *Pterodunga*), McPherson-Macleay (*Aesernoides*, *Ateratocerus*, *Grammicomela*, *Novacastria*, *Poropteromela*), and Tasmania (*Ewanius*).

Taxonomic decisions at generic rank are premature if type species have not been indicated. These were recently designated for some Australian genera (Kelly & Reid 1999), or are designated for the first time herein. Other recent nomenclatural work on genera has included replacement of a generic homonym (Reid 2002a) and resolution of a complicated synonymy (Reid & Ślipiński 2001). Daccordi (2005a) has revised Lhoste's (1934) curious contribution to chrysomeline taxonomy.

In the last 10 years there have been changes to the interpretation or validity of many Australian genera (Daccordi 1994; Matthews & Reid 2002), but without explicit justification. The most significant of these, a catalogue of the world fauna (Daccordi 1994), reduced the number of chrysomeline genera from 176 to 133, partly by subsuming many names as subgenera, with no discussion of the concept of this taxonomic rank. The use of immature stages in classification was implicitly rejected by Daccordi and the concept of monophyly ignored. In response to criticism of this work (Reid 1995a), the new classification was stated to be based on "opinions and conjectures" with the use of subgenera to remain "faithful to the author's thoughts" (Daccordi 1996b: 146). The work of Matthews and Reid (2002) was a popular faunal review which presupposed the earlier publication of the monograph presented here and therefore lacked any formal taxonomic decisions. The significant differences between that work and this are: changed status of *Augomela* Baly and *Chrysophtharta* Weise and a revised concept of *Faex* Weise. In the

work below, I have outlined reasons for accepting or rejecting the validity of each Australian taxon at generic rank, based on the concept of monophyly, with use of characters from both adults and immatures. My definition of validity is partly based on consideration of monophyly and partly practicality.

A key is provided for the identification of the genera of Chrysomelinae occurring in Australia, including introduced taxa. The key is based on examination of specimens deposited in major collections in Australia, the Australian Museum, Sydney (AMS), Australian National Insect Collection, Canberra (ANIC), Museum of Victoria, Melbourne (MVM), Queensland Department of Primary Industries, Mareeba (QDPM), Queensland Museum, Brisbane (QMB), South Australian Museum, Adelaide (SAM). The larger overseas holdings of Australian chrysomeline types have been examined: Natural History Museum, London (BMNH), Muséum national d'Histoire naturelle, Paris (MHNP), Royal Belgian Institute of Natural Sciences, Brussels (MNSB), Museum für Naturkunde Zentralinstitut der Humboldt-Universität zu Berlin (ZMB). Small Australian collections not cited in the text below have been studied, including: Griffith University, Brisbane; James Cook University, Cairns; New South Wales Agriculture, Orange; New South Wales Forestry, Sydney; Western Australian Museum, Perth. These probably include specimens of all the described Australian species of Chrysomelinae and at least 100 undescribed species. In total I have examined approximately 50,000 specimens of 800 Australian species from the entire continent, over a 20 year period. My comments on rarity relate to that experience. The development of the key at the core of this work has provided the basis for an interactive key to genera of New South Wales (Reid, Smith & Beatson 2004) and a binary key to the genera of South Australia (Matthews & Reid 2002).

Unidentifiable generic names in Australian Chrysomelinae

The word 'Coccinelloides', used by Lacordaire (*vide* Selman 1963) has been rejected as a non-taxonomic descriptor (Kelly & Reid 1999).

Paropsipacha Motschulsky was described for *P. metallica* Motschulsky, possibly from Australia (Motschulsky 1860). The species is not identifiable from description and I have not examined the types. Blackburn's (1899: 520) suggestion that *P. metallica* was synonymous with *Cyclomela nitida* Baly has been copied by subsequent cataloguers (Weise 1916a; Daccordi 1994). This synonymy is unlikely, as the latter differs from Motschulsky's description by: antennae mostly black, 4th antennomere shorter or no longer than the third, apical maxillary palpomere quadrate and smaller than penultimate, deep lateral elytral depressions, partly red venter. Motschulsky may have been correct in indicating *Paropsipacha metallica* was not Australian. The genus and species are unidentifiable and are hereby treated as *nomina dubia* pending examination of types.

Diagnosis of adults of the Australian Chrysomelinae

Length 1.0–22mm; antennal insertions at or near anterior margin of head, separated from anterior margin by at most one socket diameter and from each other by at least 3 socket diameters; eyes without deep emargination (canthus) on inner margin; internal face of mandible with membranous prostheca; prothorax not strongly constricted between base and apex; anal region of wing with at most one cell; without stridulatory file on mesoscutum or pygidium; venter without plastron of dense adpressed setae; apex of mesoventrite lobe not narrowly acute; all femora similar in size and shape and hind femora without sclerotised internal spring mechanism; tarsal setae not bifid, male spatulate setae not papillate; male tegmen ventral, lacking dorsal cap; penis without apical setae; testes not fused into a single cluster; female rectum without modifications (without kotpresse); elongate vaginal glands absent. Other features characteristic of Chrysomelinae have been tabulated previously (Reid 1995b, 2000).

There is strong evidence for monophyly of the subfamily Chrysomelinae and its status and composition has been relatively unchanged for at least 130 years, except for the occasional misplaced genus (Chapuis 1874; Seeno & Wilcox 1982; Reid & Berti 1992; Reid 1995b, 2000). However, the tribal and subtribal classification (Chapuis 1874; Weise 1915; Daccordi 1982, 1994) is in need of serious revision, and it poorly matches larval and pupal morphology (Paterson 1931; Hennig 1939; Kimoto 1962a; Takizawa 1976, 1981, 1989; Reid 1991, 1995a, 2002b; Cox 1996). The traditional classification fails primarily because it is based on a few adult characters, such as claw structure or epipleural pubescence. These characters may vary intragenerically, for example claw structure in *Peltoschema*, *Chalcolampra* and *Calomela*, or the presence and absence of epipleural pubescence within such diverse genera as *Calomela*, *Ethomela*, *Lamprolina*, *Peltoschema*, *Phyllocharis* and *Trachymela*. For these reasons, the current tribal classification is largely ignored in this review of the Australian Chrysomelinae.

The genus *Sphaerotritoma* Arrow was described from New Guinea in Erotylidae (Arrow 1943) and is here placed in Chrysomelidae for the first time. It includes a single Australian species, transferred from *Oomela* Lea. Three other Australian *Oomela* species are evidently wrongly placed there and a new genus is proposed to accommodate them. *Sphaerotritoma* and the new genus are described below.

Genera new to the Australian fauna

***Alfius* gen. nov.**
(Figs. 1–14, 28)

Type species. *Oomela pictipennis* Lea, 1929, here designated.

Diagnosis

Frons with deep vertical groove along inner margin of eye; short temples behind eyes; eyes laterally projecting; apical maxillary palpomere not expanded to apex; trichobothrium present in each corner of pronotum; prosternal process triangular; procoxal cavities open, gap at least half coxal width; epipleura laterally visible; third tarsomeres not deeply bilobed; apex male last ventrite slightly convex.

Description

Adult with attributes characteristic of Chrysomelinae (*vide supra*) and the following diagnostic combination of states.

Body (Figs. 1–2): moderately broad and convex, length to width ratio 1.6, length to height ratio 2.0–2.2. Length 3.7–5.3mm. All known species have yellow elytra with dark markings.

Head (Figs. 3–4): not flattened or produced, nor deeply inserted in prothorax; abruptly constricted behind short temples (0.5x eye width), eyes laterally projecting; eyes separated by more than 2 eye lengths; without trichobothrium near inner margin of eye; large, roughly quadrate, swelling present posterior to base of antenna, continuing as a ridge along entire inner margin of eye, demarcated from middle of frons by deep vertical groove extending from posterior of swelling at base of antenna to behind eye, groove separated from or shallowly connected to deep arcuate groove at junction of frons and clypeus between antennae, endocarinal groove absent or very short; clypeus not produced; fine lateral ridge between lower margin of eye and posterior margin of buccal cavity; all antennomeres elongate or 9–10 quadrate, 1 flat on one side, twice width 2, 3–11 flattened, 6 shorter than 5 or 7, 7–11 expanded and densely pubescent, increasing in width and length from 8 to 11; mandibles not anteriorly produced, apices bidentate, outer face inconspicuously setose; first maxillary palpomere ventrally convex, without sharp leading edge, second transverse, third palpomere as wide as second, 1.5–2.5x longer, flattened, with truncate apex and curved sides; submentum strongly transverse, width >2x length, apex not bilobed.

Thorax (Figs. 1–2, 5–7): pronotum smooth, without grooves or punctate depressions, slightly swollen above lateral margins; hind edge pronotum not margined but with row of elongate punctures broken at middle, lateral and anterior edges finely margined; each anterior trichobothrium in middle of rounded apical angles, posterior in middle of 90º basal angles; pronotum transverse-rectangular, with strongly convex basal margin and strongly concave anterior margin, sides contracted towards apices; hypomeron smooth, not laterally grooved; prosternum without lateral ridges; prosternal process triangular, with raised lateral margins converging on median ridge or reaching anterior margin of prosternum, without basal angular lobes, apex truncate or shallowly concave; procoxal cavities open, gap between hypomeral lobe and prosternal process at least half width of procoxa; scutellum semi-ovate; base of elytra slightly overlapping base of pronotum;

elytral disc with 9 regular but sparsely punctured striae, sutural striole present; elytra without tubercles, stria 5 deeply grooved at base; epipleuron narrow, less than 0.2x width of elytron, entirely visible from sides, not attenuate before elytral apex, slightly sinuate, without setae; two internal elytral spicule patches, the posterior on a longitudinal ridge; wings fully-developed, yellowish, with one cell and three leading veins in anal region; mesoventrite process visible, anterior and posterior margins straight or almost so, strongly transverse, width at least 4x length; metepisternum impunctate, glabrous, without groove by outer margin; metaventrite borders smoothly and evenly ridged, not medially raised, anterior lobe truncate; hind femora fusiform, dorsal margin not evenly convex, without ventral keels; all tibiae with flat inner surface margined by two keels and smoothly convex external surface, slightly swollen at middle, apices not abruptly expanded, without stout spines; all male first tarsomeres elongate-ovate, with ovate ventral patch of spatulate setae; relative lengths hind tarsomeres: 5≥1>3≥2, third with shallowly concave apex; fifth not ventrally toothed; tarsal claws free, divergent by 180º, with right-angled appendiculate lobe.

Abdomen (Figs. 8–14): pygidium not medially grooved; ventrites free, not fused, laterally margined, without large setiferous punctures; first ventrite with truncate transverse intercoxal process, without femoral plates, raised anterior margination thin, with crenulate posterior edge; apical margin of ventrite V not serrate; male ventrite V not apically lobed, truncate; female ventrite V not medially depressed; male genitalia: penis without flagellum, strongly curved in profile, basal foramen longer than half penis length; tegmen Y-shaped, stem and arms of almost equal length; female genitalia: female sternite VIII without basal spiculum or projection; paraprocts present; vaginal palp 2-segmented; spermatheca present, U-shaped.

Distribution and biology

The genus is found in rainforest in north-east (1 species) and south-east Queensland (2 species). Food plants are unknown but one specimen was collected from *Drymophila* (Liliaceae). Since no other Australian Chrysomelinae are known from Liliaceae this is probably a casual record. Larvae and pupae are unknown. The species are probably rare; 21 specimens of the 3 species have been seen.

Etymology

The generic name is derived from the family name Alfi, gender masculine.

Included species

Alfius includes three species formerly placed in *Oomela* (Lea 1929): *A. hieroglyphicus* (Lea), *A. pictus* (Lea) and *A. pictipennis* (Lea). The last is selected as type species because it is best represented in collections.

Alfius pictipennis is similar in size and colour to its congeners, *A. hieroglyphicus* and

A. pictus. These three species are most easily separated by subtle differences in the elytral colour pattern, as illustrated by Lea (1929: 231), and by distribution: *A. pictipennis* is confined to north Queensland; *A. pictus* is known from ranges at Brisbane and 80 km further north; *A. hieroglyphicus* is known from the border ranges between Queensland and New South Wales. All are rare in collections.

Material examined

Alfius hieroglyphicus: Lectotype (this designation): ♂/ *hieroglyphica* Lea type [Lamington] National Park/ National Park Q H. Hacker Nov 1920/ 4438/ *Oomela hieroglyphica* Lea Queensland type/ *Paropsimorpha hieroglyphica* (Lea) M. Daccordi 1996/ Lectotype ♂ *Oomela pictipennis* Lea designated C. Reid 2005/ (QMB); paralectotype: ♀/ same data as lectotype and mounted on same pin, with label / Paralectotype ♀ *Oomela pictipennis* Lea designated C. Reid 2005/; non-types: ♂/ Warrie Nat. Pk Springbrook SEQ 29.xi.1982 J. Conron/ Chrysomelidae CH3 net sweep 7.30 ex Drymophila/ conron 13/ (QMB); ♀/ Mt Tamborine 10.i.1929 H. Hacker/ (QMB). The lectotype has been dissected, with the penis dry-mounted.

