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## New species and new records of the genus *Moriomorpha* Castelnau from Australia

(Coleoptera, Carabidae, Psydrinae, Moriomorhini, Melisoderina)

Martin Baehr

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Four Australian species of the carabid genus *Moriomorpha* Castelnau of the psydrine tribe Moriomorhini, subtribe Melisoderina, are described as new: *Moriomorpha lawrencei*, *M. macrops*, and *M. curvipes* from southern Victoria, and *M. dorrigo* from northern New South Wales. The hitherto unrecorded male genitalia of *Moriomorpha adelaidae* Castelnau and *M. victoriae* Castelnau are figured and additional records of both species are communicated which considerably enlarge the range of both species and of the whole subtribe Melisoderina into the tropics. For the genus *Moriomorpha* a key is provided.

Martin Baehr, Zoologische Staatssammlung München, Münchhausenstr. 21, 81247 München, Germany; e-mail: martin.baehr@zsm.mwn.de

### Introduction

In the course of sorting material of various carabid beetles in the Australian National Insect Collection, Canberra, for preparation of a key to the genera of Australian Carabidae, I found a number of specimens of the genus *Moriomorpha* Castelnau of the psydrine subtribe Melisoderina which represent undescribed taxa. These are described in the present paper. The unrecorded male genitalia of the two known species *M. adelaidae* Castelnau and *M. victoriae* Castelnau are figured for better comparison.

The former tribe Psydrini which includes six subtribes was demonstrated by Baehr (1999) and Maddison et al. (1999) not to constitute a monophyletic group, because the subtribe Psydrina (in the former sense) is but remotely related to the five other subtribes which presently are combined to the tribe Moriomorhini in the sense of Sloane (1890). The former subtribe Psydrina includes the three genera *Psydrus* Leconte, 1846 from North America, *Nomius* Castelnau, 1835 from the Holarctic and Afrotropical regions, and *Laccocenus* Sloane, 1890 from eastern Australia. The present Moriomorhini include the

subtribes Mecyclothoracina, Meonina, Melisoderina, Tropopterina, and the arboricolous Amblytelina (Baehr 1999). The bulk of the species, and also the complete subtribes Melisoderina and Amblytelina are Australian, a number of species of the other tribes occur in New Zealand, in the southern part of South America, and on certain subantarctic islands, and the Mecyclothoracina are very widely distributed through Australia, New Guinea, New Zealand and the whole Pacific insular belt including Hawaii and Society Islands. In both latter island groups they have evolved an enormous number of species. A few species even occur on the Greater Sunda Islands.

The subtribe Melisoderina (see Moore 1963, Baehr 1999, 2005, 2011), which Lorenz (1998, 2005) regards as a separate tribe not to be included in Psydrini, occurs in south-eastern Australia and presently includes the genera *Melisodera* Westwood, 1835, *Celanida* Castelnau, 1867, *Moriomorpha* Castelnau, 1867, *Moriodesma* Castelnau, 1867, and *Rhaeolestes* Sloane, 1903 (Moore 1963). Most genera until recently were monospecific, only *Moriomorpha* includes two species, namely *M. adelaidae* Castelnau, 1867 and *M. victoriae* Castelnau, 1867. Of these, *M. victoriae* was

erroneously included in *Melisodera* by Lorenz (1998, 2005). Recently, however, Baehr (2011) described one additional species each of the genera *Melisodera*, *Moriodesma*, and *Rhaebolestes*.

All melisoderine species are rather large to large, dark reddish to black beetles that possess a distinct apical sublateral elytral ridge. In body shape they bear a strong similarity to the pterostichine genus *Morion* Latreille, 1810, without being related to that genus. The resemblance most probably is due to the apparent similar habits. Specimens of all genera of Melisoderina are rare or very rare in collections, because either they are rare in nature on whatever reasons or they are rarely collected as they usually are found in forest inside of logs or under the bark of logs. Of the genus *Rhaebolestes* apparently only the holotype of the hitherto single species *R. walkeri* Sloane, 1903 is known.

The key to the melisoderine genera in Moore (1963) still applies.

Within the subtribe Melisoderina the genus *Moriomorpha* is distinguished by depressed body shape, moderately large eyes, short antenna, markedly curved metatibia, and laterally compressed tarsi. Two species were recorded, both known so far from south-eastern Australia, i. e. south-eastern South Australia to south-eastern New South Wales, and the Australian Capital Territory.

### Materials and methods

Measurements were taken using a stereo microscope with an ocular micrometer: body length from apex of labrum to apex of elytra; length of orbits from the posterior margin of the eye to the “neck” angle; length of pronotum along midline; width of apex of pronotum at the most advanced part; length of elytra from the most advanced part of the humerus to the very apex. For estimation of the relative length of the antenna the 6<sup>th</sup> antennomere was measured; for measurement of its width the depressed surface was chosen.

For dissection of the male genitalia the specimens were soaked for a night in a jar under moist atmosphere, then the genitalia were removed and subsequently cleaned for a short while in hot KOH. The habitus photographs were obtained with a digital camera using ProgRes Capture Basic and AutoMontage and subsequently were edited with Corel Photo Paint 11.

Data of examined specimens are given in full length and the exact labelling was used, including all ciphers, notes of determinators and curators, and printed labels. A slash “ / ” with a blank before and after it denotes a new label, a longer space (“ ”) marks a new line on the same label.

The holotypes of the new species are stored in the Australian National Insect Collection, Canberra (ANIC), additional material of other species are in that collection,

in Queensland Museum, Brisbane (QM), the University of Queensland Insect Collection, Brisbane (UQIC) (now incorporated in the collection of Queensland Museum), and in the working collection of the author at Zoologische Staatssammlung, München (CBM).

### Abbreviations

ACT	Australian Capital Territory
NSW	New South Wales
QLD	Queensland
SA	South Australia
VIC	Victoria
e.	eastern
n.	northern
ne.	north-eastern
s.	southern
se.	south-eastern
>	larger or longer than
<	smaller or shorter than

### Taxonomy

#### Genus *Moriomorpha* Castelnau

*Moriomorpha* Castelnau, 1867: 37. – Castelnau 1868: 123; Csiki 1929: 485; Moore 1963: 281; Moore et al. 1989: 153; Lorenz 1998: 224; 2005: 245.

**Type species:** *Moriomorpha victoriae* Castelnau, 1867, by subsequent designation by Moore (1963).

**Diagnosis.** Genus of the subtribe Melisoderina of the psydrene tribe Moriomorhini, characterized by rather wide body shape, presence of the metathoracic wings, short antenna, laterally moderately projected eyes, squamose male protarsus, remarkably curved mesotibia, and laterally compressed tarsi. Moore (1963) recorded this genus as described by Castelnau in 1868, but this paper was purely a reprint of Castelnau’s 1867 paper. Later Moore (Moore et al. 1987) corrected this error.

#### *Moriomorpha adelaidae* Castelnau, 1867

Figs 1, 6, 7

*Moriomorpha adelaidae* Castelnau, 1867: 38. – Castelnau 1868: 124; Moore 1963: 281; Moore et al. 1987: 154; Lorenz 1998: 224; 2005: 245.

