

## THREE NEW SPECIES OF MELOLONTHINI (COLEOPTERA: SCARABAEIDAE) FROM AUSTRALIA

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Three new species are described from Australia: *Lepidiota bakkeri* sp. nov. from Broome, Western Australia, *L. clareae* sp. nov. from Hopevale, NE Queensland, and *Metatrogus lukei* sp. nov. from Sunshine Beach, SE Queensland. The three species are illustrated and compared with known species. Some specimens previously attributed to *L. negatoria* Blackburn are identified as *L. frenchi* Blackburn. □ *Coleoptera, Scarabaeidae, Melolonthinae, Lepidiota, Metatrogus, taxonomy.*

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The Australian Melolonthini were last revised by Britton (1978) and the tribe in Australia is now known to contain 16 genera and 116 species (Houston & Weir, 1992; Allsopp, 1993a,b,c; Allsopp & Watkins, 1995). Most of the species occur in the N and E of the continent, with *Lepidiota* Kirby and *Dermolepida* Arrow extending into SE Asia and New Guinea, respectively (Allsopp, 1995).

This paper describes 3 new species; 2 from E Queensland, and 1 from NW Western Australia. Abbreviations: ANIC, Australian National Insect Collection, Canberra; AWA, Agriculture Western Australia, Perth; PA, P. Allsopp collection; PB, Peter Bakker collection; QM, Queensland Museum, Brisbane; QPIM, Queensland Department of Primary Industries, Mareeba; WAM, Western Australia Museum, Perth.

### *Lepidiota* Kirby

*Lepidiota* Kirby, 1828: 445.

TYPE SPECIES: *Melolontha stigma* Fabricius, subsequent designation by Hope (1837).

DIAGNOSIS. Britton (1978) distinguished *Lepidiota* from other Australian Melolonthini by a combination of: anterior face of clypeus shallow and usually smooth and unpunctured in the middle; anterior edge of clypeus as seen from above usually broadly bilobed; antennae 10- (rarely 9-) segmented, with a 3-segmented club; lamellae usually shorter than antennal segments 1-7 (or 1-6) together; surface of the body usually bearing few or many broad, adpressed, white scales, scales sometimes minute and wholly

contained within their punctures; tarsal claws each with a strong tooth in the middle of the concave side; anterior edge of posterior femora not concave near the base; mandibles not curved downwards at their apices.

Sixty species are known to occur in Australia, mainly in the north half of the continent (Britton, 1978; Houston & Weir, 1992; Allsopp & Watkins, 1995).

### *Lepidiota bakkeri* sp. nov. (Fig. 1)

ETYMOLOGY. For my colleague Peter Bakker, Bureau of Sugar Experiment Stations, who collected the type series.

MATERIAL. HOLOTYPE: QM162716, M, Broome (Western Australia), 27.x.1996, P. Bakker, at lights. PARATYPES: 10M, F, same data as holotype (ANIC, AWA, PA, QM, WAM).

DESCRIPTION. *Male* Body 23-25mm long. Head, pronotum, pygidium, venter and legs reddish brown, clytra paler and with a dull sheen; antennae yellow-brown to dark brown. Labrum deeply indented, about twice as deep as the anterior face of the clypeus, each lobe with a few scattered, setose punctures, middle section glabrous. Labrum not visible beyond the clypeus in front. Clypeus with anterior face shallow, 7-8x as wide as deep, with a single row of setiferous punctures interrupted in the middle; upper surface almost straight in outline, transverse, 3x as wide as long, covered with almost circular, white scales, except for a bare area in the middle. Anterior 2/3 of the frons with similar scales; posterior surface with a very dense band of

