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**REVISION OF AUSTRALIAN MERANOPLUS:  
THE MERANOPLUS DIVERSUS GROUP**

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**ABSTRACT**

The *Meranoplus diversus* group of species is taxonomically revised. Twenty-five species are recognized, nineteen of which are described as new herein: *arcuatus* sp.n., *angustinodis* sp.n., *berrimah* sp.n., *christinae* sp.n., *convexius* sp.n., *crassispina* sp.n., *deserticola* sp.n., *digitatus* sp.n., *discalis* sp.n., *diversoides* sp.n., *mcarthuri* sp.n., *naitsabes* sp.n., *occidentalis* sp.n., *orientalis* sp.n., *snellingi* sp.n., *taurus* sp.n., *tricuspidatus* sp.n., *variabilis* sp.n. and *wilsoni* sp.n. Lectotypes are designated for *M. duyfkeni* Forel, 1915, *M. mars* Forel, 1902, *M. oxleyi* Forel, 1915 and *M. unicolor* Forel, 1902. The status of *M. dichrous* Forel, 1907 remains doubtful. Morphological details are figured and distribution data based on this study are presented.

**Key words:** Hymenoptera, Formicidae, Myrmicinae, taxonomy, lectotypes, new species, key.

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## INTRODUCTION

*Meranoplus* is an Old World genus, occurring in the Ethiopian, Oriental and Australian regions. Fewer than 30 Australian taxa are presently known (Bolton, 1995; Shattuck, 1999; Andersen, 2000), and the taxonomy of several still needs to be resolved (Taylor, 1990; Schödl, 2004). However, these relatively few species by no means reflect the actual number of taxa found throughout Australia with an overwhelming diversity and with countless still undescribed species. Amongst others a group of apparently seed-harvesting species, the *M. diversus* group (Andersen, 2000, and citations therein), has evolved in Australia. This group alone comprises more species than found in the combined Ethiopian and Oriental realms (Bolton, 1981; Schödl, 1998). The members of this group, very distinct within the genus and for the Australian fauna, are herein treated taxonomically for the first time. The type of *Meranoplus dichrous* Forel, 1907, known from a single queen, was destroyed during World War II (Taylor, 1990). From the original description it remains doubtful whether the taxon is conspecific with any of those herein treated, in particular the smaller, bicolored species.

## Material and methods

Dry and point-mounted specimens were examined with an Olympus SZH10 Research Stereo binocular microscope. Measurements were taken with an ocular grid at magnifications from 70× - 140×. Line drawings were prepared with a camera lucida apparatus, attached to the binocular. Distribution maps were generated with the use of BioLink®.

Gynes have not been considered in this study. Although they frequently occur in samples, they are still missing in too many species. In general they look very much alike workers in head morphology and thus can be assigned to one or another species.

## Morphometric Measurements and Indices

CI	Cephalic Index: $HW \times 100 / HL$
CS	Cephalic Size: arithmetic mean of $HL + HW$
EL	Eye Length: maximum length of compound eye, measured in lateral view
EW	Eye Width: maximum width of compound eye, measured in lateral view
EYE	$(EL + EW) / CS$
FC	Frontal Carinae: minimum distance between frontal carinae, measured in full face view; if frontal carinae are evenly narrowed, measured in front of eyes
FI	$HW \times 100 / FC$
HL	Head Length: length of head, measured from mid-point of preoccipital margin to mid-point of anterior clypeal margin
HW	Head Width: maximum width of head behind compound eyes, measured in full face view
ML	Mesosomal Length: length of mesosoma, measured in lateral view from anterior pronotal tooth to caudalmost part of basal propodeal lobe
PMD	Promesonotal Diameter, measured from apex of pronotal anterolateral projection to apex of mesonotal posterolateral projection of opposite side.
PMI	Promesonotal Index: $PW \times 100 / PML$
PMI2	Promesonotal Index 2: $PW \times 100 / PMD$
PML	Promesonotal Length: length of promesonotal shield, measured from anterior mid-point of pronotum behind collar, that is the mid-point of a virtual line, where the anterior pronotal margins meet, to mid-point of hind margin of mesonotum (lamella included) above propodeal declivity
PPI	Postpetiolar Lateral Index: $PPLL \times 100 / PPLH$
PPLH	Postpetiolar Lateral Height: height of postpetiole, measured in lateral view
PPLL	Postpetiolar Lateral Length: length of postpetiole, measured in lateral view

PSL	Propodeal Spine Length: length of propodeal spine in lateral view, measured from mid-point of propodeal spiracle to spinal apex (specimens need to be tilted in case of diverging spines)
PTI	Petiolar Lateral Index: $PTLL \times 100 / PTLH$
PTLH	Petiolar Lateral Height: height of petiole, measured in lateral view
PTLL	Petiolar Lateral Length: length of petiole, measured in lateral view
PW	Pronotal Width: maximum width of pronotum, measured posterior to base of anterolateral pronotal projections (angles) in dorsal view
REL	Relative Eye Length: $EL / HL$
SL	Scape Length: length of antennal scape, excluding basal condylar bulb, measured in caudal view
SI1	Scape Index 1: $SL \times 100 / HW$
SI2	Scape Index 2: $SL / CS$
TL	Total Length: length of out-stretched individual from mandibular apex to apex of gaster, usually measured in lateral view as a sum of HL, ML and nodes + gaster length

#### Depositories of Studied Material

ANIC	Australian National Insect Collection, Canberra, Australia
BMNH	The Natural History Museum, London, U.K. [= British Museum of Natural History]
JDMP	J.D. Majer collection, Curtin University, Perth, Western Australia, Australia
LACM	Natural History Museum of Los Angeles County, Los Angeles, California, USA
MCZC	Museum of Comparative Zoology, Cambridge, Massachusetts, USA
MHNG	Muséum d'Histoire naturelle, Geneva, Switzerland
MVMA	Museum Victoria, Melbourne, Victoria, Australia
NHMB	Naturhistorisches Museum, Basle, Switzerland
NHMW	Naturhistorisches Museum, Vienna, Austria
NHRS	Naturhistoriska Riksmuseet, Stockholm, Sweden
PSWC	P.S. Ward Collection, University of California, Davis, California, USA
QMBA	Queensland Museum, Brisbane, Queensland, Australia
SAMA	South Australian Museum, Adelaide, South Australia, Australia
UQIC	University of Queensland Insect Collection, Brisbane, Queensland, Australia
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC, USA
WAMP	Western Australian Museum, Perth, Western Australia, Australia

#### DIAGNOSIS OF *M. DIVERSUS* GROUP (WORKERS)

Although several of the species found in this group are among the largest in *Meranoplus*, the *diversus* group comprises medium sized to smaller species as well. Species are readily separated from members of other groups by the distinctive clypeal morphology. The posterior (dorsal) part of the clypeus is constructed as a massive plate fit in between the anterolateral frontal corners; it may show various forms of elaborations such as keels or plates or, it may be distinctly excavated at its apparent anterior margin which frequently surpasses the anterolateral frontal corners in length. The true anterior clypeal section is strongly concave in lateral view and hidden below the posterior section. Most species have large, massive heads in relation to their body size. Mandibles are short, stout and armed with three to five teeth and are mostly overhung by the clypeal plate. These are frequently worn down completely so that the masticatory margin may secondarily be edentate. The compound eyes generally are of moderate size (except in *occidentalis* and *taurus*). The frontal carinae are markedly narrower than the head, so that the genae, eyes and antennal scrobes are partly visible in dorsal view. The promesonotal shield either has very reduced blunt (to almost absent) projections or prominent spines, frequently laterally flanged and translucently margined. The petiole is triangular to box-shaped, the postpetiole nodular with an antero-ventral tooth of variable size. Species are unicolorous or

bicolored with the gaster and appendages usually brighter than the remainder of body. Both color forms may occur in one and the same species.

In general only the larger species with a large, bulbous head capsule and reduced projections on the promesonotal shield are assigned to the *M. diversus* group. However the majority of the species are considerably smaller (see also Andersen, 2000). Due to various characteristics such as shape of the dorsal shield, clypeal structure and sculpturation of the dorsal surface species cluster to subgroups. These are not recognized in detail herein, since these subgroups are not clearly defined.

Species either have a limited distribution, a circumstance that may be due to climatic and ecological factors, while others are widely distributed without significant restriction to their radiation (none of the species herein treated is known to have crossed the Torres Strait). Some species show a higher degree of morphological plasticity than do others. For this reason, some material has only been tentatively assigned to species. Further material will be needed to clarify the taxonomic position of these 'left overs'.

Members of the *M. diversus* group nest in the ground, as evidenced by the large number of pitfall specimens, label data and observations of collectors. They are granivores and thus play an important role in seed dispersal (Taylor & Brown, 1987; Andersen, 2000, and citations therein), comparable to that of of *Messor*, a genus missing in Australia.

#### KEY TO WORKERS OF *M. DIVERSUS* GROUP

The key herein presented does not reflect phylogeny. The worn-down condition of the dentition in many specimens renders more difficult to decide how many mandibular teeth are structurally present.

- 1 Promesonotal shield with posterolateral and posterior projections short and at most bluntly rounded or triangular, lateral margins of the shield not or only little overhanging lateral mesosomal sides and propodeal declivity (Figs. 2, 3, 5, 7, 9, 11, 13, 41)..... 2
- Promesonotal shield with posterolateral and posterior projections well developed as acute or narrowly rounded projections, lateral margins distinctly overhanging lateral mesosomal sides and propodeal declivity (Figs. 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 43, 45, 47, 49, 51)..... 8
- 2 Paramedian projections on mesonotal hind margin absent (Fig. 41). Eyes very large (EYE 0.37 - 0.42; REL 0.23 - 0.26). (Western Australia).....*occidentalis*
- Paramedian projections on mesonotal hind margin at least present as minute denticles. Eyes distinctly smaller (EYE < 0.35; REL < 0.22)..... 3
- 3 Clypeus anteriorly bluntly bidentate. Posterior face of petiole costate or rugose. With four mandibular teeth ..... 4
- Clypeal projection different. Posterior face of petiole rugose to rugulose. With three mandibular teeth ..... 5
- 4 Posterior petiolar face rugose. Promesonotal shield translucently margined, with mesonotal projections narrowly rounded (Fig. 11). Dorsal ocular margin well separated from ventral scrobal margin. (north-western Australia).....*duyfkens*
- Posterior petiolar face evenly and densely costate. Promesonotal shield not translucently margined, with mesonotal projections reduced or seen as minute denticles (Fig. 13). Dorsal ocular margin reaching ventral scrobal margin. (Queensland).....*orientalis*

- 5 Clypeus with conspicuous dorsal median keel-like carina, accompanied by lateral more or less developed carinate projections (Figs. 52, 53). (Widespread throughout most of arid to monsoonal Australia, absent in southernmost parts) ..... *ajax*
- Dorsal clypeus at most with weak median keel or with flat elaboration ..... 6
- 6 Anterior clypeal margin with upward flexion, somewhat lamellate and laterally denticulate and broadly rounded, frequently with weak median carina (Fig. 55; plate I, A). (Top End, Northern Territory) ..... *snellingi*
- Anterior clypeal margin not lamellate, concave, with dorsal flat anteriorly rectangular or excised elaboration that may surpass anterior clypeal margin ..... 7
- 7 Larger species, HW 1.78 - 2.37. Dorsal clypeal elaboration seldom surpassing anterior margin (Fig. 54). First gastral tergite entirely coarsely striate to striatopunctate. (Kimberley throughout central Australia to northeastern Queensland) ..... *unicolor*
- Smaller species with HW 1.58 - 1.80. Dorsal clypeal elaboration usually distinctly surpassing anterior clypeal margin (Fig. 56). First gastral tergite microreticulate, without striation. (Top End, Northern Territory) ..... *berrimah*
- 8 Posterior petiolar face evenly and conspicuously costate. Concolorous or bicolored species 9
- Posterior petiolar face reticulate rugulose. Distinctly bicolored species ..... 21
- 9 Clypeus bidentate or anteriorly deeply excised, with or without additional medial carina or bulge ..... 10
- Clypeus not bidentate, either transversally vaulted with the anterolateral clypeal corners more or less acutely extended, or the clypeal projection flat with an occasional medial elevation and the anterior margin sinuate (Figs. 65 - 68) ..... 18
- 10 Clypeus dorsally with additional medial bulge or carina that may surpass the anterior clypeal margin ..... 11
- Clypeus without such structure ..... 12
- 11 Clypeus medially with triangular bulge-like projection (Fig. 59). Dorsal ocular margin confluent with ventral scrobal margin. (south-central to north-east coastal Australia) ..... *mars*
- Clypeus medially with acute tooth merging into a narrow carina (Fig. 61). Dorsal ocular margin well separated from lower scrobal margin. (coastal and south-central Queensland; Alice Springs) ..... *tricuspidatus*
- 12 Dorsal ocular margin well separated from lower scrobal margin ..... 13
- Dorsal ocular margin very close to or confluent with lower scrobal margin ..... 15
- 13 Promesonotal shield in overall impression not square, with apically acute posterolateral and posterior projections. Petiole in profile with posterior face angularly convex. Frontal carinae in anterior half abruptly broader (Fig. 71; plate I, B). (south-central Queensland; New South Wales) ..... *christinae*
- Promesonotal shield in overall impression somewhat square with apically rounded posterior and posterolateral projections. Petiole in profile acutely triangular. Frontal carinae anteriorly not abruptly broader ..... 14
- 14 Clypeus medially deeply excised, with long, acute anterolateral projections that almost reach anterolateral frontal lobes (Fig. 69) (w. coastal to central Australia) ..... *diversus*

- Clypeus not as deeply excised, clypeal teeth short and bluntly triangular with upward flexion, distinctly shorter than extended frontal lobes (Fig. 70). (Queensland; southern-most Northern Territory) ..... ***diversoides***
- 15 Larger species with HW 1.65 - 1.80. Frontal carinae distinctly narrower than head width (FI 124 - 129). (central Australia) ..... ***deserticola***
- Smaller species with HW 1.15 - 1.50. Frontal carinae less narrower than head width (FI 115 - 122) ..... 16
- 16 Propodeal spines long and massive (PSL 0.58 - 0.63) (northern South Australia) ..... ***crassispina***
- Propodeal spines shorter (PSL 0.45 - 0.56) ..... 17
- 17 Eyes relatively large (REL 0.21 - 0.24) with 15 - 18 ommatidia. Promesonotal shield posteriorly not distinctly narrower (Fig. 21), with shorter pilosity. (Kimberley to Top End) .. ***oxleyi***
- Eyes relatively smaller (REL 0.18 - 0.20) with 14 - 15 ommatidia. Promesonotal shield posteriorly distinctly narrower (Fig. 17), with longer pilosity. (north-eastern NSW, south-central and costal Queensland) ..... ***wilsoni***
- 18 Clypeus a flat disc with an occasional medial elevation, anterior clypeal margin sinuate (Fig. 68). Propodeal spines short (PSL 45 - 50). (Cape York) ..... ***discalis***
- Clypeus transversely vaulted with lateral clypeal corners extended (Figs. 65 - 67). Propodeal spines longer (PSL 54 - 70) ..... 19
- 19 Eyes small (REL 0.15 - 0.17) with 14 - 17 ommatidia in the longest row. (south-east Australia) ..... ***convexius***
- Eyes larger (REL 0.16 - 0.20) with 17 - 19 ommatidia in the longest row ..... 20
- 20 Promesonotal shield distinctly wider than long (PMI 130 - 138), more irregularly reticulate-rugulose. Posterior medial projections digitate, with reduced or without lamellate material inbetween (Fig. 31). (NSW, south-central Queensland) ..... ***digitatus***
- Promesonotal shield not as distinctly wider than long (PMI 119 - 127), regularly reticulate. Posterior medial projections with lamellate material between. (Northern Territory) ***naitsabes***
- 21 Anterior clypeal margin broadly concave (Fig. 75). Mandibles with five teeth. (central and southern Australia; Western Australia) ..... ***mcarthuri***
- Anterior clypeal concavity much narrower. Mandibles with four teeth ..... 22
- 22 Anterolateral clypeal corners acutely pointing forward (Fig. 51). Posterior and posterolateral projections of promesonotal shield short and apically bluntly rounded, translucently flanged (Fig. 76). With short scapes (SI 47 - 53), markedly narrow frontal carinae (FI 131 - 146) and relatively large eyes (REL 0.26 - 0.29). (central and south-eastern Australia) ..... ***taurus***
- Anterolateral clypeal corners less acutely pointing forward. Posterior and postero-lateral projections of promesonotal shield more strongly developed. Scapes longer (SI > 56), frontal carinae broader (FI > 113 - 129) and eyes relatively smaller (REL 0.22 - 0.27) ..... 23
- 23 Petiole and postpetiole in lateral view narrow and high (PTI 55 - 61; PPI 48 - 58). south-eastern Australia) ..... ***angustinodis***

- Petiole and postpetiole in lateral view not as narrow and not as high (PTI > 64; PPI 53 - 72) ..... 24
- 24 Petiole in lateral view dorsally truncated with distinct dorsal face (Fig. 44). (central to south-east Australia) ..... *variabilis*
- Petiole in lateral view triangular without or with narrow oblique dorsal face (Fig. 46). (Western and South Australia) ..... *arcuatus*

### SPECIES OF *M. DIVERSUS* GROUP

#### *Meranoplus ajax* Forel, 1915 (Figs. 1, 2, 3, 52, 53, 78, 90)

*Meranoplus mars* r. *ajax* Forel, 1915: 44 (Kimberley district, Western Australia; worker). - Taylor & Brown, 1985: 68 (catalogue), Taylor, 1987: 39 (listed) Taylor, 1990: 34 (Raised to species), Bolton, 1995: 250 (catalogue), Shattuck, 1999: 142 (listed). **Holotype worker** (NHRS; *examined*), 'Kimberley district [printed] \ N. V. Austr. *Mjöberg* [printed] \ mars [printed] \ *Meranoplus Mars* For. r. *Ajax* Forel. ♀ typus unicus. [handwritten] \ 388 [printed] 88 [handwritten; both on red label] \ Riksmuseum Stockholm [printed on light-blue label]'.

**WORKERS** ( $n = 43$ ). TL 6.50 - 9.25, HL 1.65 - 2.40, HW 1.70 - 2.60, FC 1.38 - 1.95, CI 100 - 117, CS 1.68 - 2.50, SL 0.89 - 1.20, SI1 43 - 52, SI2 45 - 53, PML 1.07 - 1.58, PW 1.38 - 2.05, PMD 1.35 - 2.08, PMI2 91 - 104, ML 1.50 - 2.0, PSL 0.53 - 0.84, PTLL 0.50 - 0.70, PTLH 0.63 - 0.90, PTI 72 - 82, PTDW 0.63 - 0.90, PPLL 0.43 - 0.58, PPLH 0.58 - 0.93, PPI 59 - 78, PPDW 0.68 - 0.95, PT/PP 80 - 100.

Mandible with three teeth. Clypeus in full face view longitudinally carinate, with conspicuous somewhat tricuspidate anteriorly projecting elaboration, consisting of strong medial carina and lateral carinae, that merge into lateral angulate to rounded lobes, anterior projections occasionally reduced. Head distinctly wider than long, lateral sides almost straight, feebly narrowing anteriorly, preoccipital corners bulbously rounded, rear margin emarginate. Frontal carinae markedly narrower than head (FI 124 - 143), sinuately and evenly narrowed from about middle of length of head towards clypeus, anterolaterally extended into narrowly rounded projections which together with clypeus distinctly overhang mandibular section. Antennal scrobe in lateral view reaching middle of length of head. Distinctly transversely carinate at rear, occasionally with additional shagreening. Genae and ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Compound eyes relatively small (REL 0.15 - 0.19, EL 0.31 - 0.41, with 15 - 21 ommatidia in the longest row), situated distinctly in front of middle of lateral sides of head, dorsal ocular margin never reaching ventral scrobal margin.

Promesonotum wider than long (PMI 120 - 140), concealing lateral sides of mesosoma only anteriorly. Propodeal declivity and propodeal spines visible from above; lateral sides of promesonotum occasionally translucently margined, anterolateral corners rectangular, at most with stout anterolaterally projecting teeth; promesonotal suture absent or occasionally seen as faint transverse line; at its level laterally with deep excision on each side of the shield; posteriorly to excision with acute posteriorly directed lateral projection; posterolateral and posterior mesonotal projections reduced to triangular stout teeth. Propodeal spines long and slender, in dorsal view markedly diverging and slightly curved, emerging distinctly above middle of propodeal length.

Petiole in profile broadly triangular, sometimes obliquely truncated, anterior face straight and delicately rugulose, posterior face distinctly rugose. Dorsal postpetiole nodiform, tapering towards base, occasionally wedge-shaped, with ventral medium sized tooth, rugose throughout.

First gastral tergite conspicuously striate to microreticulate. Dorsum of head longitudinally costulate, additionally with few transverse meshes, at rear reticulate, with microsculpture which varies from nothing to a dense reticulum. Promesonotal shield irregularly to very regularly rugose or rugoreticulate. Pilosity consisting of short and longer hairs reaching to 600 µm.

Concolorous brown to dark-brown, frequently with the gaster somewhat brighter.

## MATERIAL EXAMINED

**South Australia:** 9 km / 9.4 km SE Maryinna Hill, 14.-18.iii.1995 (*Hirst & Lands*); 7.5 km WNW, 8 km NW, 7.5 km NNW Mt. Kintore, 5.-10.v.1994 (*coll. unknown*); Musgrave Ranges, 5 km E Mitchell Knob, 20.-21.x.1994; 19.9 km W Indulkana, 25.-31.x.1998 (*coll. unknown*); 18.5 km WNW Ungarinna Rockhole, 14.-18.iii.1995 (*coll. unknown*). **Queensland:** 'Queensland', 21.vi.1902 (*F.P. Dodd*); ca. 100 km NW Mt Isa, Buckley R., 25.vii.1981 (*B.B. Lowery*); Weipa, vii.1983 (*J.D. Majer*); 6 km NE Ebagoola, 5.viii.1983 (*P.S. Ward*); Townsville, 5./6.xi.1914 (*Wheeler*), *ibid.*, 19.xi.1901 & 23.iv.1902 (*F.P. Dodd*); Porcupine Gorge NP, Hughenden, 13.v.1980 (*B.B. Lowery*); 30 km N Giru, 20.iii.1980 (*B.B. Lowery*); 10 km S Bowen, 24.v.1981 (*B.B. Lowery*); Torrens Ck., E Hughenden, 14.v.1980 (*B.B. Lowery*); 18 km W Paluma, 21.i.1995 (*J. Bugeja*); Cape York, Lockerbie, 10.vi.1969 (*G.B. Monteith*), *ibid.*, i.1958 (*Darlington*); 20 km W Mount Surprise, 12.viii.1975 (*B.B. Lowery*); 10 km E Mareeba, 3.viii.1975 (*B.B. Lowery*); N of Mareeba, ii.1958 (*Darlington*); Coen, C. York, vii.1932 (*Darlington*); Cooktown, 20.vi.1955 (*J. Beauglehole*). **Northern Territory:** Tanami Desert, 20.v.1986 (*P.J.M. Greenslade*); Alice Springs, vi.1951 (*Lowe*), *ibid.*, 28.vi.1951 (*W.L. Brown*); 27.8 km NE Alice Springs, 13.vii.2003 (*R. R. Snelling*); Tennant Creek, 2.vii.1951 (*W.L. Brown*); Powell Ck, 1933 (*C. Barrett*); 40 km W Wave Hill, 14.ix.1981 (*D. Davidson & S. Morton*); Daly R. (*Nesselmann*); Darwin, 11.ii.1945 (*Malkin*), *ibid.*, 31.vii.1961 (*B.B. Lowery*); Berrimah, 8.vii.1951 (*W.L. Brown*), *ibid.*, 28-29.vii. 2003 (*R.R. Snelling*); Darwin, 30 km SE, Stuart Highway, 4.viii.1972 (*W. L. Brown*); Stuart Hwy., 132 mi S Darwin, 5.vii.1951 (*W.L. Brown*); 9 km NW Adelaide River, 15.viii.1983 (*P.S. Ward*); Kununurra Dam, 11.vii.1967 (*G. Campbell*); Katherine, 18.vii.1981 & 1.vii.1985 (*B.B. Lowery*); Katherine Gorge, 21.x.1977 (*P.J.M. Greenslade*); Katherine, 40 / 45 km NW, 7.iv.1978, 27 km SE, 8.iv.1978, 35 km NW, 11.iv.1978 (*P.J.M. Greenslade*); Marbullo SW Katherine, 25.x.1977 (*P.J.M. Greenslade*); Arnhem H'way, 15 km E Adelaide, 20.vii.1981 (*B.B. Lowery*); Mataranka, 30.viii.1985 (*B.B. Lowery*); Edith Falls, 6.vii.1985 (*B.B. Lowery*); Larrimah, 16.vii.1981 & 10.vii.1985 (*B.B. Lowery*); Victoria River, 1.vii.1985 (*B.B. Lowery*); Alligator Rivers area, Kapalga, 6.ix.1983 (*P.J.M. Greenslade*), *ibid.*, 1933, (*C. Barret*), *ibid.*, Thorack Res., 1980 (*M. Andrew*); Doyles Ridge nr. Birdum, 24.vi.1936 (*coll. unknown*). **Western Australia:** Mount Fanny, 28 km NE of Mt. Aloysius, 16.xi.1977 (*J.E. Feehan*); Meekatharra / Billiluna, Pool Canning Stock Rte, iv.1930-viii.1931 (*coll. unknown*); 42 km S Derby, nr. Willare Rd. House, 9.viii.1966 (*B.B. Lowery*); Kununurra, 8.viii.1966 (*B.B. Lowery*), *ibid.*, 11.vii./1.viii.1967 (*Campbell*); Kimberley region nr Kalumburu mission, viii.1967 (*coll. unknown*); Surveyors Pool Camp, Mitchell Plateau, 3.v.1992 (*S.O. Shattuck*); Derby (*W.D. Dodd*). (412 workers, 24 gyns in ANIC, BMNH, JDMF, LACM, MCZC, NHMB, NHMW, PSWC, QMBA, SAMA, USNM, WAMP).

