

***Melobasis bilyi*, an interesting new species  
of the *M. pusilla* species-group from Queensland, Australia  
(Coleoptera: Buprestidae)**

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**Abstract.** *Melobasis bilyi* sp. nov. is described from Queensland, Australia and differentiated from the other known species of the *M. pusilla* Levey 2012 species-group. The possible close relationship of the *M. pusilla* and *M. obscurella* Levey 2012 species-groups is discussed.

**Key words.** Coleoptera, Buprestidae, *Melobasis*, new species, taxonomy, Queensland, Australia

### Introduction

The genus *Melobasis* Laporte & Gory, 1837 is a primarily Australasian genus with over 200 described and undescribed species known from Australia (LEVEY 2012). LEVEY (2012) provided a key to the species-groups of the Australian species and a key to the known species of five of the species-groups, including those of the *M. pusilla* Levey 2012 species-group. An undescribed species of the *M. pusilla* species-group from Queensland was subsequently found amongst material on loan from the Queensland Museum, Brisbane, Queensland, Australia (QMBA) and is described herein as *Melobasis bilyi* sp. nov. This species has characteristics which suggest that the *M. pusilla* species-group may have a fairly close relationship to species of the *M. obscurella* species-group, a relationship which was not apparent at the time of the revision of the group. The known species of the *M. obscurella* species-group share with species of the *M. pusilla* species-group: obtuse frontoclypeal peaks; an aedeagus with the parameres strongly widening from the base, with only fine sensory setae at their apex, and the median lobe with an acute but not prolonged apex; mesoepisternum more or less microreticulate and with small variously shaped punctures over the surface. The known species of the *M. obscurella* species-group differ from previously described species of the *M. pusilla* species-group in having a well defined bead at the anterior margin of the prosternum (present in *M. bilyi*) and a slightly to strongly swollen mid tibia with a more or less well deve-

loped setae-filled depression on the ventral face in males. The latter character shows variable development in species of the species-groups it is found in, and interestingly *M. bilyi* has a very slightly developed setae-filled depression on the ventral face of the mid tibia not seen in other species of the *M. pusilla* species-group; tarsal claws slightly, gradually, widened at base, not abruptly widened, appendiculate or toothed at base as seen in other species of the *M. pusilla* species-group. Based on its interesting combination of characters, a case could be made for placing *M. bilyi* either in the *M. pusilla* or *M. obscurella* species-groups, which supports my original decision to use informal species-groups rather than subgenera in the classification of Australian *Melobasis*.

### Material and methods

Measurements were made using an eyepiece graticule on a Wild M8 stereo microscope. Images were taken using a Canon EOS 70D digital camera, montaged using Helicon Focus software, and subsequently processed using Photoshop Elements.

The type specimen is deposited in the Queensland Museum, Brisbane, Australia (QMBA). Exact label data are cited for the type specimen; a double slash (//) divides data on different labels and a single slash (/) divides data on different rows.

### Taxonomy

#### *Melobasis bilyi* sp. nov.

(Figs 1–5)

**Type locality.** Australia, Queensland, Flying Fish Point.

**Type material.** HOLOTYPE: ♂, 'Flying Fish Pt. / N.E.Q. 22.1.65. / E.C. Dahms. // To light // HOLOTYPE / *Melobasis bilyi* sp. n. / B. Levey 2015' (QMBA).