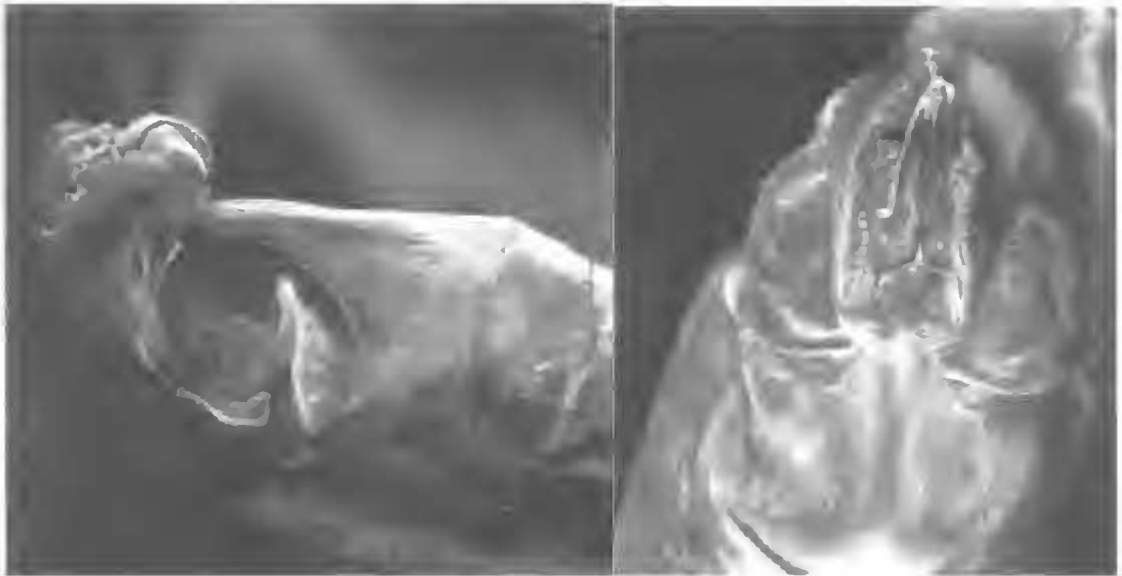


FIG. 1. *Lepidiota bakkeri*, male parameres.

smaller, more elongate scales with a small bare area in the middle. Antennae 10-segmented, club 3-lamellate, club 1.3mm long and as long as segments 2-7 combined. Pronotum with greatest width 1.6 times the mid length, lateral edges obviously angulate in middle, edges behind these angles almost parallel when seen from above; anterior and posterior angles slightly obtuse; without defined anterior and posterior margins; surface densely clothed with scales except for a bare area along the midlongitudinal line which is wider on the posterior half than on the anterior half. Scutellum with elongate scales, except on the midlongitudinal line. Elytra densely and uniformly clothed with white scales, except on the humeri where the scales are sparser. Propygidium with a uniform and very dense clothing of small, ovate, whitish scales on the posterior three-quarters, merging into recumbent setae anteriorly. Pygidium densely clothed with oval, white scales. Pronotal hypomera, metepisternum, metasternum and hind coxae with white scales and a few long, thin, yellow setae, setae denser and scales sparser towards the middle of the metasternum. Abdominal sternites with dense, white scales, scales sparser on the last segment. Parameres almost symmetrical, with a prominent basal process (Fig. 1).

*Female*. Body 24mm long. Similar to male, except antennal club 1.2mm long, shorter than segments 2-7 combined.

**COMMENTS.** *L. bakkeri* is very similar to *L. delicatula* Blackburn and *L. arnhemensis* Britton and keys to couplet 44 in Britton's (1978) key to Australian *Lepidiota*. It can be distinguished from those species only by the shape of the aedeagus (compare Fig. 1 with Britton's (1978) figs 247-250); the shape of the basal process distinguishes *L. bakkeri* from *L. arnhemensis*.

***Lepidiota clareae* sp. nov.**  
(Fig. 2)

**ETYMOLOGY.** For my daughter Clare Allsopp.

**MATERIAL.** HOLOTYPE: ANIC122, M, 14km WbyN Hope Vale Mission (Hopevale, Qld) 15.16°S, 144.59°E, 7-10.v.1981, A. Calder, at light. PARATYPE: F, same data as holotype (ANIC).