## DISCUSSION

*M. ajax* not only is one of the more widely distributed taxa, it is by far also one of the most variable species within the *diversus*-group. However, certain trends within the variability are displayed by different populations: Southern and central Australian samples show a distinct gastral striation and long thin whitish pilosity, whereas the striation vanishes and is reduced to

almost entirely absent in northern populations, where the pilosity is shorter and stouter. In addition, the shape of the clypeal prominence varies markedly as does the petiolar shape and the outline of the promesonotal shield. Since transition between these populations seems to occur, I here refrain from describing new taxa. Genetic information may help to elucidate whether there are well defined subspecies or there is even more than one species hidden in this taxon. However, despite the high degree of variability, *M. ajax* as here defined is easily separated from others by the clypeal prominence. This is a widespread species covering most of the arid to monsoonal areas of Australia, absent in the southernmost parts.

***Meranoplus unicolor* Forel, 1902**

(Figs. 4, 5, 54, 79, 91)

*Meranoplus diversus* Sm. *r. unicolor* Forel, 1902: 455 (King Sound, Western Australia; worker) - Taylor & Brown, 1985: 67 (catalogue), Taylor, 1987: 38 (listed), Taylor, 1990: 34 (raised to species), Bolton, 1995: 252 (catalogue), Shattuck, 1999: 143 (listed). **Lectotype worker** (MHNG, here designated), 'Typus [printed on red label] \ *M. diversus* ♀ Sm *r. unicolor* For Kings Sound N. W. Austr Frogatt [handwritten] \ 8 \ *r. M. unicolor* Forel [handwritten] \ Coll. Forel'; 4 paralectotypes in ANIC, MHNG. According to Taylor (1990) one further syntype in Mus Victoria (*not examined*).

**WORKERS** ( $n = 22$ ). TL 6.15 - 8.40, HL 1.66 - 2.15, HW 1.78 - 2.37, FC 1.27 - 1.73, CS 1.72 - 2.26, SL 0.88 - 1.1, SI1 44 - 52, SI2 46 - 54, PML 1.0 - 1.4, PW 1.38 - 1.85, PMI 118 - 138, PMD 1.28 - 1.80, PMI2 89 - 100, ML 1.45 - 1.97, PSL 0.48 - 0.85, PTLL 0.46 - 0.63, PTLH 0.60 - 0.83, PTDW 0.6 - 0.85, PPLL 0.4 - 0.64, PPLH 0.55 - 0.83, PPI 64 - 77, PPDW 0.55 - 0.88, PT/PP 93 - 109.

Mandibles with three teeth. In full face view clypeal projection distinctly exceeding anterolateral frontal corners, with a median bicarinate flat elaboration, that may considerably surpass the anterior clypeal margin. Frontal carinae sinuately narrowed towards clypeus, distinctly narrower than head width (FI 134 - 148). Head weakly to distinctly wider than long (CI 104 - 118), preoccipital margin distinctly concave. Antennal scrobe in lateral view posteriorly surpassing middle of length of head, merging into lateral sides far before posterior corners; distinctly transversely carinulate at rear, occasionally with additional shagreen. Genae and ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Eyes of moderate size (EL 0.30 - 0.36, REL 0.16 - 0.20, with 16 - 19 ommatidia in the longest row), in lateral view situated in anterior half of lateral sides of head, not reaching ventral scrobal margin. Dorsal surface of head with additional microreticulum between ridges of rugo-reticulation.

Promesonotal shield only very narrowly translucently margined. Mesonotum posteriorly markedly narrowing with the posterolateral projections reduced and bluntly rounded, occasionally as more or less well developed acute denticles. Propodeal declivity visible from above. Propodeal spines due to variable body size varying in length (0.48 - 0.85), situated above middle of length of declivity, acute and considerably diverging when seen from above.

Petiole in lateral view higher than long (PTI 70 - 86), box-shaped to roughly triangular with anterior and posterior faces meeting in an angle. Postpetiole nodiform with short to medium-sized antero-basal tooth.

First gastral tergite entirely and distinctly striate to punctate-striate, with lateral striation on corresponding ventrite as well. Surface covered with moderately dense regular pilosity consisting of shorter decumbent hairs and longer erect ones, pilosity on dorsal head shorter than that on mesosoma and gaster.

Concolorous brown to dark-brown.

**MATERIAL EXAMINED**

**South Australia:** 6 km SE Box Creek, 24.ix./ 24.x.1993 (*McArthur & Adams*); 19.5 km WNW Anta Hill, 16.-19.ix.1998 (*coll. unknown*); 20 km NE Macumba Station, 6.x.1981 (*D. Davidson & S. Morton*). **Western Australia:** Kununurra, 8.viii.1986 (*B.B. Lowery*); Broome, 11.viii.1986 (*B.B. Lowery*); 24 mi SE Broome, 17.iv.1963 (*McInnes & Dowse*); King's Sound, 'Forel No 8'. **Northern Territory:** 25 km W Tempe Downs, 20.v.1997 (*J. & J. Schapel*); Larrimah, 16.vii.1981 & 28.vi.1985 (*B.B. Lowery*); Tanami Desert, 18.v.1986 (*P.J.M. Greenslade*); Alligator Rivers area, Jabiru, 10.v.1983 (*P.J.M. Greenslade*); 60 km E Three Ways, 24.vii.1981 (*B.B. Lowery*); Manbulloo SW Katherine, 25.x.1977 (*P.J.M. Greenslade*); Elliot, Stuart H'way, 16.vii.1981 (*B.B. Lowery*); 40 km N Wave Hill, 14.ix.1981 (*D. Davidson & S. Morton*); Davenport Ra. Rd. at Bonney Creek, 6.vii.2003 (*R.R. Snelling*); Kidman Springs, 23-30.iv.1997 (*A. Salvarani*). **Queensland:** Camooweal, 25.vii.1981 (*B.B. Lowery*); 19 km N Ebagoola, 12.viii.1983 (*P.S. Ward*); Moreton Teleg. Stn., 11.viii.1958 (*E.M. Exley*); Cooktown (*Staudinger*); 10 km E Mt. Isa Gorge Ck., 12.v.1980 (*B.B. Lowery*); SW Sandringham, 4.vi.1980 (*P.J.M. Greenslade*); Alice River (*Mjöberg*); Gubberamunda, 7.-9.v.2002 (*S.G. Wright*); Gumbardo, iv.2001 (*T. Beutel*). (104 workers, 3 gynes in ANIC, LACM, MCZC, NHMW, QMBA, SAMA, UQIC).

## DISCUSSION

*M. unicolor* is a variable taxon, in particular with regard to the clypeal projection and the petiolar shape. Nonetheless, the clypeal structure in addition to the distinct gastral striation should leave no doubt as to the identity of the taxon. Additional material is needed to show whether more than a single taxon is involved. Occurring from Kimberley over central Australia to the north-east coast of Queensland; missing in southern Australia.

### *Meranoplus berrimah* Schödl sp.n.

(Figs. 8, 9, 56, 89)

**HOLOTYPE WORKER.** TL 5.15, HL 1.50, HW 1.58, FC 1.25, CS 1.54, SL 0.75, SI1 48, SI2 49, PML 1.02, PW 1.25, PMD 1.30, PMI2 104, ML 1.25, PTLL 0.38, PTLH 0.53, PTDW 0.55, PPLL 0.35, PPLH 0.50, PPI 70, PPDW 0.54, PT/PP 102.33.

Mandible with three teeth. In full face view the clypeal elaboration distinctly exceeding anterolateral frontal corners, with a dorsal median bicarinate, anteriorly concave flat projection and lateral even longer arcuate acute denticles, the latter situated ventrally to the median projection. Head only moderately wider than long (CI 105), almost square, preoccipital margin distinctly concave. Frontal carinae sinuately narrowed towards clypeus, not as narrow as in former species (FI 126). Antennal scrobe in lateral view posteriorly surpassing middle of length of head, distinctly transversely carinate at rear, without additional shagreening. Genae and ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Eyes small (EL 0.26, REL 0.17, with 15 ommatidia in the longest row), in lateral view situated in anterior half of lateral sides of head, dorsal ocular margin never reaching ventral scrobal margin. Surface of head between ridges of rugo-reticulation with microsculpture.

Promesonotal shield wider than long (PMI 123), only narrowly translucently margined. Mesonotum posteriorly markedly converging, with the posterolateral projections acute and stout, the posterior medial projections bluntly rounded. Propodeal declivity partly visible from above. Propodeal spines rather short (0.44) situated above middle of length of declivity, when seen from above acute, straight and considerably diverging. Petiole in lateral view higher than long (PTI 71), somewhat tectiform, anterior and posterior faces meeting in an acute angle with anterior petiolar face angulate, posterior face convex.

Postpetiole elongately nodiform to drop-shaped with a medium-sized anterio-basal tooth. Gaster entirely microreticulate, with faint basal striation. Surface covered with moderately dense regular pilosity consisting of shorter decumbent hairs and longer erect ones, in general pilosity on dorsal head shorter than on mesosoma and gaster.

Concolorous brown to dark-brown.

**WORKERS** (n = 7). TL 5.15 - 6.35, HL 1.48 - 1.70, HW 1.58 - 1.80, FC 1.25 - 1.35, FI 126 - 133, CI 103 - 110, CS 1.53 - 1.74, SL 0.75 - 0.88, SI1 47 - 50, SI2 49 - 52, PML 1.02 - 1.15, PW 1.25 - 1.5, PMI 119 - 136, PMD 1.3 - 1.5, PMI2 98 - 106, ML 1.25 - 1.50, PSL 0.43 - 0.50, PTLL 0.38 - 0.45, PTLH 0.53 - 0.64, PTI 67 - 74, PTDW 0.55 - 0.65, PPLL 0.35 - 0.43, PPLH 0.50 - 0.61, PPI 61 - 77, PPDW 0.53 - 0.64, PT/PP 100 - 110, EL 0.25 - 0.29, REL 0.16 - 0.18, with 15 - 17 ommatidia in the longest row.

### ETYMOLOGY

The name refers to the type locality.

### TYPE MATERIAL

**Holotype** worker, **Northern Territory**: 'AUSTRALIA. *N.Terr.*: CSIRO-TERC. Berrimah 12.42°S 130.92°E 17 Dec. 2000 #00-163 \ #00-163. Secondary tropical savannah. Ex nest in soil. coll. R. R. Snelling' (ANIC). **Paratypes**. 3 workers, same data as holotype; 37 workers, same locality but '14-16 Dec. 2000 #00-163' and 'Foragers in litter', '28-29 June 2003', '21 June 2003 #03-157', '21 June 2003 #03-158' and '22 June 2003 #03-163' (LACM, NHMW, ANIC).

### ADDITIONAL MATERIAL EXAMINED

**Northern Territory**: Groote Eylandt, vii.1983 (*J.D. Majer*); Nourlangie Rock, 17.viii.1983 (*P.S. Ward*); Mudginberri, 18.vii.1976 (*R. Mercer*); Koolpinyah, 1933 (*C. Barrett*); Larrimah, 16.vii.1981 (*B.B. Lowery*); Mataranka Homestead, 22.viii.1981 (*B.B. Lowery*); 20 km W Katherine, 1.vii.1985 (*B.B. Lowery*); 23 km SW Katherine, 24.x.1977, 27 km SW Katherine, 25.x.1977, 30 km SW Katherine, 10.iv.1978 (*P.J.M. Greenslade*); Berrimah, Darwin distr., 8.vii.1951 (*W.L. Brown*). (43 workers in ANIC, JDMP, MCZC, NHMW, PSWC, USNM).

### DISCUSSION

*M. berrimah* is a quite uniform taxon within its limited range, but shows variation in the clypeal elaboration to some extent, concerning both size and occasional additional lateral carinae. However, its structural distinctness in combination with the relatively small size (HW 1.60 - 1.80), the non-striate gaster and the petiolar shape separate *M. berrimah* easily from other related group members. Small *M. unicolor* workers, that might show a similar clypeal structure are readily separated by their striate gaster. Hitherto known from Top End, Northern Territory.

### *Meranoplus snellingi* Schödl sp.n.

(Figs. 6, 7, 55, 87; Plate 1, A)

**HOLOTYPE WORKER**. TL 8.35, HL 2.13, HW 2.38, FC 1.75, CS 2.25, SL 1.04, SI1 44, SI2 46, PML 1.40, PW 1.83, PMD 1.80, PMI2 99, ML 1.95, PTLL 0.60, PTLH 0.80, PTDW 0.78, PPLL 0.58, PPLH 0.75, PPI 77, PPDW 0.85, PT/PP 91.

Mandible with three teeth. Clypeal projection distinctly exceeding anterolateral frontal corners, with weak median carina and additional lateral carinulae, the anterior clypeal margin concave with upward flexion, the lateral corners rounded, denticulate. Head wider than long (CI 112), preoccipital margin deeply concave. Frontal carinae distinctly sinuately narrowing towards clypeus, markedly narrower than width of head (FI 136). Antennal scrobe in lateral view scarcely surpassing middle of length of head, merging into lateral sides of head distinctly anteriorly to rear corners; distinctly transversely carinulate at rear with additional shagreening. Genae and ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Eyes relatively small (EL 0.35, REL 0.16, with 18 ommatidia in the longest row), situated well in front of middle of lateral sides of head, the dorsal ocular margin far from the ventral scrobal margin. Surface of head between ridges of rugo-reticulation with microreticulum.

Promesonotal shield distinctly wider than long (PMI 130), only very narrowly translucently margined. Mesonotum with posterolateral projections triangular, the posterior medial projections rounded. Propodeal declivity visible from above. Propodeal spines of medium length (PSL 0.73) situated above middle of length of declivity, acute and slightly arcuate when seen from above.

Petiole in lateral view box shaped, distinctly higher than long (PTI 75), with the anterior face straight, meeting oblique dorsum in a more or less right angle, the latter merging roundly into posterior face. Postpetiole nodiform with small antero-basal tooth.

Gaster entirely and roughly striate (elongately carinulate, with microsculpture between carinulae). Dorsal surface covered with scattered regular pilosity consisting of short and longer more or less erect stiff hairs, in general pilosity on head dorsum shorter than on mesosoma and gaster.

**WORKERS** ( $n = 8$ ). TL 7.20 - 8.75, HL 1.88 - 2.19, HW 2.0 - 2.43, FC 1.48 - 1.75, FI 134 - 142, CI 103 - 112, CS 1.94 - 2.31, SL 1.0 - 1.15, SI1 44 - 51, SI2 46 - 53, PML 1.23 - 1.45, PW 1.50 - 1.83, PMI 120 - 130, PMD 1.45 - 1.83, PMI2 94 - 103, ML 1.70 - 2.0, PSL 0.65 - 0.73, PTL 0.58 - 0.68, PTLH 0.73 - 0.84, PTI 74 - 81, PTDW 0.66 - 0.90, PPLL 0.45 - 0.60, PPLH 0.63 - 0.83, PPI 70 - 77, PPDW 0.71 - 0.95, PT/PP 91 - 102, EL 30 - 0.37, REL 0.15 - 0.19, with 16 - 18 ommatidia in the longest row.

## ETYMOLOGY

Named for Roy R. Snelling, myrmecologist at the Natural History Museum of Los Angeles County. He provided me with numerous important specimens for this study.

## TYPE MATERIAL

**Holotype worker, Northern Territory:** 'AUSTRALIA. *N.Terr.*: CSIRO-TERC. Berrimah 12.42°S 130.92°E 14-16 Dec. 2000 #00-145 \ #00-145. Secondary tropical savannah. Ex nest in soil coll. R. R. Snelling' (ANIC). **Paratypes.** 23 workers, same data as holotype; 72 workers with same locality data but '21 Dec 2000, #00-190', '19 June 2003 #03-143', '22 June 2003 #03-162', '28-29 June 2003' (LACM, NHMW, ANIC).

## ADDITIONAL MATERIAL EXAMINED

**Northern Territory:** Maningrida, xii.1975 - i.1976 (*J. Grigg*); Nourlangie Rock, 17.viii.1983 (*P.S. Ward*); Bathurst Island (*G.F. Hill*); Howard Springs near Darwin, 19.vii.1981 (*B.B. Lowery*); Darwin, 13-17 km E, viii.1972 (*W.L. Brown*); Alligator Rivers area, Kapalga, 8.ix.1983 (*P.J.M. Greenslade*); Alligator Rivers area, Jabiru, 11.v./10.ix.1983 (*P.J.M.*

*Greenslade*); Katherine, 4.-5.vii.1951 (*W.L. Brown*); 21/22 km SE Katherine, 8.iv.1977 (*P.J.M. Greenslade*); Finnis Range, 11.xi.1952 (*Bateman*); Arnhem Highway, 15 km E Adelaide (*B.B. Lowery*). (47 workers, 1 gyne in ANIC, MCZC, NHMW, PSWC, USNM).

## DISCUSSION

*M. snellingi* is a medium sized to large brown to blackish-brown species which apart from differences in size shows only very little variation within its range. It is obviously most closely related to the two preceding taxa but easily separable by the unique clypeal structure. Restricted to Top End, Northern Territory.

### *Meranoplus convexius* Schödl sp.n.

(Figs. 26, 27, 65, 84)

**HOLOTYPE WORKER.** TL 5.55, HL 1.43, HW 1.53, FC 1.23, CS 1.48, SL 0.80, SI1 52, SI2 54, PML 1.13, PW 1.38, PMD 1.50, PMI2 109, ML 1.35, PTLL 0.43, PTLH 0.55, PTDW 0.53, PPLL 0.43, PPLH 0.59, PPI 72, PPDW 0.53, PT/PP 100.

Mandible with three teeth. In full face view the clypeus anteriorly a strongly vaulted, rugulose to carinulate projection, which markedly exceeds the anterolateral frontal corners; with its anterior margin concave and the anterolateral corners acutely directed antero-ventrad. Head only moderately wider than long (CI 107), preoccipital margin shallowly though markedly concave. Frontal carinae sinuately narrowed towards clypeus (FI 124). Antennal scrobe distinctly surpassing middle of lateral sides of head, anteriorly glossy, distinctly transversely carinulate at rear, posteriorly well demarcated from remainder of head. Genae and ventrolateral sides of head rugose, preoccipital lobes reticulate. Eyes small (EL 0.24, REL 0.16, with 15 ommatidia in the longest row), situated in front of middle of lateral sides of head, dorsal ocular margin not reaching ventral scrobal margin. Head in posterior half distinctly reticulate, inbetween ridges of rugo-reticulation shiny.

Promesonotal shield wider than long (PMI 122), rather flat, distinctly translucently margined, provided with well developed projections concealing lateral sides of mesosoma and propodeal declivity, invisible from above. Propodeal spines long in relation to body size (PSL 0.61) situated above middle of length of declivity, robust and acute, moderately diverging and slightly arcuate when seen from above.

Petiole in lateral view higher than long (PTI 77), with anterior face straight, meeting strongly convex posterior face in an acute angle. Postpetiole nodiform with a small antero-basal tooth.

Gaster entirely microreticulate, basally with additional carinulae. Surface covered with evenly distributed pilosity consisting of shorter decumbent and longer more or less erect arcuate stiff hairs.

Distinctly bicolored with the gaster and appendages brown and remainder of body dark-brown.

**WORKERS** ( $n = 10$ ). TL 5.78 - 5.35 - 6.35, HL 1.38 - 1.60, HW 1.48 - 1.83, FC 1.20 - 1.38, FI 123 - 135, CI 106 - 115, CS 1.43 - 1.71, SL 0.75 - 0.84, SI1 44 - 52, SI2 47 - 54, PML 1.05 - 1.25, PW 1.30 - 1.53, PMI 120 - 129, PMD 1.40 - 1.63, PMI2 107 - 111, ML 1.25 - 1.43, PSL 0.58 - 0.68, PTLL 0.40 - 0.48, PTLH 0.55 - 0.64, PTI 65 - 77, PTDW 0.53 - 0.63, PPLL 0.40 - 0.48, PPLH 0.55 - 0.64, PPI 69 - 77, PPDW 0.51 - 0.63, PT/PP 95 - 104, EL 0.22 - 0.26, REL 0.15 - 0.17, with 14 - 17 ommatidia in the longest row.

## ETYMOLOGY

The name refers to the strongly vaulted clypeus.

#### TYPE MATERIAL

**Holotype** worker, **Queensland**: 'SEQ:25°34'Sx151°42'E Wetheron, 3 km SW, O/F 27 Jan - 2 Jun 1999 Monteith & Thompson 150m. pitfall **7718**' (QMBA). **Paratypes**. 2 workers, same data as holotype (QMBA, NHMW).

#### ADDITIONAL MATERIAL EXAMINED

**Queensland**: Mount Coot-tha, Brisbane, 16.xii.1956 (*B.B. Lowery*). **New South Wales**: 9 km W Rankin Springs, 9.i.1967 (*coll. unknown*); 25 km N Dubbo, Eumungerie SF, 9.ix.1979 (*B.B. Lowery*); Urana golf links, 12.vi.1979 (*B.B. Lowery*); Tallimba, 21.vii.1979 (*B.B. Lowery*); 4 mi E Inverell, 22.viii.1968 (*B.B. Lowery*); Trundle, 30.xii.1963 (*B.B. Lowery*). (57 workers in ANIC, NHMW, QMBA).

#### DISCUSSION

*M. convexius* together with the two following taxa forms a cluster within the *diversus*-group. They all show a similar clypeal structure but may be separated by the different shape and surface of the promesonotal shield, in addition with the size of the eyes. Distributed from the Murray-Darling Basin to SE Queensland.

#### *Meranoplus naitsabes* Schödl sp.n. (Figs. 28, 29, 66, 84)

**HOLOTYPE WORKER**. TL 5.70, HL 1.53, HW 1.65, FC 1.28, CS 1.59, SL 0.75, SI1 45, SI2 47, PML 1.02, PW 1.30, PMD 1.38, PMI2 106, ML 1.30, PSL 0.58, PTLL 0.40, PTLH 0.58, PTDW 0.52, PPLL 0.40, PPLH 0.54, PPI 74, PPDW 0.52, PT/PP 100.