Alfius pictus: Holotype: ♀/ Brookfield H. Hacker/ *picta* Lea type Brookfield/ 4439/ *Oomela picta* Lea Queensland type/ *Paropsimorpha picta* (Lea) M. Daccordi 1996/ (QMB); non-type: ♀/ Maleny 10.i.29 H. Hacker/ (QMB).

Alfius pictipennis: see below.

Systematic position of Alfius

The species of *Alfius* were originally placed in *Oomela* Lea, but this resemblance is superficial. *Oomela* differs in many features, including: frons without grooves beside eyes; head without temples behind eyes; procoxal cavities closed; stria 5 not deepened at base.

Species of the genus *Alfius* are morphologically most similar to species of *Phyllocharis* Dalman, *Tinosis* Weise and *Paropsimorpha* Lhoste Two of the three species have been placed in *Paropsimorpha* (Daccordi 2005a). *Paropsimorpha* can be distinguished from *Alfius* by: frons without vertical grooves beside eyes; eyes not laterally prominent; no ventral ridge between eye and mouth; third maxillary palpomere quadrate or transverse, not longer than second; metepisternum punctured; last abdominal ventrite either trilobed (male) or depressed (female); penis asymmetric. All species of this genus are at least 1mm longer than the largest *Alfius* species. *Tinosis* is distinguished from *Alfius* by: frons without deep groove near but separated from eyes (*T. bicolor* is grooved along the eye margin); trichobothria present near hind margin of eyes; third maxillary palpomere elongate-conical; prosternal process broad, quadrate or transverse, and lateral ridges (if present) not anteriorly convergent; second tarsomere at least as long as first. *Phyllocharis* species can be distinguished from *Alfius* by: basal edge of pronotum margined; procoxal cavities closed; edges of prosternal process not ridged.

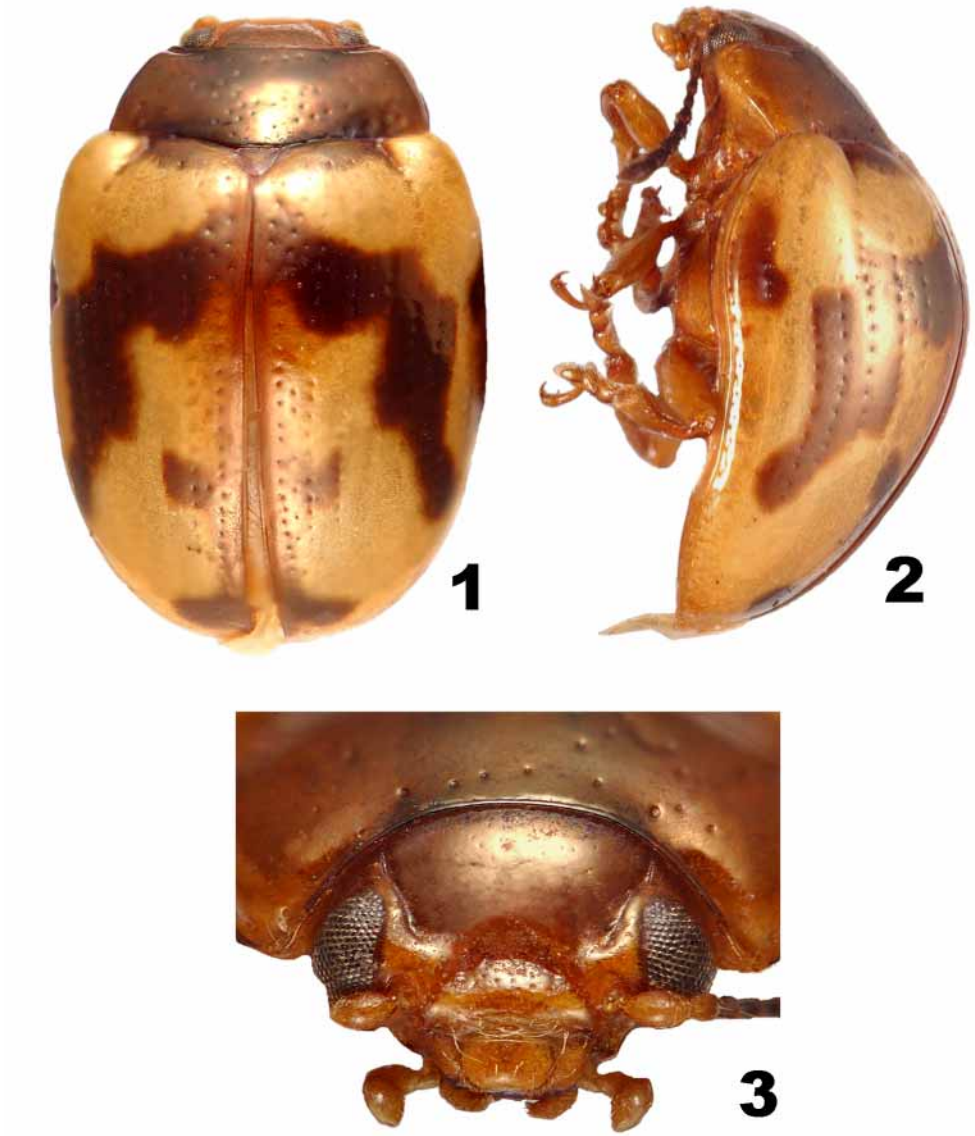
The type species is redescribed, as follows:

***Alfius pictipennis* (Lea, 1929), comb. nov.**
(Figs. 1–14, 28)

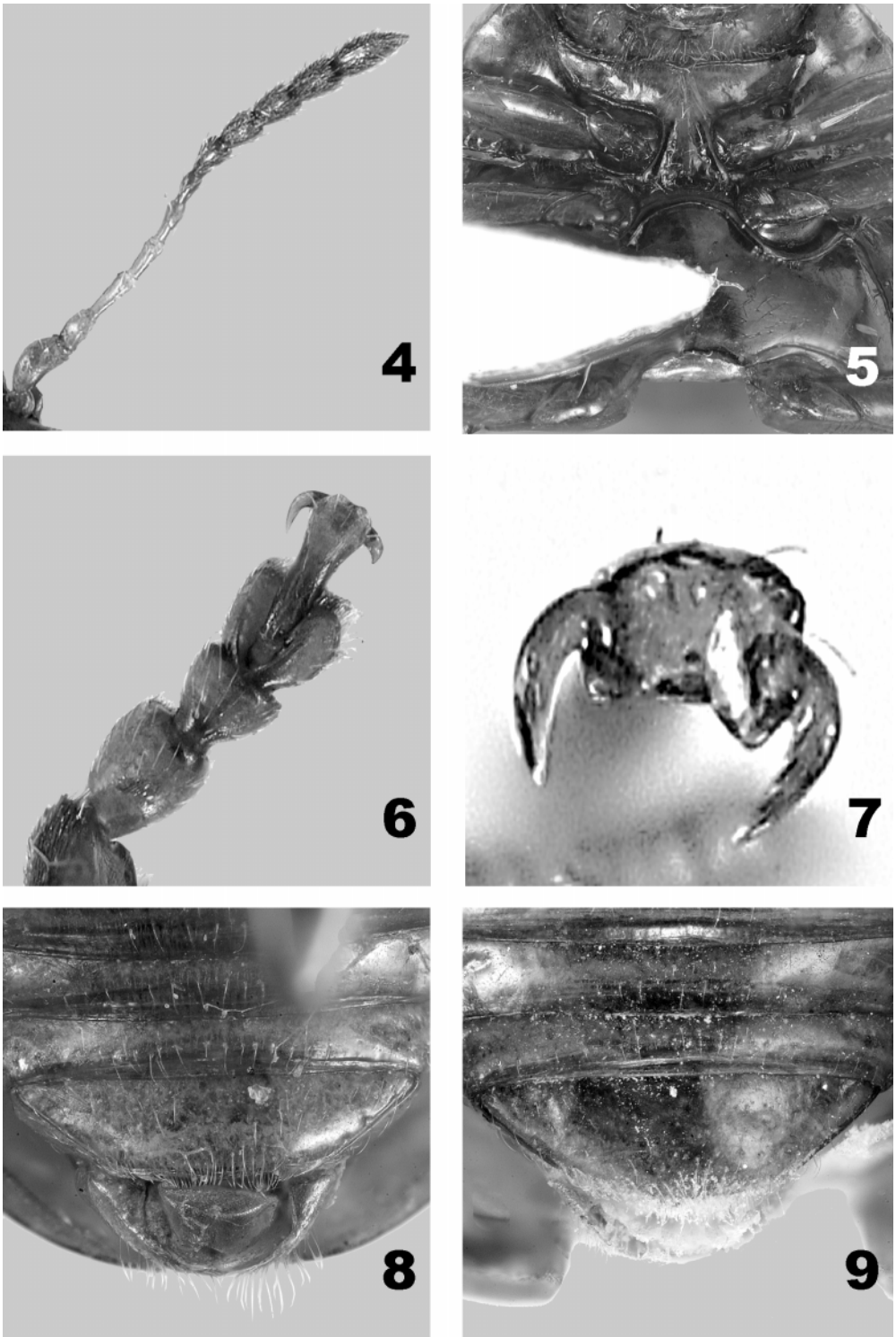
Oomela pictipennis Lea 1929: 235

Material examined

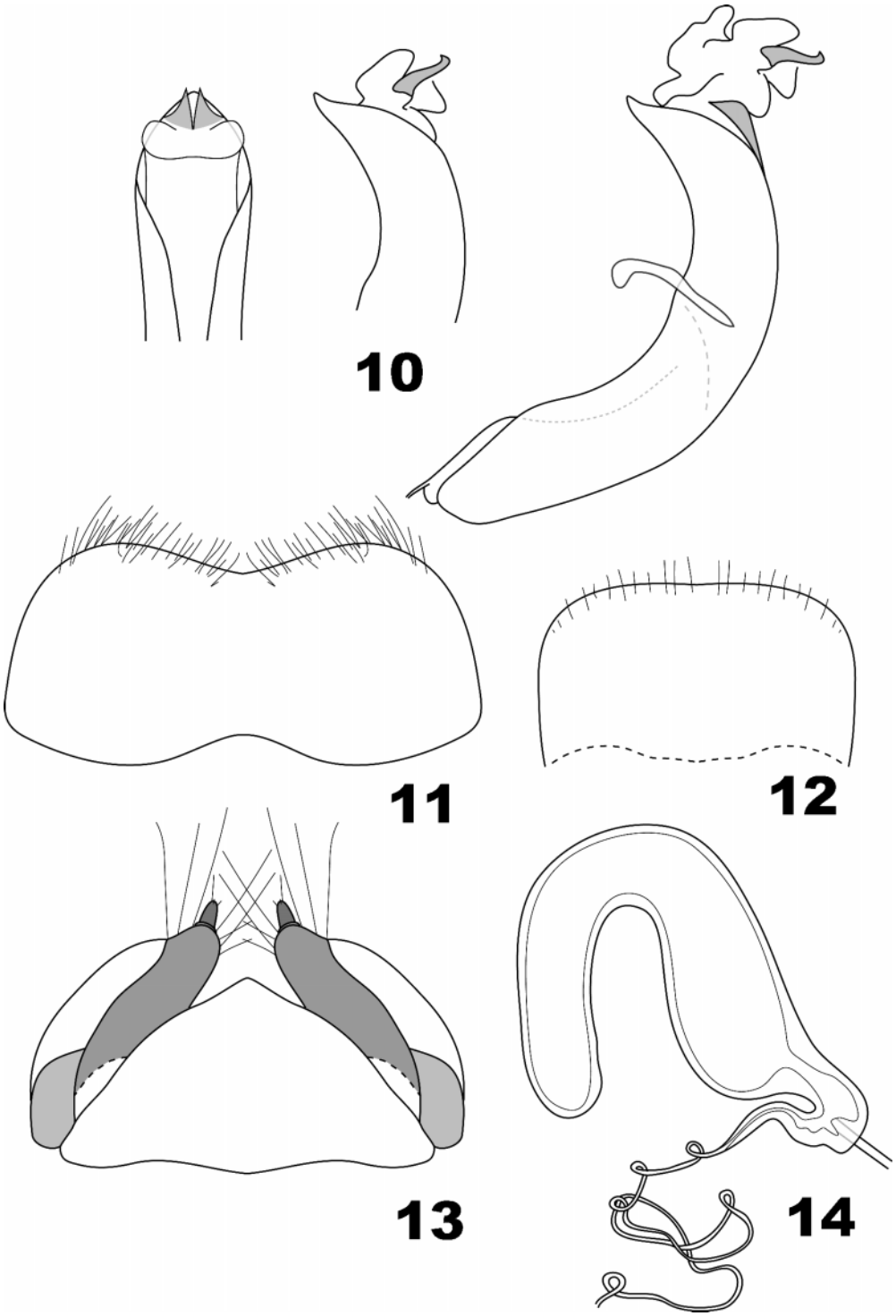
Holotype: ♂/ *pictipennis* Lea type Kuranda/ *Oomela pictipennis* Lea Queensland type I.17119/ *Paropsimorpha pictipennis* Daccordi/ (SAM). The holotype is damaged; it has been dissected and remounted by a previous borrower (basal half of penis missing), with some parts mounted in euparal.