**DESCRIPTION.** *Male*. Body 23.5mm long. Head, pronotum and ventral thorax dark reddish brown, elytra and abdomen lighter reddish brown, dorsal and ventral surface with white scales, antennae dark brown. Labrum deeply indented, about 5x as deep as the anterior face of the clypeus, each lobe and middle section with scattered, setose punctures. Labrum just visible beyond the clypeus in front. Clypeus with anterior face very shallow, about 11x as wide as deep, with scattered setiferous punctures laterally, interrupted in the middle by bare area; upper surface indented in middle transverse, about 4x as wide as long, covered with scattered, almost



FIG. 2. *Lepidiota clareae*, male parameres.

circular, white scales, except for bare triangular area in the middle along the posterior margin. Frons with anterior part evenly punctate, each puncture bearing a white scale, punctures and scales more dense above the eyes; posterior third with a dense band of elongate scales and then bare posteriorly. Antennae 10-segmented, club 3-lamellate, club 1.3mm long and as long as segments 2-7 combined. Pronotum slightly wider across base than in middle, greatest width 1.7x the mid length, lateral edges obviously angulate in middle, edges behind these angles almost parallel when seen from above but each indented slightly; anterior angles obviously obtuse, posterior angles square; with defined anterior and posterior margins; surface densely clothed with rounded scales, scales more densely crowded towards the posterior part of the lateral margins and especially on the posterior margin. Scutellum with circular scales smaller and denser across anterior quarter, larger and more scattered on remainder. Elytra uniformly clothed with white, circular scales. Propygidium without a ridge above each posterior angle on each side, scales on posterior third small, circular to slightly elongate, fairly uniform in size and separated by 1 diameter or more. Pygidium densely clothed with oval, white scales, scales denser and more elongate medially and towards apex. Pronotal hypomera with elongate scales except in a median

transverse band. Metepisternum, mesepisternum and metepisternum with elongate scales. Metasternum clothed with long, fine, yellowish setae except for elongate scales across the median base and in the posterior lateral angles. Hind coxae with elongate, white scales on outer two-thirds, inner third with long, fine, yellowish setae. Abdomen with sternites 2-4 densely clothed with circular, white scales at the sides, becoming sparser in the middle of each sternite and absent from the middle of the anterior margins of sternites 3 and 4; sternite 5 with scales more evenly distributed across surface. Parameres almost symmetrical, without prominent processes (Fig. 2).

*Female.* Body 26mm long. Similar to male, except antennal club 1.2mm long, shorter than segments 2-7 combined, apex of pygidium more rounded and almost bare of scales.

COMMENTS. *L. clareae* is similar to *L. negatoria* Blackburn and keys to that species in Britton's (1978) key. The type series was originally placed under *L. negatoria* in the ANIC. *L. clareae* has much denser scales on the pygidium, these scales are circular laterally but become more elongate medially and towards the apex; in *L. negatoria* the pygidium has sparse, circular scales. The two species also differ in the shape of the parameres (compare Fig. 2 with Britton (1978) figs 166-167).

**Lepidiota frenchi** Blackburn

*Lepidiota frenchi* Blackburn, 1912: 64; Britton, 1978: 58.

MATERIAL. 2F, Mt Spec (Qld), i.1968, E.E. Adams; M, F, 4km W of Running River W of Paluma, 11.i.1987, E.E. Adams; F, The Saddle, Paluma Rd, Mt Spec Nat. Pk, 1.xii.1968, Britton & Misko (all ANIC).

COMMENTS. All of the above specimens were placed as *L. negatoria* in the ANIC; the first two were also placed as that species by Britton (1978). All are *L. frenchi*; this is confirmed by dissection of the parameres of the Y. *L. negatoria* is not known north of Proserpine, about 300km southeast of Mt Spec.

**Metatrogus** Britton

*Metatrogus* Britton, 1978: 28.

TYPE SPECIES: *Metatrogus septuosus* Britton, by original designation.