Mandible with three teeth. Clypeal projection very similar to that of preceding species, with lateral teeth less produced. Head moderately wider than long (CI 108), preoccipital margin shallowly though still markedly concave. Frontal carinae more evenly and less sinuately narrowed towards clypeus (FI 129). Antennal scrobe not surpassing middle of lateral sides of head as far as in *convexius*, anteriorly glossy, distinctly transversely carinulate at rear, posteriorly indistinctly demarcated from remainder of head. Genae and ventrolateral sides of head rugose, preoccipital lobes reticulate. Eyes relatively larger (EL 0.29, REL 0.19, with 17 ommatidia in the longest row), situated in front of middle of lateral sides of head, dorsal ocular margin not reaching ventral scrobal margin. Head in posterior half distinctly reticulate, between ridges of rugo-reticulation with faint microsculpture.

Promesonotal shield wider than long (PMI 127) with regular reticulation, lateral sides only very narrowly translucently margined, projections less developed as in preceding species. Propodeal declivity overhung by posterior mesonotal margin, only partly visible from above. Propodeal spines long in relation to body size (PSL 0.58) situated above middle of length of declivity, acute and moderately diverging when seen from above.

Petiole in lateral view more or less triangular, higher than long (PTI 70), with anterior face straight, meeting convex to sinuate posterior face in a crest. Postpetiole nodiform with a small antero-basal tooth.

First gastral tergite entirely microreticulate, basally with additional carinulae. Pilosity similar to that of preceding species.

Most workers are slightly bicolored with the gaster and appendages usually ferrugineous and the remainder of body brown.

**WORKER** ( $n = 6$ ). TL 5.05 - 5.70, HL 1.35 - 1.53, HW 1.48 - 1.65, FC 1.13 - 1.28, FI 125 - 131, CI 107 - 110, CS 1.41 - 1.6, SL 0.74 - 0.78, SI1 45 - 50, SI2 47 - 52, PML 1.0 - 1.08, PW 1.20 - 1.33, PMI 119 - 127, PMD 1.29 - 1.45, PMI2 106 - 109, ML 1.20 - 1.35, PSL 0.54 - 0.63, PTLL 0.35 - 0.40, PTLH 0.51 - 0.65, PTI 62 - 71, PTDW 0.48 - 0.55, PPLL 0.33 - 0.40, PPLH 0.50 - 0.56, PPI 65 - 76, PPDW 0.48 - 0.55, PT/PP 100 - 105, EL 0.25 - 0.29, REL 0.18 - 0.19, with 17 - 18 ommatidia in the longest row.

### ETYMOLOGY

An anagram based on the name of my son Sebastian, who occasionally joins me on entomological trips and does some real good collecting—in particular crickets and flies.

### TYPE MATERIAL

**Holotype** worker, **Northern Territory**: 'NT Barrow Creek 5 km NE 21.29S 133.35E 10/10/81 135b D. Davidson / S. Morton' (ANIC). **Paratypes**. 5 workers, same data as holotype; 12 workers with same locality data but '135a' and '135c' (ANIC, NHMW).

### ADDITIONAL MATERIAL EXAMINED

**Northern Territory**: Tanami Desert, 20.v.1986 (*P.J.M. Greenslade*); 40 km W Wave Hill, 14.ix.1981 (*D. Davidson / S. Morton*). (25 workers in ANIC, NHMW).

### DISCUSSION

This species is known only from arid portions of Northern Territory.

*Meranoplus digitatus* Schödl **sp.n.**  
(Figs. 30, 31, 67, 85)

**HOLOTYPE WORKER**. TL 6.30, HL 1.70, HW 1.88, FC 1.41, CS 1.79, SL 0.80, SI1 43, SI2 45, PML 1.15, PW 1.50, PMD 1.65, PMI2 110, ML 1.38, PSL 0.70, PTLL 0.45, PTLH 0.63, PTI 72, PTDW 0.61, PPLL 0.43, PPLH 0.65, PPI 66, PPDW 0.61, PT/PP 100.

Mandible with three teeth. Clypeal projection similar to that of preceding species. Frontal carinae broad, distinctly sinuately narrowed towards clypeus (FI 123). Head wider than long (CI 110), preoccipital margin similar to that of preceding species. Antennal scrobe scarcely surpassing middle of lateral sides of head and posterior ocular margin, anteriorly glossy, transversely carinulate at rear, posteriorly indistinctly demarcated from remainder of head. Genae and ventrolateral sides of head rugose, preoccipital lobes reticulate-foveolate. Eyes relatively larger (EL 0.31, REL 0.18, with 19 ommatidia in the longest row), situated anteriorly to middle of lateral sides of head, dorsal ocular margin not reaching ventral scrobal margin. Head in posterior half distinctly reticulate to reticulate-foveolate, in between ridges of rugoreticulation with very faint microsculpture.

Promesonotal shield vaulted, distinctly wider than long (PMI 130), only pronotal lateral sides translucently margined, mesonotal posterolateral and posterior projections digitate, dorsally irregularly rugoreticulate, with the meshes elongate and longitudinally orientated. Propodeal declivity partly overhung by posterior mesonotal margin. Propodeal spines relatively

long (PSL 0.70) situated above middle of length of declivity, straight, acute and moderately diverging when seen from above.

Petiole in lateral view higher than long (PTI 72), with anterior face straight, meeting convex posterior face in a crest. Postpetiole nodiform with a small antero-basal tooth.

Gaster entirely microreticulate, with occasional glossy spots inbetween. Surface covered with evenly distributed pilosity consisting of shorter decumbent and longer more or less erect arcuate stiff hairs.

**WORKERS** ( $n = 9$ ). TL 5.40 - 6.30, HL 1.40 - 1.70, HW 1.55 - 1.88, FC 1.20 - 1.41, FI 128 - 137, CI 107 - 112, CS 1.48 - 1.79, SL 0.71 - 0.80, SI1 41 - 47, SI2 43 - 48, PML 0.95 - 1.15, PW 1.26 - 1.50, PMI 130 - 138, PMD 1.33 - 1.60, PMI2 103 - 111, ML 1.23 - 1.38, PSL 0.55 - 0.70, PTLL 0.36 - 0.45, PTLH 0.55 - 0.63, PTI 66 - 74, PTDW 0.48 - 0.61, PPLL 0.35 - 0.43, PPLH 0.50 - 0.65, PPI 64 - 75, PPDW 0.48 - 0.63, PT/PP 92 - 105, EL 0.26 - 0.31, REL 0.16 - 0.20, with 17 - 19 ommatidia in the longest row.

### ETYMOLOGY

The name refers to the digitate projections on the mesonotal hind margin.

### TYPE MATERIAL

**Holotype** worker, **New South Wales:** 'N.S.W. Goolgowi 18.vii.1979 BBLowery Red soil \ ANIC ANTS VIAL 68.123' (ANIC). **Paratypes.** 8 workers, same data as holotype (ANIC, NHMW).

### ADDITIONAL MATERIAL EXAMINED

**New South Wales:** Rata, 16.xii.1965 (*B.B. Lowery*); CSIRO Lake Mere field stn., nr. Louth, i.1995 (*M. Bryannah*); Goolgowi, 18.vii.1979 (*B.B. Lowery*); Condobolin, 11.i.1967 (*B.B. Lowery*); 5 km W Merriwagga, 17.iv.1978 (*B.B. Lowery*); Bogan R. (*J. Armstrong*). **Queensland:** Merigol, various sites and pitfalls, iv.2001 (*T. Beutel*). (113 workers, 7 gynes in ANIC, NHMW, QMBA).

### DISCUSSION

Distinct from both preceding taxa by the more or less digitate posterior mesonotal projections which only seldomly are fused by lamellate material. Rather uniformly ferrugineous with gaster and appendages usually only feebly brighter than remainder of body. Known from the Murray-Darling basin.

*Meranoplus discalis* Schödl **sp.n.**  
(Figs. 32, 33, 68, 86)

**HOLOTYPE WORKER.** TL 5.40, HL 1.35, HW 1.46, FC 1.18, CS 1.41, SL 0.73, SI1 50, SI2 52, PML 1.08, PW 1.30, PMD 1.50, PMI2 115, ML 1.20, PTLL 0.39, PTLH 0.60, PTDW 0.51, PPLL 0.38, PPLH 0.38, PPI 67, PPDW 0.51, PT/PP 100.

Mandible with four blunt teeth. In full face view the clypeal projection a truncated flat to feebly vaulted shelf, not exceeding anterolateral frontal corners, with a sinuate anterior margin. Head only moderately wider than long (CI 108), preoccipital margin shallowly concave. Frontal carinae, distinctly sinuately narrowed towards clypeus (FI 124). Antennal scrobe in lateral view

posteriorly surpassing middle of length of head, ending far before posterior corners, transversely carinate at rear, posteriorly well defined from preoccipital section. Genae and ventrolateral sides of head carinate, preoccipital lobes reticulate to foveo-reticulate. Eyes of moderate size (EL 0.25, REL 0.19, with 14 ommatidia in the longest row), situated in front of middle of lateral sides of head. Head in posterior half distinctly reticulate, in between ridges of rugo-reticulation smooth and glossy.

Promesonotal shield wider than long (PMI 121), moderately vaulted; its surface coarsely and irregularly rugose to rugoreticulate, the meshes somewhat longitudinally orientated; both lateral sides and rear broadly translucently margined, posterolateral projections well developed, arcuately directed outwards, posterior projections short and triangular. Propodeal declivity overhung by mesonotal hind margin. Propodeal spines moderate in length related to body size (PSL 0.50) situated above middle of length of declivity, massive and straight and moderately diverging in dorsal view.

Petiole in lateral view distinctly higher than long (PTI 65), narrowly triangular with anterior face straight, meeting posterior face in an acute angle. Postpetiole elongately nodiform with a small antero-basal tooth.

Gaster entirely microreticulate with glossy spots around hair pits. Surface covered with evenly distributed pilosity exsiting of shorter decumbent and longer more or less erect arcuate stiff hairs.

Distinctly bicolored with gaster and appendages ferrugineous and remainder of body piceous.

**PARATYPE WORKERS** ( $n = 2$ ). TL 4.95, - 5.25, HL 1.28 - 1.33, HW 1.30 - 1.40, FC 1.08 - 1.13, FI 121 - 124, CI 102 - 106, CS 1.29 - 1.36, SL 0.68 - 0.72, SI1 51 - 52, SI2 52 - 53, PML 0.95 - 1.05, PW 1.18 - 1.28, PMI 121 - 124, PMD 1.35 - 1.48, PMI2 115 - 116, ML 1.15 - 1.20, PSL 0.45 - 0.48, PTLL 0.35 - 0.38, PTLH 0.54 - 0.58, PTI 65, PTDW 0.46 - 0.49, PPLL 0.33 - 0.35, PPLH 0.53 - 0.55, PPI 62 - 64, PPDW 0.48 - 0.50, PT/PP 97 - 98, EL 0.23 - 0.24, REL 0.18, with 11 - 13 ommatidia in the longest row.

## ETYMOLOGY

The name refers to the flat clypeal projection.

## TYPE MATERIAL

**Holotype** worker, **Queensland**: 8-18 mi N.W. of \ Silver Plains Cape York, Q. May-June '58 Darlings\gum forest (MCZC). **Paratypes**. 2 workers, same data as holotype (MCZC, NHMW).

## DISCUSSION

The paratypes resemble the holotype in all features. The characteristic clypeal structure separates *M. discalis* from all other related forms. Only known from the type locality, Cape York, Queensland.

*Meranoplus diversus* Smith, 1867  
(Figs. 34, 35, 69, 83, 95)

*Meranoplus diversus* F. Smith, 1867: 527, pl.26, fig.2 (Champion Bay [= Geraldton], Western Australia; worker), Forel, 1915: 44 (male). Taylor & Brown, 1985: 67 (catalogue), Taylor, 1987: 38 (listed),

Bolton, 1995: 251 (catalogue), Shattuck, 1999: 142 (listed). **Holotype worker** (BML, *examined*), 'Smith coll. pres. by Mrs. Farren White. 99-303. [printed] \ *Meranoplus diversus*. Sm. Trans. Ent. Soc. [handwritten on bright violet label] \ Brit. Mus [handwritten on bright violet label] \ Holotype [round printed red circled label]'.

**WORKERS** ( $n = 10$ ). TL 5.85 - 6.95, HL 1.50 - 1.75, HW 1.75 - 2.03, FC 1.25 - 1.45, CS 1.63 - 1.87, SL 0.8 - 0.9, SI1 44 - 46, SI2 46 - 50, PML 1.05 - 1.27, PW 1.37 - 1.55, PMI 118 - 133, PMD 1.50 - 1.77, PMI2 107 - 120, ML 1.30 - 1.75, PTLL 0.40 - 0.50, PTLH 0.60 - 0.75, PTDW 0.48 - 0.64, PPLL 0.38 - 0.50, PPLH 0.48 - 0.78, PPI 63 - 79, PPDW 0.48 - 0.60, PT/PP 100 - 109.

Mandible with three teeth. Clypeus medially deeply excavated, distinctly acutely bidentate, longitudinally carinulate, sunk into prolonged anterolateral frontal projections. Head distinctly wider than long (CI 112 - 120), lateral sides almost straight, feebly narrowing anteriorly, preoccipital corners bulbously rounded, the rear margin emarginate. Frontal carinae evenly sinuately narrowed towards clypeus, distinctly narrower than head width (FI 132 - 145). Antennal scrobes in lateral view surpassing middle of length of head posteriorly, distinctly transversely carinulate in posterior half, occasionally with additional shagreening, posteriorly rather distinctly demarcated from remainder of head. Genae and ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Compound eyes moderately large (EL 0.25 - 0.32, REL 0.17 - 0.20, with 15 - 20 ommatidia in the longest row) situated distinctly in front of middle of lateral sides of head, dorsal ocular margin not reaching ventral scrobal margin.

Promesonotum wider than long (PMI 118 - 133), somewhat flanged and broadly translucently margined, concealing lateral sides of mesosoma and propodeal declivity. Propodeal spines of medium length (PSL 0.58 - 0.78) situated above middle of length of declivity, acute and slightly arcuate when seen from above.

Petiole distinctly higher than long (PTI 66 - 73), in profile wedge-shaped with anterior face straight and unsculptured, posterior face convex, distinctly and regularly costate. Postpetiole elongately nodiform distinctly tapering towards base, with ventral medium sized tooth, rugose throughout.

First gastral tergite with dense microreticulum, basal half with additional distinct striation. Dorsum of head longitudinally costulate, additionally with rugulae and only few transverse meshes, at very rear reticulate, interspaces with microsculpture; with scattered, suberect to erect hairs. Promesonotal shield coarsely rugoreticulate, with pilosity consisting of short decumbent and longer more or less erect hairs.

Concolorous brown to fuscous, frequently with the gaster somewhat brighter.

## MATERIAL EXAMINED

**Western Australia:** Winburn Rocks, 95 km E by N of Warburton, 16.xi.1977 (*J.E. Feehan*). **South Australia:** 26.1 km / 26.3 km ENE Mimili, 25.-31.x.1998 (*coll. unknown*); 1.9 km WNW Mt. Lindsay, 16.-20.x.1996 (*coll. unknown*); 18.5 km WNW Ungarinna Rockhole (*coll. unknown*); 14.2 km ESE Maryinna Hills, 14.-18.iii.1995 (*coll. unknown*); Womikata Bore, 21.x.1994 (*coll. unknown*); 0.5 km WSW Cheesman Peak, 25.x.1996 (*coll. unknown*) (38 workers, 2 gyns in ANIC, NHMW, SAMA).

## DISCUSSION

Distributed from the west coast to central Australia. Although a wide gap is present between the type locality (Geraldton) and most material studied herein, the species should be found throughout the arid and semi-arid zones of central and Western Australia.

*M. diversus* is unique by the bifurcate clypeus in combination with the flanged promesonotal shield and the costate triangular petiole.

***Meranoplus diversoides* Schödl sp.n.**

(Figs. 36, 37, 70, 83)

**HOLOTYPE WORKER.** TL 6.10, HL 1.65, HW 1.90, FC 1.35, CS 1.78, SL 0.89, SI1 47, SI2 50, PML 1.15, PW 1.50, PMD 1.68, PMI2 112, ML 1.43, PSL 0.68, PTLH 0.48, PTLH 0.66, PTDW 0.56, PPLL 0.43, PPLH 0.68, PPI 63, PPDW 0.56, PT/PP 100.

Mandible with three teeth. Clypeus in full face view not exceeding anterolateral frontal corners, medially bidentate, medial dentate section with slight upward flexion, sunk into prolonged lateral frontal projections, with additional wrinkles or carinulae. Head distinctly wider than long (CI 115), preoccipital lobes bulbously rounded, rear margin of head concave. Frontal carinae distinctly sinuate and translucently margined anteriorly, distinctly narrower than head width (FI 141), anterolaterally extended into narrowly rounded projections exceeding clypeal fork. Antennal scrobe in lateral view surpassing middle of length of head, irregularly transversely carinulate in posterior half, with additional shagreening, ill defined near posterior section of head. Genae and ventrolateral sides of head rugose, posterior lateral corners of head reticulate. Compound eyes relatively small (EL 0.29, REL 0.17, with 17 ommatidia in the longest row), situated distinctly in front of middle of lateral sides of head, dorsal ocular margin not reaching ventral margin of antennal scrobe.

Promesonotum markedly wider than long (PMI 130), concealing lateral sides of mesosoma and propodeal declivity, translucently margined to a greater extent. Propodeal declivity above middle of its length with two long slender, in dorsal view feebly diverging slightly arcuated lateral spines.

Petiole higher than long (PTI 72) in profile broadly triangular, with anterior face straight and unsculptured, posterior face convex, distinctly and regularly costate. Postpetiole in profile dorsally nodiform, distinctly tapering towards base, with ventral medium sized tooth, rugose throughout.

First gastral tergite entirely microreticulate, basally with fine longitudinal costulae. Dorsum of head longitudinally costulate with additional rugulae and only few transverse meshes, behind level of eyes reticulate, interspaces with faint microsculpture. Promesonotal shield coarsely rugoreticulate. All dorsal surfaces with pilosity of decumbent curved hairs and longer more or less erect ones.

Color dark brown to brown, with the gaster and appendages brighter.

**WORKERS** ( $n = 10$ ). TL 5.80 - 7.10, HL 1.41 - 1.76, HW 1.61 - 1.82, FC 1.26 - 1.49, FI 128 - 142, CI 111 - 120, CS 1.51 - 1.90, SL 0.79 - 0.93, SI1 45 - 49, SI2 49 - 52, PML 1.07 - 1.38, PW 1.40 - 1.65, PMI 120 - 131, PMD 1.53 - 1.88, PMI2 109 - 116, ML 1.25 - 1.63, PSL 0.53 - 0.80, PTLH 0.41 - 0.53, PTLH 0.59 - 0.75, PTI 69 - 72, PTDW 0.56 - 0.68, PPLL 0.41 - 0.48, PPLH 0.63 - 0.78, PPI 61 - 67, PPDW 0.53 - 0.68, PT/PP 96 - 110, EL 0.24 - 0.31, REL 0.16 - 0.19, with 14 - 17 ommatidia in the longest row.

**ETYMOLOGY**

The name refers to the close relationship to *M. diversus*.

**TYPE MATERIAL**

**Holotype** worker, **Queensland:** 'QLD Tambo airport 24 Oct 1979 RH Mew 1 [handwritten] \ Royce H. Mew collection [printed] \ AUSTRALIA Qld. Tambo 24°53'S 146°15'E 24. Okt 79; R.H.Mew [printed; subsequently added locality label]' (SAMA). **Paratypes.** 10 workers, same data as holotype (ANIC, SAMA, NHMW).

#### ADDITIONAL MATERIAL EXAMINED

**Queensland:** Collinsville, 3 km N Johnson-Johnson Farm, 28.ii.2000 (*Buschinger*); Toowoomba, 4.v.1951 (*F.A. Perkins*), *ibid.*, picnic point & Prince Henry Dr., 11./13.iv.1962, 13.xii.1973 (*B.B. Lowery*); Gatton, 12.ii.51 (*S.G. Grimmett*); 8.5 km SW Mt. Hutton, 6.iii.2002 (*S.G. Wright*); Gumbardo, mulga, iv. 2001 (*T. Beutel*); Merigol, iv.2001, mulga (*T. Beutel*); St George's, nr. Balonne R., 18.i.1966 (*B.B. Lowery*), *ibid.*, reddish soil plain, box pine scrub, 6.i.1966 (*B.B. Lowery*); 15 km W Cloncurry, 12.v.1980 (*B.B. Lowery*); 80-100 mi S. Sarina xii.1956-vi.1958 (*Darlingtons*); (Sarina to) Rockhampton, iii.1958 (*Darlingtons*). **Northern Territory:** 3 miles SW Alice Springs, 28.vi.1951, mulga (W.L. Brown); Alice Springs, 26.xii.2003 (*A. Narendra*). (94 workers, 3 gynes in ANIC, MCZC, NHMW, QMBA, UQIC).

#### DISCUSSION

*M. diversoides* is closest to *M. diversus* but easily separated by the less prominently developed clypeal structure. The species is found throughout Queensland and southernmost Northern Territory.

#### *Meranoplus christinae* Schödl sp.n.

(Figs. 38, 39, 71, 82; Plate 1, B)

**HOLOTYPE WORKER.** TL 6.70, HL 1.63, HW 1.98, FC 1.50, CS 1.80, SL 0.91, SI1 46, SI2 51, PML 1.23, PW 1.65, PMD 1.73, PMI2 105, ML 1.55, PSL 0.69, PTLL 0.48, PTLH 0.61, PTDW 0.61, PPLL 0.45, PPLH 0.70, PPI 64, PPDW 0.59, PT/PP 104.

Mandible with three large acute teeth. Clypeus medially excavated, distinctly bidentate and longitudinally carinate, with denticles laterally sinuately merging into anterolateral frontal projections. Head distinctly wider than long (CI 122), preoccipital corners bulbously rounded, the rear margin emarginate. Frontal carinae in posterior half almost straight, anteriorly abruptly becoming broader and sinuately narrowed towards clypeus, distinctly narrower than head width (FI 132). Antennal scrobe in lateral view surpassing middle of length of head posteriorly, transversely carinate in posterior half, occasionally with additional microsculpture, posteriorly weakly demarcated from remainder of head. Genae and ventrolateral sides of head carinate to rugoreticulate, preoccipital lobes reticulate. Compound eyes of moderate size (EL 0.30, REL 0.18, with 17 ommatidia in the longest row) situated well in front of middle of lateral sides of head, dorsal ocular margin distinctly separated from ventral scrobal margin.

Promesonotum markedly wider than long (PMI 135), translucently margined laterally as well as posteriorly, concealing lateral sides of mesosoma and propodeal declivity. Mesosomal section markedly narrower than pronotum, with acute well developed projections. Propodeal spines rather long (PSL 0.69) situated above middle of length of declivity, acute and straight, moderately diverging when seen from above.

Petiole higher than long (PTI 78), in profile with anterior face straight, posterior face convex, distinctly and regularly costate. Postpetiole elongately nodiform with ventral medium sized tooth, rugose throughout.

First gastral tergite elongately and irregularly carinate in basal half, posteriorly with microreticulum and interspersed glossy spots, with pilosity of differently sized setose hairs.

Dorsum of head anteriorly rugose, with additional rugulae and few transverse ridges, posteriorly reticulate, interspaces with microsculpture; with scattered arcuate thin hairs and fewer setose ones. Promesonotal shield coarsely rugoreticulate, with similar, though longer pilosity.

Concolorous brown to fuscous, frequently with the gaster somewhat brighter.

**WORKERS** ( $n = 6$ ). TL 6.65 - 7.20, HL 1.60 - 1.73, HW 1.95 - 2.01, FC 1.45 - 1.58, FI 129 - 134, CI 120 - 123, CS 1.78 - 1.91, SL 0.91 - 1.0, SI1 46 - 49, SI2 50 - 54, PML 1.20 - 1.43, PW 1.65 - 1.83, PMI 125 - 140, PMD 1.70 - 1.90, PMI2 101 - 106, ML 1.5 - 1.7, PSL 0.69 - 0.75, PTLL 0.45 - 0.53, PTLH 0.61 - 0.75, PTI 70 - 78, PTDW 0.56 - 0.70, PPLL 0.45 - 0.50, PPLH 0.70 - 0.89, PPI 63 - 68, PPDW 0.59 - 0.70, PT/PP 94 - 104, EL 0.29 - 0.32, REL 0.17 - 0.20, with 15 - 19 ommatidia in the longest row.