FIGURES 1–3. Male *Alfius pictipennis* (Lea): 1, dorsal; 2, lateral; 3, anterior.



FIGURES 4–9. *Alfius pictipennis* (Lea): 4, antenna; 5, thoracic venter; 6, front tarsus; 7, claw; 8, male ventrite V; 9, female ventrite V.



FIGURES 10–14. *Alfius pictipennis* (Lea): 10, male aedeagus, in dorsal and lateral views, including different stages of endophallic eversion; 11, female tergite VIII; 12, female sternite VIII; 13, ovipositor; 14, spermatheca.

Other material: 2/ Cairns dist., F. P. Dodd (SAM); 2/ Hugh Nelson Range, 21km S Atherton, intercept trap, 9.i–10.ii.1984, Storey & Brown (QDPM); 2, ditto, except 10.ii–13.iii.1984 (QDPM); 1/ Kuranda, 1.ii.1904, F. P. Dodd (SAM); 1/ Longlands Gap, 17.28S 145.29E, FIT, 1150m, 30.xi.1995–3.i.1996, L. Umback (ANIC); 1/ 22km WSW Mareeba, malaise trap, 7.i–12.ii.1985, Storey & Titmarsh (QDPM); 1/ Mt Fisher, 17.33S 145.32E, 1150m, FIT, 8.iii–6.iv.1995, P. Zborowski (ANIC); 1/ Topaz, Westcott Road, 17.24S 145.41E, rf intercept, 680m, 6.xii.1993–25.ii.1994, Monteith, Cook, Janetski (QMB); 1/ Windsor Tableland via Mt Carbine, intercept trap, 12.xi–26.xii.1983, Storey & Walford-Huggins (QDPM); 1/ Windsor Tableland, 38km from mainroad, intercept trap, 15.i–5.iii.1986, Storey & Brown (QDPM); 1/ Wongabel SF, 6km S Atherton, intercept trap, 9.i–10.ii.1984, Storey & Brown (QDPM); 1/ 16km NE Yungaburra, Gillies Highway, flight intercept, rainforest, 800m, 24.vi–3.viii.1982, S. & J. Peck (ANIC).

Description

Adult male. Length: 3.7–4.5mm. Colour (Figs. 1–2, 28): dorsum variegated in shades of brown and pale straw yellow, often with slight metallic reflections; head darker at base than apex, appendages yellow except antennomeres 3–5 mostly brown, 6–11 blackish-brown with slight bluish reflection; pronotum brown, paler laterally and anteriorly; scutellum yellow; elytra pale yellow (reddish-yellow and less clearly marked in old specimens) with irregular brown to blackish-brown markings: along middle of base, at margins below humeri, from basal third of suture sinuously towards apex of outer margin, along apical third of suture; these markings sometimes fused or apical sutural marking reduced to spots; venter and legs yellowish-brown, lateral thoracic sclerites sometimes darkened. Pubescence: dorsum glabrous except setae at antero-lateral corners of labrum and clypeus, small trichobothrial setae at pronotal corners; venter with scattered setae on prosternal process, metaventrite and abdomen. Microsculpture: dorsum and venter shining, without microsculpture.

Head (Figs. 3–4): clypeus distinctly punctured, at least along frontoclypeal suture; frons and vertex impunctate except at base of head capsule; eyes separated by about 3x eye lengths; all antennomeres elongate, 2 equals 6 shortest, 11 longest, 3–6 narrower than 2 (6 narrowest).

Thorax (Figs. 1–2, 5–7): surface of pronotum with sparse large punctures, denser at middle and 2–7 larger elongate punctures on either side of basal edge; prosternal process elongate, ridges convergent anteriorly at anterior prosternal margin; elytral striae evanescent in apical third and at base, except first and deeply grooved base of 5th, interstrial punctures minute or absent; humeri pronounced, with slight posthumeral depression on 9th stria; hind tarsomere 5 longer than 1.

Abdomen (Figs. 8, 10): apical margin last ventrite slightly convex, shallowly depressed at middle.

Male genitalia (Fig. 10): penis dorsally longitudinally grooved, basal foramen more

than half length of penis; everted endophallus with two apical hooks and without flagellum.

Adult female (Figs. 9, 11–14) as male except: length 4.3–5.3mm; first tarsomere more elongate, without ovate patch of spatulate setae, apex last ventrite more strongly convex, not depressed (Fig. 14); tergite VIII with concave apex; vaginal palpi flat; spermatheca with heavily sclerotised U-shaped base and densely convoluted duct**.**

Distribution

Alfius pictipennis occurs from the southern end of the Atherton Tableland to the Windsor Tableland, in northern Queensland.

Biology

Host-plants are unknown but the species is associated with rainforest. All detailed localities are elevated, at 680–1150m. The adults have been collected most of the year (November to March and a singleton collected within the period June to August) but are rare. All recent material examined for this study was collected in flight intercept traps.

Notes

Specimens from Windsor Tableland have slightly more sparsely and weakly punctured pronota and more extensive dark areas on the elytra and venter, but are not distinguishable on genitalic characters.

Sphaerotritoma **Arrow, 1943**

(Figs. 15–26, 68)

Type species. *Sphaerotritoma laeta* Arrow, by original designation.

Diagnosis

Frons and frontoclypeal suture smooth, without deep grooves; eyes without temples behind, not laterally projecting; apical maxillary palpomere not expanded to apex; trichobothrium present in all corners of pronotum; procoxal cavities open, gap at least half coxal width; elytra with 9 striae; epipleura laterally concealed; anterior margin of metaventrite with femoral plates; third tarsomeres not deeply bilobed; apex of male last ventrite rounded.

Description

Adult with attributes characteristic of Chrysomelinae (*vide supra*) and the following diagnostic combination of states.

Body (Figs. 17, 68): broadly ovoid in dorsal view, evenly but not strongly convex in lateral view, length to width ratio 1.4–1.5, length to height ratio 2.5. Length 3.0–4.0mm.

Head (Figs. 15–16): not flattened or produced, deeply inserted in prothorax, gradually contracted behind eyes, without temples; eyes large, separated by at most 2.5x eye length; frontal trichobothrium present near inner margin of eyes; face including frontoclypeal area almost even, with at most shallow grooves along frontoclypeal suture, apex of epicranial suture, and inner margin of eyes, with or without raised postantennal tubercles; frontoclypeal suture shallowly V-shaped or concave, without lateral ridges; clypeus not produced; gena without straight ridge and groove to accommodate antenna; antennomeres 7–11 expanded and increasing in width and length; mandibles not anteriorly produced, apices bidentate, outer face inconspicuously setose; first maxillary palpomere ventrally convex, without sharp leading edge, second elongate, third palpomere conical, slightly elongate, slightly narrower than penultimate; submentum transverse, width 2x length, apex concave.

Thorax (Figs. 17–21, 68): pronotum smooth, without grooves or punctate depressions, not swollen above lateral margins; hind edge pronotum not margined, lateral and anterior edges finely margined; trichobothria in middle of rounded anterior and posterior pronotal angles; pronotum transverse-rectangular, with strongly convex basal margin and strongly concave anterior margin, sides contracted towards apices; hypomeron smooth, not laterally grooved; prosternum without lateral ridges; prosternal process triangular, with raised lateral margins converging at or before anterior margin of prosternum, without basal angular lobes, apex truncate; procoxal cavities open, gap between hypomeral lobe and prosternal process at least half width of procoxa; scutellum triangular, apex rounded; base of elytra slightly overlapping base of pronotum; elytral disc with 9 regular but sparsely punctured striae, sutural striole present; elytra without tubercles or discal depressions, stria 5 not grooved at base, or sometimes deepened but if so with bases of striae 3–4 also deepened; epipleuron moderately narrow, less than 0.2x width of elytron, hidden in lateral view by downward extension of elytra, not abruptly attenuate before elytral apex, slightly sinuate, without setae; mesoventrite process visible, strongly transverse, width 4x length, anterior and posterior margins straight or almost so; wings fully developed, yellowish, with one cell and three leading veins in anal region; metepisternum with scattered punctures, without elongate groove at outer margin; metaventrite not medially raised, anterior lobe truncate; anterior margin of metaventrite flattened and expanded as femoral plates, occupying either entire anteriolateral corner or area posterior to mid coxa; hind femur elongate-ovate, dorsal margin evenly convex, venter keeled; all tibiae with flat inner surface margined by two keels and smoothly convex external surface, not or slightly swollen at middle, apices not abruptly expanded, without stout spines; all male first tarsomeres elongate-ovate, with ovate ventral patch of spatulate setae; relative lengths hind tarsomeres: 5>1=2=3, third with truncate or shallowly concave apex, fifth not ventrally toothed; tarsal claws free, divergent by 180º, with acute-angled appendiculate lobe.

Abdomen (Figs. 17, 22–25): pygidium not medially grooved; ventrites free, not fused,

laterally margined, without large setiferous punctures; first ventrite with truncate transverse intercoxal process; raised anterior margin of first ventrite at least broad and flat, without crenulate posterior edge, greatly expanded as femoral plates in *S. coccinelloides*; apical margin of ventrite V not serrate, rounded in both sexes or with a minute tooth in female; male ventrite V not apically lobed; female ventrite V not medially depressed; male genitalia (only one specimen examined): penis with short thick flagellum, basal foramen about a third penis length, tegmen V-shaped; female genitalia: sternite VIII short and simple (*S. coccinelloides*) or with broad basal lobe (Fig. 24); ovipositor non-telescopic, vaginal palp absent (Fig. 23; *S. coccinelloides*) or cylindrical and 2-segmented (Fig. 25), spermatheca absent (*S. coccinelloides*) or irregularly shaped (Fig. 26).

Distribution and biology

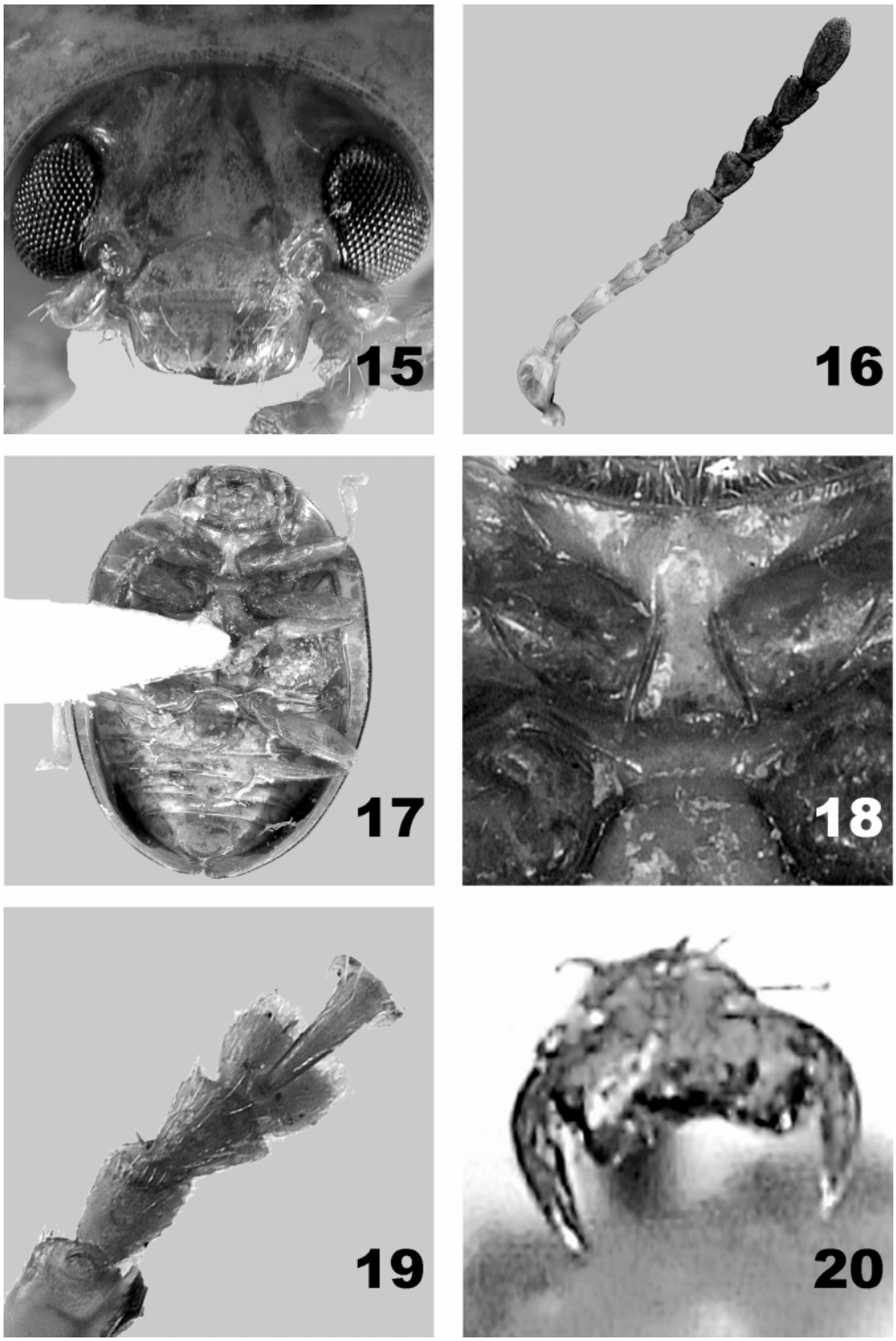
The genus is found in New Guinea (Arrow 1943) and north Queensland. Food plants, larvae and pupae are unknown. A dissected female of *S. coccinelloides* contained larvae in its oviducts and this species is therefore viviparous.