**Comments.** This species was so far recorded from South Australia and southern New South Wales. Some newly recorded specimens from eastern and north-eastern Queensland were compared with the type from the Castelnau Collection in Museum Genoa and, although they differ somewhat in size and relative body shape, in particular in the ratios of certain measurements of pronotum, size of eyes,



**Figs 1-5.** Male genitalia: aedeagus, left side and lower surface, left and right parameres, genital ring. Scale bars: 0.5 mm. 1. *Moriomorpha adelaidae* Castelnau. 2. *M. victoriae* Castelnau. 3. *M. lawrencei* spec. nov. 4. *M. macrops* spec. nov. 5. *M. dorrigo* spec. nov.

and relative length of elytra, and in the size of the punctures of the elytral striae, they are tentatively alluded to this species. Unfortunately, these northern specimens are females, so comparison of the male genitalia at present is impossible, though would be important when additional material from these localities will be available.

Some of the new records remarkably extend the range of the genus and of this species (if it is a single species) to the north into the wet tropics. At these northern localities the specimens were sampled in rain forest and at rather high altitude. The wide range of this southern species certainly is surprising, but,

because three specimens were sampled in light traps, the species apparently flies well and easily, and this ability could account for its apparent wide range.

### Redescription

For measurements and ratios see Table 1.

**Colour.** Upper and lower surfaces more or less dark brown, commonly the apical third of the elytra, except the sutural area, dark piceous to black. Mouth parts and basal antennomere dark reddish to brown, rest of antenna almost black; femora reddish, tibiae and tarsi rather contrastingly dark piceous to black.

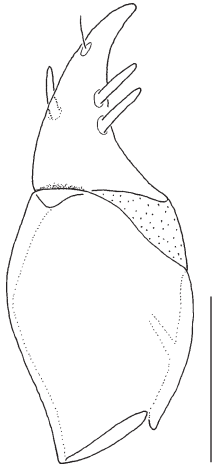


Fig. 6. *Moriomorpha adelaidae* Castelnau. Female gonocoxites 1 and 2. Scale bar: 0.25 mm.

Head (Fig. 7). Head of average size. Eye relatively large, laterally rather projected. Orbit oblique and slightly convex, forming a weak angle with the neck. Clypeal suture distinct, clypeus anteriorly very slightly concave, labrum anteriorly moderately concave. Mandibles moderately elongate, inner surface in basal half parallel-sided, towards apex moderately incurved. Mentum bisetose, with feeble tooth. Submentum bisetose and with two pits between setae, setae elongate. Glossa elongate, with two elongate setae, paraglossae hyaline, narrow, far surpassing the glossa. Lacinia with two moderately dense rows of setae. Both palpi narrow and elongate, impilose, at apex obtuse. Antenna very short, median antennomeres about as long as wide; 1<sup>st</sup>–3<sup>rd</sup> antennomeres glabrous, other antennomeres densely pilose, from 5<sup>th</sup> antennomere lateral surfaces with even denser pilosity and glandular fields. Frons and clypeus in middle very slightly convex, frontal sulci shallow, irregularly sinuate, curved laterad. Inside of the eye

with a narrow but deep sulcus. Neck sulcus barely impressed. Posterior supraorbital seta inserted just at posterior margin of eye. Surface extremely finely, sparsely punctulate, lacking microreticulation, very glossy; punctures only visible at very high magnification. Only labrum with very fine, superficial, isodiametric microreticulation.

Pronotum (Fig. 7). Cordiform, wide, base slightly wider than apex, widest diameter about at apical third. Apex with more or less shallow excision, apical angles slightly produced, widely rounded. Lateral margins evenly convex, even near base not perceptibly sinuate. Basal angles c. 100–110°, but very slightly produced laterad, base in middle straight, laterally slightly oblique. Dorsal surface rather depressed. Apex not margined, lateral border rather narrowly margined, margin slightly upturned, lateral sulcus narrow and rather shallow, slightly widened towards base, base distinctly margined. Median line shallow, not reaching apex nor base. Anterior transverse sulcus barely perceptible, posterior sulcus shallow. Basal grooves deep and wide, at bottom with two short, straight impressions. Anterior marginal seta situated slightly behind apical third, slightly removed from margin, posterior marginal seta situated at basal angle. Surface almost devoid of transverse impressions, with extremely fine, sparse punctures, and here and there with traces of highly superficial and extremely fine microreticulation which consists of transverse lines. Both, punctures and microreticulation perceptible only at very high magnification; surface very glossy.

Elytra. Moderately elongate, parallel-sided, dorsally convex though disk depressed. Humeral angle angulate. Lateral margin in basal third very slightly concave, then straight, apical part evenly rounded to suture. Scutellary stria elongate, in 1<sup>st</sup> interval. Six median striae complete and moderately impressed throughout, finely though distinctly crenulate; 7<sup>th</sup> stria only in middle recognizable, in basal and apical thirds almost absent. Six median intervals very

Table 1. Measurements and ratios of the species of *Moriomorpha*. N = number of specimens measured; body length in mm; l eye/orbit = ratio length of eye/length of orbit; l/w 6<sup>th</sup> ant = ratio length/width of 6<sup>th</sup> antennomere; w/l pron = ratio width/length of pronotum; apex/base pron = ratio width of apex/width of base of pronotum; dia/base pron = ratio widest diameter/width of base of pronotum; l/w elytra = ratio length/width of elytra.

	N	body length	l eye/orbit	l/w 6th ant	w/l pron	apex/base pron	dia/base pron	l/w elytra
<i>adelaidae</i>	8	7.5–8.8	2.5–3.0	1.0	1.35–1.45	0.96–1.00	1.32–1.40	1.65–1.70
<i>victoriae</i>	2	9.9–10.5	1.80	1.00–1.05	1.15–1.17	1.05–1.07	1.36–1.38	1.72–1.74
<i>lawrencei</i>	1	9.5	2.00	0.95	1.30	1.02	1.36	1.60
<i>macrops</i>	1	13.5	3.80	1.15	1.33	1.07	1.33	1.63
<i>curvipes</i>	1	11.7	1.65	?	1.30	1.00	1.34	1.65
<i>dorrigo</i>	1	12.7	1.95	1.35	1.20	0.92	1.30	1.60

gently convex, lateral intervals depressed. Subapical carina distinct. Scutellary pore and seta situated at base of 1<sup>st</sup> stria. 3<sup>rd</sup> interval with two setiferous punctures at or behind middle and in apical third, all adjacent to 3<sup>rd</sup> stria. Marginal series consisting of 12–13 punctures and setae, very widely interrupted in middle, punctures small, setae of very different length. At apex with an elongate seta situated near end of 5<sup>th</sup> stria, and with a smaller one at end of 2<sup>nd</sup> stria. Intervals very finely and superficially punctate, with extremely fine and highly superficial microreticulation that consists of very dense, transverse lines, only visible at very high magnification.

Lower surface. Impunctate and impilose, with extremely fine and very superficial microreticulation which is only visible at very high magnification. Metepisternum narrow and elongate, slightly >2 × as long as wide at apex. Terminal abdominal sternum in both sexes quadrisetose.

Legs. Moderately slender and elongate. Profemur on lower surface without distinct tooth but near base with an elongate, weak swelling. Protibia slightly curved, sulcate at anterior surface. Mesotibia strongly curved, lower and anterior surfaces with a fringe of elongate setae, dorsal surface slightly serrulate. Tarsi narrow and comparatively short, laterally compressed. 5<sup>th</sup> tarsomeres with two pairs of setae at lower surface. Tarsal claws elongate, glabrous.