### ETYMOLOGY

Named for Christine, my partner. I simply adore her.

### TYPE MATERIAL

**Holotype** worker, **Queensland:** 'Qld:26°47.8'Sx145°49.3'E "Merigol", site 4, mulga. Apr 2001. T.Beutel. pitfall trap #4. 10858' (QMBA). **Paratypes.** 6 workers, same data as holotype; 62 workers, 1 gyne with same locality data but various site and pitfall-trap numbers (ANIC, NHMW, QMBA).

### ADDITIONAL MATERIAL EXAMINED

**Queensland:** Gumbardo, iv.2001 (*T. Beutel*). **New South Wales:** Rata, 16.xii.1965, Sparse sclerophyll (*B.B. Lowery*); Condobolin, 11.i.1967, 650ft., Red soil (*B.B. Lowery*). (30 workers, 1 gyne in ANIC, NHMW, QMBA).

### DISCUSSION

One of the larger species, *M. christinae* may be distinguished from all others by the clypeal projection and in the almost flanged frontal carinae. *M. occidentalis*, which has a similar clypeus is readily separated by the distinctly larger eyes, by the different promesonotal shield with missing posterior projections and by the different distribution.

Known from south-central Queensland and New South Wales.

*Meranoplus mars* Forel, 1902  
(Figs. 14, 15, 59, 78, 94)

*Meranoplus mars* Forel, 1902: 454 (Charters Towers, Queensland; worker). - Taylor & Brown, 1985: 68 (catalogue), Taylor, 1987: 39 (listed), Bolton, 1995: 251 (catalogue), Shattuck, 1999: 143 (listed).

**Lectotype worker** (MHNG, here designated), 'Typus [printed on red label] \ *M. Mars* [?'type'; illegible] Forel Charters Towers [?'ou' or 'ost'] Queensland (Wiederkehr) [handwritten] \ sp. *M. Mars* Forel [handwritten] \ Coll. Forel [printed]'; 3 paralectotypes in ANIC, MHNG, NHMB.

**WORKERS** ( $n = 16$ ). TL 5.45 - 6.50, HL 1.35 - 1.63, HW 1.45 - 1.78, FC 1.23 - 1.50, CS 1.43 - 1.69, SL 0.80 - 0.95, SI1 52 - 59, SI2 55 - 61, PML 1.0 - 1.3, PW 1.25 - 1.55, PMD 1.32 - 1.63, PMI2 102 - 111, ML 1.35 - 1.65, PTLL 0.40 - 0.48, PTLH 0.55 - 0.65, PTDW 0.45 - 0.59, PPLL 0.33 - 0.43, PPLH 0.55 - 0.68, PPI 57 - 68, PPDW 0.45 - 0.60, PT/PP 93 - 105.

Mandible with three teeth. Clypeus in full face view anteriorly tridentate, the median tooth frequently reduced to a blunt bulge, or all three teeth reduced to short blunt dents, moderately surpassing anterolateral frontal corners. Head moderately wider than long (CI 104 - 113), preoccipital corners evenly rounded, rear margin with shallow depression. Frontal carinae posteriorly almost parallel-sided, anteriorly broadly rounded and evenly narrowed towards clypeus, not distinctly narrower than head width (FI 115 - 122). Antennal scrobe in lateral view posteriorly reaching far beyond middle of head, feebly to distinctly transversely carinate in posterior half, occasionally with additional shagreening, posteriorly distinctly demarcated from remainder of head. Genae and ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Compound eyes rather large (EL 0.26 - 0.33, REL 0.18 - 0.21, with 16 - 19 ommatidia in the longest row) situated at about middle of lateral sides of head, dorsal ocular margin confluent with ventral scrobal margin.

Promesonotum moderately wider than long (PMI 112 - 129), only pronotum narrowly translucently margined, propodeal declivity partly visible from above. Anterior mesonotal projections hook-like, posterolateral and posterior teeth more or less acute and narrow, mesonotum posteriorly distinctly indented. Propodeal spines of moderate length (PSL 0.48 - 0.65), slightly arcuate and acute, distinctly diverging when seen from above.

Petiole higher than long (PTI 71 - 80), in profile triangular with anterior face straight and unsculptured, posterior face convex, distinctly and regularly costate. Postpetiole elongately nodiform distinctly tapering towards base, with ventral medium sized tooth, rugose throughout. First gastral tergite with dense microreticulum, basally with additional scattered carinulae.

Dorsum of head regularly costate, with few oblique transverse meshes, at very rear reticulate; interspaces with microsculpture. Promesonotal shield elongately rugose to rugoreticulate. All dorsal surfaces with short decumbent arcuate and long outstanding (> 500 µm) thin hairs.

Concolorous brown.

## MATERIAL EXAMINED

**Northern Territory:** Kunoth Polk nr Alice Springs, 14-17.ii.1975 (*P.J.M. Greenslade*); 17 mi NW Hamilton Downs H.S., 9.iv.1963 (*McInnes & Dowse*). **Queensland:** Tingoora, Chinchilla Rd., 4.vi.1959 (*coll. unknown*); Townsville, 1952 (*S. Couleth*); St George's, nr. Balonne River, 18.i.1966 (*B.B. Lowery*); 45 km N Bowen, Bruce H'way, 7.iv.1981 (*B.B. Lowery*). **New South Wales:** Mungindi, 21.i.1966 (*B.B. Lowery*). **South Australia:** Innamincka, 8.3 km SSW Candradecka Dam, 10.-14.xi.1996 (*coll. unknown*); 2.8 km NNW Four Hills Trig, 1.-5.iii.1996 (*coll. unknown*); 2.9 km SW Big Blyth Bore, 1.-5.iii.1996 (*coll. unknown*); Allendale Stn., 10 km NNW Ucutanna Hill, 13.-17.xi.1995 (*coll. unknown*); 6.3 km E Unducurra Hill, Eringa Stn., 14.-17.xi.1995 (*coll. unknown*); Innamincka, 6.6 km SW Table Hill, 4.-9.xi.1997 (*coll. unknown*); Cowarie, 5 km NE Witchinna WH, 29.iv.1995 (*Brandle*); 3 km NW Apollo Bore, iv.1995 (*coll. unknown*); Murnpeowie, 1 km WSW Mt Playford, 11.xi.1994 (*J. Reid*); Mulga View Stn., 6.3 km SSE Mulga View H.S. (*coll. unknown*) (59 workers, 4 gynes in ANIC, NHMW, SAMA, UQIC).

## DISCUSSION

*M. mars* is distinct by the clypeal structure, by the hook-like posteriorly directed mesonotal spines in addition with the strongly diverging propodeal spines. *M. wilsoni*, with which it occurs sympatrically partly has the clypeus bidentate and never with an additional medial bulge and less diverging propodeal spines. Distributed from south-central to north-east coastal Australia.

***Meranoplus deserticola* Schödl sp.n.**

(Figs. 22, 23, 63, 81)

**HOLOTYPE WORKER.** TL 6.85, HL 1.50, HW 1.73, FC 1.36, CS 1.61, SL 0.93, SI1 54, SI2 57, PML 1.25, PW 1.48, PMD 1.60, PMI2 108, ML 1.68, PTLL 0.44, PTLH 0.65, PTDW 0.55, PPLL 0.41, PPLH 0.73, PPI 57, PPDW 0.55, PT/PP 100.

Mandible with four teeth. Clypeus carinulate, in full face view bluntly bidentate, scarcely surpassing anterolateral frontal projections. Frontal carinae rather broadly and distinctly sinuately narrowed towards clypeus (FI 127). Head wider than long (CI 115), posterior preoccipital margin very shallowly concave only. Antennal scrobe surpassing middle of lateral sides of head, glossy with additional distinct transverse carinulae at rear, merging weakly defined into posterior section of head. Genae and ventrolateral sides of head carinate, preoccipital corners reticulate. Eyes relatively larger (EL 0.32, REL 0.21, with 19 ommatidia in the longest row), situated at about middle of lateral sides of head, dorsal ocular margin very close to ventral scrobal margin. Frons rather evenly longitudinally carinate, head only posteriorly reticulate. Promesonotal shield vaulted, with somewhat angulate profile, moderately wider than long (PMI 118), lateral sides narrowly translucently margined.

Pronotum anteriorly reticulate, remainder of shield longitudinally rugose, with few cross meshes. Propodeal declivity partly overhung by posterior mesonotal margin. Propodeal spines moderate long (PSL 0.50) situated above middle of length of declivity, straight, acute and moderately diverging when seen from above.

Petiole in lateral view triangular (PTI 67), with anterior face straight, meeting broadly convex posterior face in a crest. Postpetiole elongately nodiform with a rather large antero-basal tooth.

Gaster entirely microreticulate, with occasional glossy spots inbetween. Surface covered with evenly distributed pilosity consisting of short decumbent and long, more or less erect outstanding stiff hairs.

**WORKERS** ( $n = 7$ ). TL 6.10 - 6.90, HL 1.43 - 1.55, HW 1.65 - 1.80, FC 1.30 - 1.41, FI 125 - 129, CI 113 - 118, CS 1.54 - 1.68, SL 0.90 - 0.98, SI1 53 - 55, SI2 56 - 59, PML 1.20 - 1.30, PW 1.40 - 1.55, PMI 110 - 124, PMD 1.55 - 1.75, PMI2 108 - 113, ML 1.55 - 1.68, PSL 0.45 - 0.50, PTLL 0.43 - 0.48, PTLH 0.60 - 0.68, PTI 67 - 73, PTDW 0.53 - 0.61, PPLL 0.40 - 0.48, PPLH 0.68 - 0.75, PPI 57 - 63, PPDW 0.51 - 0.61, PT/PP 95 - 107, EL 0.29 - 0.34, REL 0.20 - 0.22, with 17 - 19 ommatidia in the longest row.

**ETYMOLOGY**

The name refers to the preferred habitat.

**TYPE MATERIAL**

**Holotype** worker, **Northern Territory**: '25.18S 130.44E NT. Valley of Winds The Olgas, 18 Nov. 1977 J.E. Feehan \ associated collector T.A. Weir \ ANIC ANTS VIAL 42.37' (ANIC). **Paratypes.** 7 workers, same data as holotype; 7 workers, same data as holotype but 'ANIC ANTS VIAL 44.232' (ANIC, NHMW).

**ADDITIONAL MATERIAL EXAMINED**

**South Australia:** 38 km ESE Amata, 21.-24.x.1998 (*coll. unknown*); Musgrave Ra., 2.5 km SW Womikata Bore HmL., 18.-21.x.1994 (*coll. unknown*); 7 mi W of Mt Davis, Tomkinson

Ra., 19.x.1960 (McInnes & Dowse). **Western Australia:** 28 km ESE Warburton, 15.xi.1977 (J.E. Feehan); 1 mi S Agnew, 12.x.1960 (McInnes & Dowse) (40 workers, 1 gyne in ANIC, NHMW, SAMA).

## DISCUSSION

Variability in this species becomes apparent in the rugosity of the shield. Occasionally the dorsal ocular margin may be confluent with the ventral scrobal margin. Specimens from South Australia are somewhat more shiny. Closest related to *crassispina* but different by the features given below under that taxon. Occuring in arid central Australia.

### *Meranoplus crassispina* Schödl sp.n.

(Figs. 24, 25, 64, 85)

**HOLOTYPE WORKER.** TL 5.60, HL 1.30, HW 1.48, FC 1.23, CS 1.39, SL 0.78, SI1 53, SI2 56, PML 1.13, PW 1.33, PMD 1.50, PMI2 113, ML 1.50, PTL 0.43, PTLH 0.60, PTDW 0.50, PPLL 0.35, PPLH 0.65, PPI 54, PPDW 0.48, PT/PP 105.26.

Mandible with four teeth. Clypeus carinulate, in full face view bluntly bidentate, scarcely surpassing anterolateral frontal projections. Frontal carinae broad and distinctly sinuately narrowed towards clypeus (FI 120). Head wider than long (CI 113), preoccipital margin very shallowly concave only. Antennal scrobe distinctly surpassing middle of lateral sides of head, glossy with additional distinct transverse carinulae at rear, merging very weakly defined into posterior section of head. Genae and ventrolateral sides of head carinate, preoccipital corners reticulate. Eyes moderately sized (EL 0.28, REL 0.21, with 16. ommatidia in the longest row), situated slightly in front of lateral sides of head, dorsal ocular margin touching ventral scrobal margin. Frons rather evenly longitudinally costulate, head only posteriorly reticulate. Promesonotal shield vaulted, with evenly convex profile, moderately wider than long (PMI 118), lateral sides narrowly translucently margined.

Pronotal margins almost parallel-sided, with distinct indentation at level of promesonotal suture, with the anterior mesonotal projections distinctly defined. Promesonotal shield coarsely rugose, with occasional cross meshes only. Propodeal declivity partly overhung by posterior mesonotal margin. Propodeal spines in relation to body size very long (PSL 0.63), situated high above middle of length of declivity, massively developed, straight, apically acute and distinctly diverging when seen from above.

Petiole in lateral view broadly triangular (PTI 71), with anterior face straight, meeting convex posterior face in a crest. Postpetiole elongately nodiform with a rather large anteroventral tooth.

Gaster entirely microreticulate. Surface covered with evenly distributed pilosity exsiting of short decumbent and long, more or less erect outstanding stiff hairs.

**WORKERS** ( $n = 4$ ). TL 5.20 - 5.60, HL 1.28 - 1.32, HW 1.48 - 1.50, FC 1.21 - 1.23, FI 120 - 122, CI 113 - 118, CS 1.39 - 1.40, SL 0.78 - 0.80, SI1 53, SI2 55 - 58, PML 1.05 - 1.25, PW 1.25 - 1.38, PMI 110 - 119, PMD 1.43 - 1.53, PMI2 111 - 114, ML 1.30 - 1.50, PSL 0.58 - 0.65, PTL 0.38 - 0.43, PTLH 0.55 - 0.60, PTI 63 - 71, PTDW 0.46 - 0.60, PPLL 0.34 - 0.43, PPLH 0.6 - 0.7, PPI 54 - 61, PPDW 0.45 - 0.58, PT/PP 103 - 105, EL 0.27 - 0.31, REL 0.21 - 0.24, with 15 - 18 ommatidia in the longest row.

## ETYMOLOGY

The name refers to the shape of the propodeal spines.

## TYPE MATERIAL

**Holotype** worker, **South Australia:** 'S. AUST., 5.6 km SSE Mosquito Camp Dam, Crown Point Stn 26°09'28"S 134°30'49"E \ pitfalls 20.-23.Nov 1995 Stony Desert Survey LC05' (SAMA). **Paratypes.** 12 workers, same data as holotype; 1 worker, '6.8 km WSW Mosquito Camp Dam 26°08'44"S 134°25'56"E \ pitfalls 20.-23.Nov 1995 Stony Desert Survey LC02' (ANIC, SAMA, NHMW).

## ADDITIONAL MATERIAL EXAMINED

**Western Australia:** Kimberley district, N.W. Austr (*Mjöberg*) (1 worker in NHRS).

## DISCUSSION

This taxon in many respects resembles *deserticola* and obviously is a sibling. However, the broader frontal carinae, the outline of the dorsal shield and, in particular the distinctly differently structured propodeal spines separate *crassispina* well from the former. Between the known localities in Central and north-western Australia a wide gap is present, which most likely is due to insufficient collecting.

*Meranoplus wilsoni* Schödl **sp.n.**  
(Figs. 16, 17, 60, 88)

**HOLOTYPE WORKER.** TL 5.35, HL 1.23, HW 1.41, FC 1.20, CS 1.32, SL 0.75, SI1 53, SI2 57, PML 1.03, PW 1.30, PMD 1.44, PMI2 111 ML 1.28, PTLL 0.38, PTLH 0.55, PTDW 0.45, PPLL 0.38, PPLH 0.58, PPI 65, PPDW 0.45, PT/PP 100.

Mandible with four teeth. Anterior margin of clypeus in full face view medially excavated, acutely bidentate, particularly laterally carinulate, moderately exceeding anterolateral frontal margins. Head moderately wider than long (CI 115), with preoccipital margin shallowly concave. Frontal carinae posteriorly almost parallel-sided, anteriorly broadly translucent and evenly narrowed towards clypeus, moderately narrower than head width (FI 118). Antennal scrobe reaching far beyond middle of lateral side of head, distinctly transversely carinulate in posterior half, only weakly demarcated from remainder of head at the rear. Genae and ventrolateral sides of head carinate to rugose, postocular section reticulate. Compound eyes moderately large (EL 0.25, REL 0.20, with 15 ommatidia in the longest row) situated at about middle of lateral sides of head, dorsal ocular margin almost touching ventral scrobal margin.

Promesonotum wider than long (PMI 127) and rather flat, outline distinctly translucently margined, concealing lateral sides of mesosoma and propodeal declivity. Propodeal spines of medium length (PSL 0.53) situated above middle of length of declivity, acute and slightly arcuate when seen from above.

Petiole higher than long (PTI 68), in profile triangular with anterior face straight and unsculptured, posterior face convex, distinctly and regularly costate. Postpetiole elongately nodular, tapering towards base, with ventral medium sized tooth, rugose throughout.

First gastral tergite with irregular microreticulum, with interspersed glossy spots, basally with additional carinulae. Dorsum of head only anteriorly rugose, from about level of eyes on rugo-reticulate. Promesonotal shield with coarse rugoreticulum. Dorsal surfaces covered with evenly distributed pilosity consisting of short decumbent and long, more or less erect outstanding stiff hairs, similar to that of preceding species.

Concolorous brown.

**WORKERS** ( $n = 10$ ). TL 4.60 - 5.35, HL 1.13 - 1.30, HW 1.26 - 1.70, FC 1.06 - 1.28, FI 114 - 121, CI 112 - 118, CS 1.20 - 1.39, SL 0.71 - 0.83, SI1 53 - 57, SI2 57 - 62, PML 0.9 - 1.2, PW 1.15 - 1.45, PMI 119 - 131, PMD 1.25 - 1.63, PMI2 109 - 112, ML 1.18 - 1.43, PSL 0.43 - 0.56, PTLL 0.33 - 0.38, PTLH 0.49 - 0.55, PTI 67 - 71, PTDW 0.43 - 0.55, PPLL 0.30 - 0.41, PPLH 0.50 - 0.63, PPI 60 - 66, PPDW 0.40 - 0.55, PT/PP 92 - 106, EL 0.21 - 0.25, REL 0.18 - 0.20, with 14 - 15 ommatidia in the longest row.

### ETYMOLOGY

Named for Prof. Edward O. Wilson, outstanding scientist and one of the pioneers of modern myrmecology.

### TYPE MATERIAL

**Holotype** worker, **Queensland**: 'Qld. 10 km S Bowen 24.v.1981 BBLowery *Casuarina* scrub \ ANIC ANTS VIAL 68.187' (ANIC). **Paratypes**. 8 workers, same data as holotype; 12 workers, '8 km W Bowen 10.viii.1981 BBLowery, woodland \ ANIC ANTS VIAL 68.16' (ANIC, MCZC, NHMW).

### ADDITIONAL MATERIAL EXAMINED

**Queensland**: 'Queensland', 1902-319. / [overleaf]: 22.4.02 (*F.P. Dodd*); Townsville, 13.i.1997 (*D. Grund*); Allinga, Chinchilla, Charleys Ck., 18.i.1986 (*G. Lithgow*); Woodstock, 1.iv.1980 (*B.B. Lowery*); 4 mi WNW Yelarbon, 1.xii.1949 (*T. Greaves*); 40 km W Warwick, Gore Rail Res., 4.i.1966 (*B.B. Lowery*); St Georges, nr. Balonne River, 7.i./18.i.1966 (*B.B. Lowery*); Gladstone, ii.1915 (*F.H. Taylor*); MacKay, ii.1915 (*F.H. Taylor*); Mount Elliot, Lingum Townsville, 2.iii.1958 (*P.F. Darling*). **New South Wales**: Mungindi, 21.i.1966 (*B.B. Lowery*); Legume, 20.ix.1974 (*P.J.M. Greenslade*). (62 workers, 3 gynes in ANIC, BMNH, MCZC, NHMW, QMBA, SAMA).

### DISCUSSION

This is a uniform taxon that shows only similarities with *mars* (see under that species). Distributed in the Northern Murray-Darling Basin to NE coastal Queensland.

*Meranoplus tricuspidatus* Schödl **sp.n.**  
(Figs. 18, 19, 61, 87)

**HOLOTYPE WORKER**. TL 6.05, HL 1.54, HW 1.63, FC 1.25, CS 1.58, SL 0.83, SI1 51, SI2 52, PML 1.20, PW 1.43, PMD 1.63, PMI2 114, ML 1.48, PTLL 0.43, PTLH 0.63, PTDW 0.58, PPLL 0.45, PPLH 0.64, PPI 71, PPDW 0.55, PT/PP 105.

Mandible with four teeth. Clypeus in full face view surpassing anterolateral frontal corners, acutely bidentate, with an additional short acute medial denticle, accompanied by a low crest. Head only moderately wider than long (CI 106), rear margin shallowly concave. Frontal carinae evenly and rather broadly narrowing towards clypeus (FI 130). Antennal scrobe in lateral view surpassing middle of length of head posteriorly, distinctly transversely carinate in posterior half, with additional microreticulation, posteriorly distinctly demarcated from remainder of head. Genae rugose, ventrolateral sides of head rugoreticulate, preoccipital lobes reticulate. Compound eyes of moderate size (EL 0.27, REL 0.18, with 16 ommatidia in the longest row) in

lateral view situated in front of middle of lateral sides of head, dorsal ocular margin not reaching ventral scrobal margin.

Promesonotum wider than long (PMI 119), outline broadly translucently flanged, concealing lateral sides of mesosoma and propodeal declivity. Propodeal spines relatively short (PSL 0.51), acute and slightly arcuate and diverging, when seen in dorsal view.

Petiole distinctly higher than long (PTI 68), in profile with anterior face straight and unsculptured, posterior face convex, distinctly and regularly costate. Postpetiole elongately nodiform, with ventral medium sized tooth, rugose throughout.

First gastral tergite with dense microreticulum, basally with additional carinulae, with relatively short stiff decumbent and additional longer erect hairs. Dorsum of head longitudinally costulate anteriorly, posteriorly distinctly reticulate, interspaces with additional distinct microreticulum, with short decumbent hairs and longer stiff erect differently sized pilosity. Promesonotal shield rugoreticulate, pilosity similar to that of head.

Brown to fuscous with the gaster, legs and antennae slightly brighter.

**WORKERS** ( $n = 6$ ). TL 4.75 - 6.05, HL 1.23 - 1.54, HW 1.33 - 1.63, FC 0.98 - 1.25, FI 129 - 137, CI 106 - 109, CS 1.28 - 1.58, SL 0.67 - 0.83, SI1 50 - 52, SI2 52 - 55, PML 0.93 - 1.20, PW 1.18 - 1.43, PMI 118 - 127, PMD 1.33 - 1.63, PMI2 109 - 114, ML 1.15 - 1.48, PSL 0.48 - 0.55, PTLH 0.35 - 0.43, PTLH 0.50 - 0.63, PTI 68 - 77, PTDW 0.46 - 0.58, PPLL 0.36 - 0.45, PPLH 0.48 - 0.64, PPI 68 - 76, PPDW 0.45 - 0.55, PT/PP 100 - 105, EL 0.21 - 0.27, REL 0.16 - 0.18, with 13 - 17 ommatidia in the longest row

## ETYMOLOGY

The name refers to the tridentate clypeal projection.

## TYPE MATERIAL

**Holotype** worker, **Queensland**: 'Qld. Cape Upstart 21.xi.1980 BBLowery Cleared ground \ ANIC ANTS VIAL 68.198' (ANIC). **Paratypes**. 8 workers, same data as holotype; 12 workers, 'Qld. Cape Upstart Mt Ayr 21.xi.1980 BBLowery flat sea level \ ANIC ANTS VIAL 67'. (ANIC, NHMW).