Included species

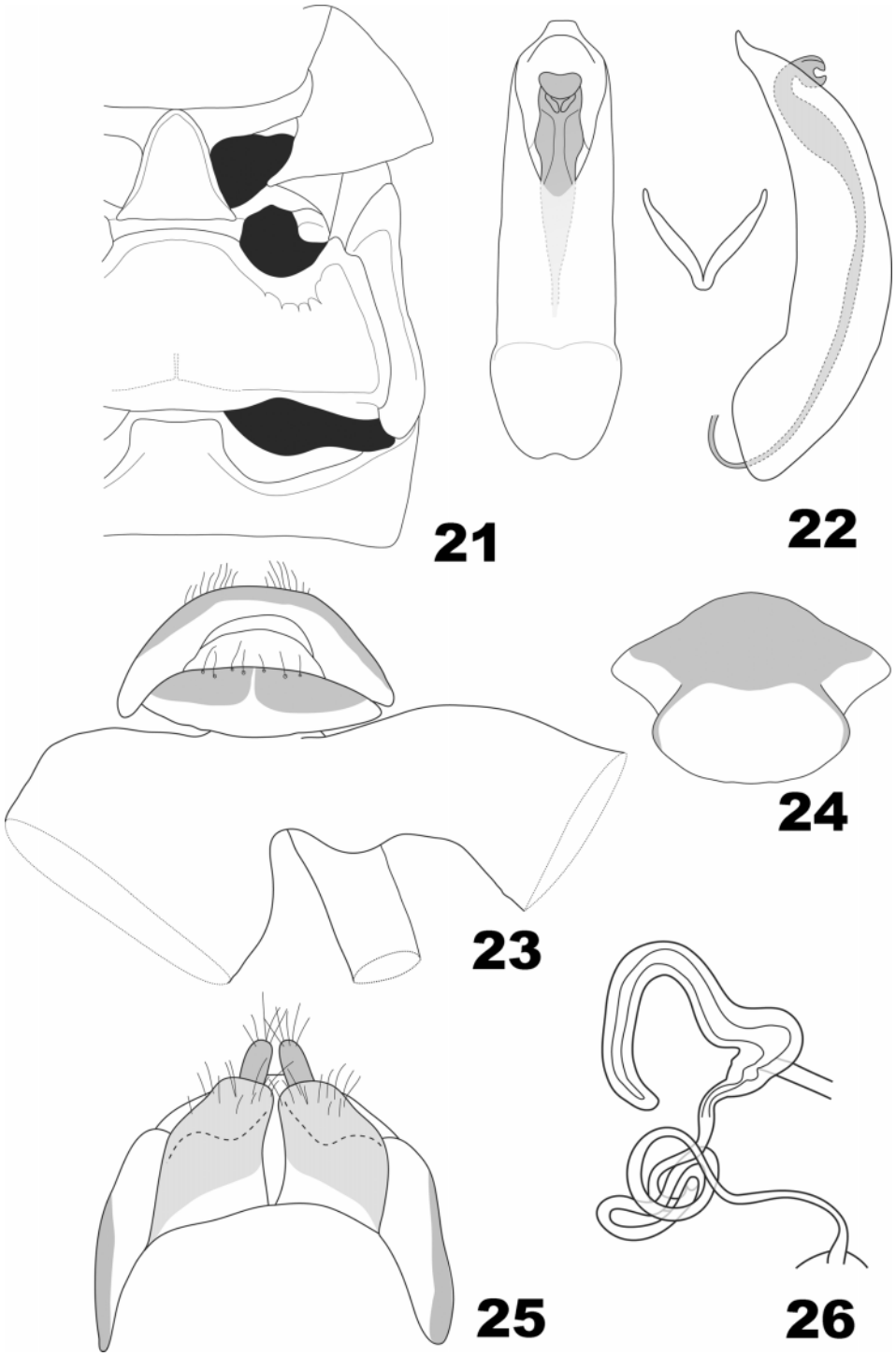
Sphaerotritoma was erected for two species from New Guinea, *S. laeta* Arrow and *S. violacea* Arrow. An Australian species formerly in *Oomela*, *S. coccinelloides* (Lea) (**comb. nov**.), also belongs in *Sphaerotritoma*. *Sphaerotritoma laeta* Arrow, was earlier described as *Chalcomela nigripennis* Baly; type material has been compared in the BMNH (**syn. nov**.). The correct name for this species is therefore *Sphaerotritoma nigripennis* (Baly) (**comb. nov**.). There is material of a third, undescribed, New Guinean species in SAM from Mount Lamington (Figs. 21, 22, 24–26). The poorly described species *Paropsimorpha apicalis* Lhoste (1934), also from New Guinea, probably belongs in this genus but the holotype has not been examined. Each species seems to have a constant and diagnostic colour combination, but this impression may be due to paucity of material (10 specimens seen of 4 species).

Systematic position of Sphaerotritoma

I have examined the material Arrow described as a new genus of Erotylidae (Arrow 1943) and these two species are clearly members of the family Chrysomelidae. Two significant external attributes diagnostic for Erotylidae (Lawrence, Hastings, Dallwitz, Paine & Zurcher 1999), but absent from *Sphaerotritoma*, are procoxal cavities externally closed and mesocoxal cavities closed laterally. I have not dissected Arrow's types, but an undescribed species similar to *S. laeta*, from New Guinea, has typically chrysomeloid male and female genitalia (Figs. 22, 25) in contrast to the genitalia of Erotylidae (Lawrence *et al*. 1999). Embryonic larvae from a dissected female were in poor condition but showed typical chrysomeline mandibular teeth and legs (Reid 2000).



FIGURES 15–20. Female *Sphaerotritoma coccinelloides* (Lea): 15, anterior; 16, antenna; 17, venter; 18, pro- and metaventrites; 19, tarsus; 20, tarsal claws.



FIGURES 21–26. *Sphaerotritoma* species (Mount Lamington): 21, thoracic venter; 22, aedeagus. *Sphaerotritoma* species. *S. coccinelloides* (Lea): 23, ovipositor; *Sphaerotritoma* species (Mount Lamington): 24, female sternite VIII; 25, ovipositor; 26, spermatheca.

Within the Chrysomelidae, *Sphaerotritoma* is clearly a genus of Chrysomelinae (as defined above), with some similarity to the genera *Alfius*, *Oomela* and *Tinosis*. *Sphaerotritoma* may be the sister taxon to *Oomela* Lea as they share: length 1.5–4mm; eyes large, interocular distance 1.5–2x eye length; frons simple, without grooves extending posteriorly from frontoclypeal margin; pronotum evenly convex, not laterally swollen or depressed; base of pronotum not margined; prosternal process with lateral keels; elytra with stria 5 not deeply depressed at base (but may be more strongly punctate), without lateral posthumeral depression; epipleuron not twisted; mesoventrite process strongly transverse, not abruptly elevated; hind femora elongate-ovate; first ventrite with flattened and usually slightly expanded anterior border. A putative sister-taxon relationship between *Oomela* and *Sphaerotritoma* disregards the supposed significance of procoxal cavity closure in traditional classification of the Chrysomelinae.

The Australian species is redescribed as follows:

***Sphaerotritoma coccinelloides* (Lea, 1917), comb. nov.**
(Figs. 15–20, 23, 68)

Oomela coccinelloides Lea 1917: 577

Material examined

Holotype: ♀/ *coccinelloides* Lea type Cairns/ *Oomela coccinelloides* Lea Queensland type/ *Paropsimorpha coccinelloides* (Lea), Daccordi det. 1987/ (SAM); non-types: 3♀/ Malanda, xi.1947, J. G. Brooks (ANIC). The holotype has been damaged. It was dissected by a previous borrower, with loss of some legs and fragments of the over-cleared abdominal contents mounted in euparal.

Description

Adult female (male unknown). Length: 3.5–4.0mm. Colour (Fig. 68): entirely yellow, except elytra dark brown to black, with yellow margins adjacent to scutellum, large transverse yellow patch on middle of each elytron and yellow epipleura; apical antennomeres may be darker reddish-yellow. Pubescence: dorsum glabrous except setae at antero-lateral corners of labrum and clypeus, short trichobothrial setae at pronotal corners; venter with scattered setae on prosternal process and metaventrite. Microsculpture: dorsum shining, without microsculpture, except clypeus microreticulate, venter shining but mostly microreticulate.

Head (Figs. 15–16): frontoclypeus smooth without grooves, not raised around antennal bases; clypeus, frons and vertex finely and sparsely punctured; eyes separated by about 2x eye lengths; all antennomeres elongate, 5 equals 6 shortest, 11 longest.

Thorax (Figs. 17–20, 68): surface of pronotum finely and evenly punctured throughout; prosternal ridges convergent anteriorly at anterior prosternal margin; elytral striae finely and sparsely punctured, punctures slightly larger than sparse interstrial

punctures; metaventrite anterior border flattened and greatly expanded to occupy anterolateral corners of sclerite; hind tarsomere 1 longer than 2.

Abdomen (Figs. 17, 23): first ventrite with large arcuate expansion of anterior border; last ventrite apical margin with projecting convex median lobe, slightly sinuate each side.

Female genitalia (Fig. 23): sclerites reduced to apically convex tergite VIII and short sternite VIII, vaginal palp absent, spermatheca absent.

Distribution and biology

The species was described from "Cairns" but this is likely to mean the Cairns region. The other material examined is from Malanda, at the wetter, southern, end of the Atherton Tableland, 55 kilometres SW of Cairns. Host-plants are unknown. This species is viviparous and like many such species lacks a spermatheca (Bontems 1988).

Key to the adults of the Australian genera of Chrysomelinae

This key is based on examination of most of the appropriate type material worldwide and the major collections in Australia. It was first attempted in 1996, after discovery of the new taxon eventually named *Pterodunga*, and has been rewritten and checked many times since then (see Acknowledgments). All genera identified by this key are discussed in alphabetic order, in the notes following the key.

Supplementary characters, pertaining to one half of a couplet only, are given in brackets. Illustrations are provided for significant character states and the habitus of at least one species for each genus. The most problematic character is the presence or absence of trichobothria on the pronotal angles. The trichobothrial setae are much larger than any other setae on the pronotum. They are often broken off or stuck down but in all such cases there is a crater-like pit at or near the corner of the pronotum.

1 Procoxal cavities broadly open, gap between hypomeral lobe and prosternal process at least half width of procoxa (Figs. 86–88) 2
- Procoxal cavities closed or, if slightly open, gap less than quarter width of procoxa (Fig. 85) 46
2(1) Apical margin of last ventrite strongly serrate (Fig. 110) (claws appendiculate).. 3
- Apical margin of last ventrite not serrate..... 4
3(2) Epipleura hidden in lateral view by extended elytral margins; elytra with about 17 striae across middle; body hemispherical, length to width ratio 1.3; dorsum metallic ..... *Hysmatodon* Reid (Fig. 48)
- Epipleura laterally exposed; elytral disc non-striate; body elongate, length to width ratio 2; dorsum non-metallic..... *Ateratocerus* Blackburn (Fig. 29)
4(2) Sides of elytra extended vertically, concealing epipleura which face inwards (tarsomere 3 not deeply bilobed; claws rarely simple) 5

- Sides of elytra not extended vertically, epipleuron at least partially visible from sides (Fig. 93), rarely mostly horizontal 19

5(4) Apical maxillary palpomere clearly expanded from base to truncate apex, outer edge longer than inner, much wider than penultimate (Figs. 75, 77) (most species: without male setal pad on first hind tarsomere, without seta on anterior pronotal angle, with acute internal tooth on claw, without basal pronotal margin) 6

- Apical maxillary palpomere not expanded from base to apex, quadrate or elongate-cylindrical (Figs. 73, 74, 76)..... 16

6(5) Prosternal process with 90° angled lobe on either side of base (Fig. 86), or, if lobe reduced to small rounded swelling (one rare Tasmanian species), then with deeply emarginate lateral pronotal margins and acervate elytra (pronotal angles without setae; labrum not densely pubsecent; sides of pronotum often emarginate or coarsely crenulate; elytra usually non-striate and acervate (interpunctural spaces convex); most species with colour loss after death) .... *Paropsis* Olivier (partim) (Fig. 56)

