

# Taxonomy of the myrmecophilous genus *Myrmecopella* KISTNER with descriptions of seven new species (Coleoptera: Staphylinidae: Aleocharinae)

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## Abstract

Two species groups and nine species are recognised in the staphylinid genus *Myrmecopella* KISTNER & MCNAIRN, 1991 (Coleoptera: Staphylinidae: Aleocharinae: Lomechusini), all of them known only from Sulawesi, Indonesia. Seven species are described: *M. talodonis* sp.n., *M. tengahensis* sp.n., *M. yamauchii* sp.n., *M. brendelli* sp.n., *M. horii* sp.n. (*M. celebensis* group); *M. barlowi* sp.n., *M. utarana* sp.n. (*M. miricollis* group). A new combination is proposed: *Myrmecopella miricollis* (PACE, 1993) is transferred from *Orphnebius* MOTSCHULSKY. A supplementary description of the genus and a key to species are given. The systematic position of the genus is discussed and its distribution is mapped.

**Key words:** Coleoptera, Staphylinidae, Aleocharinae, *Myrmecopella*, taxonomy, systematic position, new species, new combination, Sulawesi, myrmecophily.

## Introduction

KISTNER & MCNAIRN (1991) established the genus *Myrmecopella* based on a new myrmecophilous species from Sulawesi associated with *Pheidologeton diversus* (JERDON, 1851): *M. celebensis*. PACE (1993) described two species of the genus *Orphnebius* MOTSCHULSKY, 1858, also from Sulawesi, *O. miricollis* and *O. rantepaensis*, which were assigned to a new subgenus, *Aethorphnebius* PACE. PACE (1993), in the appendix of the same paper, synonymized *O. rantepaensis* with *M. celebensis*, and *Aethorphnebius* with *Myrmecopella*. Thus, *Myrmecopella* has been known as a subgenus of *Orphnebius* including two species from Sulawesi.

KISTNER & MCNAIRN (1991) stated without any reasoning that *Myrmecopella* is most closely allied to *Pella* STEPHENS, 1843. Similarly, PACE (1993) did not mention any reason for attributing *Myrmecopella* to *Orphnebius* as a subgenus. Thus, the systematic position of *Myrmecopella* has remained uncertain. As will be discussed below, *Myrmecopella* is here treated as a distinct genus.

Recently, I had the opportunity to examine unidentified material of *Myrmecopella*, comprising seven undescribed species, which were collected during "Operation Drake 1980" and "Project Wallace 1985" organised by the Royal Entomological Society and the Natural History Museum, London, and during a field trip carried out by Mr. Hori Shigehisa and Mr. Yamauchi Eiji.

## Material and methods

All studied specimens were collected with flight interception traps (FIT), light trap or sifting leaf litter, and their association with ants is unknown.

The technical procedures adopted are generally the same as those explained in MARUYAMA et al. (2003). The terminology of microstructures largely follows SAWADA (1972), SEEVERS (1978) and MARUYAMA (2003). The numbers of setae and pores in the descriptions refer to one side of the body.

All measurements in the text are given in millimetres, and the following abbreviations are used: BL (body length); FBL (forebody length, from clypeus to apices of elytra); HL (head length); HW (head width); AL (antennal length); PL (pronotal length); PW (pronotal width), EL (elytral length); EW (elytral width); FTL (fore tibial length); MTL (mid tibial length); HTL (hind tibial length).

All holotypes and most paratypes of the new species are deposited in the Museum Zoologicum Bogoriense, R & D Centre for Biology-LIPI, Jl. Raya Jakarta-Bogor KM.46, Cibinong, Indonesia (MBBJ), and some paratypes are deposited in the Natural History Museum, London, and private collection of the author.

## Taxonomy

### *Myrmecopella* KISTNER & MCNAIRN

*Myrmecopella* KISTNER & MCNAIRN, 1991: 313 [original description, by monotypy]; PACE, 1993: 178 [subgenus of *Orphnebius*].

*Aethorphnebius* PACE, 1993: 154 [original description, subgenus of *Orphnebius*, type species: *M. miricollis*]; PACE, 1993: 178 [synonymized with *Myrmecopella*].

**SUPPLEMENTARY DESCRIPTION:** Prementum deeply emarginate anteromedially, with two real pores and 15-20 pseudopores along medial emargination, with internal ridge reaching apodeme, which is short, as long as prementum, roundly emarginated medially. Ligula thick, submembranous, rounded at apex, with four setulae. Second segment of labial palpus with membranous zone, which reaches to anterior margin. Pronotum with median sulcus, reaching near anterior and posterior margins, covered with longitudinal sculptures, anterior margin produced and margined, posterolateral angle roundly produced. Elytra with lateral ridges. Basal suture of 3<sup>rd</sup> abdominal paratergite forming auriform projection. Seventh abdominal tergite with a pair of granules. Spermatheca with chamber once curved near apex; capsule with projection at apex (based on females of three species).

**DISTINGUISHING CHARACTERS:** 1) Colour; 2) eye size, ratio to postocular part; shape of median sulcus on pronotum as illustrated; 3) number of bristles on pronotum, consisting of two kinds: major bristles distributed on anterolateral angles (3-7 in number) and minor bristles distributed near anteromedial area (1 in number) and posterolateral area (1 in number); 4) male abdominal ornaments, especially shape of 3<sup>rd</sup> sternite; 5) distance between a pair of granules on 7<sup>th</sup> abdominal tergite; 6) shape of median lobe of aedeagus, especially configuration of apical lobe, ventral crest, copulatory piece and sclerites of inner sac; and, 7) shape of spermatheca probably useful for classifying species. At present, male material is indispensable for reliable identification of species, because the diagnoses of one species described by PACE (1993) and five species described here - of a total of nine known species - are based only on male material.

**REMARKS:** Two distinct groups can be recognised based on the aedeagal morphology. For facilitating identification, two species groups, the *M. celebensis* group and the *M. miricollis* group, are established, though the key to the species provided in this paper is mainly based on the secondary male sexual characters.

***Myrmecopella celebensis* group**

SPECIES INCLUDED: *Myrmecopella celebensis*, *M. talodonis*, *M. tengahensis*, *M. yamauchii*, *M. brendelli*, *M. horii*.

DIAGNOSIS: Median lobe of aedeagus ovate; ventral crest produced; copulatory piece large, much larger than apical sclerites.

REMARKS: The ovate aedeagal median lobe is commonly observed in the *Lomechusini* and may possibly be plesiomorphic. No autapomorphic character has been found in this species group.

***Myrmecopella celebensis* KISTNER & MCNAIRN**

*Myrmecopella celebensis* KISTNER & MCNAIRN, 1991: 319 [original description, holotype in MBBJ, type locality: Dumoga Bone, Sulawesi Utara].

*Orphnebius (Myrmecopella) celebensis*: PACE, 1993: 178 [senior synonym of *O. rantepaoensis*].

*Orphnebius (Aethorphnebius) rantepaoensis* PACE, 1993: 156 [original description, type locality: Rante Pao, Sulawesi Selatan]; PACE, 1993: 178 [synonymized with *M. celebensis*].

DIAGNOSIS: This species can easily be distinguished from the other species of the genus by the absence of the projection on the male 3<sup>rd</sup> abdominal sternite.

COMMENTS: PACE (1993) synonymized *M. rantepaoensis* with this species probably because of the similarity in the shape of the aedeagus. However, in the *M. celebensis* group, the aedeagi are very similar in general shape. The apical lobe of the aedeagal median lobe seems longer in *M. rantepaoensis* than in *M. celebensis*, therefore it might be possible that *M. rantepaoensis* will be removed from synonymy in the future. The photograph of the aedeagus of *M. celebensis* shown in KISTNER & MCNAIRN (1991) is somewhat crushed and deformed on a microscopic slide, and is difficult to be compared with PACE's (1993) line drawing. Direct reexamination of the types will be needed for clarifying the true identity of *M. rantepaoensis*.

***Myrmecopella talodonis* sp.n.**

(Figs. 1, 9 - 14)

**Holotype:** ♂ "INDONESIA (FIT) SE Sulawesi Talodo (630m alt.), 5-9. II. 2003, Hori S.". **Paratype:** 1 ♂, same data as holotype.

**TYPE LOCALITY:** Talodo [ca. 60 km east of Kolaka], Sulawesi Tenggara, Indonesia.

DIAGNOSIS: In the *M. celebensis* group, this species is similar to *M. tengahensis* in the shape of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from it by the different number of major setae on the pronotum, and the differently shaped apical lobe of the aedeagal median lobe, which is much wider at the base in lateral view. It is also similar to *M. utarana* in the shape of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from it by the narrower median sulcus on the pronotum.