## ADDITIONAL MATERIAL EXAMINED

**Queensland**: Emerald, 15.xii.1972 (*B.B. Lowery*); Moonie, 60 mls N Goondiwindi, 4.i.1965 (*B.B. Lowery*); N of Bowen, xi.1957 (*Darlington*); Allinga, Chinchilla, 31.vii.1986 (*G. Lithgow*). **Northern Territory**: Kunnoth Polk nr. Alice Springs, x.1974 & 24.-26.ix.1980 (*P.J.M. Greenslade*). (13 workers, 1 gyne in ANIC, MCZC, NHMW, QMBA).

## DISCUSSION

Superficially this taxon somewhat resembles *M. wilsoni* and *M. mars*, but is readily separated by the clypeus and, in addition by the translucently margined promesonotal shield.

Paratypes and additional other material from Queensland resemble the type. Specimens from Northern Territory show a slightly longer and thinner pilosity and the dorsal surface of the head is shiny with the microsculpture less developed. Known from coastal and south-central Queensland, with a single sample taken at Alice Springs. The disjunct occurrence of *M. tricuspidatus* most likely is only due to the lack of additional samples. This gap might be closed as soon as new material shows up.

***Meranoplus duyfkeni* Forel, 1915**

(Figs. 10, 11, 57, 80, 92)

*Meranoplus diversus* r. *Duyfkeni* [sic] Forel, 1915: 45 (Kimberley District, Western Australia; worker, gyne) - Taylor & Brown, 1985: 67 (catalogue), Taylor, 1987: 38 (listed), Taylor, 1990: 34 (Raised to species), Bolton, 1995: 251 (catalogue), Shattuck, 1999: 142 (listed). **Lectotype worker** (MHNG, here designated), 'Typus [printed on red label] \ *Meranoplus diversus* Sm. r. *Duyfkeni* For. type [handwritten] \ Australien Mjöberg No 33 [handwritten] \ Coll. A. Forel [printed]'. Fifteen paralectotypes (workers, 1 gyne in MHNG, NHMB, ANIC, MCZC and NHRS).

**Remarks:** Out of 14 topotypical workers and two gynes, housed in NHRS, only one worker and one gyne are labeled as types. Since it is subsequently impossible to state which of the specimens Forel had before him, only the two specimens labeled as types are here considered to belong to the original syntype series.

**WORKERS** (n = 8). TL 6.15 - 7.15, HL 1.50 - 1.75, HW 1.75 - 2.05, FC 1.30 - 1.48, CS 1.63 - 1.89, SL 0.90 - 1.03, SI1 50 - 52, SI2 53 - 56, PML 1.05 - 1.20, PW 1.32 - 1.53, PMD 1.35 - 1.60, PMI2 100 - 105, ML 1.45 - 1.65, PTLL 0.36 - 0.45, PTLH 0.58 - 0.70, PTDW 0.49 - 0.63, PPLL 0.38 - 0.45, PPLH 0.51 - 0.70, PPI 60 - 78, PPDW 0.46 - 0.58, PT/PP 95 - 109.

Mandible with four teeth. Clypeus in full face view bluntly bidentate, additionally carinulate, dents not or only weakly surpassing anterolateral corners of frontal carinae. Head wider than long (CI 113 - 119) with the preoccipital corners evenly rounded and the rear margin concave. Frontal carinae posteriorly narrow, anteriorly broadly and translucently narrowing towards clypeus, distinctly narrower than head width (FI 131 - 139). Antennal scrobe in lateral view surpassing middle of length of head posteriorly, finely carinulate in whole length, with additional distinct microreticulum, posteriorly rather well defined from remainder of head. Genae below scrobal margin evenly carinulate to carinate, ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Compound eyes moderate in size (EL 0.29 - 0.34, REL 0.19 - 0.20, with 17 - 18 ommatidia in the longest row) in lateral view situated slightly in front of middle of lateral sides of the head, dorsal ocular margin well separated from ventral scrobal margin.

Promesonotum trapezoid, wider than long (PMI 120 - 129), narrowly translucently margined, concealing lateral sides of mesosoma, propodeal declivity visible from above. Propodeal spines of medium length (PSL 0.50 - 0.63) situated above middle of length of declivity, acute and straight and distinctly diverging in dorsal view.

Petiole distinctly higher than long (PTI 59 - 70), in profile triangular with anterior face straight and unsculptured, the posterior face convex to angulately rounded, rugose. Postpetiole nodiform, with large ventral tooth.

First gastral tergite entirely microreticulate, with occasional interspersed glossy spots, basally an indistinct fine striation may be apparent. Dorsum of head costulate to rugose with more or less developed microsculpture, frontal margins irregularly sculptured, with pilosity consisting of decumbent arcuate short and scattered outstanding long hairs. Promesonotal shield coarsely irregularly rugose to rugoreticulate.

Concolorous brown to fuscous.

**MATERIAL EXAMINED**

**Northern Territory:** Keep River National Park E Kununurra, 15.vii.1990 (*R.P. McMillan*).  
**Western Australia:** Derby, vi.1984 (*G. McKenzie*), *ibid.* (*W.D. Dodd*); 'Kimberly R.S.', iii.1950 (*B. Rudeforth*) (19 workers in ANIC, JDMP, MCZC, NHMW, WAMP).

**DISCUSSION**

This medium sized species is readily separated from others by the unique translucently flanged promesonotal shield with projections on mesonotal hind margin directed posteriorly. Restricted to north-western Australia.

***Meranoplus orientalis* Schödl sp.n.**

(Figs. 12, 13, 58, 80)

**HOLOTYPE WORKER.** TL 6.0, HL 1.58, HW 1.79, FC 1.43, CS 1.68, SL 0.98, SI1 55, SI2 58, PML 1.20, PW 1.48, PMD 1.48, PMI2 100, ML 1.70, PTLL 0.50 PTLH 0.65, PTDW 0.63, PPLL 0.45, PPLH 0.70, PPI 64, PPDW 0.64, PT/PP 98.

Mandible with four teeth. Clypeus in full face view bluntly bidentate additionally carinulate, denticles not or only weakly surpassing anterolateral corners of frontal carinae. Head wider than long (CI 115) with the preoccipital corners evenly rounded and the rear margin shallowly concave. Frontal carinae posteriorly parallel-sided, more evenly and not as broadly and translucently narrowing towards clypeus, still distinctly narrower than head width (FI 125). Antennal scrobe in lateral view reaching far beyond middle of length of head posteriorly, distinctly carinulate in whole length, with additional distinct microreticulum, posteriorly ill defined from remainder of head. Genae below scrobal margin and ventrolateral sides of head carinate, preoccipital lobes reticulate. Compound eyes moderately large (EL 0.34, REL 0.21, with 19 ommatidia in the longest row) in lateral view situated slightly behind middle of lateral sides of the head, dorsal ocular margin touching ventral scrobal margin.

Promesonotum trapezoidal, wider than long (PMI 123) without developed shield, propodeal declivity visible from above. Promesonotal projections almost completely reduced with posterolateral spines bluntly triangular and the posterior projections as short denticles. Propodeal spines of medium length (PSL 0.53) situated above middle of length of declivity, massively built, acute and straight and distinctly diverging in dorsal view. Petiole higher than long (PTI 77), in profile triangular with anterior face straight and unsculptured, the posterior face convex, regularly costate. Postpetiole elongately nodiform, with medium sized ventral tooth. First gastral tergite entirely microreticulate, with interspersed glossy spots, basally an indistinct fine striation may be apparent. Dorsum of head costate, with indistinctly developed microsculpture, frontal margins irregularly sculptured. Promesonotal shield regularly elongately rugose. With pilosity similar to that of preceding species.

Concolorous brown to fuscous.

**WORKERS** ( $n = 4$ ). TL 5.85 - 6.90, HL 1.38 - 1.58, HW 1.58 - 1.83, FC 1.30 - 1.45, FI 121 - 126, CI 113 - 116, CS 1.48 - 1.70, SL 0.90 - 0.98, SI1 53 - 57, SI2 57 - 61, PML 1.13 - 1.25, PW 1.33 - 1.53, PMI 118 - 125, PMD 1.30 - 1.55, PMI2 98 - 102, ML 1.50 - 1.75, PSL 0.50 - 0.59, PTLL 0.43 - 0.50, PTLH 0.59 - 0.71, PTI 70 - 77, PTDW 0.53 - 0.63, PPLL 0.43 - 0.45, PPLH 0.65 - 0.73, PPI 62 - 65, PPDW 0.61 - 0.64, PT/PP 82 - 98, EL 0.29 - 0.34, REL 0.20 - 0.21, with 17 - 19 ommatidia in the longest row.

**ETYMOLOGY**

Named for its easterly distribution.

**TYPE MATERIAL**

**Holotype** worker, **Queensland:** '6 m. W. of Blackwater Qld. 26.III.62. J.E.Dowse \ Series A95' (ANIC). **Paratypes.** 5 workers (one coated), same data as holotype (ANIC, NHMW).

## ADDITIONAL MATERIAL EXAMINED

**Queensland:** 30 mls E of Morven S.C.Q., 16.v.1963 (*Dahms*) (4 workers in QMBA, NHMW).

## DISCUSSION

Doubtless *M. orientalis* is closely related to *duyfkens*. However, apart from the completely different distribution there are distinct characteristics that clearly separate the two taxa. The clypeus in *orientalis* occasionally shows an additional anterio-median blunt bulge, the promesonotum is never translucently flanged and its dentition is either absolutely missing or, in specimens from Morven, slightly more clearly developed but still very similar to that of the type.

Restricted to southern Queensland.

### *Meranoplus oxleyi* Forel, 1915 (Figs. 20, 21, 62, 86, 93)

*Meranoplus diversus* r. *oxleyi* Forel, 1915: 45 (Kimberley district, Western Australia; worker) - Taylor & Brown, 1985: 67 (catalogue), Taylor, 1987: 38 (listed), Taylor, 1990: 34 (raised to species), Bolton, 1995: 251 (catalogue), Shattuck, 1999: 143 (listed). **Lectotype worker** (MHNG, here designated), 'Typus [red label, printed] \ jan [printed] \ Kimberley district [printed] \ N. V. Austr. *Mjöberg* [printed] \ *Meranoplus diversus* Sm. *oxleyi* For. % type \ Coll. A. Forel'; 2 paralectotypes in ANIC and NHRS. Remarks: three specimens with identical locality labels, one additionally labeled as type (NHRS) [whether all three are syntypes cannot be stated; however, the specimen with the type label is here regarded to be a paralectotype].

**WORKERS** ( $n = 7$ ). TL 4.40 - 5.10, HL 1.04 - 1.25, HW 1.15 - 1.43, FC 0.98 - 1.18, CS 1.10 - 1.34, SL 0.65 - 0.78, SI1 53 - 57, SI2 55 - 60, PML 0.88 - 1.0, PW 1.05 - 1.25, PMD 1.20 - 1.43, PM12 113 - 119, ML 1.0 - 1.25, PTL 0.33 - 0.38, PTLH 0.48 - 0.60, PTDW 0.43 - 0.54, PPLL 0.30 - 0.40, PPLH 0.45 - 0.55, PPI 63 - 73, PPDW 0.40 - 0.49, PT/PP 103 - 111.

Mandible with four teeth. Clypeus in full face view acutely bidentate, medially excavated, not or only weakly surpassing anterolateral frontal angles, glossy except carinae posterior to dentition. Head moderately wider than long (CI 108 - 114), preoccipital margin with shallow concavity. Frontal carinae markedly broadened before narrowing towards clypeus, moderately narrower than head width (FI 116 - 121). Antennal scrobe in lateral view surpassing middle of length of head posteriorly, transversely carinate in posterior half with additional shagreen, distinctly demarcated from remainder of head. Genae and ventrolateral sides of head carinate to rugose, preoccipital lobes reticulate. Compound eyes medium sized (EL 0.23 - 0.26, REL 0.21 - 0.24, with 15 - 18 ommatidia in the longest row) situated at or slightly behind middle of lateral sides of head in lateral view, dorsal ocular margin confluent with ventral scrobal margin.

Promesonotum moderately wider than long (PMI 113 - 125), outline partly translucently margined, concealing lateral sides of mesosoma and propodeal declivity. Propodeal spines of medium length (PSL 0.45 - 0.50) situated above middle of length of declivity, considerably diverging acutely arcuate apically when seen from above.

Petiole distinctly higher than long (PTI 58 - 68), in profile wedge-shaped with anterior face straight and unsculptured, posterior face convex, distinctly and regularly costate. Postpetiole dorsally nodiform, distinctly tapering towards base, with a well developed tooth, rugose throughout.

First gastral tergite entirely microreticulate with variable amount of glossy spots inbetween, with setose variably sized decumbent to erect pilosity. Most of dorsum of head longitudinally costate to rugose, posteriorly reticulate, interspaces with microsculpture, with rather dense layer of short arcuate decumbent and longer stiff suberect to erect hairs. Promesonotal shield irregularly rugoreticulate with predominantly elongate meshes with pilosity similar to that of head.

Concolorous brown to fuscous, the gaster and appendages brighter.

#### MATERIAL EXAMINED

**Northern Territory:** Larrimah, 16.vii.1981 (*B. B. Lowery*); Katherine, 5 km NW, 19.x.1977; 7.5 km SW, 21.x.1977; 34 km NW, 22.x.1977; 55 km SW, 24.x.1977; 41 km SW, 6.iv.1978; 12 km SW, 6.iv.1978; 23 km SW, 9.iv.1978 (*P.J.M. Greenslade*). (20 workers, ANIC, NHMW).

#### DISCUSSION

A small species with little variability, except specimens from Larrimah having a more distinct frontal microreticulation. *M. oxleyi* differs from its closest relatives by the relatively large eyes (REL 0.21 - 0.24) and by the posteriorly not distinctly converging promesonotal shield. Hitherto known from Kimberley and Top End.

#### *Meranoplus occidentalis* Schödl **sp.n.**

(Figs. 40, 41, 72, 79; Plate 1, C)

**HOLOTYPE WORKER.** TL 6.10, HL 1.63, HW 1.78, FC 1.28, CS 1.70, SL 0.90, SI1 51, SI2 53, PML 1.0, PW 1.38, PMD 1.48, PMI2 107 ML 1.48, PTLL 0.43, PTLH 0.73, PTDW 0.48, PPLL 0.41, PPLH 0.74, PPI 56, PPDW 0.53, PT/PP 90.

Mandible with four teeth. In full face view clypeus anteriorly deeply excavated, distinctly exceeding anterolateral frontal corners as a bilobed carinulate projection. Head somewhat wider than long (CI 109), preoccipital margin moderately concave. Frontal carinae distinctly narrower than head width (FI 139), evenly narrowing towards clypeus. With head in profile antennal scrobe reaching beyond middle of lateral side of head, merging into lateral sides posteriorly, glossy except transverse carinulae at rear. Genae and ventrolateral sides of head evenly carinate, preoccipital lobes reticulate. Eyes exceptionally large (EL 0.43, REL 0.26, with 18 ommatidia in the longest row), situated at about middle of lateral sides of head, the dorsal ocular margin confluent with the ventral scrobal margin. Dorsal surface of head anteriorly costulate with oblique anastomoses, posterior section reticulate, with additional faint microsculpture.

Promesonotal shield distinctly wider than long (PMI 138), lateral projections translucently fused, posterior projections absent, mesonotal hind margin with transverse ridge, thus entire propodeal declivity visible from above. Propodeal spines short (PSL 0.45) and in profile broad-based, in dorsal view acute and arcuate.

Petiole in lateral view elongately trapezoid, markedly higher than long (PTI 59), with anterior face more or less straight, roundly meeting oblique reticulate dorsum, the latter merging into rugose posterior face, ventrally strongly sinuate. Postpetiole dorsally nodiform with large antero-basal tooth.

Gaster shiny, entirely microreticulate, striate at very base. Dorsal surfaces covered with scattered pilosity of shorter decumbent and longer more or less erect soft hairs.

**WORKERS** ( $n = 11$ ). TL 6.10 - 7.75, HL 1.58 - 1.78, HW 1.78 - 2.10, FC 1.28 - 1.60, FI 131 - 144, CI 109 - 121, CS 1.70 - 1.94, SL 0.90 - 1.08, SI1 48 - 53, SI2 52 - 56, PML 1.0 - 1.25, PW 1.38 - 1.68, PMI 127 - 145, PMD 1.48 - 1.90, PMI2 107 - 113, ML 1.48 - 1.83, PSL 0.45 - 0.60, PTLL 0.43 - 0.49, PTLH 0.73 - 0.88, PTI 53 - 60, PTDW 0.48 - 0.65, PPLL 0.40 - 0.48, PPLH 0.74 - 0.88, PPI 50 - 56, PPDW 0.53 - 0.66, PT/PP 90 - 104, EL 0.37 - 0.44, REL, with 17 - 21 ommatidia in the longest row.

### ETYMOLOGY

Named for its restricted westerly distribution.

### TYPE MATERIAL

**Holotype** worker, **Western Australia:** 'TAMBREY WESTERN AUSTRALIA 7 AUG 1987 R.P. MCMILLAN \ ON GROUND \ Western Australian Museum Entomology Reg no. 23155' (WAMP). Paratypes. 8 workers, 3 alate gyns, 4 males, same data as holotype (WAMP, ANIC, NHMW).

### ADDITIONAL MATERIAL EXAMINED

**Western Australia:** Lyndon Stn [several localities possible] (*Snell*); Ashburton River, 22.vi.1967 (*G. Campbell*); Jigalong (*J. Hickmer*); Ethel Creek, iv.1993 (*P.A. Varris*); Mt. Whaleback, Newman, vii.1984 (*K.J. Walker*); Manilya Stn., vi.1955 (*A. Douglas*); 80 km S Barradale, 22.vi.1975 (*P.J.M. Greenslade*); 30 km S Minilya, 15.viii.1984 (*B.B. Lowery*); S. bank of Gascoyne River, 10 km E of H'way, 10.viii.1983 (*B.B. Lowery*); 60 km N of Carnarvon H'way, 12.viii.1984 (*B.B. Lowery*); Carnarvon, Ellanella Rd., 14.vii.1969 (*L.E. Koch*). (63 workers in ANIC, JDMP, MCZC, NHMW, SAMA, USNM, WAMP).

### DISCUSSION

*M. occidentalis* is found in two distinct color varieties. Workers in the type series and several additional samples are light-brown with the gaster and appendages ferrugineous. Other samples have the gaster and appendages brown with the remainder of the body piceous. Intermediate forms are so far unknown. Gyns in the the type sample are concolorous, males strictly bicolored. The species is not to be mixed up with any other by the large eyes and the unique promesonotal shield. Known from south-western and western coastal Australia.

### *Meranoplus angustinodis* Schödl sp.n.

(Figs. 42, 43, 73, 81)

**HOLOTYPE WORKER.** TL 5.60, HL 1.29, HW 1.48, FC 1.25, CS 1.38, SL 0.84, SI1 57, SI2 61, PML 1.12 PW 1.40, PMD 1.62, PMI2 116, ML 1.33, PTLL 0.35, PTLH 0.63, PTDW 0.49, PPLL 0.36, PPLH 0.68, PPI 54, PPDW 0.55, PT/PP 89.

Mandible with four teeth. In full face view clypeus anteriorly with deep oblique concavity, markedly exceeding anterolateral frontal corners and distinctly carinulate. Head wider than long (CI 115), preoccipital margin moderately concave. Frontal carinae broad, only moderately narrower than head width (FI 118), evenly narrowing towards clypeus. With head in profile antennal scrobe reaching distinctly beyond middle of lateral side of head, transversely carinulae at rear, well defined posteriorly against remainder of head. Genae evenly carinate, ventrolateral sides of head and posterolateral lobes reticulate. Eyes medium sized (EL 0.33, REL 0.26, with

18 ommatidia in the longest row), situated at about middle of lateral sides of head, the dorsal ocular margin reaching the ventral scrobal margin. Dorsal surface of head coarsely rugoreticulate, interspaces glossy.

Promesonotal shield moderately wider than long (PMI 127), with a somewhat overall square impression, with mesonotal projections well developed, posterolateral spines curved and with distinct translucent fusion between projections. Propodeal spines not very long (PSL 0.45), narrow and acute, in dorsal view moderately arcuate.

Petiole in lateral view narrowly triangular, distinctly higher than long (PTI 56), with anterior face more or less straight, meeting convex rugose posterior face in a crest, ventral face sinuate. Postpetiole elongately nodiform with large antero-basal tooth.

First gastral tergite entirely microreticulate. Dorsal surfaces covered with shorter decumbent and longer erect and more stiff hairs.

Distinctly bicolored with the gaster and appendages yellow, the femora basally fuscous. Remainder of body piceous, except frontal carinae anterolaterally and translucent areas on promesonotal shield brighter.

**WORKERS** ( $n = 17$ ). TL 4.95 - 6.05, HL 1.13 - 1.35, HW 1.28 - 1.55, FC 1.08 - 1.23, FI 113 - 123, CI 111 - 119, CS 1.20 - 1.43, SL 0.75 - 0.88, SI1 56 - 60, SI2 60 - 64, PML 0.93 - 1.13, PW 1.18 - 1.53, PMI 125 - 145, PMD 1.30 - 1.66, PMI2 107 - 116, ML 1.10 - 1.38, PSL 0.39 - 0.48, PTLH 0.33 - 0.39, PTLH 0.58 - 0.68, PTI 55 - 61, PTDW 0.44 - 0.54, PPLL 0.33 - 0.38, PPLH 0.59 - 0.71, PPI 48 - 58, PPDW 0.45 - 0.76, PT/PP 66 - 97, EL 0.27 - 0.35, REL 0.22 - 0.26, with 15 - 18 ommatidia in the longest row.

## ETYMOLOGY

The name refers to the narrow shape of the nodes.

## TYPE MATERIAL

**Holotype** worker, **South Australia**: 'S.Aust.-Collinsville, 4.5 km SW 33°22'S 139°17'E, 19-23.x.1992 South Olary Plains Survey' (SAMA). **Paratypes**. 10 workers, same data as holotype (ANIC, NHMW, SAMA).

## ADDITIONAL MATERIAL EXAMINED

**South Australia**: Middleback Stn. HS, 20.-25.vii.1995, (*McAllister*); 11.5 km SE Wares Peak, 5.x.1995 (*coll. unknown*); 8 km SE Paralena Hill, Woltana Stn., 26.-31.viii.1996 (*coll. unknown*); 16 km SSE Mount Coffin, 9.-12.xii.1997 (*coll. unknown*); 14.7 km ESE Mt. Coffin, Nth Moolooloo, 9.-12.xii.1997 (*coll. unknown*); 9 km SSE Oakbank, 7.-10.x.1992 (*coll. unknown*); Murnpeowie, 17.xi.1992 (*R. Brandle*); Murnpeowie, Mary's Pool, 17.xi.1992 (*R. Brandle*); Mount Hopeless, 15.xi.1994 (*R. Tynan*); Screech-Owl Creek, 27.iv.1995 (*coll. unknown*); Willow Spring Stn., 13.5 km NNE Willow Spring HS, 15.-25.iii.1995 (*coll. unknown*); 4.5 km SW Waraweena, 4.-7.vii.1999 (*coll. unknown*); 3 km SSW Waraweena, 1.-10.x.1999 (*coll. unknown*); Coober Pedy, 26.v.1969 (*P.J.M. Greenslade*); Halbury, 10.x.1984 (*B.B. Lowery*); Flinders Ranges, Oraparinna, 15.-17.ix.1971 (*P.J.M. Greenslade*); Moockra Tower, 6.x.1974 & 13.x.1980 (*P.J.M. Greenslade*); Tailem Bend, 21.vi.1969 (*B.B. Lowery*); Hawker, 18.vi.1972 (*B.B. Lowery*). **Victoria**: Patho (*H.A. Petter*); N Ouyen, ix.1913 (*coll. unknown*). **New South Wales**: 15 km N Coombah, 31.x.1975 (*P. Ward*); Fowlers Gap Stn., 110 km N Broken Hill, 11.x.1980 (*S.R. Morton*); Hillston, 8.xii.1965 (*B.B. Lowery*). (84 workers, 6 gyness, 1 male in ANIC, MVMA, NHMW, SAMA).

## DISCUSSION

*M. angustinodis* is a very distinctive species, which is easily separated from others by the narrowly triangular petiole and the elongate large-toothed postpetiole. Widely distributed throughout south-eastern Australia.