- Without angled lobe at base of prosternal process (Fig. 85); pronotum not deeply emarginate at sides.....7

7(6) First maxillary palpomere ventrally flat, with anterior edge straight, sharply keeled and often laminate (Fig. 77); >8 pairs of labral setae; usually several tubercles at anterior margin of metaventrite, posterior to mid coxae; epipleural inner margin with line of setae (pronotal angles without setae;elytra non-striate; no colour loss after death) .....*Dicranosterna* Motschulsky (Fig. 39)

- First maxillary palpomere with convex venter, without sharp anterior edge, or if partly sharp, this edge concave and elytra striate; without the other combination of characters 8

8(7) Trichobothria present on posterior angles of pronotum (Fig. 82), often also on anterior angles..... 9

– Without trichobothria on pronotal angles (Fig. 83) (usually with outer margins of tibiae longitudinally keeled and apical third to quarter of mid and hind tibiae broadly excavate with anterior and posterior rows of long straight setae)..... 13

9(8) Mentum almost quadrate, width < 1.6x length, apex bilobed (Fig. 79) (epipleuron horizontal; seta in each corner of pronotum) .....*Novacastria* Selman (Fig. 51)

- Mentum strongly transverse, width at least 2x length, apex truncate or shallowly concave (Fig. 80) 10

10(9) Trichobothria seta absent from anterior pronotal angles (width of epipleuron <0.3x width elytron; claws often simple or feebly toothed) ....*Peltoschema* Reitter (partim) (Fig. 58)

- Trichobothrial seta present in anterior and posterior pronotal angles (claws strongly toothed).....11

11(10) Epipleura greatly expanded, c0.4x width of elytron at widest point (Fig. 92); elytra

entirely non-striate and strongly punctured; external faces of tibiae without obvious keels..... *Poropteromela* Lea (Fig. 64)

- Epipleura narrower, <0.3x width of elytron at widest point; elytra striate, striae usually conspicuous; mid and hind tibiae usually with a sharp external keel 12

12(11) Gena with straight ridge, from postero-ventral margin of eye obliquely towards hind margin of head (Fig. 81); elytral punctures, including striae, uniformly small, striae obscure but present; male first metatarsomere with smooth glabrous ventral median line; claws appendiculate ..... *Philhydronopa* Weise (Fig. 59)

- Gena without ridge from postero-ventral margin of eye towards hind margin of head; punctures of elytral striae conspicuously larger than punctures of intervals; male first metatarsomere entirely setose; claws rarely appendiculate..... .....*Paropsides* Motschulsky (Fig. 54)

13(8) Apices of mid and hind tibiae abruptly expanded pre-apically, often triangularly, with row of short spines on distal face of expansion (Fig. 104); external faces of tibiae without keels (prosternal midline elevated as a single ridge anteriorly; elytra evenly and strongly striate; male setal pad on first metatarsomere; inner margin of epipleuron without setae; slight colour fading after death) ... *Faex* Weise (Fig. 44)

- Apices of tibiae without row of short spines on distal face, rarely abruptly expanded at apices; external faces of mid and hind tibiae rarely without obvious keel(s) 14

14(13) Mesoventrite process not perpendicularly elevated, anterior gradually sloping (Fig. 99); length 5–6mm; external faces of tibiae without keels; male with ovate setal pad on basal metatarsomere; metepisternum without deep groove along outer margin; elytra striate; claws simple or minutely toothed..... ..... *Rhaebosterna* Weise (partim) (Fig. 67)

- Mesoventrite process perpendicularly elevated, anterior face ridged (Figs. 96–98); length rarely <7mm; without combination of other characters 15

15(14) Mesoventrite process with straight or slightly concave anterior margin, anterior corners leading to obliquely transverse knobs or points, posterior margin straight or concave (Fig. 96); ventral surfaces rarely with large setiferous punctures, if so, these confined to ventrites; dorsum without waxy layer (maximum epipleural width often >0.25 basal elytral width; most species with striate elytra, never acervate or verrucose; anterior intercoxal process of first ventrite often triangular) .... *Paropsisterna* Motschulsky (Fig. 57)

- Mesoventrite process with anterior margin deeply concave with anterior angles extended as broad ridges to obliquely transverse knobs, posterior margin straight or almost so (Fig. 97); ventral surface with patches of large setiferous punctures on prosternum, or metaventrite or ventrites, or a combination of these; anterior intercoxal process of metaventrite broad and truncate; colour not fading after death (dorsum usually with waxy layer, removed by alcohol; elytra non-striate,

usually acervate or verrucose; epipleura usually 0.25 or less width of elytron at base) ..... *Trachymela* Weise (Fig. 71)

16(5) Elytra striate; side angles of clypeus truncated, not laterally produced; body ovate and flat or semicircular and convex; basal ventrites free 17

- Elytra non-striate; side angles of clypeus laterally produced anterior to antennal sockets; body semicircular but relatively flat; ventrites I and II fused (apical maxillary palpomere elongate-fusiform; anterior pronotal trichobothria absent; claws simple; third tarsomere bilobed)..... *Plagiodera* Chevrolat (Fig. 62)

17(16) Elongate-ovate, depressed, length to height ratio 3.8–4.2; anterior pronotal trichobothria absent; head flattened and produced, with small flat eyes (pronotal hypomeron without groove) .....*Peltoschema* (partim) (Fig. 58)

- Semicircular and convex, length to height ratio <3; anterior pronotal trichobothria present; head normal, neither flattened nor produced and with convex eyes..... 18

18(17) Length >5mm; claws simple; prosternal process with narrow elongate median ridge excavate at sides (for retention of antennae); mesoventrite process almost quadrate; pronotal hypomeron with groove near lateral edge .... *Diacosma* Weise (Fig. 38)

- Length <5mm; claws strongly appendiculate, basal lobe acute; prosternal process laterally ridged, ridges converging anteriorly to single point on prosternal margin, forming elongate triangle of ridges; mesoventrite process strongly transverse; pronotal hypomeron without groove near lateral edge ....*Sphaerotritoma* Arrow (Fig. 68)

19(4) Tarsal claws fused for basal third (Fig. 107); apex of fifth tarsomere strongly toothed ventrally ..... *Zygogramma* Chevrolat (Fig. 72)

- Tarsal claws free, usually opposed (Figs. 105–106, 108–109); fifth tarsomere without an apical ventral tooth 20

20(19) Anterior (and usually posterior) pronotal angles without trichobothria 21

- All pronotal angles with at least one trichobothrium (Fig. 82)..... 29

21(20) Apical maxillary palpomere expanded from narrow base to truncate apex, broader than penultimate and outer margin longer than inner (Figs. 75, 77) 22

- Apical maxillary palpomere quadrate or elongate cylindrical, usually distinctly narrower than penultimate and at most feebly expanded from broad base to truncate apex (claws simple) (Figs. 73, 76) 24

22(20) First maxillary palpomere without sharp anterior edge; elytra striate or at least with discal punctures in linear arrangement 23

- First maxillary palpomere anteriorly flattened with sharp leading edge (Fig. 77); elytra non-striate, strongly uniformly punctured (without lobe at base of prosternal process; male first metatarsomere without setal pad)..... ..... *Dicranosterna* Motschulsky (partim) (Fig. 39)

23(22) Prosternal process without angled lobe at base (Fig. 85); length 4–6mm; male first

metatarsomere with pads of spatulate setae (Fig. 105)..... 23

- Prosternal process with 90° angled lobe on either side of base (Fig. 86); length 7–9mm; male first metatarsomere without setal pads (posterior pronotal angles without trichobothria; elytra strongly acervate) ..... *Paropsis aspera* Chapuis

24(23) Posterior pronotal angles without trichobothria (Fig. 83); claws simple or with small acute tooth; epipleura not setose; first ventrite without femoral plate..... ..... *Rhaebosterna* Weise (partim) (Fig. 67)

- Each posterior pronotal angle with single trichobothrium (Fig. 82); claws distinctly toothed; apical half of epipleura setose, or femoral plate at base of first ventrite (Fig. 32)..... *Peltoschema* Reitter (partim) (Fig. 58)

25(21) Elytra tuberculate and at least partly non-striate (Figs. 41, 69); genal grooves absent; pronotum contracted from middle towards base (pygidium without median groove; length 3–10mm)..... 26

- Elytra without tubercles, striate, at least at sides; genal grooves usually present between ventral margin of eye and mentum; pronotum broadest at base..... 27

26(25) Length 7–10mm; posterior pronotal trichobothria present; third tarsomere not bilobed; frontoclypeus without deep vertical groove near eye (male with excavate base of abdomen, trilobate apical ventrite and enlarged trochanters; metaventrite process rounded at apex; frontoclypeal grooves obliterated by rugose punctures) ..... *Strumatophyma* Baly (Fig. 69)

- Length 3–4mm; posterior pronotal trichobothria absent; third tarsomere deeply bilobed; frontoclypeus with deep vertical groove near eye..... ..... *Eugastromela* Lea (Fig. 41)

27(25) Length 5–7mm; anterior of prosternum laterally obliquely ridged (Fig. 89); eyes strongly transverse (width >3x length) and gena with long ridge and deep groove between eye and mouth (Fig. 81); epipleuron strongly sinuate third from base; third tarsomere not deeply bilobed; pygidium without median groove (hemispherical species; eyes reduced to narrow lateral strips, length >4 x width; no frontoclypeal grooves)..... *Cyclonoda* Baly (Fig. 36)

- Length <3.5mm; prosternum without oblique lateral ridges, or these weakly indicated; eyes less transverse and gena with short ridge and groove, or not grooved; epipleuron not strongly sinuate; third tarsomere deeply bilobed, or apex rarely shallowly concave (some *Geomela*); pygidium usually deeply grooved 28

28(27) Prosternal process reduced to a linear ridge; intercoxal process of first ventrite acutely pointed; antennomeres 9-11 expanded as a loose club (length 1.5–1.7mm; strongly convex, length <1.5x height; without obvious genal groove; base of penis bilobed) (Fig. 20) .....*Gibbiomela* Daccordi (Fig. 46)

- Prosternal process with flat surface, not reduced to a ridge; intercoxal process of first ventrite truncate; antennomeres 7-11 expanded as a loose club, or without obvious club (length 1–3.5mm) (Fig. 19) .....*Geomela* Lea (Fig. 45)

29(20) Apical third of epipleural inner margin with row of short setae (Fig. 91); claws not toothed; apical maxillary palpomere not expanded to apex 30
- Epipleural inner margin without setae, or if so (rare *Calomela* species), claws with small basal tooth and apical maxillary palpomere strongly expanded to apex.... 33
30(29) Length <12mm; base of pronotum not margined; body broader, length to width ratio 1.5–1.8; sides of pronotum without irregular punctate depressions; head not constricted behind eyes [introduced genera] 31
- Length >12mm; base of pronotum margined; body narrower, length to width ratio >1.8; sides of pronotum with irregular punctate depressions (Fig. 84); head constricted behind eyes..... *Promechus* Chevrolat (Fig. 65)
31(30) Apical maxillary palpomere at least as long and wide as penultimate 32
- Apical maxillary palpomere shorter and narrower than penultimate (labrum and mandibles densely setose)..... *Deuterocampta* Chevrolat (Fig. 37)
32(31) Labrum, anterior margin of clypeus and external face of mandibles with dense long setae; mandibles projecting beyond labrum by at least length of labrum .... *Calligrapha* Chevrolat (Fig. 31)
- Labrum, anterior margin of clypeus and external face of mandibles sparsely setose, each with 2–4 pairs of long setae; mandibles not or slightly projecting beyond labrum ..... *Chrysolina* Motschulsky (Fig. 35)
33(29) Prosternal process quadrate to transverse (Fig. 88), lateral ridges (if present) not anteriorly convergent; apical maxillary palpomere elongate-conical, length at least 1.5x width, narrower than penultimate (Fig. 73); (length 2–6mm; eyes laterally prominent; claws appendiculate) ..... *Tinosis* Weise (Fig. 70)
- Prosternal process narrower, longer than broad, with lateral ridges convergent if present; apical maxillary palpomere shape not conical, slightly elongate, length <1.5x width, to transverse..... 34
34(33) Claws simple, without basal tooth (Figs. 105–106) 35
- Claws with basal tooth (Figs. 108–109) 36
35(34) Apical maxillary palpomere expanded from base to apex, apical width at least 1.5x basal width (Figs. 75, 77); pronotal hypomeron grooved from anterior of prosternum towards hind angles (Fig. 90), or if not (rare), body strongly elongate-cylindrical .....*Calomela* Hope (*partim*) (Fig. 32)
- Apical maxillary palpomere parallel-sided or sides slightly convergent to apex (Figs. 73, 76); without hypomeral groove; body ovoid, not strongly elongate or cylindrical ..... *Chalcomela* Baly (Fig. 34)
36(34) Metaventrite, if anteriorly elevated, on same plane as prosternal process and not projecting in lateral view 37
- Metaventrite anteriorly elevated between mesocoxae, forming prominent tubercle in lateral view (Fig. 100), and apex of prosternal process depressed; (prosternal process apex rounded, reaching anterior of mesoventrite; pronotal hypomeron

without groove; claws appendiculate with right-angled lobe)..... ..... *Grammicomela* Lea (Fig. 47)