Male genitalia (Fig. 1). Genital ring large, asymmetrically triangular, but laterally slightly convex, with rather narrow, rounded apex. Aedeagus comparatively narrow, lower surface slightly concave but in middle very faintly convex; barely widened in middle but markedly sinuate. Apex short and rather wide, very slightly curved right, widely rounded at tip. Orificium rather short, situated on upper surface, slightly turned to the right side. Internal sac with an elongate, rather sclerotized bar near the roof, and with some additional, moderately sclerotized parts, with several folds. Both parameres with narrow and elongate apices, comparatively elongate. The very apex of both parameres with several short setae, the lower surface of the right paramere in apical third shortly setose.

Female genitalia (Fig. 6). Gonocoxite 1 large, without any setae at the upper rim. Gonocoxite 2 elongate, curved, with rather acute apex, with two elongate ventro-lateral ensiform setae, one elongate dorso-median ensiform seta originating about at middle of the gonocoxite, and one fairly elongate nematiform seta originating from a pit at apical fourth of the gonocoxite.

Variation. Rather variable with respect to body size, proportions of pronotum, size of the eyes, and degree of punctuation of the elytral striae.

**Distribution.** From eastern South Australia along the east coast north to Paluma Range (at c. 19°S) in north-eastern Queensland, in New South Wales also somewhat inland.

**Collecting circumstances.** Three specimens were sampled in light traps, the specimen collected by me on Eungella Tableland was collected from under bark of a log on the ground in montane subtropical rain forest. The other specimens from Queensland likewise were sampled in upland rain forest. One specimen was sampled “under eucalypt bark, in wet sclero. forest – dry scler. forest ecotone”.

**New records.** NSW: 1♀, “Sydney H. W. Cox / This may be *M. adalaidae* C. 19.12.31” (ANIC); 1♀ “Bogan R. J. Armstrong / Probably *Melisodera* sp. ; T. G. Campbell det. / *Moriomorpha adalaidae* Cast. Det. M. Baehr 2011” (ANIC); 1♂, “*Moriomorpha* sp. Muti [unreadable] ♂ 1010 1889” [Sloane’s hand!] (ANIC); 1♂, “Pennefathers Rd. Cherry Tree SF via Casino 12. xi.96 96:504 Watkins / S. G. Watkins Collection / *Moriomorpha adalaidae* Cast. Det. M. Baehr 2011” (ANIC); 1♂, “approx. 2.5 km N. Lansdowne via Taree 16 April 1989. G. Williams / *Moriomorpha adalaidae* Cast. det. B. P. Moore 1992” (ANIC); 2♂♂, “Macleay Riv. Nov. 1928 H. J. Carter / *Moriomorpha adalaidae* Cast. Det. M. Baehr 2011” (ANIC). – QLD: 1♂, “Brisbane / *Moriomorpha adalaidae* Cast.” (ANIC); 1♀, “QLD: 28.193°S × 153.128°E Lamington NP. IBISCA Qld Plot# IQ-700-C. 748 m. 12–13 Mar 2007. D. Wright. rainforest. light trap – ground. 22310 / QM Reg. No. T151854” (QM); 1♀, “18°59.305 146° 11.00E Paluma Light Trap/Gr. 2 R. L. Kitching 14 Mar 2001” (QM); 1♀, “QLD90/30, Eungella NP, 84 km w. Mackay, 900 m, 13.–15.11.1990, M. Baehr” (CBM).

### *Moriomorpha victoriae* Castelnau, 1867 Figs 2, 8

*Moriomorpha victoriae* Castelnau, 1867: 38. – Castelnau 1868: 124; Moore 1963: 281; Moore et al. 1987: 154. *Melisodera victoriae*, Lorenz 1998: 224; 2005: 245.

**Comments.** According to Moore et al. (1987) this species was so far recorded from a few localities in eastern Victoria. One of the new records extends the recorded range of this species westwards into southern Victoria west of Melbourne. There, in the Otway Range, the species probably inhabits temperate rain forest. The newly recorded specimens were compared with the type in the Museum of Victoria, Melbourne.

### Redescription

For measurements and ratios see Table 1.

Colour. Upper and lower surfaces, mouth parts, antenna, and legs more or less dark brown.

Head (Fig. 8). Head of average size. Eye moderately large, laterally comparatively little projected. Orbit oblique and slightly convex, forming a weak angle with the neck. Clypeal suture distinct, clypeus anteriorly slightly concave, labrum anteriorly moderately concave. Mandibles moderately elongate, inner surface in basal half parallel-sided, towards apex rather incurved. Mentum bisetose, with feeble tooth. Submentum bisetose and with two pits between setae, setae elongate. Glossa elongate, with two elongate setae, paraglossae hyaline, narrow, far surpassing the glossa. Lacinia with two moderately dense rows of setae. Both palpi narrow and elongate, impilose, at apex obtuse. Antenna very short, median antennomeres about as long as wide, 1<sup>st</sup>–3<sup>rd</sup> antennomeres glabrous, other antennomeres densely pilose, from 5<sup>th</sup> antennomere lateral surfaces with even denser pilosity and glandular fields. Frons and clypeus in middle very slightly convex, frontal sulci rather deep, almost regularly curved laterad. Inside of the eye with a narrow but deep sulcus. Neck sulcus barely impressed. Posterior supraorbital seta inserted slightly behind posterior margin of eye. Surface extremely finely, sparsely punctulate, lacking microreticulation, very glossy; punctures only visible at very high magnification. Only labrum with very fine, superficial, isodiametric microreticulation.

Pronotum (Fig. 8). Cordiform, comparatively narrow, base about as wide as apex, widest diameter about at apical third. Apex with moderately deep excision, apical angles produced but rounded at tip. Lateral margins evenly convex, in basal fifth with elongate sinuation. Basal angles almost rectangular, barely produced laterad, base in middle straight, laterally slightly oblique. Dorsal surface rather depressed. Apex not margined, lateral border narrowly margined, margin slightly upturned, lateral sulcus narrow and rather shallow, very slightly widened towards base, base distinctly margined. Median line shallow, not reaching apex nor base. Anterior transverse sulcus not perceptible, posterior sulcus shallow. Basal grooves deep and wide, at bottom with two short, straight impressions. Anterior marginal seta situated about at apical third, slightly removed from margin, posterior marginal seta situated at basal angle. Surface almost devoid of transverse impressions, with extremely fine, sparse punctures, and here and there with traces of very superficial and extremely fine microreticulation which consists of transverse lines. Both, punctures and microreticulation perceptible only at very high magnification; surface very glossy.

Elytra. Moderately elongate, slightly widened towards apical third, dorsally convex though disk markedly depressed, the sutural area even impressed. Humeral angle angulate. Lateral margin

in basal third very slightly concave, then slightly oblique, apical part evenly rounded to suture. Scutellary stria elongate, in 1<sup>st</sup> interval. Six median striae complete and rather deeply impressed throughout, at least the median ones finely crenulate; 7<sup>th</sup> stria in basal half barely recognizable, in apical half more distinct, towards apex even slightly impressed. Six median intervals gently convex, lateral intervals depressed. Subapical carina distinct. Scutellary pore and seta situated at base of 1<sup>st</sup> stria. 3<sup>rd</sup> interval with three or four setiferous punctures, the first situated not far from base, all adjacent to 3<sup>rd</sup> stria. Marginal series consisting of 14–15 punctures and setae, very slightly interrupted in middle, punctures small, setae of very different length. At apex with an elongate seta situated near end of 5<sup>th</sup> stria, and with a smaller one at end of 2<sup>nd</sup> stria. Intervals very finely punctate, with very fine, slightly superficial microreticulation that consists of very dense, transverse lines, only visible at high magnification.