DESCRIPTION: Facies as shown in Fig. 1. Brown in ground colour; mouthparts, antennae, humeral areas of elytra, legs, basal segments of abdomen reddish brown. Eyes large, 0.65 times as long as head capsule (Fig. 9). Relative lengths of antennal segments from basal to apical: 42: 20: 21: 16: 16: 16: 16: 15: 15: 15: 25. Pronotum (PW/PL = 1.15 - 1.18) with median sulcus moderate in width, and with seven major bristles (Fig. 10). Legs: relative lengths of tarsomeres from basal to apical: fore tarsus: 10: 12: 12: 20; mid tarsus: 15: 14: 13: 12: 19; hind tarsus: 28: 16: 16: 15: 21. Third abdominal sternite with lateral projection half as long as paratergite, almost straight, thin in dorsal view, pointed at apex in lateral view (Figs. 11, 12). Distance between pair of granules on 7<sup>th</sup> tergite slightly shorter than distance between granule and lateral margin of

tergite. Median lobe of aedeagus with apical lobe slightly curved ventrad at apex, constricted near apex, widened basad, and somewhat convex ventrad in lateral view (Figs. 13, 14).

MEASUREMENTS: BL: ca. 7.1 - 7.5; FBL: ca. 2.9 - 3.0; HL: 0.89 - 0.93; HW: 1.23 - 1.24; AL: 2.85 - 2.95; PL: 1.03 - 1.08; PW: 1.22 - 1.24; EL: 1.23 - 1.25; EW: 1.84 - 1.88; FTL: 1.00 - 1.08; MTL: 1.25 - 1.30; HTL: 1.60 - 1.63.

ETYMOLOGY: The specific epithet is given after the type locality.

***Myrmecopella tengahensis* sp.n.**  
(Figs. 2, 15 - 20)

**Holotype:** ♂ "SULAWESI TENGAH: Solatong R., Taronggo 1° 45' S - 121° 40' E 27-30. iii. 1980 / Forest floor litter / M.J.D. Brendell B.M. 1980-280".

TYPE LOCALITY: Taronggo, Sulawesi Tengah, Indonesia.

DIAGNOSIS: In the *M. celebensis* group, this species is similar to *M. talodonis* in the shape of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from it by the different number of major setae on the pronotum, and the differently shaped apical lobe of the aedeagal median lobe, which is much narrower and subparallel-sided at the base in lateral view. This species is similar to *M. utarana* in the shape of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from it by the narrower median sulcus on the pronotum.

DESCRIPTION: Facies as shown in Fig. 2. Yellowish brown in ground colour; mouthparts, antennae, legs, and abdomen paler (teneral holotype). Eyes moderate in size, 0.55 times as long as head capsule (Fig. 15). Relative lengths of antennal segments from basal to apical: 36: 18: 19: 16: 15: 15: 14: 14: 13: 13: 20. Pronotum (PW/PL = 1.15) with median sulcus moderate in width, and with four major bristles (Fig. 16). Legs: relative lengths of tarsomeres from basal to apical: fore tarsus: 10: 10: 11: 18; mid tarsus: 16: 12: 10: 10: 18; hind tarsus: 24: 16: 14: 13: 21. Third abdominal sternite with lateral projection half as long as paratergite, almost straight, thin in dorsal view, pointed at apex in lateral view (Figs. 17, 18). Distance between pair of granules on 7<sup>th</sup> tergite half as long as distance between granule and lateral margin of tergite. Median lobe of aedeagus with apical lobe curved ventrad around apex, subparallel-sided in lateral view (Figs. 19, 20).

MEASUREMENTS: BL: ca. 6.4; FBL: ca. 2.75; HL: 0.84; HW: 1.13; AL: 2.55; PL: 0.94; PW: 1.08; EL: 1.09; EW: 1.70; FTL: 0.95; MTL: 1.18; HTL: 1.39.

ETYMOLOGY: The specific epithet is given after the type locality.

***Myrmecopella yamauchii* sp.n.**  
(Figs. 3, 21 - 26)

TYPE SERIES: **Holotype:** ♂ "INDONESIA (FIT) SE Sulawesi Talodo (630m alt.) 5-9. II. 2003, Hori S."

TYPE LOCALITY: Talodo, Sulawesi Tenggara, Indonesia.

DIAGNOSIS: This species is closely similar to *M. brendelli* in the shape of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from it by the evidently larger ventral crest of the aedeagal median lobe.

DESCRIPTION: Facies as shown in Fig. 3. Brown in ground colour; mouthparts, antennae, legs, and basal segments of abdomen reddish brown. Eyes small, 0.53 times as long as head capsule (Fig. 21). Relative lengths of antennal segments from basal to apical: 38: 19: 18: 15: 14: 14: 13: 13: 13: 23. Pronotum (PW/PL = 1.19) with median sulcus moderate in width, and with four

major bristles, which are small and slightly longer than minor bristles (Fig. 22). Legs: relative lengths of tarsomeres from basal to apical: fore tarsus: 9: 10: 10: 16; mid tarsus: 15: 12: 11: 11: 17; hind tarsus: 21: 14: 13: 11: 19. Third abdominal sternite with lateral projection almost twice as long as paratergite, slightly curved ventrad, thick in dorsal view, slightly pointed at apex in lateral view; interior projection somewhat shorter than lateral projection, obliquely truncate, and constricted near base (Figs. 23, 24). Distance between pair of granules on 7<sup>th</sup> tergite half as long as distance between granule and lateral margin of tergite. Median lobe of aedeagus with apical lobe curved ventrad around apex, widened basad, convex ventrad near base in lateral view (Figs. 25, 26).

MEASUREMENTS: BL: ca. 6.4; FBL: ca. 2.8; HL: 0.80; HW: 1.09; AL: 2.73; PL: 0.91; PW: 1.08; EL: 1.14; EW: 1.63; FTL: 0.95; MTL: 1.13; HTL: 1.35.

ETYMOLOGY: Dedicated to Yamauchi Eiji (Hokkaidô), who accompanied Hori Shigehisa to Sulawesi and helped him collecting.

***Myrmecopella brendelli* sp.n.**  
(Figs. 4, 27 - 32)

**Holotype:** 1 ♂ "SULAWESI TENGAH: Solato R., Taronggo 1° 45' S - 121° 40' E 27-30. iii. 1980 / Forest Floor Litter / M.J.D. Brendell B.M. 1980-280". **Paratypes:** 5 ♂♂, same data as holotype.

TYPE LOCALITY: Taronggo, Sulawesi Tengah, Indonesia.

DIAGNOSIS: This species is closely similar to *M. brendelli* in the shape of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from it by the evidently smaller ventral crest of the aedeagal median lobe.

DESCRIPTION: Facies as shown in Fig. 4. Brown in ground colour; mouthparts, antennae, legs, and abdomen reddish brown. Eyes large, 0.62 times as long as head capsule (Fig. 27). Relative lengths of antennal segments from basal to apical: 39: 20: 21: 18: 16: 16: 15: 15: 15: 14: 23. Pronotum (PW/PL = 1.15 - 1.21) with median sulcus narrow, and with four major bristles (Fig. 28). Legs: relative lengths of tarsomeres from basal to apical: fore tarsus: 9: 11: 11: 20; mid tarsus: 18: 15: 14: 13: 18; hind tarsus: 26: 18: 16: 14: 21. Third abdominal sternite with lateral projection almost twice as long as paratergite, slightly curved ventrad, thick in dorsal view, slightly pointed at apex in lateral view; interior projection somewhat shorter than lateral projection, obliquely truncate, slightly constricted near base (Figs. 29, 30). Distance between a pair of granules on 7<sup>th</sup> tergite half as long as distance between granule and lateral margin of tergite. Median lobe of aedeagus with apical lobe slightly curved ventrad near apex, slightly widened basad in lateral view (Figs. 31, 32).

MEASUREMENTS: BL: ca. 7.2 - 7.3; FBL: ca. 2.8 - 2.9; HL: 0.86 - 0.89; HW: 1.18 - 1.23; AL: 2.80 - 2.90; PL: 1.03 - 1.04; PW: 1.20 - 1.25; EL: 1.23 - 1.30; EW: 1.90 - 1.95; FTL: 1.00 - 1.05; MTL: 1.25 - 1.20; HTL: 1.50 - 1.55.

ETYMOLOGY: Named in honour of the collector of the type series, M. Brendell.