37(36) Mesoventrite visible between prosternal process and metaventrite (Figs. 96–99)... 38

- Median portion of mesoventrite obscured by apex of prosternal process, which reaches anterior of metaventrite between mid coxae (Fig. 101) (prosternal process strongly raised, pointed anteriorly and bilobed posteriorly; pronotal hypomeron grooved parallel to lateral margin; two basal ventrites fused .... *Pterodunga* Daccordi (Fig. 66)

38(37) Mentum slightly transverse, width <1.6x length (Fig. 79); dorsum pale brown, non-metallic 39

- Mentum strongly transverse, width at least twice length (Fig. 80); dorsum usually at least partly metallic 40

39(38) Epipleura laterally visible, but margins fused to a single ridge before apex of elytra (Fig. 94); apex of submentum shallowly concave; prosternum not elevated at midline, process not margined; external face of tibiae rounded; vaginal palpi one-segmented .....*Ewanius* Reid (Fig. 43)

- Epipleura horizontal or almost so, narrow but entire to elytral apex (Fig. 95); submentum with deeply bilobed apex (Fig.79); prosternum medially elevated and process laterally margined; external face of tibiae strongly keeled; vaginal palpi two-segmented (Fig. 25) ..... *Novacastria* Selman (Fig. 51)

40(38) Without deep groove inside and posterior to eyes (Figs. 73–74); second maxillary palpomere as long as third; metepisternum usually punctate and pubescent 41

- With deep vertical groove beside inner margin of each eye, extending posterior to eye (Fig. 3); third maxillary palpomere 1.5–2x length of second; metepisternum impunctate and glabrous (prosternal process with raised lateral margins, converging to a median prosternal ridge; stria 5 deeply grooved at base; last ventrite not lobed in male, not depressed in female; vaginal palp 2-segmented) .... *Alfius* Reid (Fig. 28)

41(40) Lateral margins of frontoclypeal suture smooth, without abrupt ridge; frons without vertical groove parallel to inner margin of eye (Fig. 73) (if body elongate and parallel-sided, pronotal hypomeron grooved or apical maxillary palpomere greatly expanded) 42

- Lateral margins of frontoclypeal suture sharply ridged (Fig. 74); frons usually with vertical groove parallel to ridge at inner margin of eye (Fig. 74) (body narrow and flat, length to width ratio >1.8, length to height ratio >2.6; apical maxillary palpomere quadrate or slightly expanded to apex, ratio of apical to basal width =1.5; prosternal process laterally ridged; pronotal hypomeron without groove; metepisternum without deep lateral groove) ..... *Platymela* Baly (Fig. 63)

42(41) Metepisternum without deep lateral groove, smooth or punctate, punctures some-

times forming linear depression on outer margin 43

- Metepisternum with broad sharply defined lateral groove (Fig. 103) (apical maxillary palpomere greatly expanded to apex, ratio of apical to basal width >1.5; hind angles of pronotum rounded)..... *Paropsides* (partim) (Fig. 54)

43(42) Posterior angles of pronotum right-angled, obtuse, or rounded (Fig. 82); pronotum not strongly depressed compared with elytra (pronotal hypomeron often grooved) 44

- Posterior angles of pronotum acute (Fig. 27); pronotum strongly depressed, compared with elytra (length 10–12mm; anterior angles of pronotum acute; thorax elevated along ventral midline; male last ventrite not depressed)..... ..... *Aesernoides* Jacoby (Fig. 27)

44(43) Pronotal hypomeron without groove from junction of prosternum and hypomeron parallel to margin, or if present, with transverse ridges; striae usually regular and linear; body less elongate, not parallel-sided, length to width ratio 1.3–2 45

- Pronotal hypomeron with distinct groove from junction of prosternum and hypomeron curving parallel to thoracic margin (Fig. 70), or if rarely without this, elytral striae irregular (not linear) and body elongate and parallel-sided, length to width ratio >2.5 (prosternum rarely medially raised; pronotal anterior usually without margination)..... *Calomela* Hope (Fig. 32)

45(44) Claws with acute basal tooth, not or slightly appendiculate (Fig. 108); anterior face of mesoventrite process not transversely ridged, usually convex; apex of prosternal process strongly bilobed, rarely concave; pronotal hypomeron not grooved; male last ventrite rarely strongly incised either side of produced apex (*C. gibbosum* (Baly), with non-striate elytra); eyes usually separated by at least 2 eye lengths; 1-segmented vaginal palp..... *Callidemum* Blanchard (Fig. 30)

- Claws with small, approximately right-angled, distinctly appendiculate tooth (Fig. 109); anterior face of mesoventrite process abruptly transversely ridged, truncate; apex of prosternal process truncate, rarely concave; male last ventrite strongly incised either side of apex (trilobate or at least median lobe prominent); eyes large, separated by <2 eye lengths; vaginal palp 2-segmented (pronotal hypomeron with or without transverse grooves)..... *Paropsimorpha* Lhoste (Fig. 55)

46(1) Claws simple, with at most slight angulation at base (Figs. 105–106)..... 47

- Claws with conspicuous right-angled or acute tooth or lobe at base (Figs. 108–109) 50

47(46) Pronotal angles without trichobothria (Fig. 83); third tarsomere deeply bilobed (Fig. 105), or if feebly bilobed, anterior of metaventrite with femoral plates; apical maxillary palpomere not broader than penultimate, elongate and cylindrical or conical (Fig. 73) (length 2–8mm; dull coloured: dark brown, black, bluish- or greenish-black) 48

- Pronotal angles with trichobothria (Fig. 82); third tarsomere not or shallowly

bilobed (Fig. 106), rarely deeply (one species of *Chalcolampra*); metaventrite without femoral plates; apical maxillary palpomere often as broad as penultimate, quadrate or slightly elongate (Fig. 76) (length 2–14mm; often brightly coloured; apex of metaventrite rounded) 49

48(47) Femoral plate present in anterior corners of metaventrite; pair of lateral oblique ridges on anterior of prosternum (Fig. 89), rarely obliterated by dense punctures; genal ridge and groove present (Fig. 81); frontoclypeal groove usually reduced to a pair of lateral pits (Fig. 73) ..... *Ethomela* Lea (partim) (Fig. 40)

- Metaventrite without femoral plates; anterior of prosternum smooth; gular area without ridge and groove; frontoclypeal suture not reduced to a pair of lateral pits ..... *Palaeomela* Daccordi (Fig. 53)

49(48) Either prosternum anteriorly produced at middle (Fig. 85), or pronotal hypomeron with groove parallel to pronotal margin (Fig. 90); middle of sides of pronotum usually with large irregular punctate depressions (Fig. 84); elytral posthumeral depression usually present ..... *Lamprolina* Baly (Fig. 50)

- Prosternum anteriorly flat and pronotal hypomeron without lateral groove; middle of sides of pronotum without punctate depressions; elytral posthumeral depression absent .....*Chalcolampra* Blanchard (partim) (Fig. 33)

50(46) Last 5 antennomeres quadrate or transverse, with large lateral lobes (Fig. 78); upper surface entirely metallic (body elongate, 7–13mm; frons deeply grooved inside eye; sides of pronotum and elytra deeply pitted, including base of stria 5; mesoventrite process abruptly elevated)..... *Johannica* Blackburn (Fig. 49)

- Last 5 antennomeres without lateral lobes, elongate; upper surface rarely entirely metallic 51

51(50) Apex of third tarsomere truncate or shallowly concave (Figs. 106–108); pronotal angles with trichobothria; antero-lateral part of prosternum smooth; gular area without ridge and groove; metaventrite without femoral plates; frontoclypeal suture not laterally depressed..... 52

- Apex of third tarsomere deeply bilobed (Fig. 105); pronotal angles without trichobothria; pair of lateral oblique ridges on anterior of prosternum (Fig. 89); genal ridge and groove present (Fig. 81); femoral plate present in anterior corners of metaventrite; frontoclypeal groove usually laterally depressed and reduced to a pair of lateral pits (Fig. 73) .....*Ethomela* Lea (partim) (Fig. 40)

52(51) Length 1.5–4mm; hind femora elongate-ovate, anterior margin almost evenly convex (Fig. 104); frons simple, without grooves extending posteriorly from frontoclypeal margin; base of pronotum not or feebly margined; elytra with stria 5 not deeply depressed at base (but may be more strongly punctate), without lateral posthumeral depression; first ventrite with flattened and usually slightly expanded anterior border (eyes large, interocular distance 1.5–2x eye length; pronotum evenly convex, not laterally swollen or depressed; prosternal process with lateral

keels; mesoventrite process strongly transverse, not abruptly elevated; epipleuron not twisted) .....*Oomela* Lea (Fig. 52)

- Length 3.8–14mm; hind femora fusiform, base and apex strongly narrowed, anterior margin bisinuate; frons usually with posteriorly directed grooves from deepened frontoclypeal margin; basal edge of pronotum distinctly margined (rare exceptions); elytra usually with stria 5 deep at base and lateral depression behind humeri; first ventrite without expanded anterior border..... 53

53(52) Mesoventrite process abruptly elevated, strongly convex, anterior edge abutting raised apex of prosternal process (Fig. 102); sides of pronotal disc usually with irregular, usually strongly punctate, depressions, not swollen or raised above centre ..... *Eulina* Baly (Fig. 42)

- Mesoventrite process gradually elevated (Fig. 99), overlapped by downcurved apex of prosternal process; sides of pronotal disc rarely with irregular punctate depressions, often swollen or raised above centre..... 54

54(53) Epipleuron not twisted, entirely visible in lateral view 55

- Epipleuron twisted in lateral view, apical half hidden by dorsal surface of elytron (Fig. 93) (spotted elytra; frontoclypeal area shallowly grooved, lateral grooves far apart; eyes large, distance between eyes <4 eye widths; posthumeral depressions shallow).....*Phola* Weise (Fig. 60)

55(54) Mesoventrite process broad, length shorter than width, apex deeply concave or truncate with produced corners (Fig. 98) (frontoclypeal area usually with X- or narrow M-shaped grooves; eyes small, distance between eyes >4 eye widths; posthumeral depressions deep)..... *Phyllocharis* Dalman (Fig. 61)

- Mesoventrite process narrow, length equal to width, apex convex, truncate or concave (Fig. 99) (broad M- or H-shaped facial groove, sometimes with median groove through vertex) .....*Chalcolampra* Blanchard (partim) (Fig. 33)

Notes on the taxa included in the key

The following comments explain the nomenclature adopted for the key above (with justifications of new taxonomic decisions), and provide short diagnostic descriptions, with summaries of distribution, host-plants and knowledge of immature stages. Numbers of undescribed species seen in collections are noted for most of the genera, as all examined material was used in formulation of the descriptions. The plant family classification follows Stevens (2005). Host-plant information is from publications, collection data and my own experience. Unless otherwise noted, comments on immature stages are based on my unpublished observations (reared material is stored in AMS and ANIC). The focus of this paper is on morphology and taxonomy, therefore the extensive literature on the ecology of Australian Chrysomelinae, especially *Paropsis*-group genera (‘paropsines’), is ignored (for reviews see: Ohmart 1996; Simmul & De Little 1999). Introduced taxa in Australia, indicated by an asterisk (*), are not described.

Aesernoides Jacoby, 1885

(Fig. 27)

Type species. *Aesernoides nigrofasciatus* Jacoby, 1885, by monotypy.