Lower surface. Impunctate and impilose, with extremely fine and very superficial microreticulation which is only visible at very high magnification. Metepisternum rather narrow and elongate, slightly <2× as long as wide at apex. Terminal abdominal sternum quadrisetose in both sexes.

Legs. Moderately slender. Profemur on lower surface at basal third with a strongly produced tooth. Protibia slightly curved, sulcate at anterior surface. Mesotibia strongly curved, lower and anterior surfaces with a fringe of elongate setae, dorsal surface slightly serrulate. Tarsi narrow and comparatively short, laterally compressed. 5<sup>th</sup> tarsomeres with two pairs of setae at lower surface. Tarsal claws elongate, glabrous.

Male genitalia (Fig. 2). Genital ring not recorded in the examined specimens. Aedeagus moderately wide, lower surface almost straight, but near apex suddenly curved down, slightly widened in apical third. Apex fairly elongate, narrow, considerably curved right, rounded at tip. Orificium elongate, situated on the upper right side. Internal sac apparently without definitely sclerotized parts, with several folds. Both parameres with elongate apices, but both comparatively short and stout. The very apex of both parameres with several short setae.

Female genitalia. Not recorded.

Variation. Apart from slight differences of body size and relative shape of the pronotum, little variation noted.

**Distribution.** Known only from southern Victoria.

**Collecting circumstances.** Not recorded, but probably captured in temperate rain forest.

**New records. VIC:** 1♂, “Otway Ra’s, 7–9.i.1966. T. Weir” (UQIC); 1♂, “Bonang 21.ii.60 B. P. Moore / *Moriomorpha victoriana* Cast. det. B. P. Moore 82” (ANIC).

*Moriomorpha lawrencei* spec. nov.

Figs 3, 9, 13

**Types.** Holotype: ♂, “37.34S 145.53E Cumberland Ck. 13 km ESE of Marysville 18 Jan. 1978 V. Lawrence & Weir” (ANIC).

**Etymology.** The name is a patronym in honour of John Lawrence, co-collector of this species and famous expert of beetle phylogeny.

**Diagnosis.** Comparatively small species, characterized by moderately wide pronotum with barely excised apex, comparatively small eye, distinctly crenulate elytral striae, moderately curved mesotibia, and slightly sinuate aedeagus with straight, obtusely oblique apex.

**Description**

For measurements and ratios see Table 1.

Colour (Fig. 13). Upper and lower surfaces reddish-brown. Anterior part of head and mandibles piceous; palpi piceous but basal palpomere and apex of palpi reddish. Antenna dark piceous to black. Femora reddish, tibiae and tarsi contrastingly black.

Head (Fig. 9). Head of average size. Eye relatively small, though laterally rather projected. Orbit oblique and slightly convex, forming a weak angle with the neck. Clypeal suture distinct, clypeus anteriorly very slightly concave, labrum anteriorly moderately concave. Mandibles moderately elongate, inner margin in basal half almost parallel-sided, towards apex moderately incurved. Mentum bisetose, with feeble tooth. Submentum bisetose and with two pits between setae, setae elongate. Glossa elongate, with two elongate setae, paraglossae hyaline, narrow, far surpassing the glossa. Lacinia with two moderately dense rows of setae. Both palpi narrow and elongate, impilose, at apex obtuse. Antenna very short, median antennomeres about as long as wide, 1<sup>st</sup>–3<sup>rd</sup> antennomeres glabrous, other antennomeres densely pilose, from 5<sup>th</sup> antennomere lateral surfaces with even denser pilosity and glandular fields. Frons and clypeus in middle very slightly convex, frontal sulci shallow, regularly curved laterad. Inside of the eye with a narrow but deep sulcus. Neck sulcus barely impressed. Posterior supraorbital seta inserted just at posterior margin of eye. Surface impunctate, lacking microreticulation, very glossy. Only labrum with very fine, superficial, isodiametric microreticulation.

Pronotum (Fig. 9). Cordiform, moderately wide, base slightly wider than apex, widest diameter about at apical third. Apex with shallow excision, apical angles slightly produced, widely rounded. Lateral margins evenly convex, only near base very slightly sinuate. Basal angles rectangular, not produced laterad, base in middle straight, laterally very slightly oblique. Dorsal surface rather depressed. Apex not margined, lateral border narrowly margined, margin slightly upturned, lateral sulcus narrow and rather shallow, very slightly widened towards base, base distinctly margined. Median line shallow, not reaching apex nor base. Anterior transverse sulcus barely perceptible, posterior sulcus shallow. Basal grooves deep and wide, laterally margined by an obtuse ridge. Anterior marginal seta situated slightly behind apical third, slightly removed from margin, posterior marginal seta situated at basal angle. Surface almost devoid of transverse impressions, not perceptibly punctate, here and there with traces of highly superficial and extremely fine microreticulation which consists of transverse lines. Microreticulation perceptible only at very high magnification; surface very glossy.

Elytra (Fig. 13). Moderately elongate, slightly widened towards apical third, dorsally convex though disk slightly depressed. Humeral angle angulate. Lateral margin in basal third distinctly concave, then obliquely convex, apical part evenly rounded to suture. Scutellary stria elongate, in 1<sup>st</sup> interval. Six median striae complete and slightly impressed throughout, finely though distinctly crenulate; 7<sup>th</sup> stria in basal half barely recognizable, in apical half more distinct, towards apex even slightly impressed. Five median intervals gently convex, lateral intervals depressed. Subapical carina distinct. Scutellary pore and seta situated at base of 1<sup>st</sup> stria. 3<sup>rd</sup> interval with three setiferous punctures in apical half, all adjacent to 3<sup>rd</sup> stria. Marginal series consisting of 13 punctures and setae, widely interrupted in middle, punctures small, setae of very different length. At apex with an elongate seta situated near end of 5<sup>th</sup> stria, and with a smaller one at end of 2<sup>nd</sup> stria. Intervals impunctate, with very fine and superficial microreticulation that consists of very dense, transverse lines, only visible at high magnification.

Lower surface. Impunctate and impilose, with extremely fine and highly superficial microreticulation which is only visible at very high magnification. Metepisternum narrow and elongate, slightly >2 × as long as wide at apex. Terminal abdominal sternum in male quadrisetose.

Legs. Moderately slender and elongate. Profemur on lower surface at basal third with a strongly protruded, hook-shaped tooth. Protibia slightly curved, sulcate at anterior surface. Mesotibia more

distinctly curved than protibia, but less so than in most other species, lower and anterior surfaces with a comparatively sparse fringe of setae, dorsal surface slightly serrulate. Tarsi narrow and comparatively short, laterally compressed. 5<sup>th</sup> tarsomeres with two pairs of setae at lower surface. Tarsal claws elongate, glabrous.