***Myrmecopella horii* sp.n.**  
(Figs. 5, 6, 33 - 39)

**Holotype:** ♂ "INDONESIA (FIT) SE Sulawesi Talodo (630m alt.) 5-9. II. 2003, Hori S.". **Paratypes:** 2 ♀♀, same data as holotype.

TYPE LOCALITY: Talodo, Sulawesi Tenggara, Indonesia.

**DIAGNOSIS:** This species is similar to *M. yamauchii* and *M. brendelli* in the length of the lateral projection of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from them by the interior projection of the 3<sup>rd</sup> abdominal sternite in male not truncate but pointed at apex.

**DESCRIPTION:** Facies as shown in Figs. 5, 6. Reddish brown in ground colour; elytra except for humeral areas, and 7<sup>th</sup> and 8<sup>th</sup> abdominal segments darker. Eyes large, 0.67 times as long as head capsule (Fig. 33). Relative lengths of antennal segments from basal to apical: 48: 20: 22: 19: 17: 17: 16: 16: 15: 26. Pronotum (PW/PL = 1.17 - 1.20) with median sulcus moderate in width, and with seven major bristles, which are small and slightly longer than minor bristles (Fig. 34). Legs: relative lengths of tarsomeres from basal to apical: fore tarsus: 11: 12: 12: 21; mid tarsus: 18: 15: 14: 12: 20; hind tarsus: 29: 17: 16: 15: 23. Third abdominal sternite with lateral projection slightly longer than paratergite, gently curved ventrad, thick in dorsal view, slightly pointed at apex in lateral view; interior projection half as long as lateral projection, slightly pointed at apex (Figs. 35, 36). Distance between pair of granules on 7<sup>th</sup> tergite almost as long as distance between granule and lateral margin of tergite. Median lobe of aedeagus with apical lobe slightly curved ventrad at apex, constricted near apex, widened basad, and somewhat convex ventrad in lateral view (Figs. 37, 38). Spermatheca with chamber 2.5 times as long as capsule, nearly spherical at base, and curved at apical 1/3; capsule much thicker than chamber, subparallel-sided.

**MEASUREMENTS:** BL: ca. 7.1 - 7.3; FBL: ca. 3.2 - 3.3; HL: 0.94 - 1.01; HW: 1.35 - 1.44; AL: 3.10 - 3.25; PL: 1.14 - 1.16; PW: 1.33 - 1.39; EL: 1.33 - 1.40; EW: 2.00 - 2.05; FTL: 1.18 - 1.19; MTL: 1.40 - 1.45; HTL: 1.68 - 1.80.

**ETYMOLOGY:** Named in honour of the collector of the type series.

### ***Myrmecopella miricollis* group**

**SPECIES INCLUDED:** *Myrmecopella miricollis*, *M. barlowi*, *M. utarana*.

**DIAGNOSIS:** Median lobe of aedeagus narrowly ovate; ventral crest small; copulatory piece small, much smaller than apical sclerites.

### ***Myrmecopella miricollis* PACE comb.n.**

*Orphnebius* (*Aethorphnebius*) *miricollis* PACE, 1993: 154 [original description, type locality: Rante Pao, Sulawesi Selatan].

*Orphnebius* (*Myrmecopella*) *miricollis*: PACE, 1993: 178.

**DIAGNOSIS:** This species is similar to *M. barlowi* in the presence of the lateral projection of the male 4<sup>th</sup> abdominal sternite and medial ridge on the 4<sup>th</sup> abdominal tergite in male but distinguished from it by the posterior margin of the 3<sup>rd</sup> abdominal tergite truncate in male.

### ***Myrmecopella barlowi* sp.n.**

(Figs. 7, 40 - 45)

**Holotype:** ♂ "INDONESIA: SULAWESI UTARA, Dumoga-Bone N. P. April 1985. / 'Rothamsted' light trap, site 1, 200m. H. Barlow / R. Ent. Soc. Lond. Project Wallace B. M. 1985-10".

**TYPE LOCALITY:** Dumoga Bone, Sulawesi Utara, Indonesia.

**DIAGNOSIS:** This species is similar to *M. miricollis* in the presence of the lateral projection of the 4<sup>th</sup> abdominal sternite and medial ridge the 4<sup>th</sup> abdominal tergite in male, but distinguished from it by the posterior margin of the 3<sup>rd</sup> abdominal tergite emarginate in male.

**DESCRIPTION:** Facies as shown in Fig. 7. Reddish brown in ground colour; 5<sup>th</sup> - 8<sup>th</sup> abdominal segments darker. Eyes moderate in size, 0.57 times as long as head capsule (Fig. 40). Relative lengths of antennal segments from basal to apical: 43: 21: 22: 20: 20: 19: 18: 18: 17: 15: 24. Pronotum (PW/PL = 1.11) with median sulcus wide, and with four major bristles (Fig. 41). Legs: relative lengths of tarsomeres from basal to apical: fore tarsus: 11: 12: 12: 18; mid tarsus: 20: 15: 15: 12: 19; hind tarsus: 30: 17: 17: 16: 20. Third abdominal sternite with lateral projection almost half as long as paratergite, slightly curved dorsad, thin in dorsal view, pointed at apex in lateral view; interior projection much shorter than lateral projection, almost rectangular, pointed at apex (Figs. 42, 43); 4<sup>th</sup> abdominal sternite slightly produced laterad. Distance between a pair of granules on 7<sup>th</sup> tergite 1.5 times as long as distance between granule and lateral margin of tergite. Median lobe of aedeagus with apical lobe curved ventrad around apex, gently widened basad in lateral view (Figs. 44, 45).

**MEASUREMENTS:** BL: ca. 7.1; FBL: ca. 3.1; HL: 0.93; HW: 1.24; AL: 3.1; PL: 1.21; PW: 1.34; EL: 1.23; EW: 1.83; FTL: 1.05; MTL: 1.35; HTL: 1.58.

**ETYMOLOGY:** Named in honour of the collector of the type series, H. Barlow (England).

***Myrmecopella utarana* sp.n.**  
(Figs. 8, 46 - 51)

**Holotype:** ♂ "INDONESIA: SULAWESI UTARA, N. P. 26 February 1985. / Flight Interception Trap 2 / Plot A, ca 200m Lowland Forest / R. Ent. Soc. Lond. Project Wallace B. M. 1985-10 / 29. 30.". **Paratypes:** 1 ♀ (teneral), "INDONESIA: SULAWESI UTARA, Dumoga-Bone N. P. 24 February 1985. / Flight Interception Trap 1 / Plot A, ca 200m Lowland Forest / R. Ent. Soc. Lond. Project Wallace B. M. 1985-10"; 1 ♂, "INDONESIA: SULAWESI UTARA, Dumoga-Bone N. P. May 1985. / 'Edwards Camp' Lowland Forest 664m, 29. iv - 7. V. / R. Ent. Soc. Lond. Project Wallace B. M. 1985-10 / Malaise Trap".

**TYPE LOCALITY:** Dumoga Bone, Sulawesi Utara, Indonesia.

**DIAGNOSIS:** This species can be distinguished from the other species of the *M. miricollis* group by the shape of the 3<sup>rd</sup> abdominal sternite in male, which lacks the interior projection, and by the absence of the lateral projection of the 4<sup>th</sup> abdominal sternite in male. It is similar to *M. talodonis* and *M. tengahensis* in the shape of the 3<sup>rd</sup> abdominal sternite in male, but distinguished from them by the different number of major setae on the pronotum and the wider pronotal median sulcus.

**DESCRIPTION:** Facies as shown in Fig. 8. Reddish brown in ground colour; 5<sup>th</sup> - 8<sup>th</sup> abdominal segments darker. Eyes moderate in size, 0.55 times as long as head capsule (Fig. 46). Relative lengths of antennal segments from basal to apical: 41: 20: 22: 20: 20: 19: 18: 18: 17: 16: 23. Pronotum (PW/PL = 1.12 - 1.20) with median sulcus wide, and with three major bristles (Fig. 47). Legs: relative lengths of tarsomeres from basal to apical: fore tarsus: 10: 11: 12: 21; mid tarsus: 15: 14: 12: 12: 18; hind tarsus: 27: 17: 15: 13: 20. Third abdominal sternite with lateral projection 1/3 as long as paratergite, slightly curved ventrad, thin in dorsal view, pointed at apex in lateral view (Figs. 48, 49). Distance between pair of granules on 7<sup>th</sup> tergite almost twice as long as distance between granule and lateral margin of tergite. Median lobe of aedeagus with apical lobe slightly curved ventrad near apex, and gently widened basad in lateral view (Figs. 50, 51).