### *Meranoplus variabilis* Schödl **sp.n.**

(Figs. 44, 45, 74, 89)

**HOLOTYPE WORKER.** TL 5.20, HL 1.23, HW 1.40, FC 1.11, CS 1.31, SL 0.80, SI1 57, SI2 61, PML 1.0, PW 1.38, PMD 1.45, PMI2 105 ML 1.25, PTLL 0.40, PTLH 0.55, PTDW 0.53, PPLL 0.40, PPLH 0.55, PPI 73, PPDW 0.55, PT/PP 95.

Mandible with four teeth. In full face view lateral sides of clypeal projection distinctly converging, anteriorly narrowly excavated with anterolateral corners produced into triangular blunt teeth, surpassing anterolateral frontal corners, the clypeal surface coarsely rugose, medially less structured. Head wider than long (CI 114), preoccipital margin shallowly concave. Frontal carinae moderately narrower than head width (FI 126), evenly sinuately narrowing towards clypeus. With head in profile antennal scrobe reaching beyond middle of lateral side of head, with distinct transverse carinulae at the rear, posteriorly ill defined against preoccipital section. Genae and ventrolateral sides of head rugoreticulate, preoccipital lobes reticulate. Eyes moderate in size (EL 0.31, REL 0.25, with 18 ommatidia in the longest row), situated in front of lateral sides of head, the dorsal ocular margin touching the ventral scrobal margin. Dorsal surface of head almost entirely reticulate, only frons anteriorly rugose, without any further microsculpture.

Promesonotal shield somewhat square, distinctly wider than long (PMI 138), projections except posterior bluntly rounded ones well developed and more or less acute, margins overhanging lateral mesosomal sides and propodeal declivity. Propodeal spines moderate in length (PSL 0.44), narrowly and acutely triangular, in dorsal view more or less straight and distinctly diverging.

Petiole in lateral view broadly trapezoid, higher than long (PTI 73), with straight anterior and posterior faces roundly meeting feebly oblique reticulate dorsum. Postpetiole nodiform with small antero-basal tooth.

Gaster shiny, entire first gastral tergite densely and evenly microreticulate, at base with irregular carinulae. Dorsal surfaces covered with a layer of short decumbent and longer more or less erect soft hairs.

Strictly bicolored with similar patterns as in preceding species.

**WORKERS** ( $n = 9$ ). TL 4.05 - 6.05, HL 1.15 - 1.25, HW 1.23 - 1.40, FC 0.95 - 1.11, FI 126 - 129, CI 107 - 115, CS 1.19 - 1.33, SL 0.70 - 0.80, SI1 56 - 60, SI2 59 - 63, PML 0.85 - 1.0, PW 1.13 - 1.38, PMI 125 - 147, PMD 1.20 - 1.45, PMI2 104 - 113, ML 1.08 - 1.28, PSL 0.36 - 0.48, PTLL 0.35 - 0.40, PTLH 0.51 - 0.58, PTI 64 - 73, PTDW 0.43 - 0.53, PPLL 0.33 - 0.40, PPLH 0.48 - 0.58, PPI 61 - 73, PPDW 0.45 - 0.55, PT/PP 85 - 95, EL 0.27 - 0.31, REL 0.23 - 0.27, with 17 - 18 ommatidia in the longest row.

## ETYMOLOGY

The name refers to the variable overall shape of the species.

## TYPE MATERIAL

**Holotype** worker, **South Australia:** 'S.Aust.- Cullyamurra WH Coopers Creek 140°50'E 27°42'S 21-24.ix. 1990 J. Shaw ANZSES Surv.' (SAMA). **Paratypes.** 6 workers, same data as holotype (ANIC, SAMA, NHMW).

#### ADDITIONAL MATERIAL EXAMINED

**South Australia:** Mount Barry Stn., 4.3 km SSE Jimmy WH, 18.-21.ix.1996 (*coll. unknown*); 4 km N Halifax Hill, 29.ix.-5.x.1995 (*coll. unknown*); Mount Aroona, 2.-5.xii.1997 (*coll. unknown*); 19.9 km WNW Indulkana, 25.-31.x.1998 (*coll. unknown*); Murnpeowie, Weathered Hill, 3 km ENE 18.xi.1992 (*R. Brandle*); Murnpeowie, Mount Hopeless, 15./16.xi.1994 (*R. Tynan*); Flinders Ranges, Oraparinna, 15.ix.1971 (*P.J.M. Greenslade*); Moockra Tower, 7.x.1974 / 13.x.1980 (*P.J.M. Greenslade*); Monarto Zoological Park, c 50 km E Adelaide, 2.xii.2003 (*coll. unknown*); 26 km ENE Mimilli, 25.-31.x.1998 (*coll. unknown*); 12.5 km W Mimilli, pitfalls, 20.-24.iii.1993 (*coll. unknown*); 2 km S Wares Peak, 5.x.1995 (*coll. unknown*). **New South Wales:** Mungindi, 21.i.1966 (*B.B. Lowery*); Moulamein, 29.viii.1970 (*B.B. Lowery*); N Nyngan 'Kapunda', 5.-6.v.1987 (*P.J.M. Greenslade*). **Northern Territory:** 9 km E Curtin Springs, 20.xi.1977 (*J.E. Feehan*); Tanami Rd., 35 km W Stuart Hwy., 5.vii.2003 (*Snelling*). (60 workers, 2 gynes in ANIC, LACM, NHMW, SAMA).

#### DISCUSSION

A variable taxon regarding the outline of the promesonotal shield as well as the shape of the petiole, the length and shape of the propodeal spines and pilosity. For this reason numerous of the material, namely from Indulkana, Murnpeowie, Monarto, Mimilli and Wares Peak is here only provisionally added. Further samples are needed to elucidate whether more than one species is involved. Nonetheless, typical material is well defined by the forward oriented clypeal projection together with the box-shaped petiole. Distributed from central to south-east Australia, partly sympatrically occurring with *M. angustinodis*, reaching further to the north and east.

#### *Meranoplus arcuatus* Schödl sp.n.

(Figs. 46, 47, 77, 82)

**HOLOTYPE WORKER.** TL 5.25, HL 1.20, HW 1.38, FC 1.10, CS 1.29, SL 0.78, SI1 56, SI2 60, PML 1.15, PW 1.33, PMD 1.50, PMI2 113, ML 1.33, PTLL 0.38, PTLH 0.55, PTDW 0.40, PPLL 0.31, PPLH 0.55, PPI 57, PPDW 0.48, PT/PP 84.

Mandible with four teeth. In full face view the clypeal projection very similar to that of preceding species, with the anterior concavity somewhat broader and with anterolateral corners more blunt. Head moderately wider than long (CI 115), preoccipital margin almost straight. Frontal carinae markedly narrower than head width (FI 125), posteriorly almost parallel-sided, evenly curved towards clypeus. With head in profile antennal scrobe distinctly surpassing middle of lateral side of head, distinctly transversely carinulae at the rear, anteriorly with additional oblique carinulae, rather well defined posteriorly against remainder of head. Genae and ventrolateral sides of head rugoreticulate, preoccipital lobes coarsely reticulate. Eyes moderately large (EL 0.31, REL 0.26, with 15 ommatidia in the longest row), situated at about middle of lateral sides of head, the dorsal ocular margin confluent with the ventral scrobal margin. Frons anteriorly rugose, remainder of head coarsely rugoreticulate, interspaces glossy.

Promesonotal shield little wider than long (PMI 115), overhanging lateral sides of mesosoma and propodeal declivity, near lateral margin with translucent fenestra at level of promesonotal

boarder. Mesonotum indented and projections well developed, translucently lamellate between projections. Propodeal spines in profile short (PSL 0.43), situated at about middle of lateral sides of the propodeal declivity, broad-based and acute, in dorsal view distinctly curved towards petiole.

Petiole higher than long (PTI 68), in lateral view an equilateral triangle with anterior and slightly convex posterior faces meeting in a crest, posterior face rugose. Postpetiole nodular with well developed antero-basal tooth.

First gastral tergite entirely microreticulate. Dorsal surfaces covered with shorter decumbent and longer erect more or less setose hairs.

Distinctly bicolored as in preceding species.

**WORKERS** ( $n = 6$ ). TL 4.80 - 5.25, HL 1.06 - 1.23, HW 1.24 - 1.40, FC 1.04 - 1.16, FI 117 - 125, CI 113 - 118, CS 1.15 - 1.31, SL 0.73 - 0.80, SI1 56 - 59, SI2 60 - 64, PML 1.03 - 1.15, PW 1.23 - 1.39, PMI 115 - 129, PMD 1.39 - 1.58, PMI2 113 - 115, ML 1.13 - 1.33, PSL 0.39 - 0.45, PTLL 0.33 - 0.40, PTLH 0.51 - 0.58, PTI 63 - 70, PTDW 0.40 - 0.49, PPLL 0.30 - 0.38, PPLH 0.55 - 0.65, PPI 53 - 63, PPDW 0.47 - 0.50, PT/PP 84 - 99, EL 0.26 - 0.31, REL 0.24 - 0.26, with 14 - 17 ommatidia in the longest row.

## ETYMOLOGY

The name refers to the incurved propodeal spines.

## TYPE MATERIAL

**Holotype** worker, **Western Australia**: 'Lake Marmion 29°43'S 121°31'E pitfall 12-Mar-96 J A Forrest' (SAMA). **Paratypes**. 11 workers, same data as holotype; 6 workers, 'Nr. Lake Marmion 29°47'S 121°35'E pitfalls, 12.ii.96 Forrest' (ANIC, NHMW, SAMA).

## ADDITIONAL MATERIAL EXAMINED

**South Australia**: Cowarie, 1.2 km SW Kalladeina Bore, 27.iv.1995 (*T. Robinson*); 19.5 km WNW Anta Hill [= ?Antakatanya Hill], 16.-19.ix.1998 (*coll. unknown*); 22.5 km WSW Haines Hill (*coll. unknown*). 25.8 km N Miandana WH, 9.-14.x.1998 (*coll. unknown*) (7 workers in NHMW, SAMA).

## DISCUSSION

*M. arcuatus* differs from other species by the distinctly incurved propodeal spines in addition to the triangular petiole and the outline of the promesonotal shield. Only known from the type locality and few samples in northeastern South Australia, with a wide gap in between.

### *Meranoplus mcarthuri* Schödl sp.n.

(Figs. 48, 49, 75, 84)

**HOLOTYPE WORKER**. TL 6.0, HL 1.40, HW 1.70, FC 1.35, CS 1.55, SL 1.0, SI1 59, SI2 65, PML 1.25, PW 1.58, PMD 1.76, PMI2 112, ML 1.55, PTLL 0.44, PTLH 0.63, PTDW 0.56, PPLL 0.41, PPLH 0.59, PPI 70, PPDW 0.61, PT/PP 92.

Mandible with five teeth. In full face view clypeus distinctly carinulate, oblique anterior margin broadly and deeply excavated, anterolateral corners produced into acute teeth, weakly surpassing anterolateral frontal corners. Head wider than long (CI 121), preoccipital margin only

shallowly concave. Frontal carinae markedly narrower than head width (FI 126), weakly sinuately narrowing towards clypeus. With head in profile antennal scrobe reaching far beyond middle of lateral side of head, distinctly transversely carinulate with additional shagreening, well defined posteriorly by a carina against remainder of head. Genae rugose, ventrolateral sides of head and preoccipital lobes coarsely reticulate. Eyes moderately large (EL 0.35, REL 0.25, with 19 ommatidia in the longest row), situated slightly in front of middle of lateral sides of head, the dorsal ocular margin confluent with the ventral scrobal margin. Dorsal surface of head coarsely rugoreticulate, interspaces glossy.

Promesonotal shield moderately wider than long (PMI 126), mesonotum indented with mesonotal projections well developed and rather acute, translucently fused. Propodeal spines moderately long (PSL 0.55), situated at about middle of lateral sides of the propodeal declivity, narrow and acute, in dorsal view markedly arcuate and diverging.

Petiole in lateral view narrowly trapezoid, higher than long (PTI 70), dorsum convex and reticulate, posterior face rugose. Postpetiole nodular with small antero-basal tooth.

First gastral tergite entirely microreticulate. Dorsal surfaces covered with short decumbent and longer erect thin whitish hairs.

Distinctly bicolored as in preceding species.

**WORKER** ( $n = 8$ ). TL 4.90 - 6.50, HL 1.25 - 1.45, HW 1.43 - 1.73, FC 1.15 - 1.45, FI 123 - 128, CI 114 - 125, CS 1.34 - 1.59, SL 0.85 - 1.0, SI1 57 - 61, SI2 61 - 66, PML 0.95 - 1.25, PW 1.30 - 1.58, PMI 126 - 148, PMD 1.43 - 1.76, PMI2 107 - 112, ML 1.20 - 1.55, PSL 0.45 - 0.61, PTLH 0.40 - 0.45, PTLH 0.60 - 0.65, PTI 64 - 70, PTDW 0.48 - 0.56, PPLL 0.38 - 0.41, PPLH 0.53 - 0.63, PPI 63 - 71, PPDW 0.54 - 0.63, PT/PP 84 - 95, EL 0.29 - 0.35, REL 0.22 - 0.25, with 17 - 19 ommatidia in the longest row.

## ETYMOLOGY

Named for Archie McArthur, great (old) man from Adelaide, who I had the honor and pleasure to meet in Vienna during his trip to Europe in early spring 2004. He sent hundreds of pitfall samples which included most important material for this study and which certainly will bring to light further interesting data.

## TYPE MATERIAL

**Holotype** worker, **Northern Territory**: 'Goldunda Hstd. Alice Springs G. Campbell 26. 8. 63 *Meranoplus* sp. \ Royce H. Mew collection 132' (SAMA). **Paratypes**. 5 workers, same data as holotype (ANIC, NHMW, SAMA).

## ADDITIONAL MATERIAL EXAMINED

**Northern Territory**: 9 km E Curtin Springs, 20.xi.1977 (*J.E. Feehan*). **New South Wales**: 2 mi. W Jacob's Well, 23.xi.1949 (T. Greaves). **South Australia**: 26.3 km ENE Mimili, 25.-31.x.1998 (*coll. unknown*); 48.9 km SE Mount Lindsay, 26.x.1996 (*coll. unknown*); 8 km NW Morgan, 15.xii.1976 (*P.J.M. Greenslade*); Victoria Desert, 10 km E Emu, 11.x.1976 (*P.J.M. Greenslade*); 35 km S Arraby, Leap yr. Bore, viii.1975 (*Forrest*). **Victoria**: Linga (*F.E. Wilson*); M. **Western Australia**: Morawa, 1961 (*G.H. Lowe*). **State unknown**: 'Cent Australia' (*coll. unknown*) (37 workers in ANIC, NHMW, QMBA, SAMA, USNM, WAMP).

## DISCUSSION

*M. mcarthuri* is well defined among related species by the mandibular dentition and by the widely concave clypeal structure. Specimens from Morowa (WA) have the promesonotal shield more distinctly indented between anterior and posterolateral mesonotal projections and the cephalic index markedly lower (CI 114; 118 - 125 in others). Widely distributed throughout central and southern Australia, with a single sample from Western Australia.

***Meranoplus taurus* Schödl sp.n.**

(Figs. 50, 51, 76, 88)

**HOLOTYPE WORKER.** TL 4.15, HL 1.05, HW 1.15, FC 0.80, CS 1.10, SL 0.59, SI1 51, SI2 53, PML 0.65, PW 0.93, PMD 1.05, PMI2 114, ML 0.93, PTLL 0.29, PTLH 0.44, PTDW 0.36, PPLL 0.28, PPLH 0.43, PPI 64.71, PPDW 0.40, PT/PP 91.

Mandible with four teeth. In full face view anterior clypeal margin with few carinulae, bifurcate with anterolateral corners produced into long acute teeth; the latter distinctly surpassing the anterolateral frontal corners. Head almost square, only little wider than long (CI 110), preoccipital margin very shallowly concave. Frontal carinae markedly narrower than head width (FI 144), sinuately converging towards clypeus. With head in profile antennal scrobe reaching beyond middle of lateral side of head, weakly transversely carinulate with distinct additional shagreening, distinctly defined posteriorly against remainder of head. Genae and anterior ventrolateral section of head carinate, preoccipital lobes coarsely reticulate. Eyes relatively large and rather flat (EL 0.27, REL 0.29, with 14 ommatidia in the longest row), situated slightly in front of middle of lateral sides of head, the dorsal ocular margin touching the ventral scrobal margin. Dorsal surface of head densely rugoreticulate, interspaces microsculptured.

Promesonotal shield rugoreticulate, short and distinctly vaulted (PMI 142), somewhat square with bluntly reduced projections. Propodeal spines medium sized in relation to small body (PSL 0.35), situated rather high on lateral sides of the propodeal declivity, acute and in dorsal view slightly arcuate and diverging.

Petiole in lateral view trapezoid, higher than long (PTI 66), dorsum convex and reticulate. Postpetiole reticulate, nodular with triangular antero-basal tooth.

First gastral tergite regularly and densely microreticulate, basally with few additional carinulae. Dorsal surfaces covered with short decumbent and longer erect thin whitish hairs.

Distinctly bicolored.

**WORKERS** ( $n = 21$ ). TL 3.90 - 4.80, HL 0.99 - 1.20, HW 1.10 - 1.35, FC 0.80 - 0.94, FI 131 - 146, CI 107 - 115, CS 1.04 - 1.28, SL 0.59 - 0.65, SI1 48 - 53, SI2 51 - 56, PML 0.65 - 0.88, PW 0.93 - 1.08, PMI 120 - 142, PMD 1.05 - 1.20, PMI2 107 - 116, ML 0.88 - 1.08, PSL 0.33 - 0.40, PTLL 0.26 - 0.35, PTLH 0.41 - 0.50, PTI 58 - 70, PTDW 0.33 - 0.41, PPLL 0.25 - 0.33, PPLH 0.38 - 0.50, PPI 58 - 70, PPDW 0.38 - 0.46, PT/PP 81 - 97, EL 0.27 - 0.32, REL 0.26 - 0.29, with 14 - 17 ommatidia in the longest row.

**ETYMOLOGY**

The name refers to the horn-shaped anterolateral clypeal projections ('*taurus*', Latin for bull).

**TYPE MATERIAL**

**Holotype** worker, **South Australia:** 'S. Aust. William Creek 28°55'S 136°20'E 5-Sep-90, P & I Gee.' (SAMA). Paratypes. 14 workers, same data as holotype; 9 workers, same locality data but '28.55S 136.21E' (ANIC, NHMW, SAMA).

#### ADDITIONAL MATERIAL EXAMINED

**Northern Territory:** 15 km SW Katherine, 7.iv.1978 (*P.J.M. Greenslade*); Tanami Rd 98 km W Stuart Hwy., 7.vii.2003 (*R.R. Snelling*); Tanami Rd 35 km W Stuart Hwy., 5.vii.2003 (*R.R. Snelling*). **Queensland:** Sandringham, 18.-25.ii.198 (*P.J.M. Greenslade*). New South Wales: N. Nyngan 'Kapunda', 6.v.1987 (*P.J.M. Greenslade*); c. 45 km W by S of Wilcania, 11.xii.1973 (*R.J. Kohout*); 8 km S Conargo, 8.v.1979 (*B.B. Lowery*); Lightning Ridge, 10.v.1961 (*B.B. Lowery*). Victoria: Patho (*H.A. Potter*). **South Australia:** 2.5 km NW Ninety Nine Dam, Anna Creek Stn., 1.-5.iii.1996 (*coll. unknown*); Top Camp Well, Hamilton Stn., 14.-17.xi.1995 (*coll. unknown*); Innamincka, 9.5 km NW Patchawara bore, 10.-14.xi.1995 (*coll. unknown*); 4.3 km NE Armistice bore, Anna Creek Stn., 1.-5.iii.1996 (*coll. unknown*); Cordillo Downs Stn., 3.7 km W Frew well (*coll. unknown*); Murnpeowie, Mount Moolawatana, 16.-17.xi.1994 (*R. Tynan*); Andamooka, 5.6 km WNW Netting Dam, 10.-14.xi.1996 (*coll. unknown*); 3 km E Myra Mitta bore, 28.iv.1995 (*T. Robinson*); Nilpinna Stn., 4.1 km SSE, Arckaringa WH, 15.-20.ix.1996 (*coll. unknown*); 5.2 km ESE Strangeways Springs, Stuart Creek Stn., 25.-30.ix.1995 (*coll. unknown*); Stuart Creek Stn., 7.5 km E sheep camp WH (*coll. unknown*); Anna Creek Stn., 28 km WNW Backadinna Dam, 2.-6.x.1995 (*coll. unknown*); Anna Creek Stn., 15.6 km SW Backadinna Hill, 2.-6.x.1995 (*coll. unknown*); Peake Stn., 0.9 km NE Four Hills Trig, 1.-5.iii.1996 (*coll. unknown*); 8 km NW Apollo Bore, iv.1995 (*coll. unknown*); 7.5 km NW Apollo Bore, iv.1995 (*coll. unknown*); Lake Eyre north, 20.vi.1991 (*P. & I. Gee*); Screech-Owl Creek, 27.iv.1995 (*coll. unknown*); 15 km SE Balcanoona HS, 19.vii.1997 (*coll. unknown*); 3.8 km ESE Coppertop Hill, Peak Stn., 1.-5.iii.1996 (*coll. unknown*); Woorana WH, 6.2 km S Macumba, 21.-25.ix.1996 (*coll. unknown*). **Western Australia:** 8 km E Gascoyne junction, road turn-off, 4.vii.1981 (*B. Heterick*). (82 workers, 2 gynes, in ANIC, JDMP, LACM, NHMW, SAMA).

#### DISCUSSION

*M. taurus* shows very little variability throughout its wide range. However, specimens from a single sample taken at Katherine, Northern Territory are uniformly ferrugineous and have the frontal striation more delicate. Southeastern-most samples, namely from Nyngan, Conargo, Lightning Ridge and Patho differ by the clypeal bifurcation less acutely developed, by the petiole more angulate in profile and by the markedly smaller eyes (REL 0.21 - 0.24), with 13 - 15 ommatidia in the longest row). Both forms are at least very closely related and are here tentatively added to *taurus*. Further material will be needed to decide whether these samples belong to taxa different from *taurus*. Occuring more or less sympatric with *angustinodis* and *variabilis* in central and south-east Australia, except two remote collection sites in the far west and one in the north, respectively. This small species is very distinctive by the large eyes, the clypeal bifurcation and the square promesonotal shield with its reduced blunt projections.