Male genitalia (Fig. 3). Genital ring large, asymmetrically triangular, with fairly wide, rounded apex. Aedeagus moderately wide, lower surface straight, but near apex slightly sinuate; slightly widened in front of middle. Apex short and moderately wide, very slightly curved right, oblique at tip. Orificium elongate, situated on upper side, slightly turned to the right side. Internal sac without definitely sclerotized parts, with several folds. Both parameres with narrow and elongate apices, comparatively elongate. The very apex of both parameres with several short setae.

Female genitalia. Unknown.

Variation. Unknown.

**Distribution.** Eastern Victoria. Known only from type locality.

**Collecting circumstances.** Not recorded.

### *Moriomorpha macrops* spec. nov.

Figs 4, 10, 14

**Types.** Holotype: ♂, "37.43S 145.42E VIC, Cement Creek, 670m N. of Warburton, 812 26Jan.-11Feb.1987 A. Newton & M. Thayer" (ANIC).

**Etymology.** The name refers to the relatively large eye.

**Diagnosis.** Comparatively large species, characterized by rather wide pronotum with barely excised apex, large eye, distinctly crenulate elytral striae, moderately curved mesotibia, and rather wide aedeagus with straight, fairly wide, oblique apex.

### Description

For measurements and ratios see Table 1.

Colour (Fig. 14). Head black, pronotum and elytra very dark piceous to almost black; antenna black, palpi black, but basal palpomeres and apex of apical palpomeres reddish; femora dark reddish, tibiae and tarsi black; lower surface dark reddish-piceous.

Head (Fig. 10). Head of average size. Eye relatively large, laterally rather projected. Orbit oblique and slightly convex, forming a weak angle with the neck. Clypeal suture distinct, clypeus anteriorly very slightly concave, labrum anteriorly moderately concave. Mandibles moderately elongate, inner surface

in basal half parallel-sided, towards apex moderately incurved. Mentum bisetose, with feeble tooth. Submentum bisetose and with two pits between setae, setae elongate. Glossa elongate, with two elongate setae, paraglossae hyaline, narrow, far surpassing the glossa. Lacinia with two moderately dense rows of setae. Both palpi narrow and elongate, impilose, at apex obtuse. Antenna very short, median antennomeres slightly wider than long, 1<sup>st</sup>-3<sup>rd</sup> antennomeres glabrous, other antennomeres densely pilose, from 5<sup>th</sup> antennomere lateral surfaces with even denser pilosity and glandular fields. Frons and clypeus in middle very slightly convex, frontal sulci shallow, sinuate, curved laterad. Inside of the eye with a narrow but deep sulcus. Neck sulcus barely impressed. Posterior supraorbital seta inserted just at posterior margin of eye. Surface extremely finely, sparsely punctate, lacking microreticulation, very glossy; punctures only visible at very high magnification. Only labrum with very fine, superficial, isodiametric microreticulation.

Pronotum (Fig. 10). Cordiform, comparatively wide, base about as wide as apex, widest diameter about at apical third. Apex with shallow excision, apical angles slightly produced, widely rounded. Lateral margins evenly convex, only near base very slightly sinuate. Basal angles almost rectangular, not produced laterad, base in middle straight, laterally slightly oblique. Dorsal surface rather depressed. Apex not margined, lateral border narrowly margined, margin slightly upturned, lateral sulcus narrow and rather shallow, very slightly widened towards base, base distinctly margined. Median line shallow, not reaching apex nor base. Anterior transverse sulcus barely perceptible, posterior sulcus shallow. Basal grooves deep and wide, laterally margined by an obtuse ridge. Anterior marginal seta situated slightly behind apical third, slightly removed from margin, posterior marginal seta situated at basal angle. Surface almost devoid of transverse impressions, with extremely fine, sparse punctures, and here and there with traces of very superficial and extremely fine microreticulation which consists of transverse lines. Both, punctures and microreticulation perceptible only at very high magnification; surface very glossy.

Elytra (Fig. 14). Moderately elongate, largely parallel-sided, dorsally convex though disk markedly depressed. Humeral angle angulate. Lateral margin in basal third very slightly concave, then straight, apical part evenly rounded to suture. Scutellary stria elongate, in 1<sup>st</sup> interval. Six median striae complete and rather deeply impressed throughout, finely though distinctly crenulate; 7<sup>th</sup> stria in basal half barely recognizable, in apical half distinct, towards apex even slightly impressed. Six median



intervals gently convex, lateral intervals depressed. Subapical carina distinct. Scutellary pore and seta situated at base of 1<sup>st</sup> stria. 3<sup>rd</sup> interval with three, on left elytra four, setiferous punctures, all adjacent to 3<sup>rd</sup> stria. Marginal series consisting of 13–14 punctures and setae, rather interrupted in middle, punctures small, setae of very different length. At apex with an elongate seta situated near end of 5<sup>th</sup> stria, and with a smaller one at end of 2<sup>nd</sup> stria. Intervals impunctate, with extremely fine and very superficial microreticulation that consists of very dense, transverse lines, only visible at very high magnification.

Lower surface. Impunctate and impilose, with extremely fine and very superficial microreticulation which is only visible at very high magnification. Metepisternum narrow and elongate, slightly  $>2 \times$  as long as wide at apex. Terminal abdominal sternum in male quadrisetose.

Legs. Comparatively slender and elongate. Profemur on lower surface at basal third with a strongly protruded tooth. Protibia slightly curved, sulcate at anterior surface. Mesotibia distinctly curved but less so than in most other species, lower and anterior surfaces with a comparatively sparse fringe of setae, dorsal surface slightly serrulate. Tarsi narrow and comparatively short, laterally compressed. 5<sup>th</sup> tarsomeres with two pairs of setae at lower surface. Tarsal claws elongate, glabrous.

Male genitalia (Fig. 4). Genital ring large, asymmetrically triangularly convex, with fairly wide, oblique apex. Aedeagus rather wide, lower surface gently bisinuate, near apex shortly curved down; suddenly widened in front of middle. Apex short and rather wide, almost straight, slightly oblique at tip. Orificium elongate, situated on upper surface, slightly turned to the right side. Internal sac with some moderately sclerotized parts, with several folds. Both parameres very elongate, with narrow and very elongate apices. The very apex of both parameres with several short setae, on the left paramere also the lower surface of the apical third shortly setose.

Female genitalia. Unknown.

Variation. Unknown.

**Distribution.** Eastern Victoria. Known only from type locality.

**Collecting circumstances.** Little recorded. The holotype was collected at medium altitude.

### *Moriomorpha curvipes* spec. nov.

Figs 11, 15

**Types.** Holotype: ♀, “Turton’s Pass, Vic 8th March, 1947 J. Clark” (ANIC).

**Etymology.** The name refers to the markedly curved meso- and metatibiae.

**Diagnosis.** Rather large species, characterized by deeply excised apex of pronotum, markedly depressed elytra, and extremely curved mesotibia. The holotype is probably not fully coloured.

### Description

For measurements and ratios see Table 1.

Colour (Fig. 15). Head and centre of pronotum reddish-brown, clypeus, margins of pronotum, and elytra dark yellow, centre of elytra very slightly darker than lateral parts. Palpi and 1<sup>st</sup>–3<sup>rd</sup> antennomeres reddish, femora yellow, tibiae and tarsi slightly darker. Lower surface yellow to pale reddish (specimen probably not fully coloured).