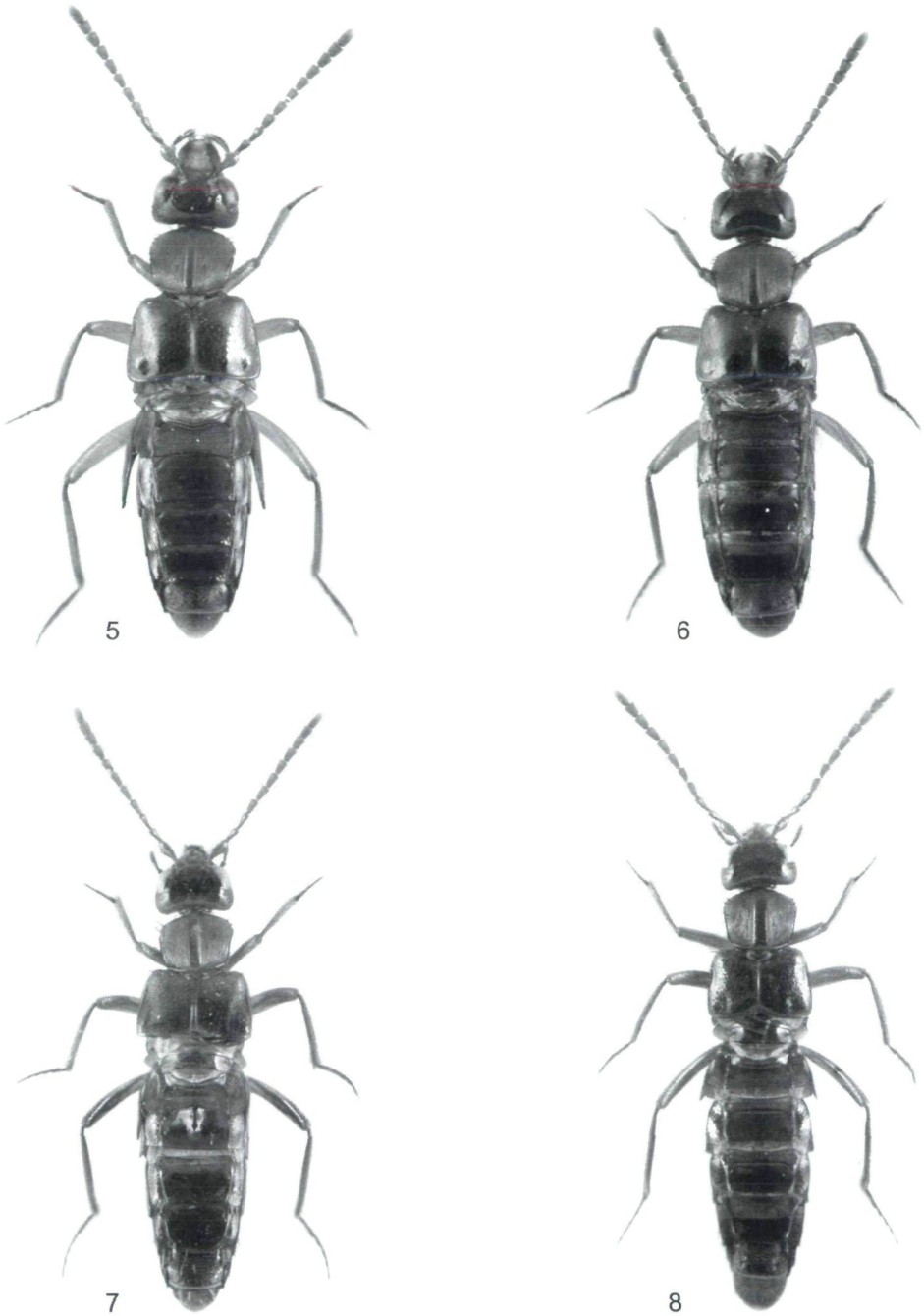
**MEASUREMENTS:** BL: ca. 6.5 - 7.0; FBL: ca. 2.6 - 2.8; HL: 0.80 - 0.83; HW: 1.15 - 1.16; AL: 3.05 - 3.15; PL: 0.95 - 0.98; PW: 1.10 - 1.14; EL: 1.10 - 1.13; EW: 1.68 - 1.72; FTL: 1.00 - 1.05; MTL: 1.25 - 1.28; HTL: 1.48 - 1.50.

**ETYMOLOGY:** Named after the type locality.

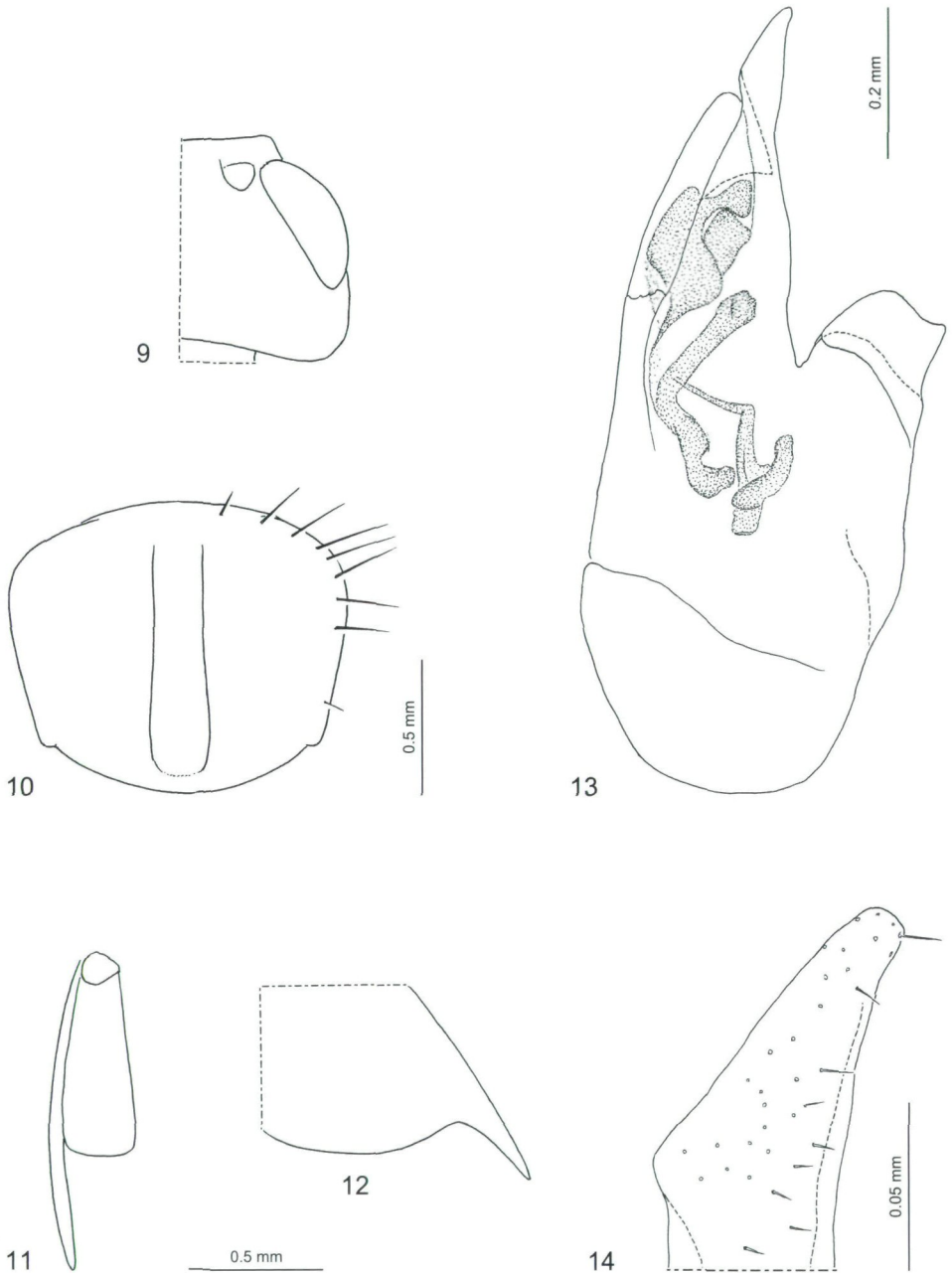


Figs. 1 - 4: Facies of 1) *Myrmecopella talodonis*, ♂ (left mid tarsus added digitally), 2) *M. tengahensis*, ♂, 3) *M. yamauchii*, ♂, and 4) *M. brendelli*, ♂.