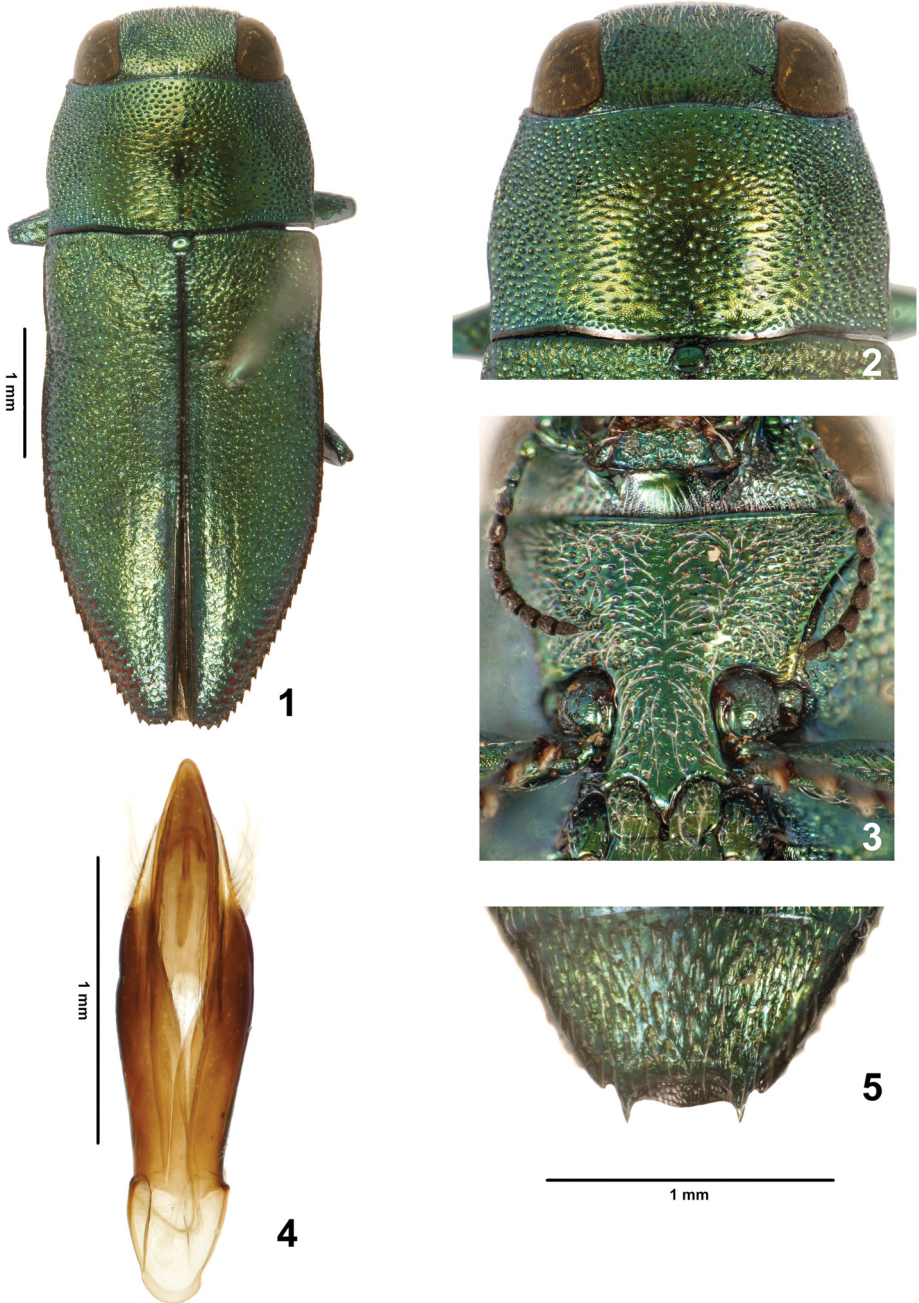
**Description.** Based on the male; female unknown.

**General description** (Fig. 1). Length 5.2 mm (measured from anterior margin of pronotum to apex of elytra in the midline). Small subcylindrical; entirely green except for a reddish purple reflection along the lateral margins of the elytra in the apical half.

**Head** very densely punctured with small round to slightly polygonal strong punctures; lower half of head densely clothed with short down-curved silvery setae; upper half of head almost glabrous; surface between punctures strongly microreticulate; clypeal excision shallow U-shaped, with a complete strongly microreticulate impunctate border which is much wider at middle; clypeal peaks obtusely angled; vertex almost flat, about half the width of the head across the eyes when viewed from above; eyes moderately convex.

**Antenna.** Antennomeres IV–X serrate, becoming progressively slightly smaller and less elongate; expanded part of antennomere IV triangular, that of V–X nearly quadrate; XI roughly ovate, slightly shorter than X.

**Pronotum** (Fig. 2) 1.66 times as wide at base as length at midline; anterior margin strongly bisinuate, with a strongly developed broad median lobe; posterior margin weakly bisinuate; widest at mid-length; lateral margins parallel sided in posterior quarter, then slightly widening to mid-length before weakly converging to anterior angles; as wide at base as elytra at base; lateral carina curved, about three-quarters complete; punctation dense in central half,



Figs 1–5. *Melobasis bilyi* sp. nov.: 1 – dorsal habitus, 2 – pronotum, 3 – prosternum, 4 – aedeagus, 5 – apical ventrite.

very dense in lateral half; punctures small, strong, mostly transverse elliptical in central half, more or less round in lateral half; with a very narrow almost complete impunctate midline; strongly microreticulate between punctures; glabrous.

**Scutellum** slightly transverse, ovate, about one-thirteenth width of elytra at base; weakly microreticulate.

**Elytra** 1.82 times as long as width at base; basal margin weakly biangulate; parallel-sided over humeral callosities, then slightly constricted behind callosities before slightly widening to mid-length and narrowing to broadly rounded apices; lateral margins from mid-length to apices with fine acute serrations, those at apices slightly smaller; sutural margin moderately strongly raised in apical half; without punctured striae or costae; punctation of subsutural depression consisting of tiny round widely spaced punctures which become progressively larger, denser and more transversely elliptical laterally, becoming contiguous and forming transverse series in lateral two-thirds; strongly microreticulate.