Head (Fig. 11). Head of average size. Eye relatively small but laterally rather projected. Orbit oblique and slightly convex, forming a weak angle with the neck. Clypeal suture distinct, clypeus anteriorly slightly concave, labrum anteriorly moderately concave. Mandibles moderately elongate, inner surface parallel-sided, towards apex markedly incurved. Mentum bisetose, with triangular, comparatively acute tooth. Submentum bisetose and with two pits between setae, setae elongate. Glossa elongate, with two elongate setae, paraglossae hyaline, narrow, far surpassing the glossa. Lacinia with few obtuse teeth and sparse setae. Both palpi narrow and elongate, impilose, maxillary palpus at apex obtuse, labial palpus at apex oblique. Both antennae broken from 4<sup>th</sup> antennomere, probably similar in size and length to the other species. 1<sup>st</sup>–3<sup>rd</sup> antennomeres glabrous. Frons and clypeus in middle slightly convex, frontal sulci shallow, wide, curved laterad, frons between frontal sulci transversely impressed, but less so in middle. Inside of the eye with a narrow but deep sulcus. Neck sulcus not impressed. Posterior supraorbital seta inserted just in front of posterior margin of eye. Surface extremely finely, sparsely punctate, lacking microreticulation, very glossy; punctures only visible at very high magnification. Only labrum with very fine, superficial, isodiametric microreticulation.

Pronotum (Fig. 11). Cordiform, comparatively wide, base about as wide as apex, widest diameter slightly in front of middle. Apex deeply excised though straight in middle, apical angles well produced, at tip obtusely rounded. Lateral margins evenly convex, slightly sinuate a short distance

in front of base. Basal angles almost rectangular, barely produced laterad, base very gently convex. Dorsal surface rather depressed, in middle slightly raised. Apex not margined, lateral border narrowly margined, margin slightly upturned, lateral sulcus narrow and rather shallow, slightly widened towards base, base distinctly margined. Median line very shallow, not reaching apex nor base. Both transverse sulci barely perceptible. Basal grooves deep, rather wide, at bottom with two impressions. Anterior marginal seta situated at widest diameter behind apical third, slightly removed from margin, posterior marginal seta situated at basal angle. Surface with some shallow though distinct transverse impressions, with extremely fine, sparse punctures, and here and there with traces of very superficial and extremely fine, transverse microreticulation. Both, punctures and microreticulation perceptible only at very high magnification; surface very glossy.

Elytra (Fig. 15). Moderately elongate, largely parallel-sided, dorsally convex though disk markedly depressed. Humeral angle angulate. Lateral margin in basal third very slightly concave, then straight, apical part evenly rounded to suture. Scutellary stria elongate, in 1<sup>st</sup> interval. Five median striae complete, rather deeply impressed, barely punctate, 6<sup>th</sup> stria barely impressed, consisting of an irregular row of short punctiform impressions; 7<sup>th</sup> stria barely recognizable. Five median intervals gently convex, lateral intervals depressed. Subapical carina distinct. Scutellary pore and seta situated at base of 1<sup>st</sup> stria. 3<sup>rd</sup> interval apparently with three setiferous punctures, all adjacent to 3<sup>rd</sup> stria. Marginal series consisting of 14 punctures and setae, rather interrupted in middle, punctures small, setae of very different length. At apex with an elongate seta situated near end of 5<sup>th</sup> stria, and with a smaller one at end of 3<sup>rd</sup> stria. Intervals impunctate, with extremely fine and very superficial microreticulation that consists of very dense, transverse lines, only visible at very high magnification.

Lower surface. Impunctate and impilose, with extremely fine and highly superficial microreticulation which is only visible at very high magnification. Metepisternum narrow and elongate, slightly  $>2\times$  as long as wide at apex. Terminal abdominal sternum in female quadrisetose.

Legs. Comparatively slender and elongate. Profemur on lower surface at basal third with a strongly protruded tooth. Protibia slightly curved, sulcate at anterior surface. Mesotibia remarkably curved, lower and anterior surfaces with dense fringe of setae, dorsal surface slightly serrulate. Tarsi narrow and elongate, laterally compressed. 5<sup>th</sup> tarsomeres with two pairs of setae at lower surface. Tarsal claws elongate, glabrous.

Male genitalia. Unknown.

Female genitalia. Much alike those of *M. adelaidae* Castelnau.

Variation. Unknown.

**Distribution.** Otway Ranges, south-western Victoria. Known only from type locality.

**Collecting circumstances.** Not recorded.

### *Moriomorpha dorrigo* spec. nov.

Figs 5, 12, 16

**Types.** Holotype: ♂, "Dorrigo, N.S.W. W. Heron" (ANIC).

**Etymology.** The name refers to the type locality, Dorrigo National Park in north-eastern New South Wales.

**Diagnosis.** Rather large species, characterized by narrow, not cordiform pronotum with but slightly excised apex, rather small eye, moderately curved mesotibia, and rather narrow aedeagus with evenly concave lower surface and evenly, convexly narrowed apex which is distinctly curved right.

### Description

For measurements and ratios see Table 1.

Colour (Fig. 16). Upper and lower surface dark reddish-piceous; antenna dark piceous, palpi dark piceous, but basal palpomeres and apex of apical palpomeres reddish; femora dark reddish, tibiae and tarsi dark piceous.

Head (Fig. 12). Head of average size. Eye relatively small, laterally but moderately projected. Orbit oblique and slightly convex, forming a weak angle with the neck. Clypeal suture distinct, clypeus anteriorly slightly concave, labrum anteriorly rather deeply concave. Mandibles moderately elongate, inner surface parallel-sided, towards apex markedly incurved. Mentum bisetose, with shallow, obtusely triangular tooth. Submentum bisetose and with two pits between setae, setae elongate. Glossa elongate, with two elongate setae, paraglossae hyaline, narrow, far surpassing the glossa. Lacinia with few obtuse teeth and sparse setae. Both palpi narrow and elongate, impilose, at apex obtuse. Antenna short, median antennomeres as long as wide, or slightly longer, 1<sup>st</sup>–3<sup>rd</sup> antennomeres glabrous, other antennomeres densely pilose, from 5<sup>th</sup> antennomere lateral surfaces with even denser pilosity and glandular fields. Frontal sulci shallow, slightly sinuate, curved laterad. Inside of the eye with a narrow but deep sulcus. Neck sulcus perceptibly impressed but shallow. Posterior supraorbital seta inserted right at posterior margin of eye. Surface extremely finely,



Figs 7-12. Head and pronotum. 7. *Moriomorpha adelaidae* Castelnau. 8. *M. victoriae* Castelnau. 9. *M. lawrencei* spec. nov. 10. *M. macrops* spec. nov. 11. *M. curvipes* spec. nov. 12. *M. dorrigo* spec. nov.

sparsely punctate, lacking microreticulation, very glossy; punctures only visible at very high magnification. Only labrum with very fine, superficial, isodiametric microreticulation.