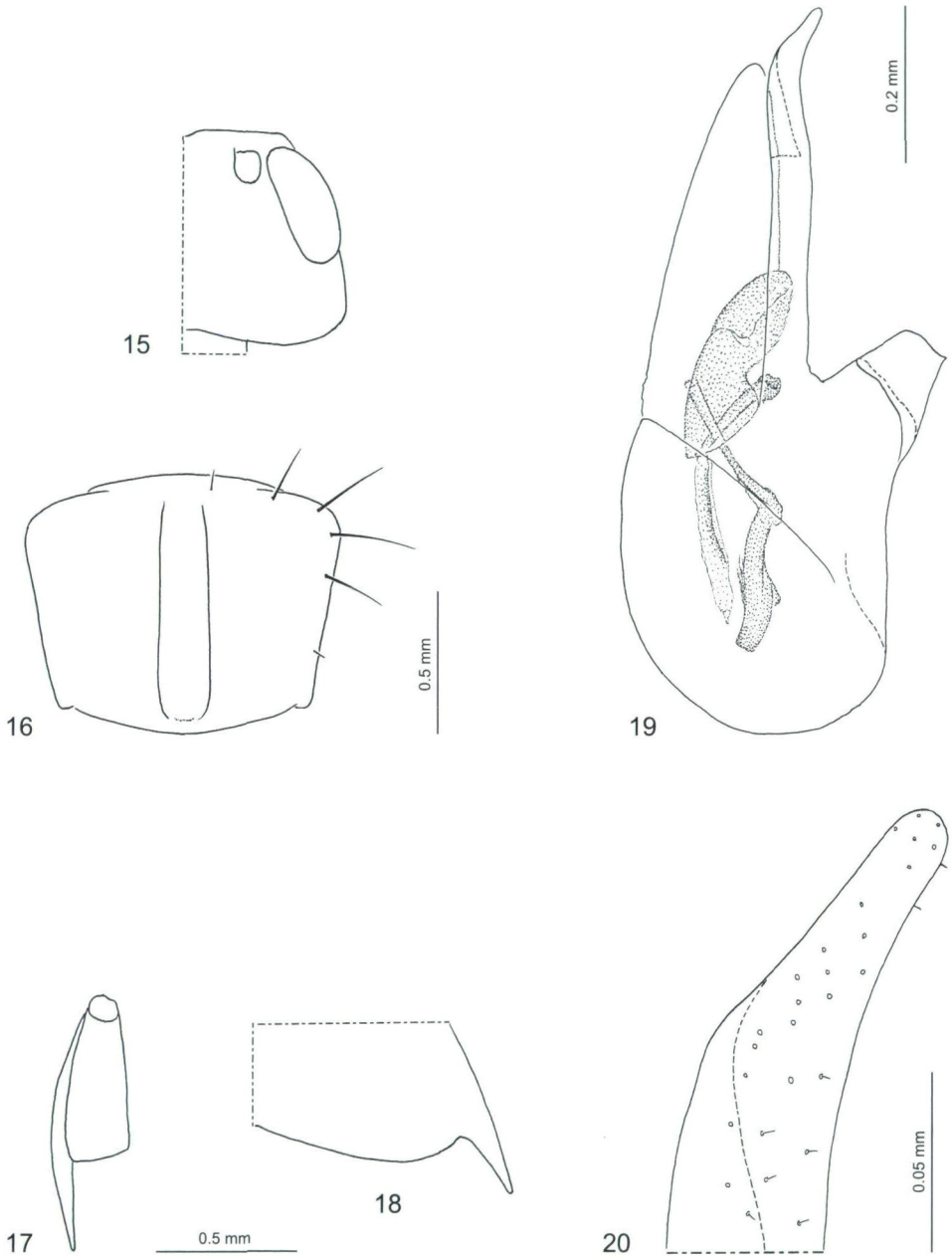




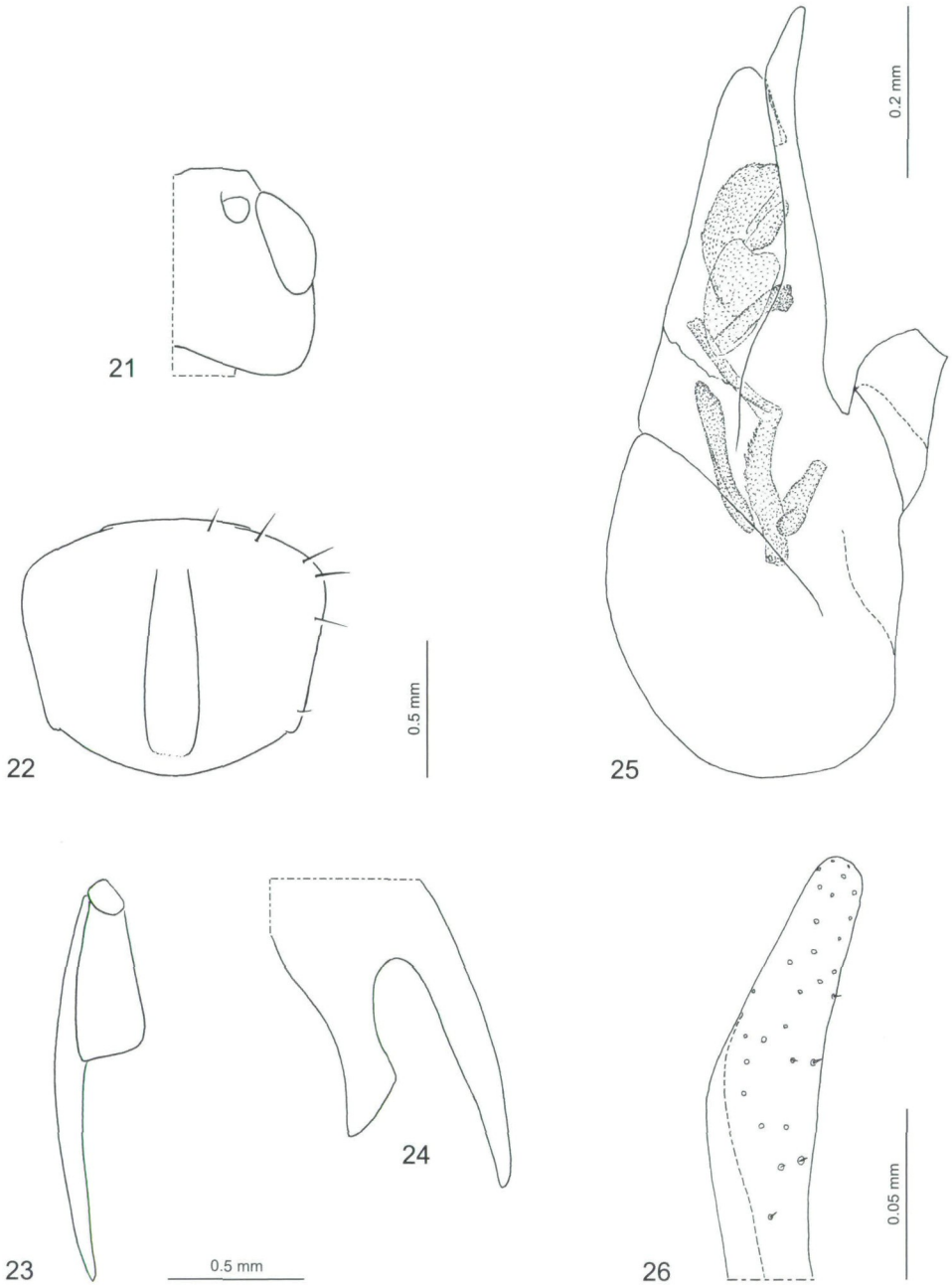
Figs. 5 - 8: Facies of 5) *Myrmecopella horii*, ♂, 6) same, ♀, 7) *M. barlowi*, ♂ (right hind leg added digitally), and 8) *M. utarana*, ♂ (right antenna and left fore tibia added digitally).