**Proepisternum** very densely punctured, with large, very shallow, ovate punctures; bottom of punctures strongly microreticulate; pubescence sparse, short and inconspicuous.

**Prosternum** (Fig. 3) with a well defined bead at anterior margin, anterior margin at the same level as area behind; prosternal process strongly widened from base, moderately densely punctured with small, strong round punctures and clothed with moderately dense long pubescence; with a line of larger partly coalescent punctures close to impunctate lateral margin.

**Mesoepisternum** strongly microreticulate with numerous small, inconspicuous shallow round punctures over surface.

**Apical ventrite** (Fig. 5) with lunate punctures coalescent but not forming grooves; excision fairly shallow, about 2.5 times as wide as deep, distal margin of flange broadly arcuately produced at centre, spines short, parallel, slightly longer than depth of flange.

**Mid-tibia** with a small very slightly developed setae-filled depression on ventral face, tibia not obviously swollen. Tarsal claws abruptly widened at base but not cleft.

**Aedeagus** (Fig. 4) relatively short and broad; parameres strongly widened from basal piece, widest just beyond mid-length; long sensory setae confined to basal half of narrow more transparent apical part of parameres; median lobe with apex acute, rounded at tip.

**Differential diagnosis.** This species keys to the *M. pusilla* species-group in the key to species-groups in LEVEY (2012). It differs from all previously described species in the group in having a well defined bead at the anterior margin of the prosternum (bead absent in other species); the prosternal process strongly widening from the base (parallel sided, almost parallel sided or weakly widening in the other species); having the excision of the apical ventrite with the flange broadly arcuately produced at the centre (flange being straight or weakly bisinuate in other species); mid-tibia in male with a small very slightly developed setae-filled depression on the ventral face (absent in other species). It does, however, share the obtuse frontoclypeal peaks and an aedeagus with the parameres strongly widening from the base, with fine sensory setae only at their apex, and the median lobe with an acute but not prolonged apex, which are seen in the other described species of the group. In the key to the *M. pusilla* species-group it will not key out unambiguously to any known species. The apical abdominal ventrite has contiguous lunate punctures which do not form grooves, a characteristic only found in *M. inflammabilis* Thomson, 1879, from West Australia but differs from that species in the following

ways: the mesoepisternum is strongly microreticulate with small round shallow punctures over the surface (in the latter species the mesoepisternum is less obviously microreticulate with numerous small variably shaped punctures over the entire surface); the basal margin of the elytra is weakly biangulate (strongly biangulate in *M. inflammabilis*); the pronotum is densely punctured in the central quarter with relatively large transversely elliptical punctures (in *M. inflammabilis* the central quarter is sparsely punctured with much smaller punctures many of which are round, not elliptical); the prosternal process is strongly widened from the base, moderately densely punctured in the centre with small round punctures, and moderately densely clothed with fairly long silvery pubescence (in *M. inflammabilis* the prosternal process is slightly widened from the base, sparsely punctured at the centre with pin-prick punctures, and glabrous or with a few very short setae). In addition to the characters previously mentioned it differs from all the other described species of the group in having the basal margin of the elytra weakly biangulate (moderately strongly to strongly biangulate to biarcuate in the other species).

The following modification to the key to the species of the *M. pusilla* group in LEVEY (2012) will enable this species to be differentiated from the other species in the group.

- 1 Apical ventrite of abdomen with contiguous lunate punctures, punctures not forming grooves. .... 1A
- Apical ventrite of abdomen with coalescent punctures forming grooves. .... 2
- 1A Anterior margin of prosternum with a well defined bead; prosternal process strongly widening from base; base of elytra weakly biangulate; pronotum densely punctured in central quarter with transversely elliptical punctures . .... *M. bilyi* sp. nov.
- Anterior margin of prosternum without a bead; prosternal process only slightly widening from base; base of elytra strongly biangulate; pronotum sparsely punctured in central quarter with small round punctures. .... *M. inflammabilis* Thomson, 1879

**Etymology.** This species is named after my friend and colleague Svata Bílý on reaching his 70<sup>th</sup> year, in recognition to all of the excellent work he has produced in adding to our knowledge of the Buprestidae.

**Distribution.** Australia: Queensland.

### Acknowledgements

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### Reference

- LEVEY B. 2012: A revision of the Australian species of the genus *Melobasis* Laporte & Gory 1837 (Coleoptera: Buprestidae), Part 1 (Introductory material, key to species-groups and keys to species of the thoracica, pusilla, formosa, propinqua & gloriosa species-groups). *Zootaxa* **3464**: 1–107.