DIAGNOSIS. Britton (1978) distinguished *Metatrogus* from other Australian Melolonthini by a combination of: body reddish brown, very dark brown or black with a greyish, pruinose film; anterior face of the clypeus broad and shallow (greatest width: mid length about 8:1), bearing a single, transverse row of setiferous punctures; anterior edge of the clypeus as seen from above uniformly convex, not emarginate or bilobed; antennae 10-segmented with a 3-, 6- or 7-lamellate club; head, pronotum and elytra sparsely punctured, the punctures bearing minute setae, the body without scales, but with flattened, adpressed, white setae on the pronotal hypomera and the abdominal ventrites, pygidium and propygidium; pronotum with or without a narrow, defined anterior margin near the angles only, without a defined posterior margin; scutellum densely punctured; sutures separating ventrites 3-5 fainter in the middle than at the sides; claws with a prominent tooth in the middle of the concave side.

Three species have been described previously (Britton, 1978; Houston & Weir, 1992): *M. septuosus* Britton from SE Queensland and NE New South Wales; *M. praeceps* Britton from the Paluma area, NE Queensland; and *M. castaneus* Britton from Stanthorpe, SE Queensland.

KEY TO MALES OF *METATROGUS*

1. Antennae with a 3-lamellate club; body very dark brown; parameres as in Britton (1978, figs 77-79) . . . . . *M. praeceps* Britton

Antennae with a 6-lamellate club; body bright reddish brown; parameres as in Britton (1978, figs 80-82) . . . . . *M. castaneus* Britton

Antennae with a 7-lamellate club; head and pronotum black, elytra and abdomen dark reddish brown, dorsum with a dull pruinose bloom . . . . . 2

2. Lamellae of antennal segments 6-10 3.3mm long, lamella of segment 4.75 as long as those of segments 6-10; setae of pronotum minute, about as long as the diameter of their punctures; parameres slightly asymmetrical (Britton, 1978, figs 74-76) . . . . *M. septuosus* Britton

Lamellae of antennal segments 6-10 2.4mm long, lamella of segment 4.5 as long as those of segments 6-10; setae of pronotum 3-4x as long as the diameter of their punctures; parameres symmetrical (fig. 3) . . . . *M. lukei* sp. nov.

**Metatrogus lukei** sp. nov.

(Fig. 3)

ETYMOLOGY. For my son Luke Allsopp, who collected the first 2 specimens.

MATERIAL. HOLOTYPE: QMT62717, Y, Sunshine Beach (Qld), 28.ix.1996, L. Allsopp. PARATYPES: 1X, same data as holotype (ANIC); 2M, 2F, 2 (sex unknown, damaged), same locality, 15.xii.1996, 10.i.1999, P. Allsopp; 3F, same locality, 26-29.ix.1997, P. & L. Allsopp; F, Little Cove, Noosa Heads, 9.i.1999, P. Allsopp; F, same locality, 10.i.1999, R. Lloyd (ANIC, PA, QM, QPIM).

DESCRIPTION. *Male*. Body 27-28mm long. Head and pronotum black with a pruinose bloom; elytra dark brown to black with a pruinose bloom; pygidium dark brown; venter and legs dark brown to black; antennae yellow-brown to dark brown. Labrum indented, 1.8x deeper than anterior face of the clypeus, surface with a few scattered, setose punctures. Labrum visible beyond the clypeus in front. Clypeus with anterior face shallow, 8.5x as wide as deep, with a single row of setiferous punctures not interrupted in the middle: upper surface slightly convex in outline, transverse, 3.6-4x as wide as long, coarsely punctured, punctures with stout, pointed, yellowish setae which project beyond their punctures. Anterior 2/3 of the frons similarly punctured, except setae above the eyes denser and 2-3x longer; posterior surface with very few setae in the middle and finer setae towards the edges. Antennae 10-segmented, club 7-lamellate, lamellae of segments 6-10 2.4mm long, segment 5 1.8-2mm long, segment 4 1.3mm long. Pronotum with greatest width 1.6x the mid length, width at base 1.7x width at apex, anterior and posterior angles slightly obtuse, posterior angles slightly rounded, without raised anterior or posterior margins; surface finely punctured, each puncture with a yellowish, flattened, pointed seta 3-4x as long as