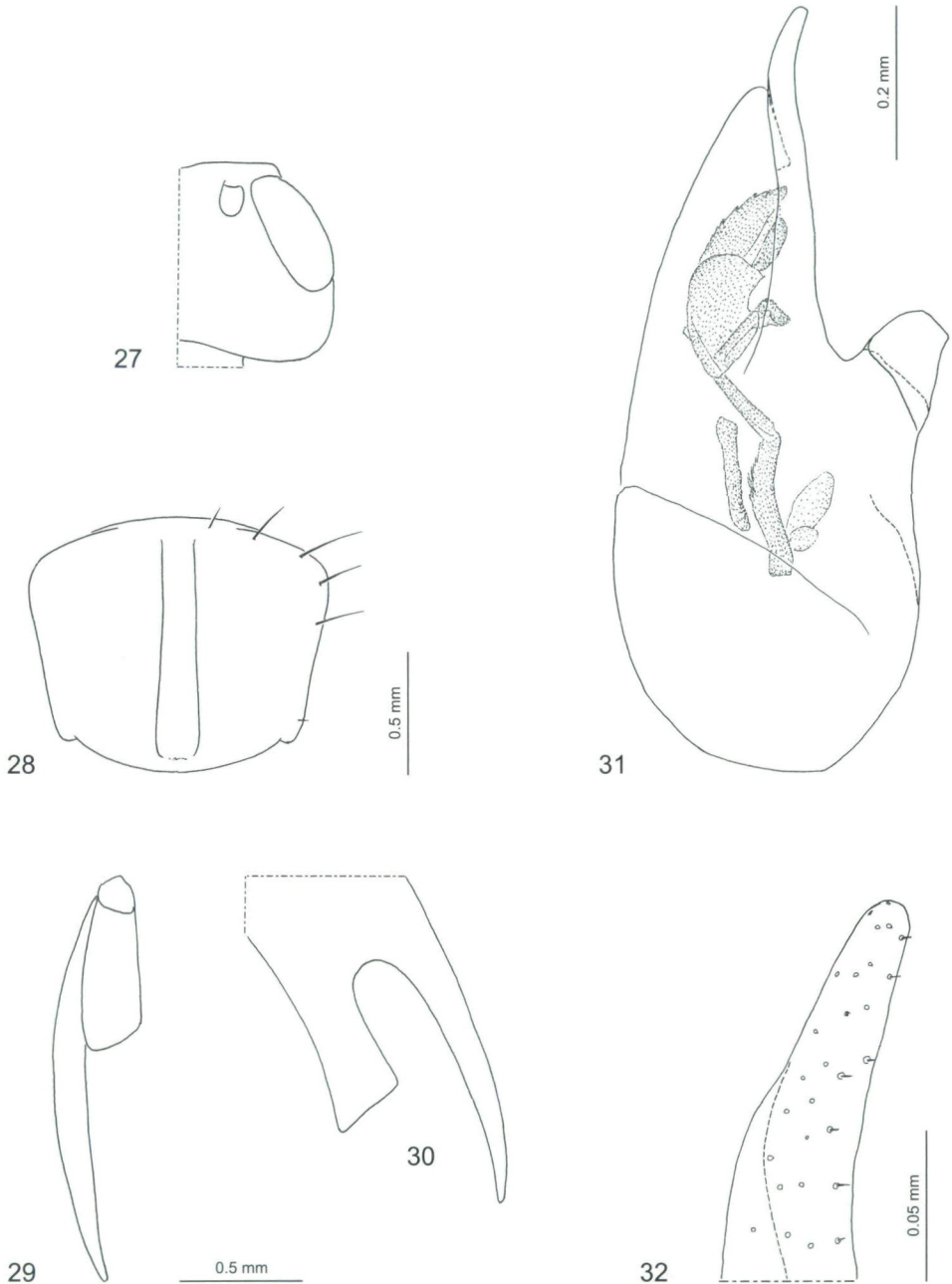
Figs. 9 - 14: *Myrmecopella talodonis*; 9) head, right side, dorsal view; 10) pronotum, dorsal view; 11) paratergite and lateral projection of 3<sup>rd</sup> abdominal segment, dorsal view; 12) lateral projection of 3<sup>rd</sup> abdominal segment, lateral view; 13) median lobe of aedeagus, lateral view; 14) apex of median lobe, lateral view.



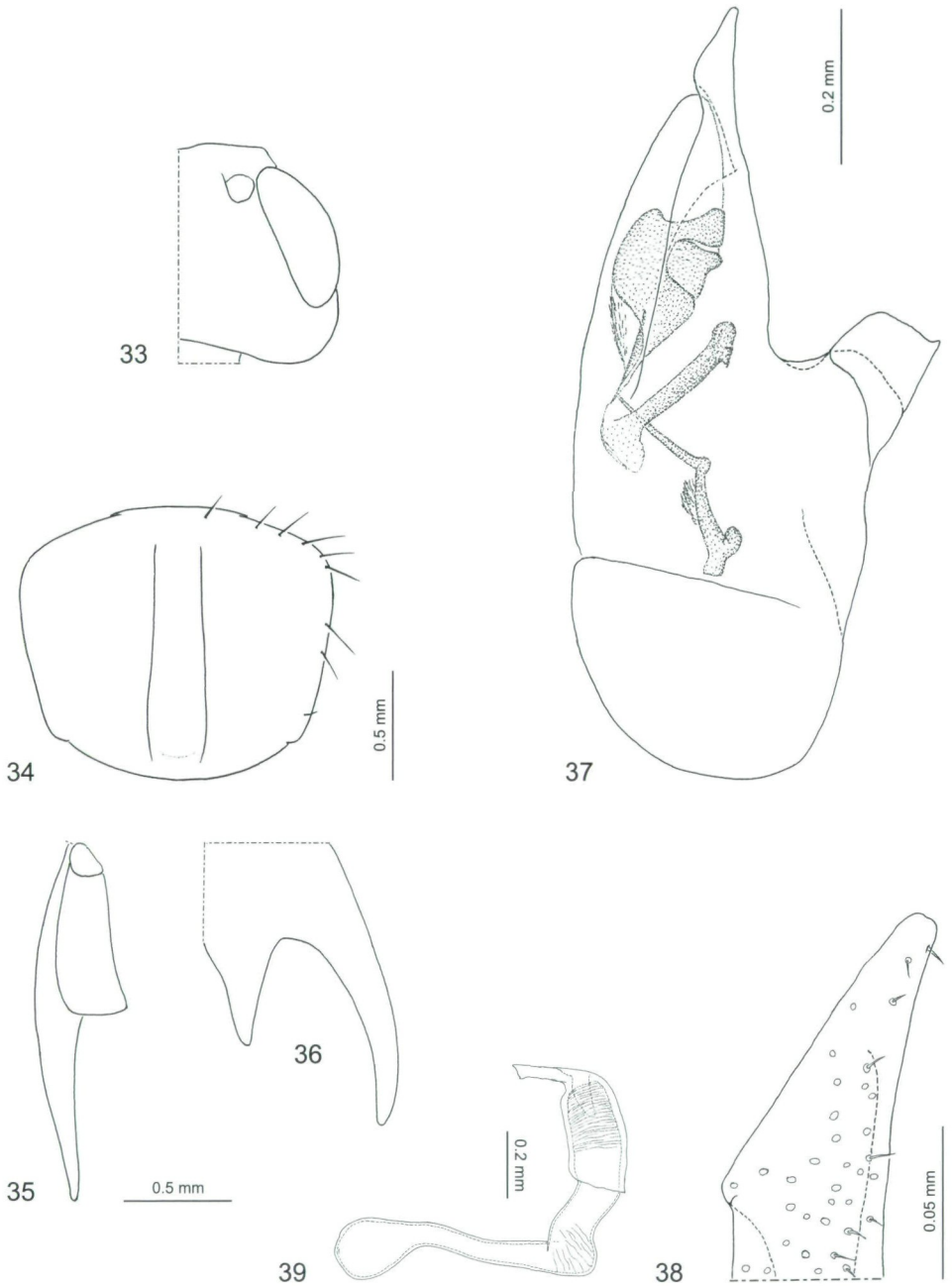
Figs. 15 - 20: *Myrmecopella tengahensis*; 15) head, right side, dorsal view; 16) pronotum, dorsal view; 17) paratergite and lateral projection of 3<sup>rd</sup> abdominal segment, dorsal view; 18) lateral projection of 3<sup>rd</sup> abdominal segment, lateral view; 19) median lobe of aedeagus, lateral view; 20) apex of median lobe, lateral view.