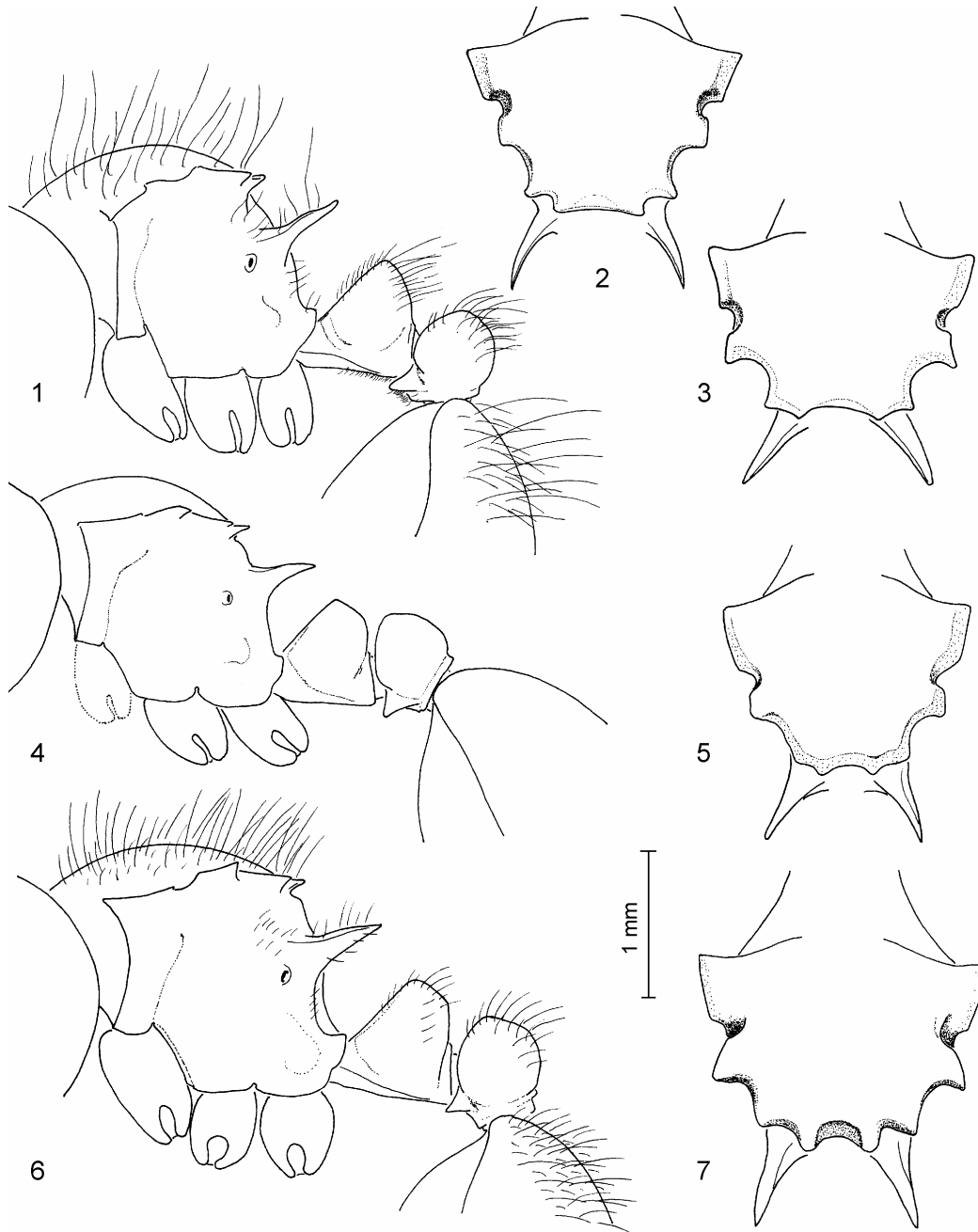
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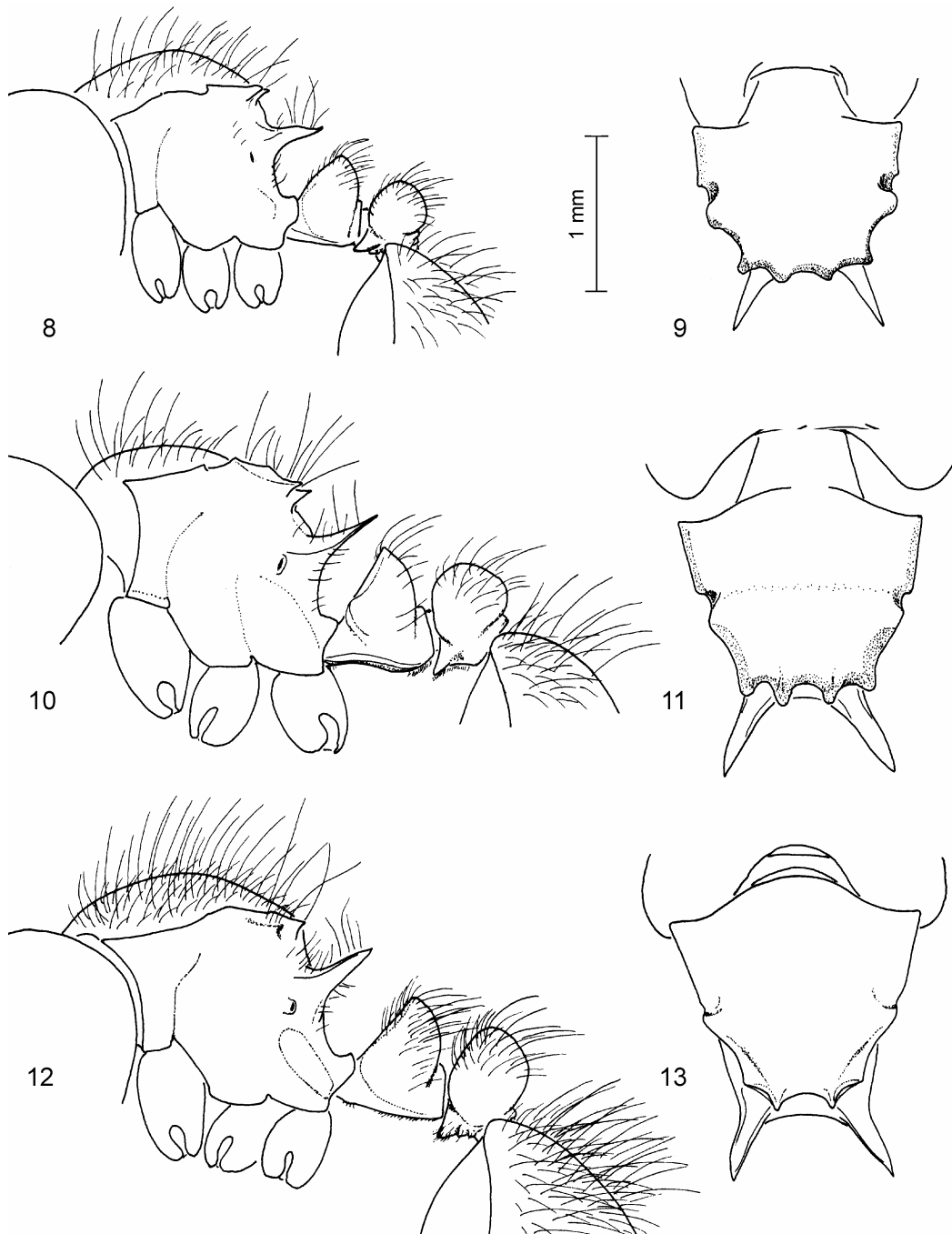
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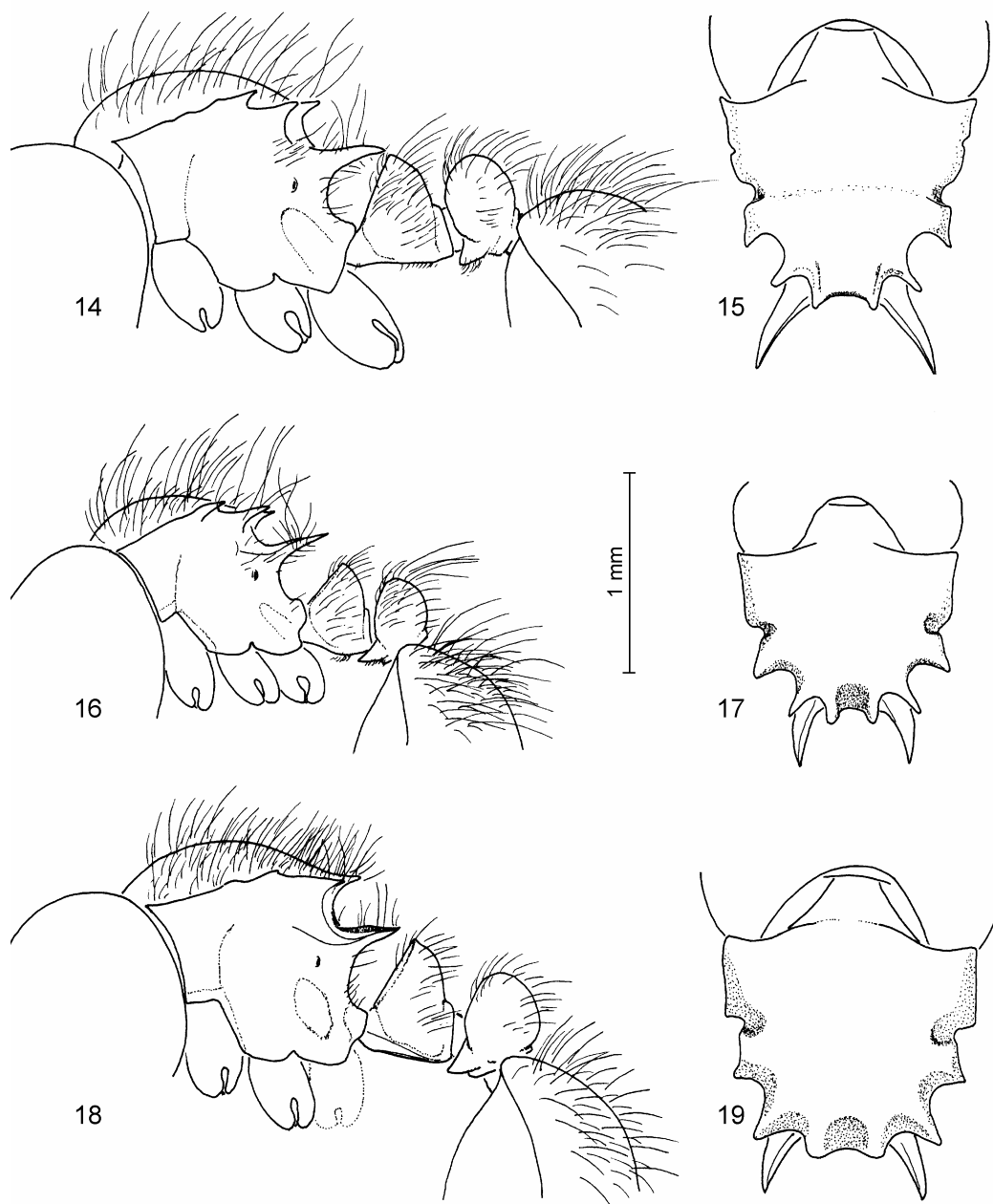
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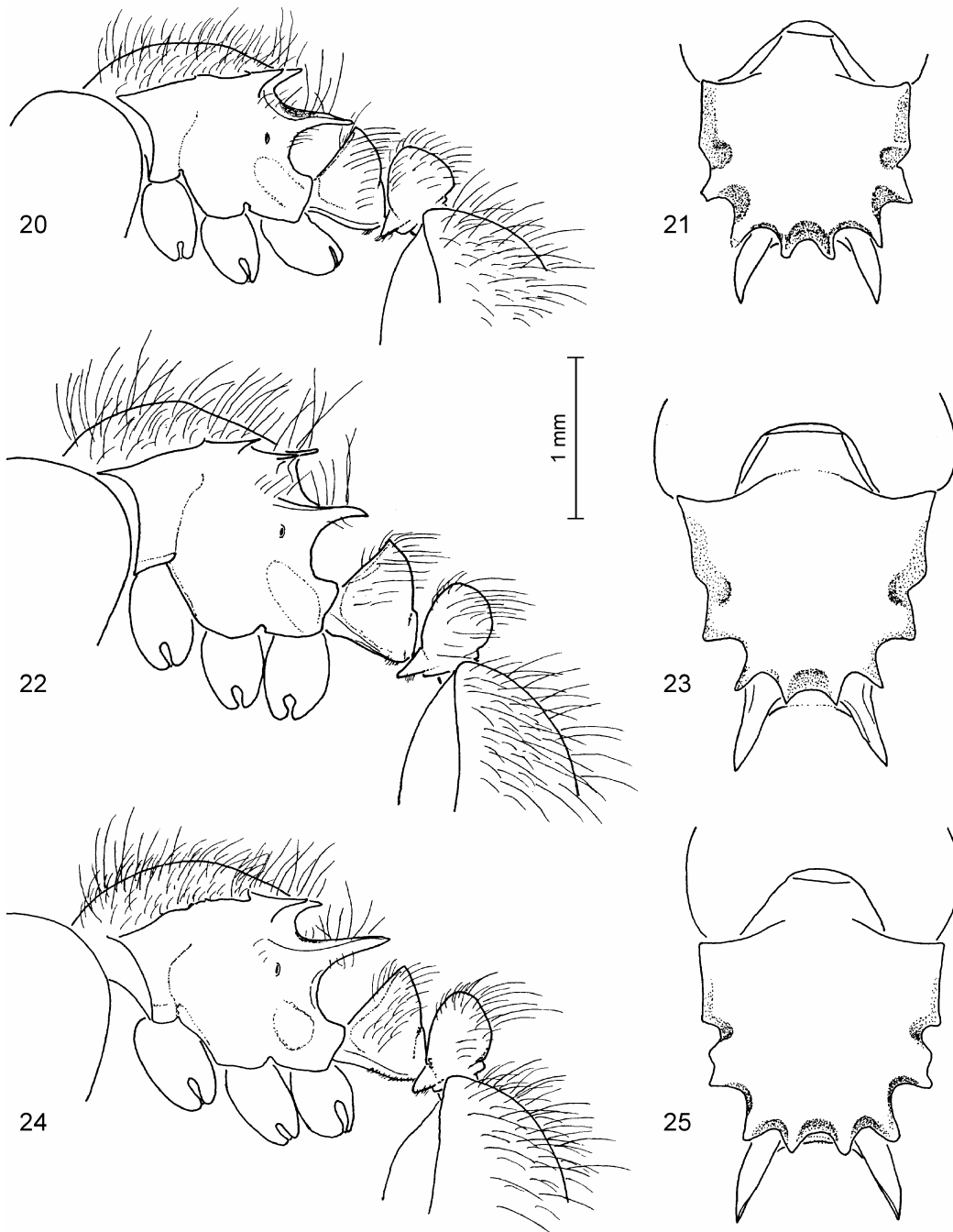
**Figs. 1 - 7** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shield of (1, 2) *ajax*, Maryinna Hill, SA, (3) *ajax* holotype, (4, 5) *unicolor* lectotype (pilosity omitted due to abraded condition), (6, 7) *snellingi*.



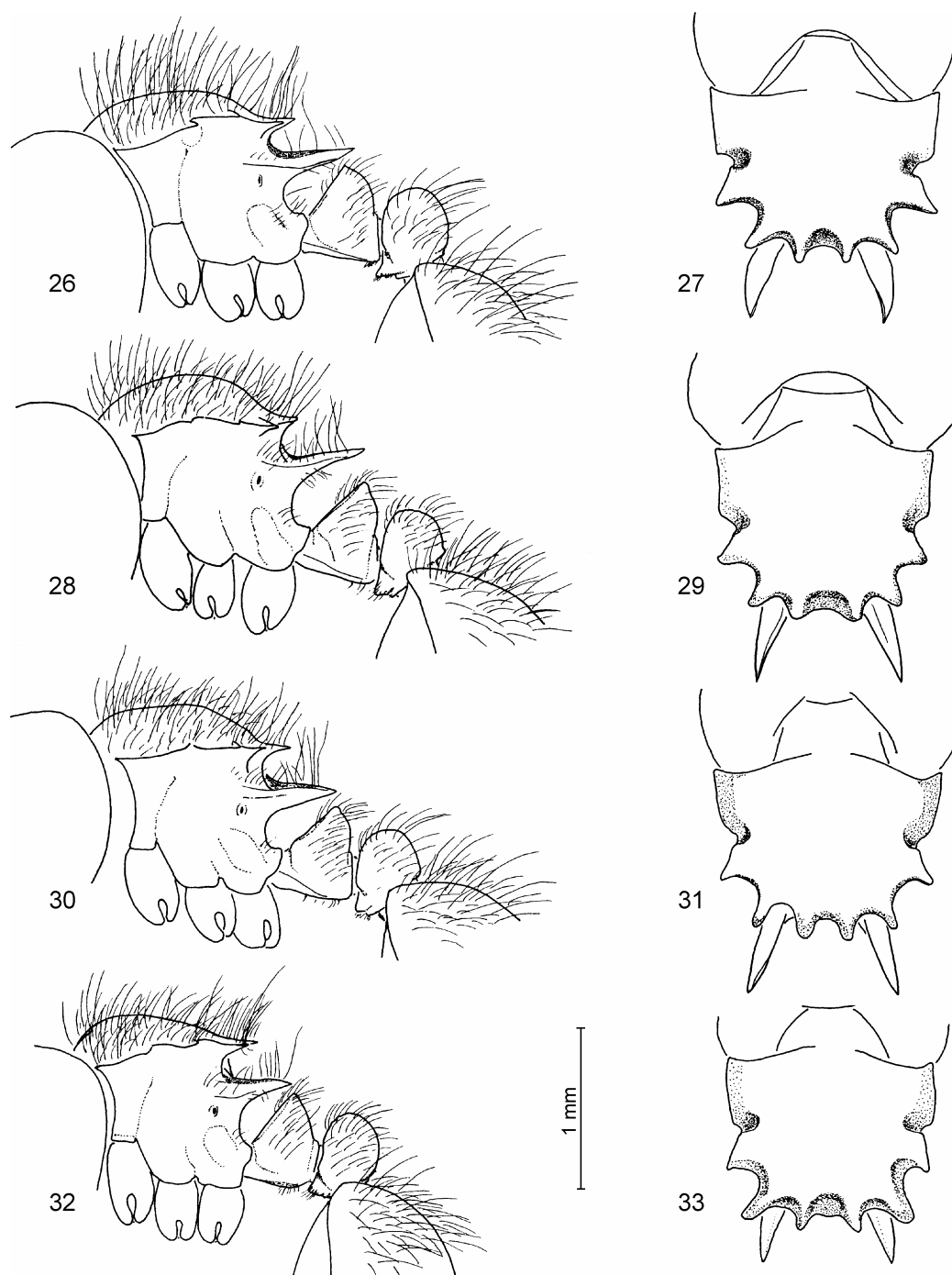
**Figs. 8 - 13** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shields of (8, 9) *berrimah*, (10, 11) *duyfkeni* lectotype, (12, 13) *orientalis*.



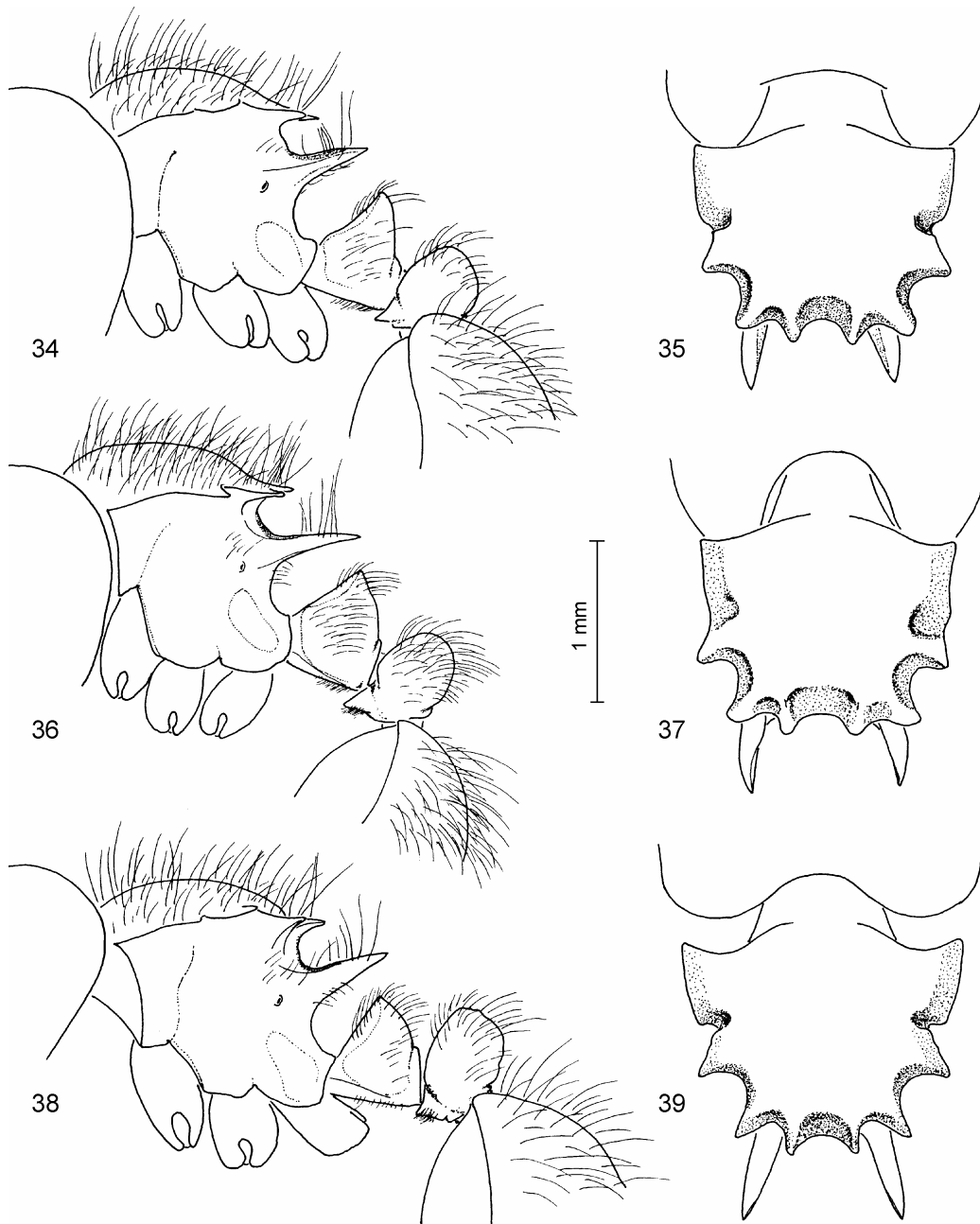
**Figs. 14 - 19** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shields of (14, 15) *mars* lectotype, (16, 17) *wilsoni*, (18, 19) *tricuspidatus*.



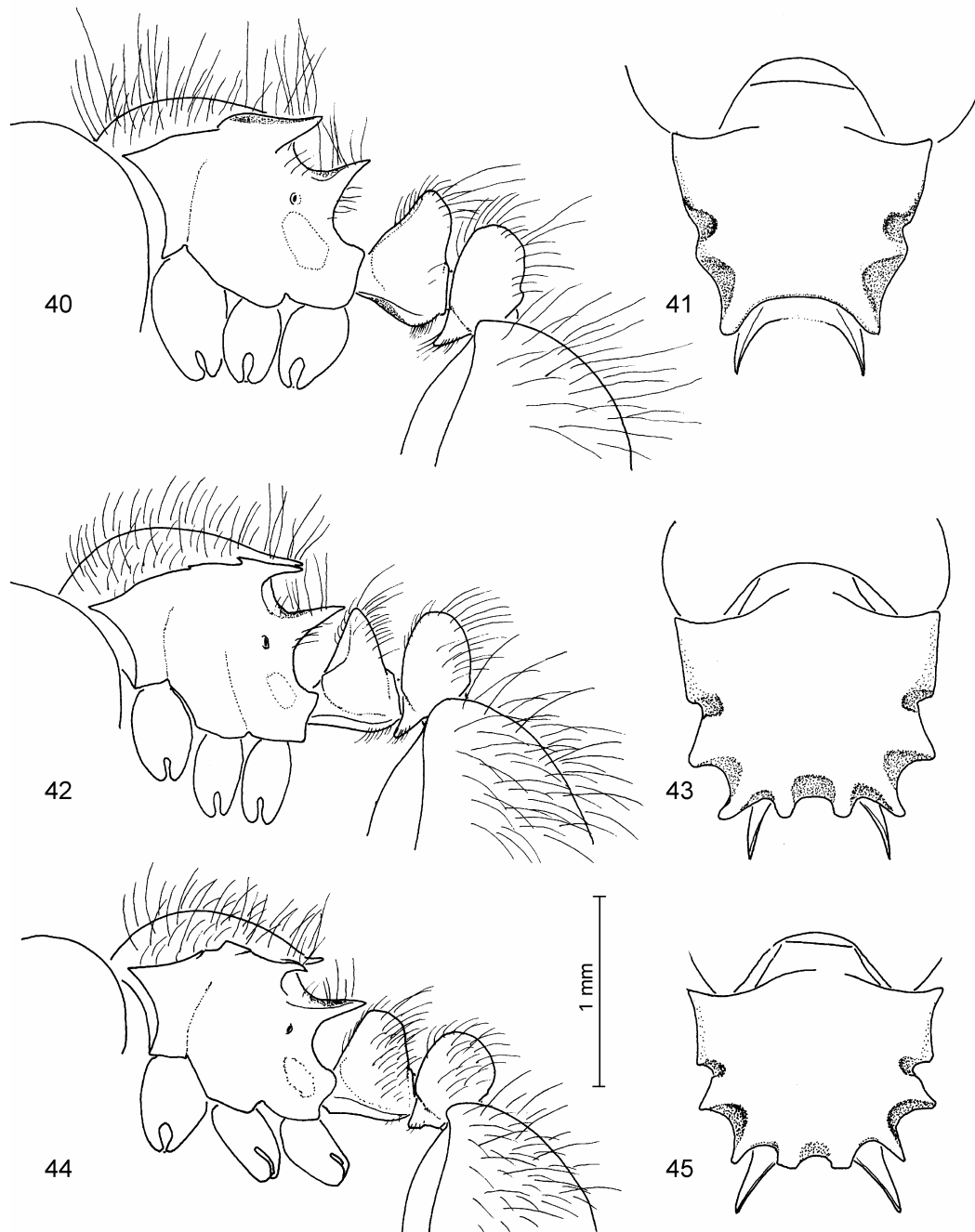
**Figs. 20 - 25** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shields of (20, 21) *oxleyi* lectotype, (22, 23) *deserticola*, (24, 25) *crassispina*.