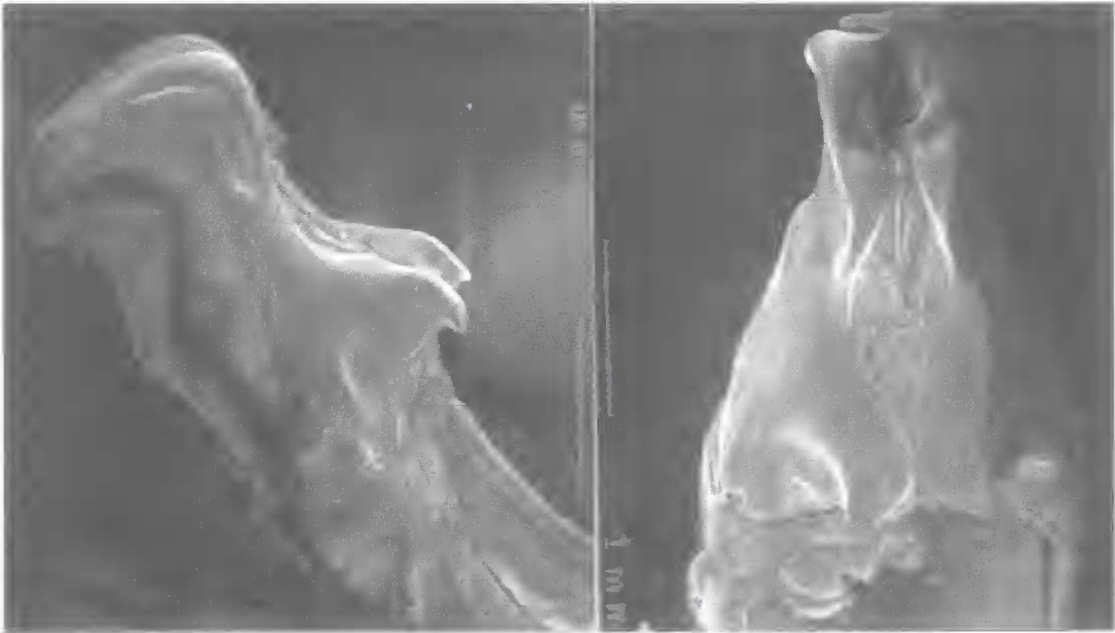


FIG. 3. *Metatrogus lukei*, male parameres.

the diameter of the puncture, punctures denser towards the margins, midlongitudinal line unpunctured except for the posterior fifth. Scutellum with similar setose punctures, less dense on the mid-longitudinal line. Elytra uniformly punctured, most punctures with a seta similar to those on the pronotum. Propygidium with anterior 3/4 smooth and glabrous, posterior quarter with flattened, pointed, yellowish setae, setae shorter than on the elytra. Pygidium with the surface rugulose, densely clothed with setae similar to those on the propygidium, except in a bare, longitudinal area in the middle. Pronotal hypomera with long, flattened, whitish setae with a few long, thin, yellow setae. Metasternum, mesosternum and hind coxae clothed densely with long, fine yellowish setae. Abdominal sternites with dense, flattened, adpressed, white setae, setae absent from anterior and posterior edges across the middle, sutures fainter in the middle than at the sides. Femora and tibiae with flattened, adpressed, white setae as well as pointed, yellow setae; claws with a prominent tooth in the middle of the concave side. Parameres symmetrical, rounded across the apices (Fig. 3).

*Female.* Body 29-30mm long. Similar to male, except antennal club 6-lamellate, segments 7-10 1.2mm long, segment 6 1.1mm long, segment 5 0.8mm long.

**COMMENTS.** The type series was collected at light or in spiders' webs at 2 sites where the soil is very sandy ('Wallum' country). *M. lukei* differs from *M. castaneus* and *M. praeceps* by having 7-lamellate antennal clubs and the head and pronotum black and elytra dark reddish brown, all with a dull pruinose bloom. It is most closely related to *M. septuosus* but has smaller antennal lamellae, longer setae on the pronotum and symmetrical parameres (compare Fig. 3 with Britton, 1978, figs 74-76). *M. septuosus* occurs in areas to the south and west, usually away from the coast, and apparently in areas with soils of higher clay contents.

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