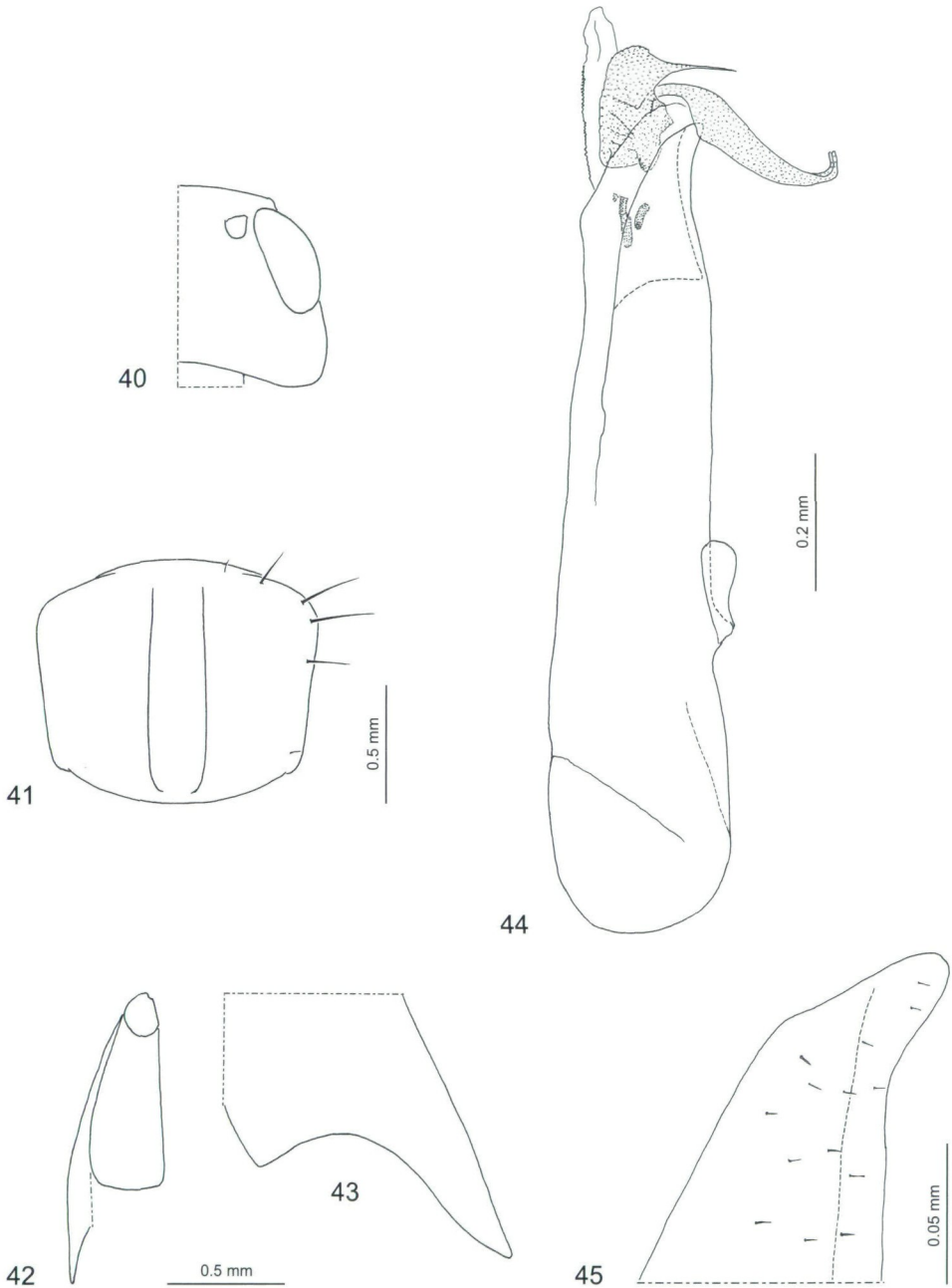
Figs. 21 - 26: *Myrmecopella yamauchii*; 21) head, right side, dorsal view; 22) pronotum, dorsal view; 23) paratergite and lateral projection of 3<sup>rd</sup> abdominal segment, dorsal view; 24) lateral projection of 3<sup>rd</sup> abdominal segment, lateral view; 25) median lobe of aedeagus, lateral view; 26) apex of median lobe, lateral view.



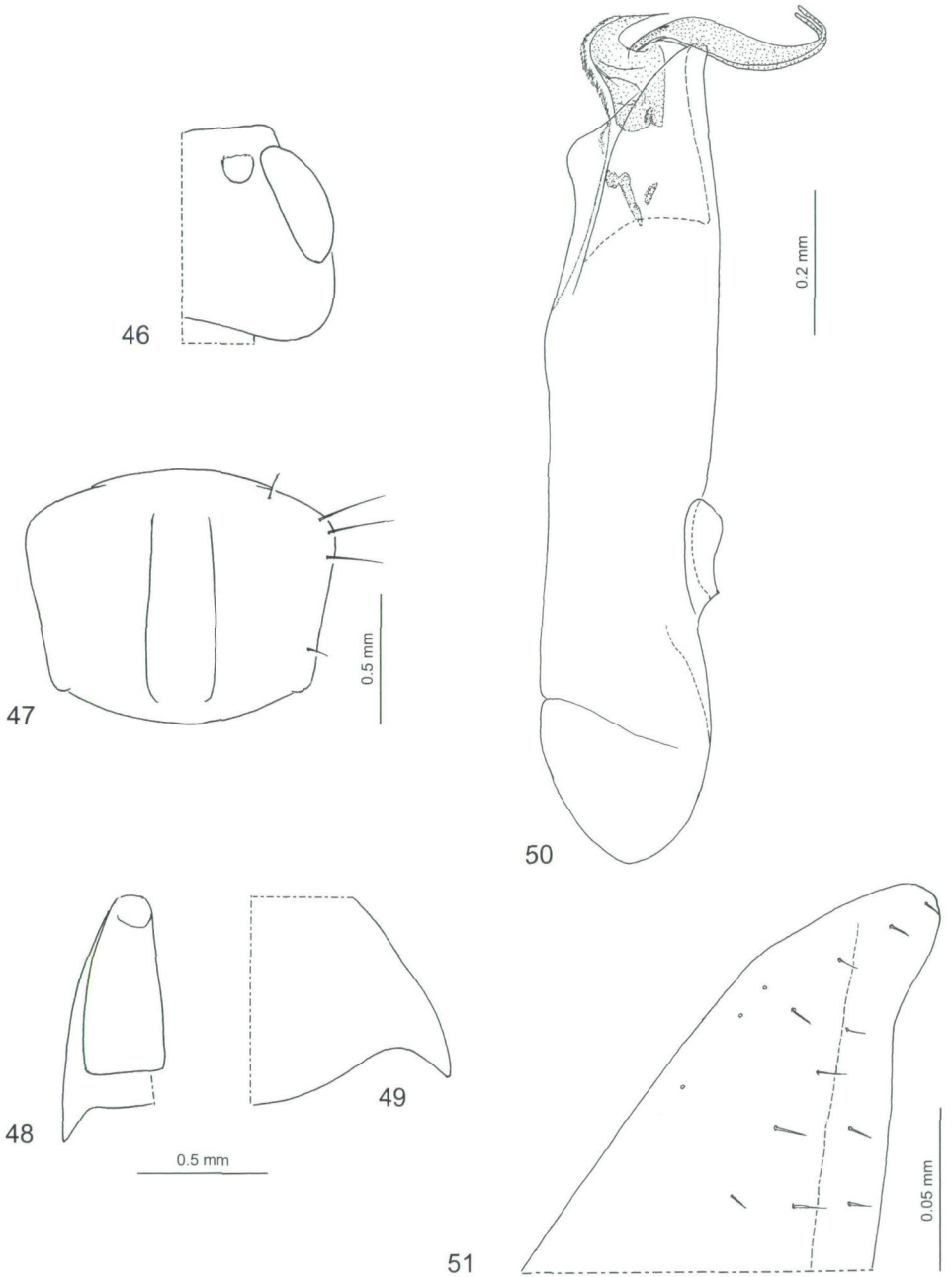
Figs. 27 - 32: *Myrmecopella brendelli*; 27) head, right side, dorsal view; 28) pronotum, dorsal view; 29) paratergite and lateral projection of 3<sup>rd</sup> abdominal segment, dorsal view; 30) lateral projection of 3<sup>rd</sup> abdominal segment, lateral view; 31) median lobe of aedeagus, lateral view; 32) apex of median lobe, lateral view.



Figs. 33 - 39: *Myrmecopella horii*; 33) head, right side, dorsal view; 34) pronotum, dorsal view; 35) paratergite and lateral projection of 3<sup>rd</sup> abdominal segment, dorsal view; 36) lateral projection of 3<sup>rd</sup> abdominal segment, lateral view; 37) median lobe of aedeagus, lateral view; 38) apex of median lobe, lateral view; 39) spermatheca.