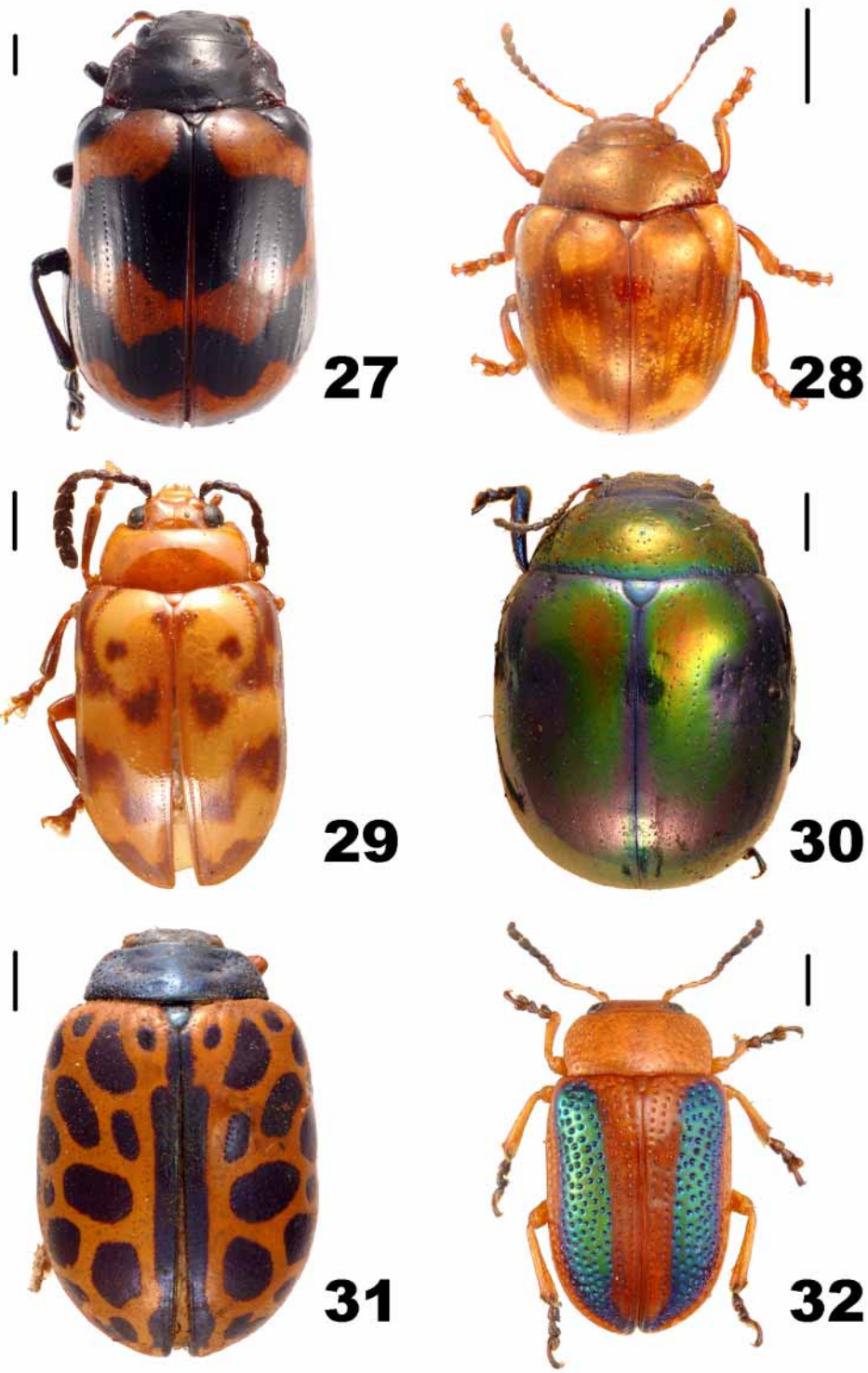
Diagnostic description

Length: 10–12mm; body elongate (length to width ratio 1.7) and moderately convex (length to height ratio 2.5). Head: not contracted behind eyes, eyes not laterally prominent; frons without vertical groove beside inner margin of eye; frontoclypeal suture transverse V-shaped, laterally smooth, without abrupt ridge; gena without straight ridge and groove to accommodate antenna; antennomeres 8–10 not laterally expanded; first maxillary palpomere not flattened; apical maxillary palpomere strongly expanded from base to apex; apical margin of mentum shallowly concave. Thorax: pronotum broadest at or near base; trichobothria present in anterior and posterior angles; sides of pronotal disc with irregularly shaped punctate depressions; base of pronotum without raised border; hypomeron without lateral groove; anterior of prosternum without median or lateral ridges, but medially produced; prosternal process roughly quadrate, without a pair of right-angled lobes at base; procoxal cavity open, gap at least half width of coxa; elytra at humeri much broader than pronotum; elytra non-tuberculate, distinctly striate, 5th stria deepened at base; elytra not extended at sides, epipleuron entirely visible from sides, broad at base but less than quarter width of elytron, abruptly narrowed at level of midcoxa, then narrow and evenly attenuated; apical half of epipleura without short stiff setae; anterior face of mesoventrite process abruptly sloping, convex, posterior margin strongly concave; metepisternum without elongate groove; metaventrite without anterior femoral plates; metaventrite process not anteriorly raised; apices of mid and hind tibia without row of teeth; tibiae without external keels; apex of third tarsomere slightly concave; claws toothed, basal lobe appendiculate and acute. Abdomen: pygidium without well-defined median groove; abdominal ventrites free, smooth, without distinct punctures; apex of last ventrite truncate in male and rounded in female.

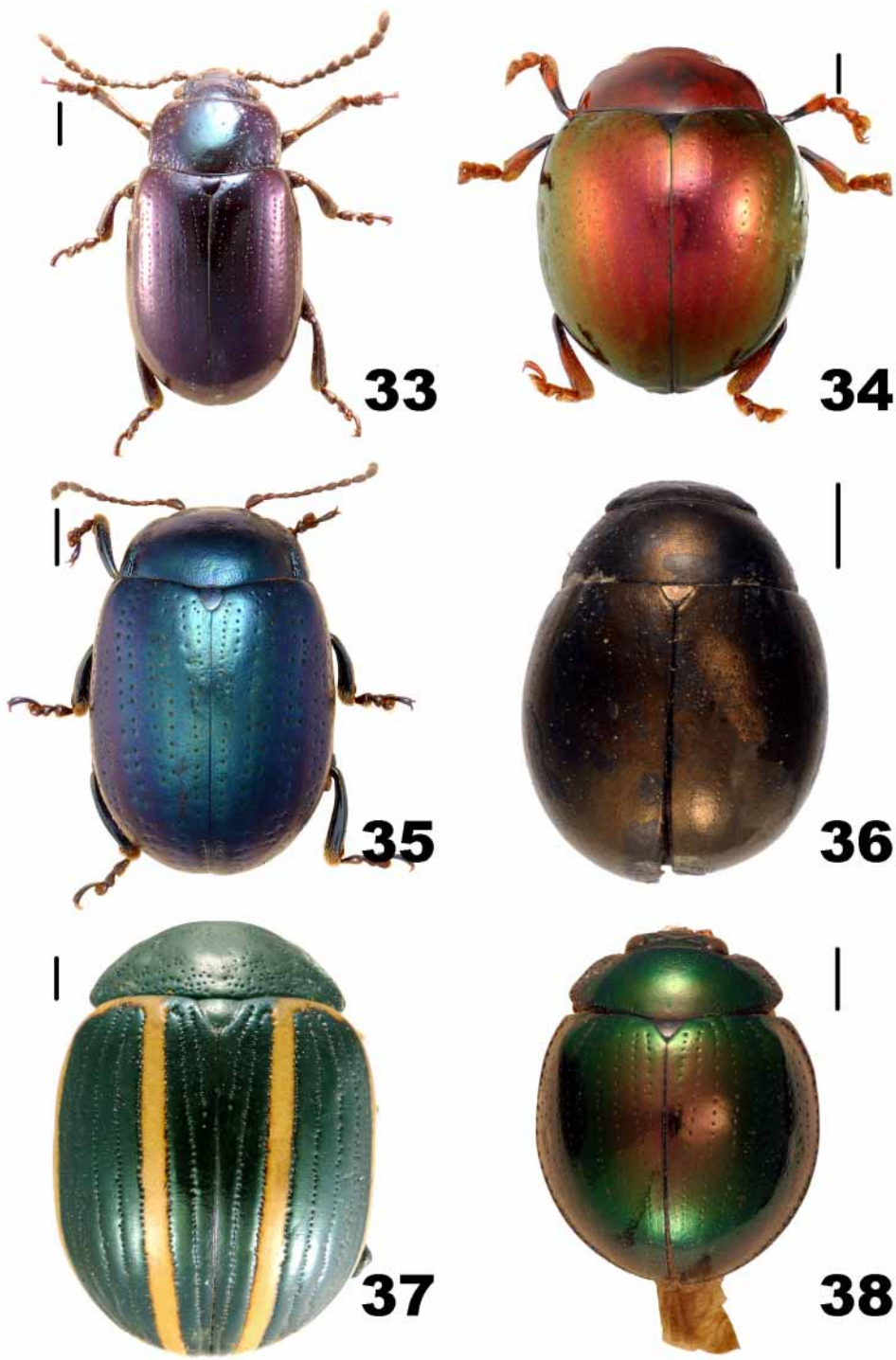
Notes

Aesernoides is endemic to northern New South Wales and southeastern Queensland, Australia. Number of species: 1. Host-plants: unknown. Imature stages: unknown.

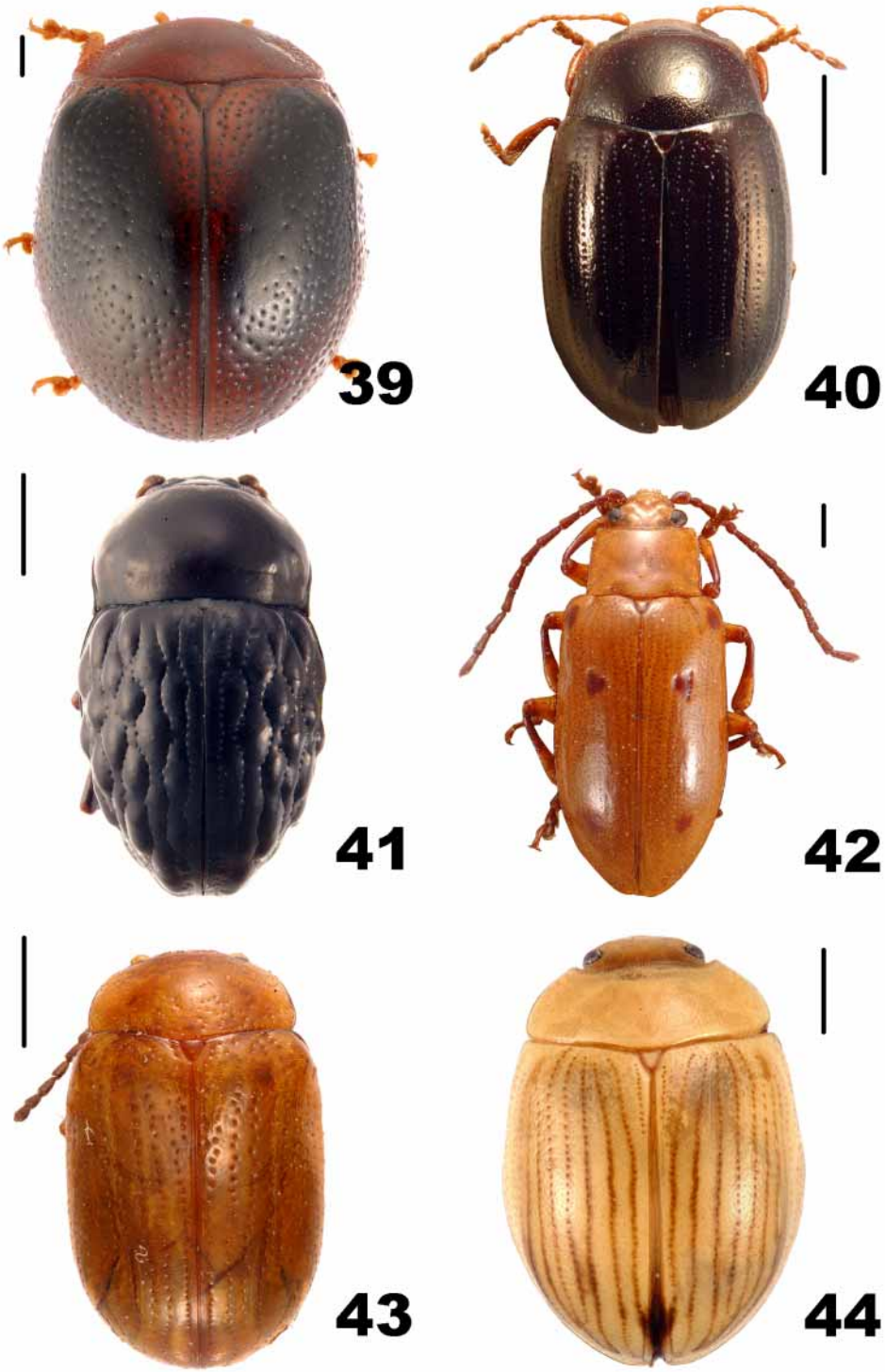
Aesernoides is similar in appearance to large *Callidemum* species but differs by the structure of the pronotum, more abruptly raised epipleura at humeri and more strongly expanded apical maxillary palpomere. *Aesernoides* is also similar to species of *Paropsides*, but this genus has the metepisternum strongly grooved (except the hemispherical *P. umbrosa*) and the upper margin of the epipleuron laterally prominent.