Pronotum (Fig. 12). Narrow, not cordiform, base perceptibly wider than apex, widest diameter slightly in front of middle. Apex gently excised, straight in middle, apical angles slightly produced, rounded. Lateral margins evenly convex throughout, not excised near apex. Basal angles angulate but not rectangular, barely produced laterad, base very gently convex. Dorsal surface rather depressed. Apex not margined, lateral border narrowly margined, margin slightly upturned, lateral sulcus narrow and rather shallow, very slightly widened towards base, base distinctly margined. Median line shallow though slightly impressed, finely crenulate, not reaching apex nor base. Anterior transverse sulcus barely

perceptible, posterior sulcus shallow. Basal grooves deep, rather wide, either groove with two indistinct longitudinal impressions. Anterior marginal seta situated at widest diameter slightly in front of middle, slightly removed from margin, posterior marginal seta situated at basal angle. Surface devoid of transverse impressions, barely punctate, here and there with finest traces of very superficial and extremely fine, transverse microreticulation. Both, punctures and microreticulation perceptible only at very high magnification; surface very glossy.

Elytra (Fig. 16). Moderately elongate, almost parallel-sided, dorsally convex though disk depressed. Humeral angle weakly angulate. Lateral margin in basal third very slightly concave, then straight, apical part evenly rounded to suture. Scutellary stria elongate, in 1<sup>st</sup> interval. All striae complete, the median six striae and 7<sup>th</sup> stria in its

apical half rather deeply impressed, very slightly punctate; 7<sup>th</sup> stria in basal half indicated as a row of very slightly impressed punctures. Intervals gently convex. Subapical carina distinct. Scutellary pore and seta situated at base of 1<sup>st</sup> stria. 3<sup>rd</sup> interval apparently with a single setiferous puncture behind middle, adjacent to 3<sup>rd</sup> stria. Marginal series consisting of 13 punctures and setae, rather widely interrupted in middle, punctures small, setae of very different length. At apex with one longate seta situated near end of 5<sup>th</sup> stria, and another one at end of 2<sup>nd</sup> stria. Intervals impunctate, with extremely fine and very superficial microreticulation that consists of very dense, transverse lines, only visible at very high magnification.

Lower surface. Impunctate and impilose, with extremely fine and very superficial microreticulation which is only visible at very high magnification. Metepisternum narrow and elongate, slightly  $>2 \times$  as long as wide at apex. Terminal abdominal sternum in male quadrisetose.

Legs. Comparatively slender and elongate. Profemur on lower surface at basal third with a strongly protruded tooth. Protibia slightly curved, sulcate at anterior surface. Mesotibia moderately curved, lower and anterior surfaces with moderately dense fringe of setae, dorsal surface slightly serrulate. Tarsi narrow and elongate, laterally compressed. 5<sup>th</sup> tarsomeres with two pairs of setae at lower surface. Tarsal claws elongate, glabrous.

Male genitalia (Fig. 5). Genital ring large, almost quadrangular, but laterally slightly convex, with fairly wide, rounded apex. Aedeagus comparatively narrow, lower surface evenly concave; barely widened in middle. Apex short and moderately wide, slightly curved right, obliquely rounded at tip. Orificium elongate, situated on upper surface, slightly turned to the right side. Internal sac without definitely sclerotized parts, with several folds. Both parameres with narrow and elongate apices, comparatively elongate. The very apex of both parameres with several short setae.

Female genitalia. Unknown.

Variation. Unknown.

**Distribution.** Dorrigo National Park, New England Plateau, north-eastern New South Wales. Known only from type locality.

**Collecting circumstances.** Not recorded, but the holotype probably collected at rather high altitude.

### Key to the species of the genus

#### *Moriomorpha* Castelnau

1. Body size major, length  $>11.5$  mm; if  $<12.0$  mm, pronotum wide, ratio width/length  $>1.30$  ..... 2.
- Body size minor, length  $<10.5$  mm; if  $>10.0$  mm, pronotum narrow, ratio width/length  $<1.20$  .. 4.
2. Pronotum narrow, not cordiform, ratio width/length c. 1.2; base considerably wider than apex (Fig. 12); antenna longer, median antennomeres perceptibly longer than wide; aedeagus rather compressed, not widened in middle, lower surface regularly concave, with rounded apex (Fig. 5). ne. NSW ..... *dorrigo* spec. nov.
- Pronotum wider, cordiform, ratio width/length  $>1.3$ ; base as wide as apex, or narrower (Figs 10, 11); antenna shorter, median antennomeres little longer than wide, or unknown, in that case apex of pronotum deeply excised; aedeagus markedly widened in middle, lower surface slightly bisinuate, apex oblique (Fig. 4), or unknown. s. VIC ..... 3.
3. Apex of pronotum deeply excised (Fig. 11); base as wide as apex; eye considerably smaller,  $<2 \times$  as long as orbit; mesotibia very strongly curved; elytral stria only finely punctate; aedeagus unknown. sw. VIC ..... *curvipes* spec. nov.
- Apex of pronotum little excised (Fig. 10); base wider than apex; eye considerably larger,  $>3 \times$  as long as orbit; mesotibia less strongly curved; elytral stria rather coarsely punctate; aedeagus as in Fig. 4. se. VIC ..... *macrops* spec. nov.
4. Pronotum narrower, markedly cordiform, with far protruded apical angles and deeply excised apex, ratio width/length  $<1.20$ ; eye comparatively small, little protruded laterad (Fig. 8); aedeagus slightly sinuate, widened at apical third, with narrow, markedly curved apex (Fig. 2). s. VIC ..... *victoriae* Castelnau, 1867
- Pronotum wider, less cordiform, with less protruded apical angles and shallower apex, ratio width/length  $>1.30$ ; eyes larger and/or laterad more protruded (Figs 7, 9); aedeagus either narrow and strongly sinuate, with widely rounded apex (Fig. 1), or barely sinuate, widened at apical third, and with rather narrow, at tip oblique apex (Fig. 3) ..... 5.
5. Pronotum wider, ratio width/length  $>1.35$ ; eye larger, ratio length eye/orbit  $>2.5$  (Fig. 7); elytra longer, ratio length/width  $>1.65$ , almost paral-

- lateral-sided; humeral angle of elytra rounded; aedeagus very sinuate, with wide, rounded apex (Fig. 1). e. SA, VIC, e. NSW, e. QLD .....  
 ..... *adelaidae* Castelnau, 1867
- Pronotum narrower, ratio width/length 1.30; eye smaller, ratio length eye/orbit 2.0 (Fig. 9); elytra shorter, ratio length/width 1.60, posteriad perceptibly widened; humeral angle of elytra angulate; aedeagus far less sinuate, with narrow, oblique apex (Fig. 3). e. VIC .....  
 ..... *lawrencei* spec. nov.

### Remarks

Until present specimens of the psydrene subtribe Melisoderina were only known from south-eastern mainland Australia, i.e. from south-eastern South Australia through southern Victoria north to central eastern New South Wales (c. 34°S), but were unknown further north or even from Queensland (Baehr 2003). Only recently species of two genera were recorded, or described, from Lamington National Park (c. 28°30'S) in extreme south-eastern Queensland (Baehr 2011). Therefore the occurrence of *Moriomorpha adelaidae* as far north as Eungella and Paluma ranges in north-eastern Queensland (at c. 21°S and c. 19°S, i.e. c. 900 km and c. 1200 km north of Lamington NP) is surprising, because the whole group is a decidedly southern one that was believed to occur only in temperate forests. At Eungella and Paluma this species clearly has invaded the wet tropics and occurs there in subtropical and tropical montane rain forest.