Figs. 40 - 45: *Myrmecopella barlowi*; 40) head, right side, dorsal view; 41) pronotum, dorsal view; 42) paratergite and lateral projection of 3<sup>rd</sup> abdominal segment, dorsal view; 43) lateral projection of 3<sup>rd</sup> abdominal segment, lateral view; 44) median lobe of aedeagus, lateral view; 45) apex of median lobe, lateral view.



Figs. 46 - 51: *Myrmecopella utarana*; 46) head, right side, dorsal view; 47) pronotum, dorsal view; 48) paratergite and lateral projection of 3<sup>rd</sup> abdominal segment, dorsal view; 49) lateral projection of 3<sup>rd</sup> abdominal segment, lateral view; 50) median lobe of aedeagus, lateral view; 51) apex of median lobe, lateral view.



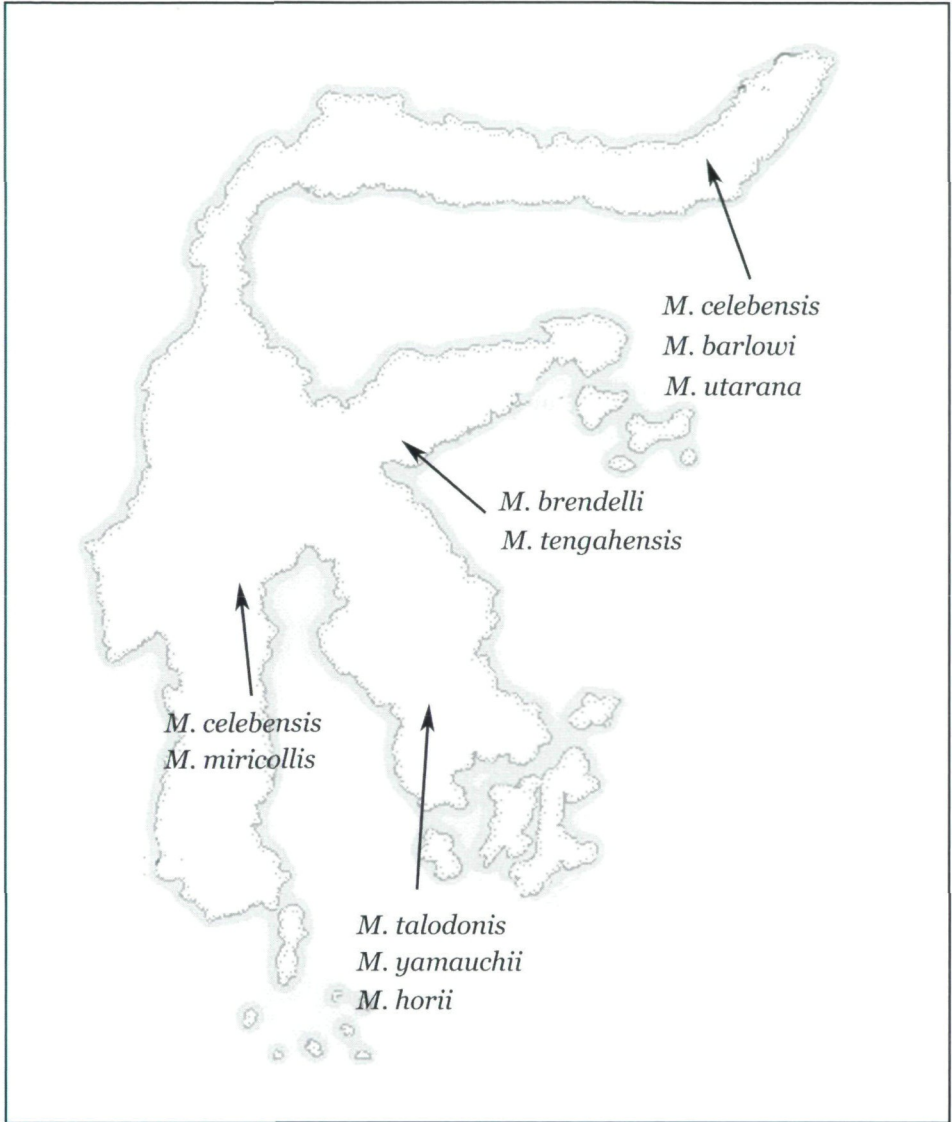


Fig. 52: Distributions of *Myrmecopella* spp. in Sulawesi.

**Key to species of *Myrmecopella* mainly based on male sexual characters**

- 1 Third abdominal sternite without projection ..... *celebensis*
- Third abdominal sternite with projection ..... 2
- 2 Fourth abdominal sternite and tergite with lateral projection and medial ridge, respectively ..... 3

-	Fourth abdominal segment without ornaments .....	4
3	Third abdominal tergite with posterior margin truncate .....	<i>miricollis</i>
-	Third abdominal tergite with posterior margin emarginate .....	<i>barlowi</i>
4	Third abdominal sternite with two projections laterally and interiorly .....	5
-	Third abdominal sternite with one projection laterally .....	7
5	Pronotum with seven major setae; interior projection of 3 <sup>rd</sup> abdominal sternite gently narrowed apicad and pointed at apex .....	<i>horii</i>
-	Pronotum with four major setae; interior projection of 3 <sup>rd</sup> abdominal sternite more or less constricted at middle and truncate at apex .....	6
6	Eyes small, 0.53 times as long as head capsule; interior projection of 3 <sup>rd</sup> abdominal sternite evidently constricted at middle .....	<i>yamauchii</i>
-	Eyes large, 0.62 times as long as head capsule; interior projection of 3 <sup>rd</sup> abdominal sternite slightly constricted at middle .....	<i>brendelli</i>
7	Pronotum with three major setae; median sulcus broad, half as wide as its lateral area; lateral projection of 3 <sup>rd</sup> abdominal sternite 1/3 as long as paratergite; aedeagal median lobe narrowly ovate as described in Diagnosis of the <i>M. miricollis</i> group .....	<i>utarana</i>
-	Pronotum with 4-7 major setae; median sulcus of pronotum narrow, 1/3 as wide as its lateral area; lateral projection of 3 <sup>rd</sup> abdominal sternite half as long as paratergite; aedeagal median lobe ovate as described in Diagnosis of the <i>M. celebensis</i> group .....	8
8	Pronotum with seven major setae; apical lobe of aedeagal median lobe widened basad in lateral view .....	<i>talodonis</i>
-	Pronotum with four major setae; apical lobe of aedeagal median lobe widened basad in lateral view .....	<i>tengahensis</i>

### Discussion

*Myrmecopella* is not closely related to *Pella*, contrary to the statement of KISTNER & MCNAIRN (1991), but allied to *Orphnebius* and some other lomechusine genera, e.g., *Tetradonia* WASMANN, 1894, *Strabocephalum* BERNHAUER, 1911, *Deroleptus* BERNHAUER, 1915, and *Catarractodes* STRAND, 1928 based on the combination of the following character states: 1) head with "neck"; 2) head without occipital sutures; 3) 1<sup>st</sup> segment of labial palpi evidently longer than 2<sup>nd</sup> segment; 4) pronotum almost as wide as head; 5) surface of 7<sup>th</sup> abdominal tergite covered with punctures, granules, sulci or other ornaments. Although these character states are highly homoplastic and sometimes subject to exceptions, this combination of character states is generally observed only in *Myrmecopella*, *Orphnebius* and their allies (rarely in the genus *Drusilla* LEACH belonging to the same subtribe as these genera) and suggests a close relationship.

Most of the above genera, including *Orphnebius*, have been poorly defined and cannot be clearly distinguished from one another in many cases, but *Myrmecopella* can easily be distinguished from them by the following character states: 1) labrum narrowed, slightly transverse; 2) pronotum with median sulcus, reaching to near anterior and posterior margins; 3) pronotum covered with longitudinal sculptures; 4) pronotum with anterior margin produced and margined; 5) pronotum with postero-lateral corner roundly produced; 6) elytra with lateral ridges; 7) basal suture on 3<sup>rd</sup> abdominal paratergite forming auriform projection. The character states 2, 5 and 7 are probably unique to *Myrmecopella* in the Lomechusini, and apparently autapomorphies of this genus. The present proposal to consider *Myrmecopella* a distinct genus is no more than tentative because of the possibility that *Myrmecopella* may eventually prove to be a highly derived group

in *Orphnebius* or the other allied genera. However, there is no clear evidence of *Myrmecopella* to be an ingroup of *Orphnebius* and, on the other hand, a sister group of the genus is unknown. A comprehensive phylogenetic analysis of the Lomechusini is required for determining the accurate systematic position of *Myrmecopella*.

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