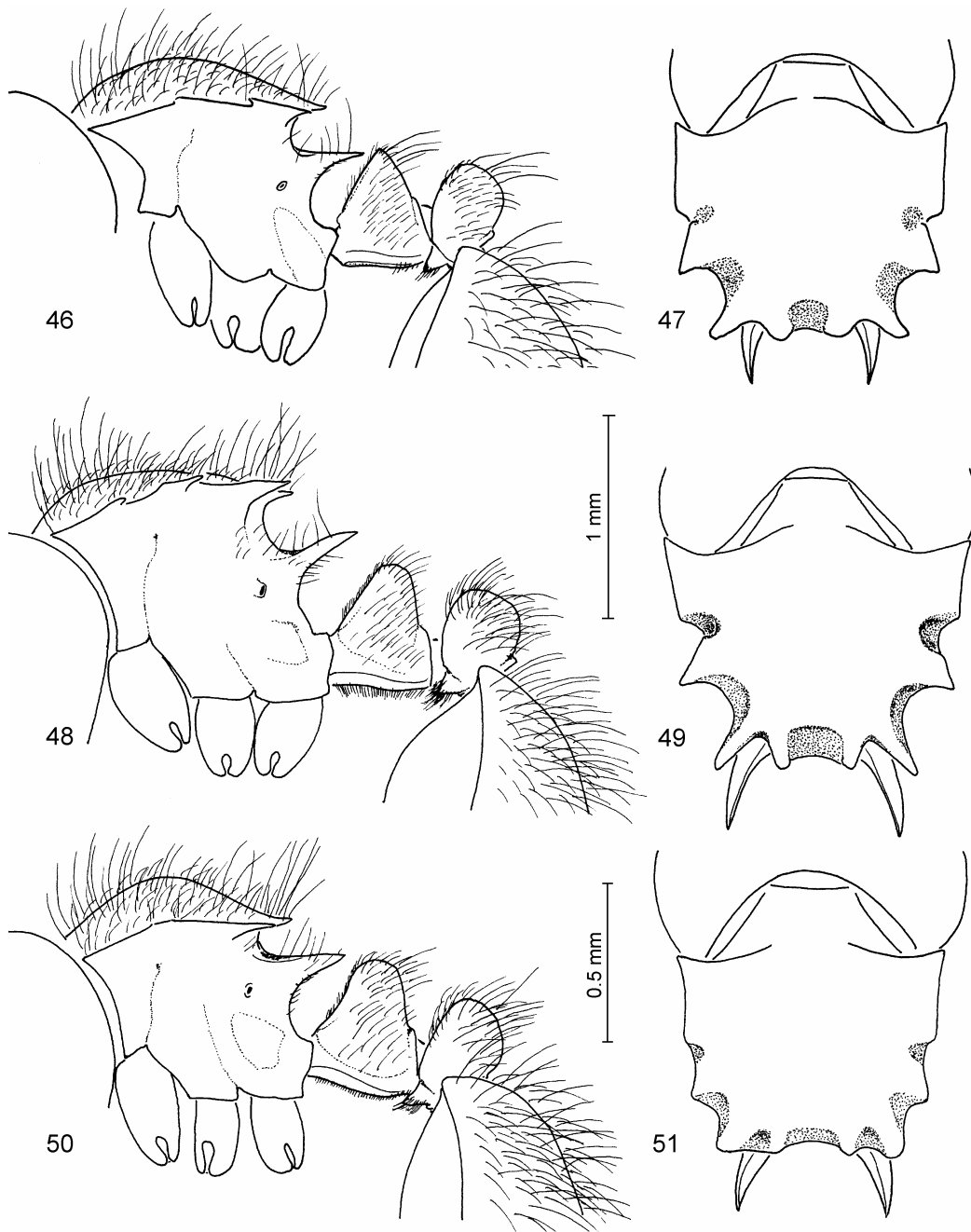
**Figs. 26 - 33** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shields of (26, 27) *convexius*, (28, 29) *naitsabes*, (30, 31) *digitatus*, (32, 33) *discahis*, Silver Plains.



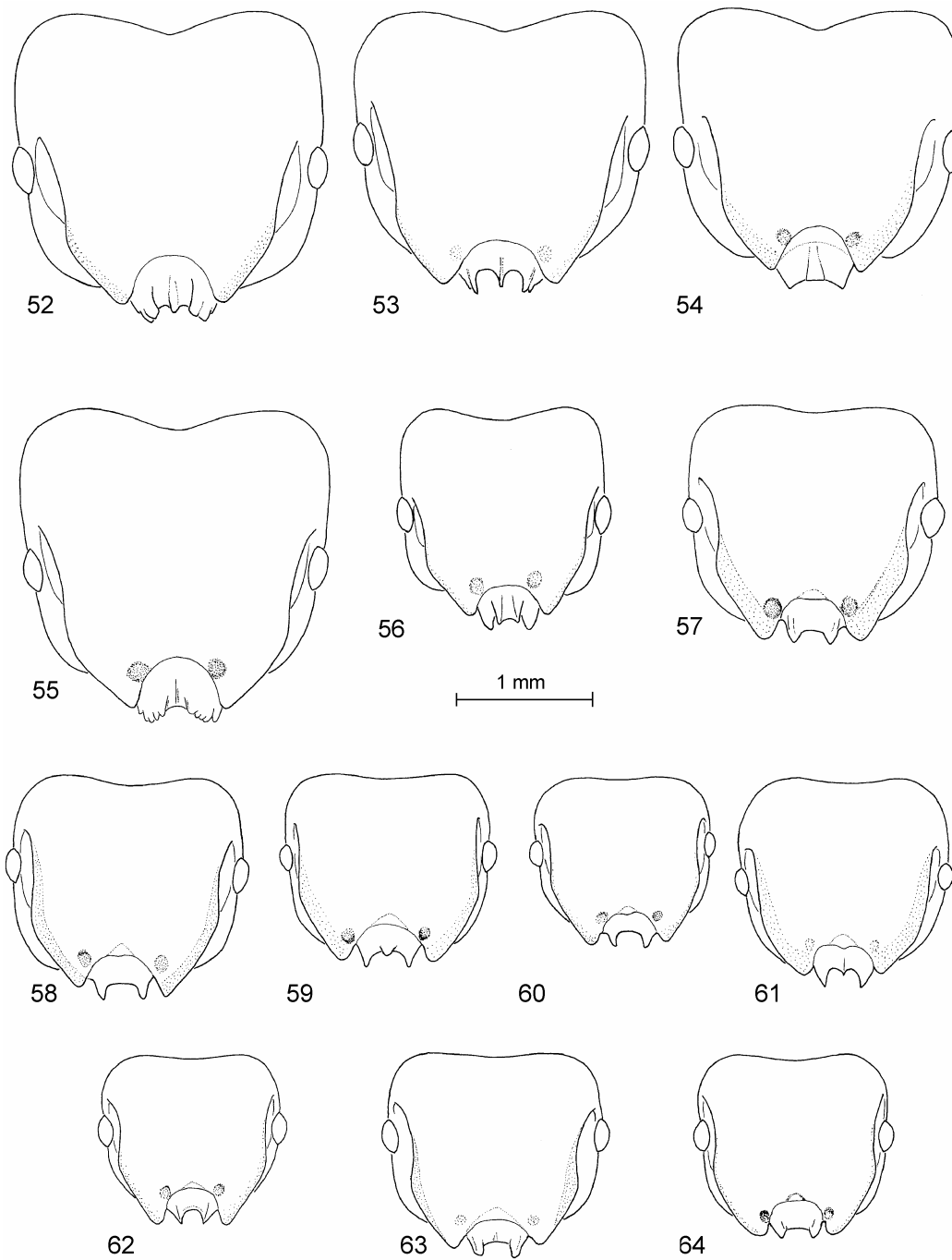
**Figs. 34 - 39** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shields of (34, 35) *diversus*, (36, 37) *diversoides*, (38, 39) *christinae*, Merigol.



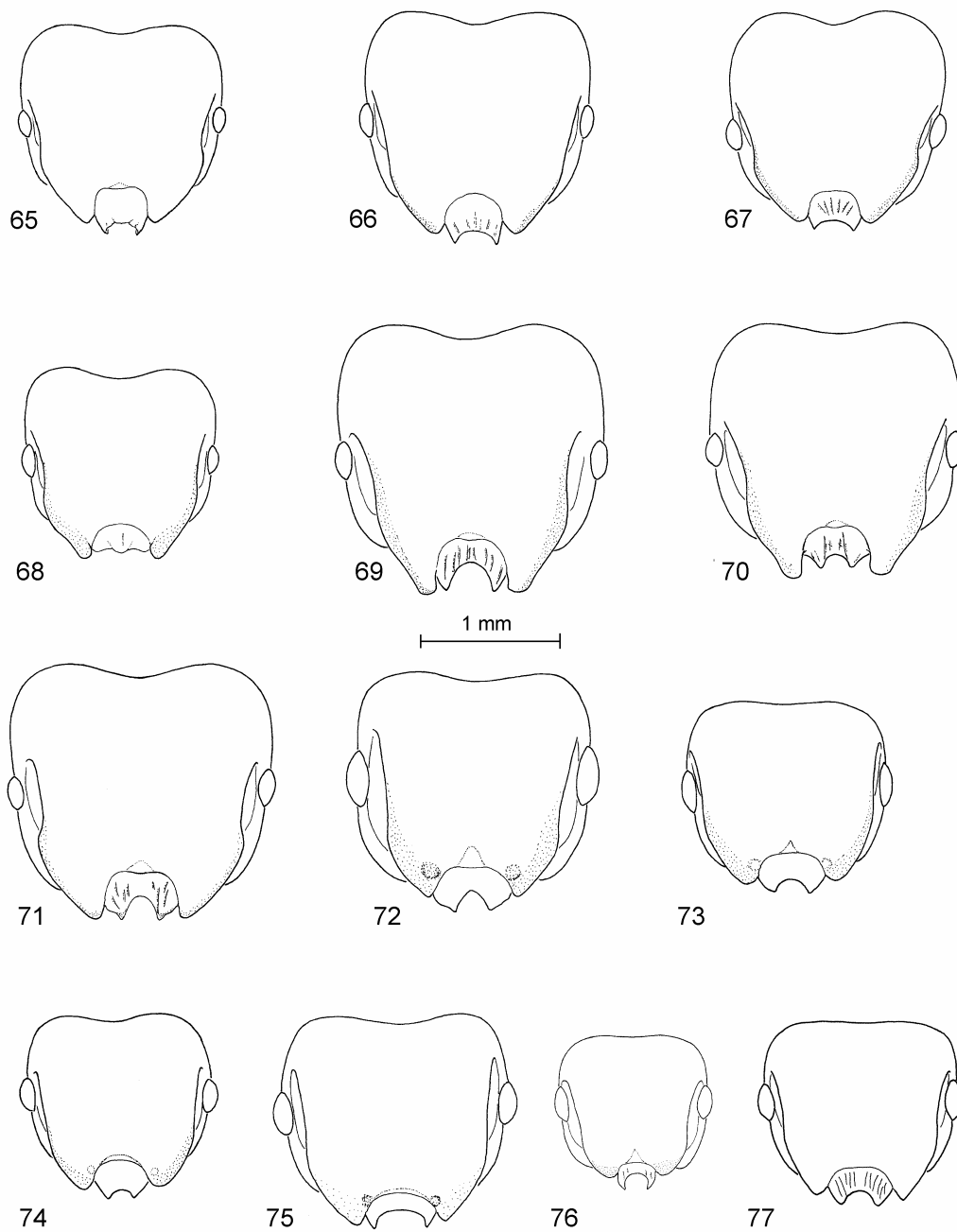
**Figs. 40 - 45** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shields of (40, 41) *occidentalis*, (42, 43) *angustinodis*, (44, 45) *variabilis*.



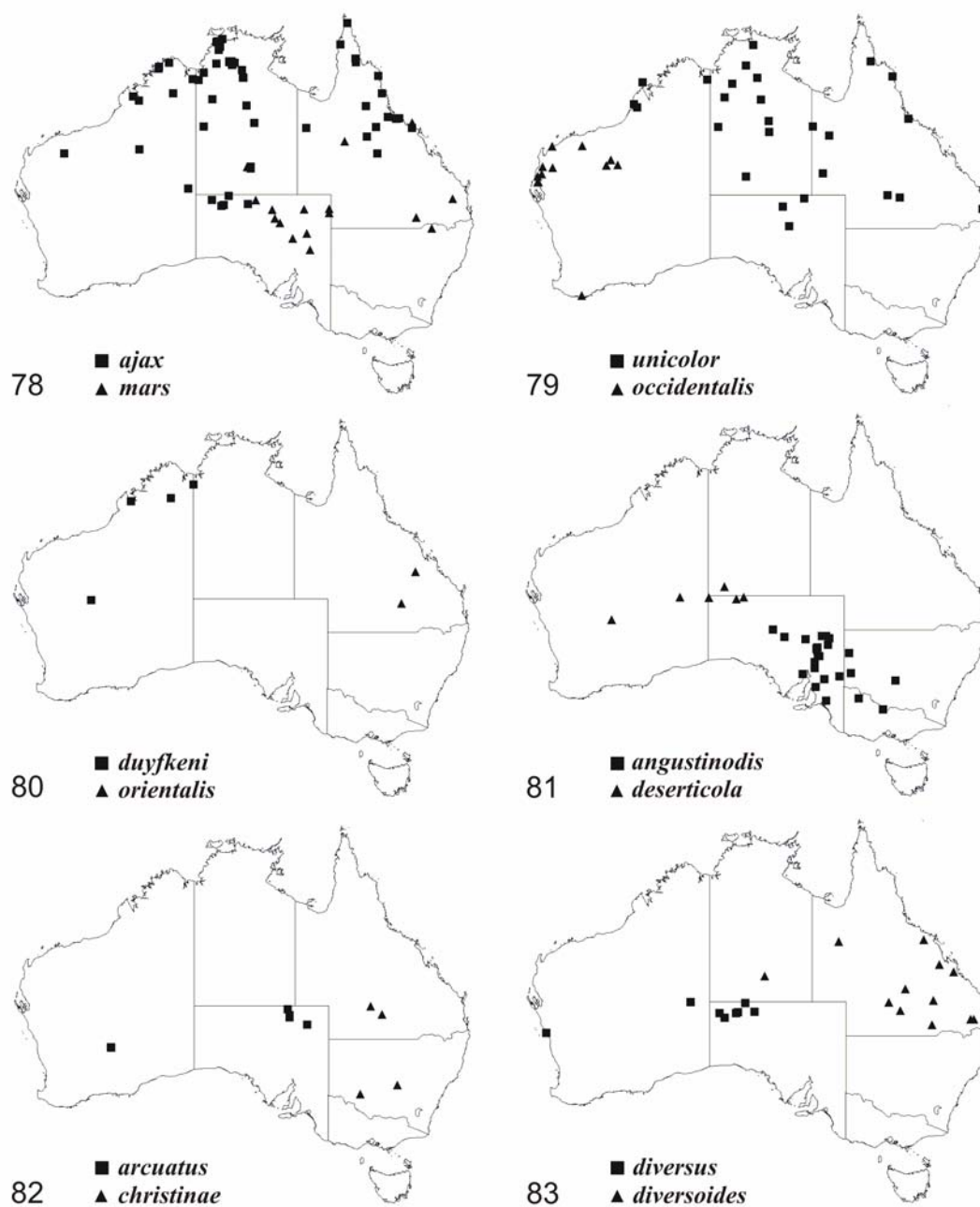
**Figs. 46 - 51** *Meranoplus* workers, lateral aspects and dorsal views of promesonotal shields of (46, 47) *arcuatus*, (48, 49) *mcarthuri*, (50, 51) *taurus*



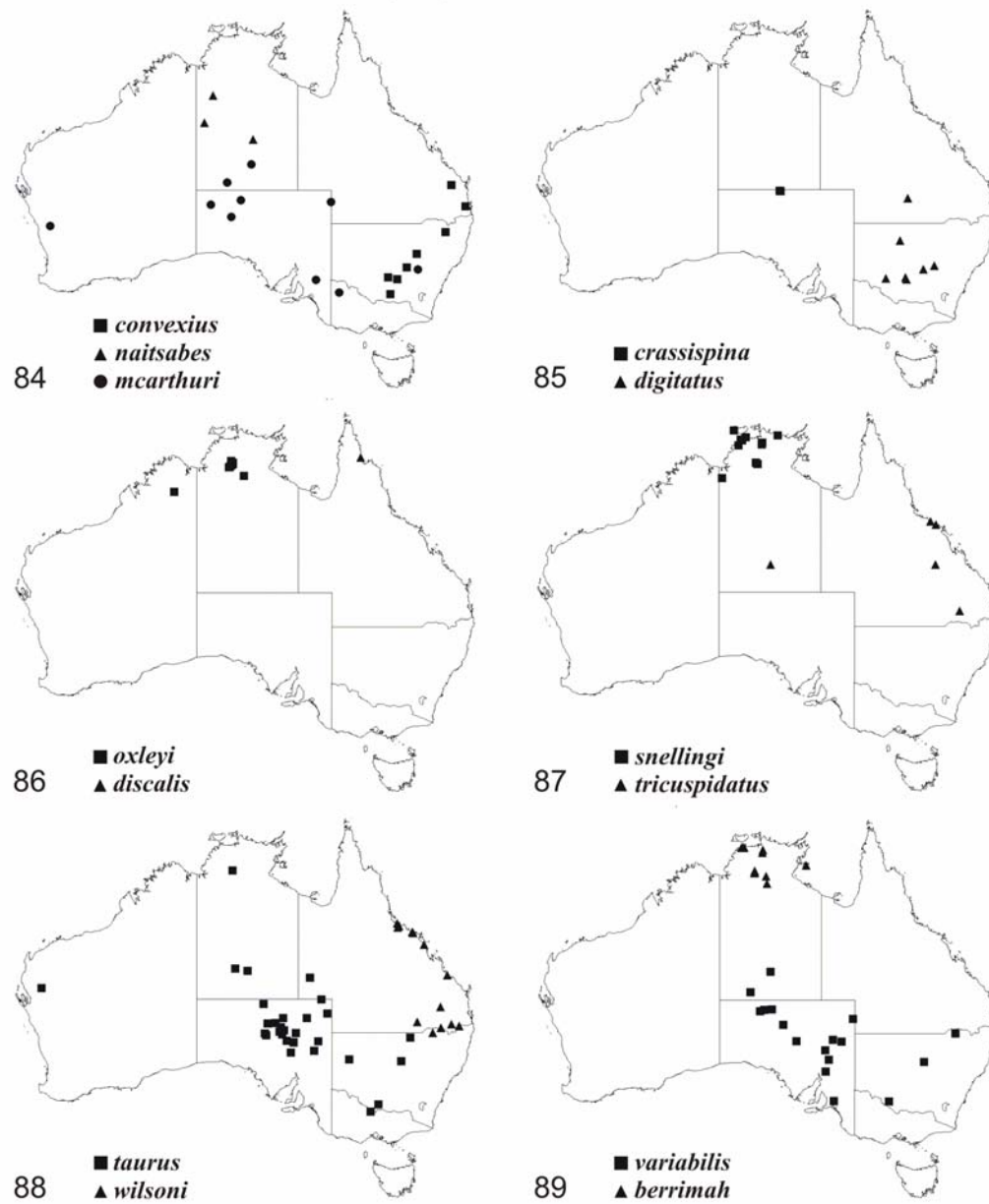
**Figs. 52 - 64** *Meranoplus* workers, heads of (52) *ajax*, Ungarinna, (53) *ajax* holotype, (54) *unicolor* lectotype, (55) *snellingi*, (56) *berrimah*, (57) *duyfkeni* lectotype, (58) *orientalis*, (59) *mars* lectotype, (60) *wilsoni*, (61) *tricuspidatus*, (62) *oxleyi*, (63) *deserticola*, (64) *crassispina*.



**Figs. 65 - 77** *Meranoplus* workers, heads of (65) *convexius*, (66) *naitsabes*, (67) *digitatus*, (68) *discalis*, (69) *diversus*, (70) *diversoides*, (71) *christinae*, (72) *occidentalis*, (73) *angustinodis*, (74) *variabilis*, (75) *mcarthuri*, (76) *taurus*, (77) *arcuatus*.



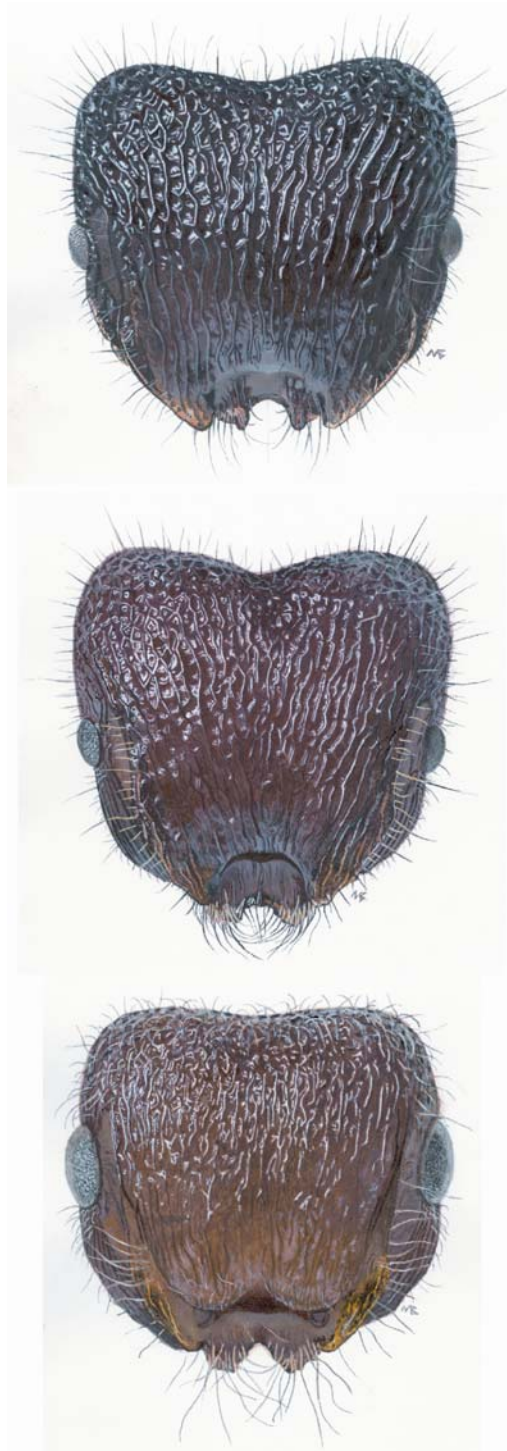
Figs. 78 - 83 Distribution of *M. diversus*-group species, as known from studied material.



**Figs. 84 - 89** Distribution of *M. diversus*-group species, as known from studied material.



**Figs. 90 - 95** Historic type label data of *Meranoplus* species (90) *ajax*, holotype, (91) *unicolor*, lectotype, (92) *duykensii*, lectotype, (93) *oxleyi*, lectotype, (94) *mars*, lectotype, (95) *diversus*, holotype.



**Plate 1** Heads of *Meranoplus* workers, showing surface structure and pilosity (A) *snellingi*, (B) *christinae*, (C) *occidentalis*.