The occurrence of melisoderine species as far north in the tropics changes our view about the Melisoderines, which group is regarded to belong to the southern, circum-antarctic, so-called “Bassian” faunal element in Australia and to an old, indigenous Australian group that for a long time was believed to be restricted to temperate environments.

Although all species of *Moriomorpha* inhabit forest, they are fully winged and apparently can fly well and do this deliberately. This ability may account for the wide distribution of at least *M. adelaidae* – provided that all specimens alluded to it actually belong to a single species. But even when future examination of the male genitalia or of genetics should demonstrate that *M. adelaidae* is a complex of several related taxa that possess restricted ranges on different tablelands along the Australian east coast, the dispersal ability of the original stock was considerable.

The newly described species of *Moriomorpha* fill some gaps in the distribution of this genus which

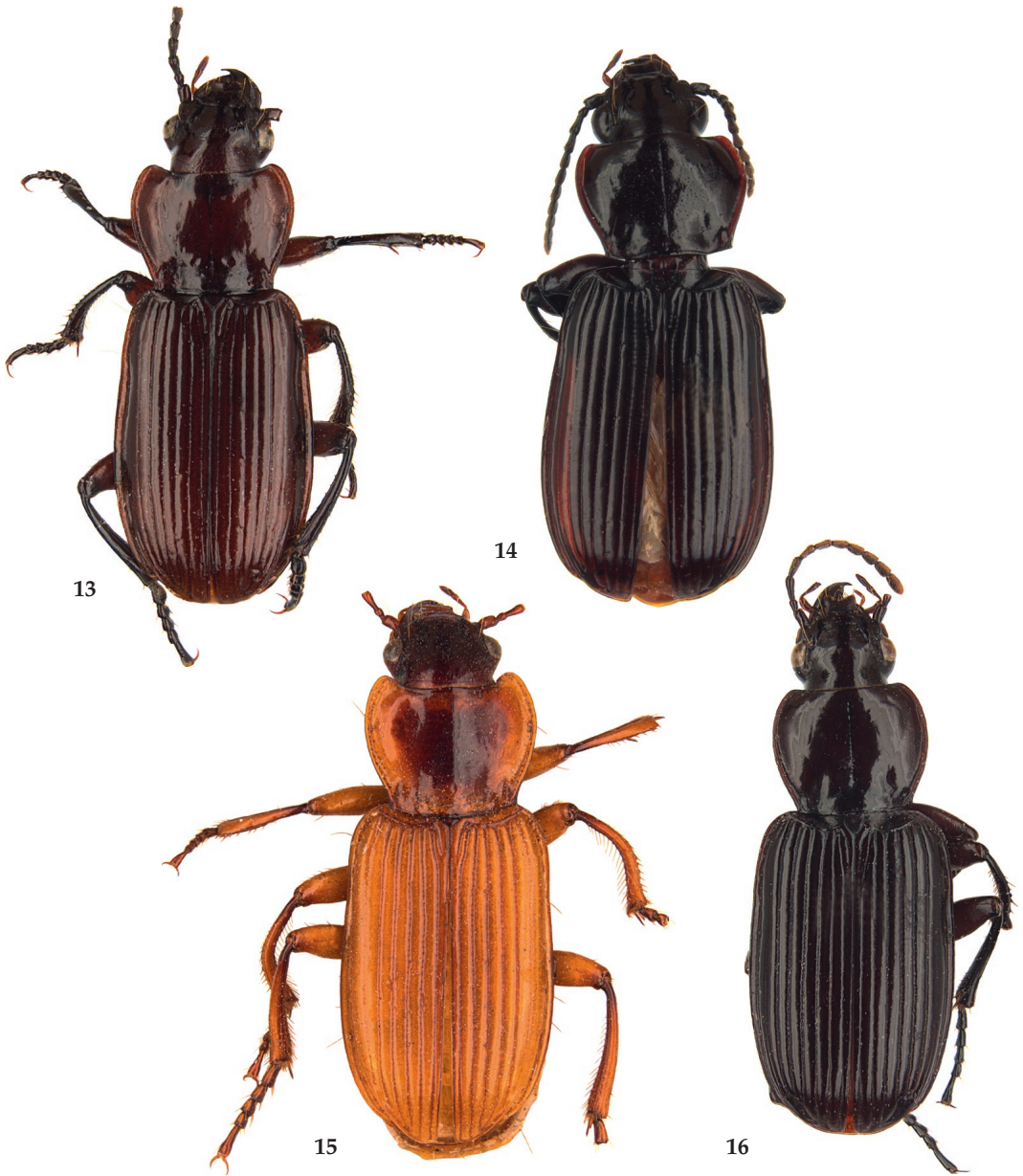
now seems to occupy a number of tablelands all along the south-east and east coasts of Australia from south-eastern South Australia to north-eastern Queensland. However, our knowledge still is quite fragmentary, which is clearly demonstrated by the present paper: a reasonable number of additional species have been sampled, at the one hand, some in areas quite outside of the putative range of the genus; on the other hand all these new species are so far known from a single specimen. This illustrates either the putative rarity of species of *Moriomorpha* in nature, either their secrete habits which render their discovery so difficult. But it is likewise evidence that we have a far from exhaustive knowledge of their species diversity and distribution.

Very little is known about ecology and ethology of any species. Information communicated kindly by Geoff Monteith (Brisbane) and the sparse printed information about collecting circumstances of species of several genera of Melisoderina suggests that they preferably live inside of logs in different types of forest, where they probably feed on larvae of scarabaeids, lucanids, and other wood inhabiting beetles (Monteith in litt., Moore 1964, Baehr 2011). It seems that in the southern part of the range of the subtribe Melisoderina most specimens were collected in sclerophyll (eucalypt) forest rather than in rain forest. But in the subtropics and tropics the few recorded specimens have been sampled primarily in subtropical and tropical montane forest.

The mentioned mode of life probably accounts for the extreme rarity of specimens in collections, and this apparent rarity of almost all species already would be a good reason for intensified sampling activities and study of their habits and life histories. However, even more important is in my view that the non-arboricolous psydrene carabids (except the arboricolous subtribe Amblytelina, see Baehr 2005) are a most important group for phylogenetic studies, because this assemblage of tribes holds a position at a crucial node in the phylogenetic tree of the Carabidae and probably gave rise to most of the more evolved carabid groups. Therefore, further exploration which primarily means additional systematic sampling, of this rare but most interesting group of carabid beetles would be a task of major importance.

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I am much indebted to C. Lemann and T. Weir, Australian National Insect Collection, Canberra, for the loan of specimens and types and for their kind assistance during my recent visit at that institution, to G. Monteith, Queensland Museum, Brisbane and G. Daniels, formerly University of Queensland Insect Collection,



**Figs 13–16. Habitus.** 13. *Moriomorpha lawrencei* spec. nov. 14. *M. macrops* spec. nov. 15. *M. curvipes* spec. nov. 16. *M. dorrigo* spec. nov. Body lengths: 9.5 mm; 13.5 mm; 11.7 mm; 12.7 mm.

Brisbane, for the loan of additional specimens, and to R. Poggi, Genova, for the loan of types from the Castelnau Collection. Geoff Monteith also kindly added information about sampling circumstances of certain species. To the Deutsche Forschungsgemeinschaft (DFG) I am indebted for supporting the visit to ANIC by the grant No. BA 856/11-1.

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