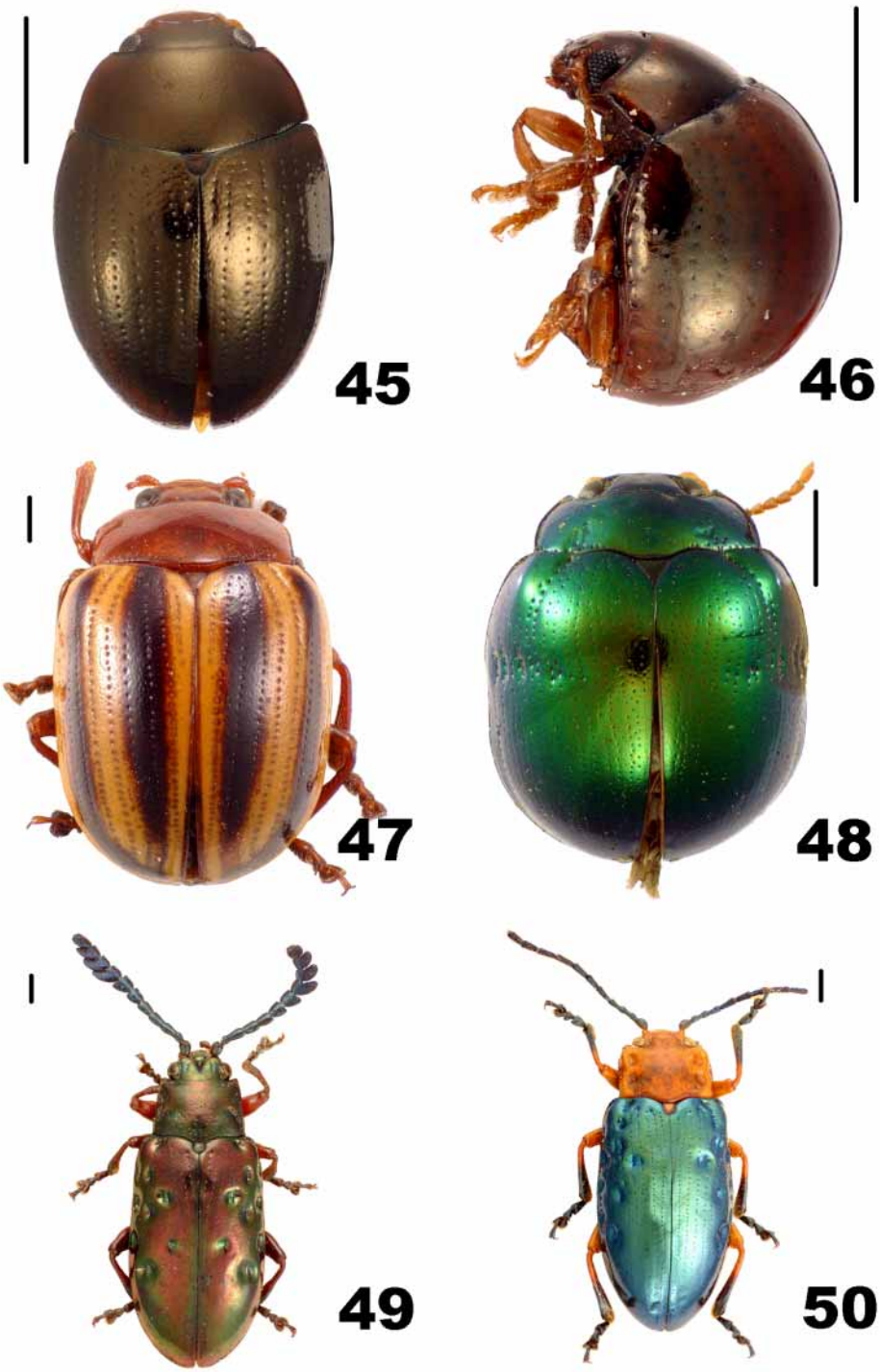
FIGURES 27–32. Habitus photographs of Australian Chrysomelinae, dorsal: 27, *Aesernoides nigrofasciata* (Jacoby); 28, *Alfius pictipennis* (Lea); 29, *Ateratocerus intricatus* Blackburn; 30, *Callidemum hypochalceum* (Germar); 31, *Calligrapha pantherina* Stål; 32, *Calomela parilis* Lea. Line = 1mm.



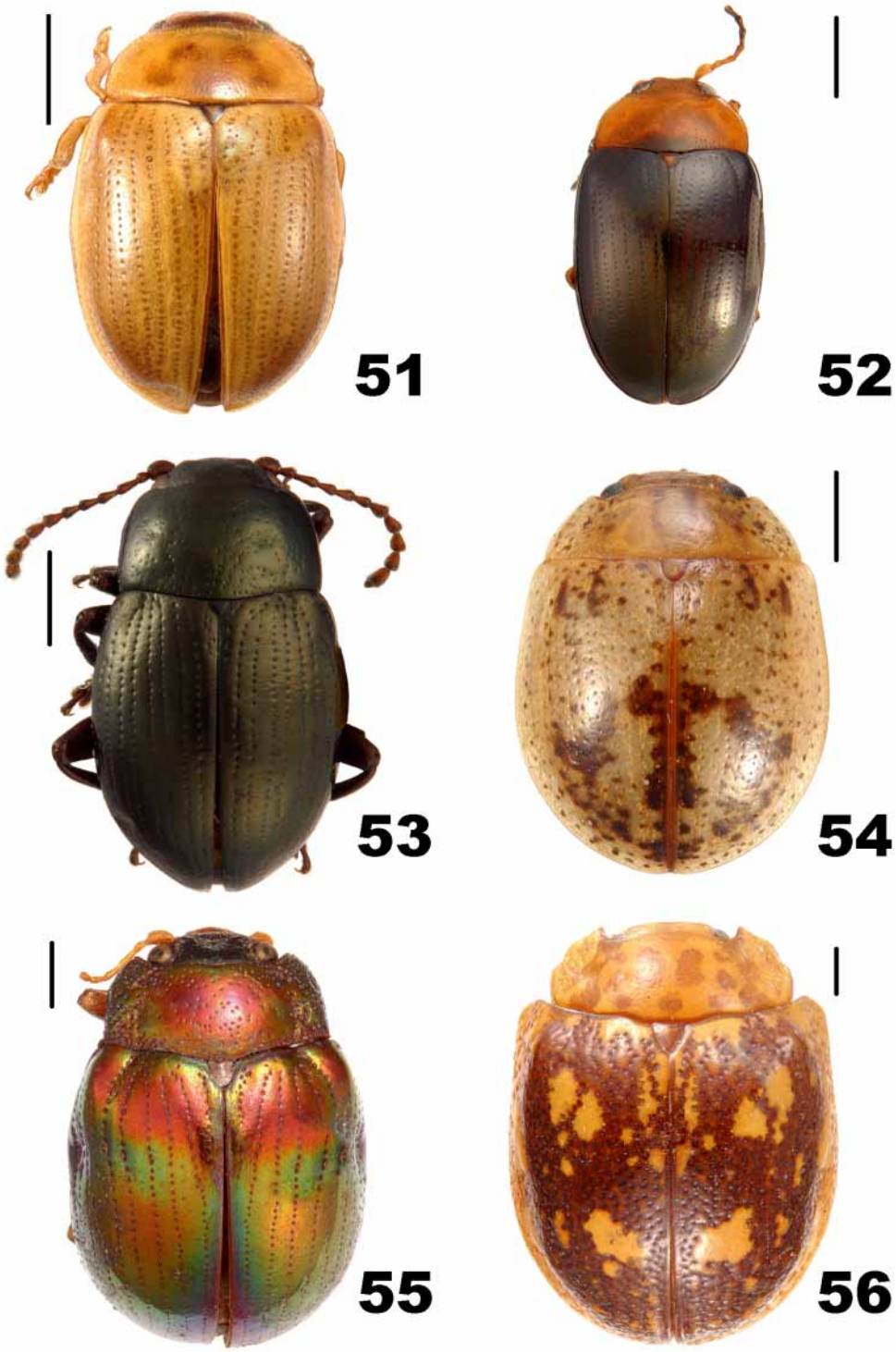
FIGURES 33–38. Habitus photographs of Australian Chrysomelinae, dorsal: 33, *Chalcolampra* species; 34, *Chalcomela nitida* (Baly); 35, *Chrysolina hyperici* (Forster); 36, *Cyclonoda pilula* (Clark); 37, *Deuterocampta quadrijuga* (Stål); 38, *Diacosma tricolor* (Lea). Line = 1mm.



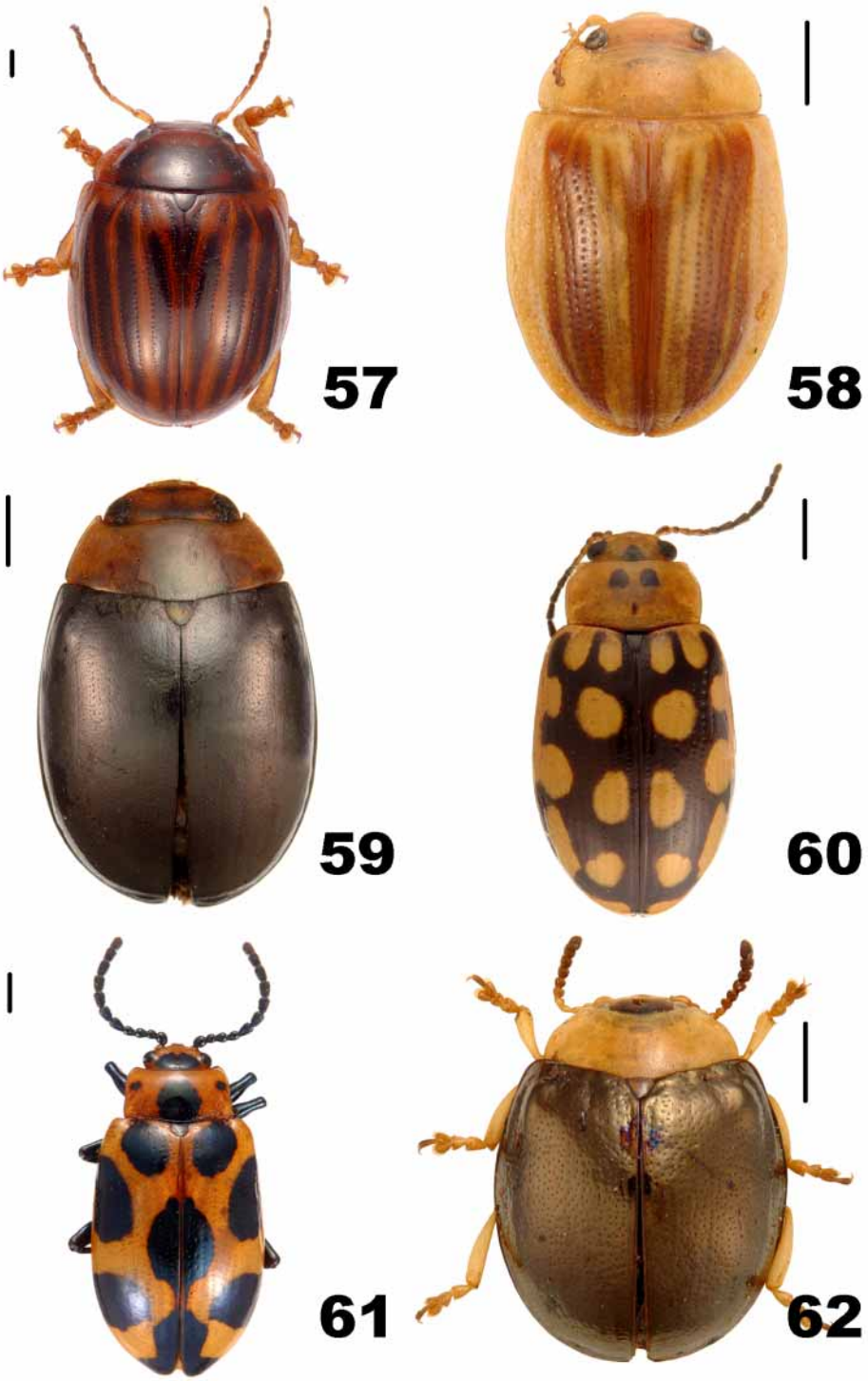
FIGURES 39–44. Habitus photographs of Australian Chrysomelinae, dorsal: 39, *Dicranosterna immaculata* (Marsham); 40, *Ethomela* species; 41, *Eugastromela spiniventer* Lea; 42, *Eulina haematosticta* Lea; 43, *Ewanius nothofagi* Reid; 44, *Faex signata* (Boisduval). Line = 1mm.



FIGURES 45–50. Habitus photographs of Australian Chrysomelinae, dorsal: 45, *Geomela blackburni* Lea; 46, *Gibbiomela paradoxa* Daccordi; 47, *Grammicomela quadrilineata* Lea; 48, *Hysmatodon multiseriata* (Lea); 49, *Johannica gemellata* (Westwood); 50, *Lamprolina aeneipennis* Boisduval. Line = 1mm.



FIGURES 51–56. Habitus photographs of Australian Chrysomelinae, dorsal: 51, *Novacastria nothofagi* Selman; 52, *Oomela elliptica* Lea; 53, *Palaeomela* species; 54, *Paropsides umbrosa* (Chapuis); 55, *Paropsimorpha mirogaster* (Lea); 56, *Paropsis maculata* (Marsham). Line = 1mm.



FIGURES 57–62. Habitus photographs of Australian Chrysomelinae, dorsal: 57, *Paropsisterna* species; 58, *Peltoschema orphana* Erichson; 59, *Philhydronopa aeneipennis* (Chapuis); 60, *Phola octodecimguttata* (F.); 61, *Phyllocharis cyanicornis* (F.); 62, *Plagiodera lownii* Baly. Line = 1mm.

