

NEW MYRMOTERAS ANTS (HYMENOPTERA: FORMICIDAE) FROM THE SOUTHEASTERN PHILIPPINES

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ABSTRACT. – A key to Philippine species of the formicine ant genus *Myrmoteras* Forel, 1893 is presented and two new species are described: *Myrmoteras (Myagroteras) glabrum*, new species from the island of Camiguin and *Myrmoteras (Myagroteras) mcarthuri*, new species from the island of Leyte.

KEY WORDS. – Formicidae, *Myrmoteras*, *Myagroteras*, new species, Philippines, Leyte, Camiguin.

INTRODUCTION

Species of the genus *Myrmoteras* Forel, 1893 are among the most bizarre ant forms and unique among Formicinae by having mandibles that form into a specialized trap-jaw mechanism – a character that, however, has convergently evolved in other subfamilies (*Odontomachus* and *Anochetus* in Ponerinae; Dacetini in Myrmicinae). The small *Myrmoteras* ants with cryptic living habits in leaf litter have been rarely collected in the past, although more specialized collecting methods have yielded a relatively high species diversity, especially on Borneo and Sulawesi (Agosti 1992).

Myrmoteras is the only genus of the tribus Myrmoteratini Emery, 1895 (Bolton 2003) and has a chiefly Oriental distribution from India to the Philippines, Sulawesi, and Lombok of the Lesser Sunda Islands; limited to the east by Weber's Line (Agosti 1992; Tab. 1). Both subgenera, *Myrmoteras* s.str. and *Myagroteras* Moffett, 1985, are probably monophyletic entities (Moffett 1985). Only *Myagroteras* is known east of Huxley's Line (Philippines, Sulawesi, Lombok), and two Philippine-endemic species have been described in the past: *Myrmoteras (Myagroteras) williamsi* Wheeler, 1919 and *Myrmoteras (Myagroteras) insulcatum* Moffett, 1985. In this study we add two further species. However, the knowledge on *Myrmoteras* in the Philippines is extremely fragmentary (see Fig. 13), and much more specific field work with leaf litter sampling is required in order to provide a more complete picture than we can present now.

MATERIAL AND METHODS

Specimens. – Specimens are dry mounted on card squares or triangles. Examination of specimens was carried out with a LEICA Wild M10 binocular microscope; measurements were taken at magnifications of up to 128×. Digital photographs were taken with a Leica DFC camera attached to a Leica MZ16 binocular microscope with the help of Image Manager IM50 and stacked and processed with Helicon 5.0 and Adobe Photoshop 7.0 programmes, respectively.

Holotypes are deposited in the Entomological Collection of the University of San Carlos, Cebu City, paratypes in the Natural History Museum Vienna and in the authors' reference collections.

Terminology. – Terminology and method of description chiefly follow Moffett (1985). Characters of diagnoses are not fully repeated in the descriptions.

Measurements and indices. All measurements are in millimetres.

- TL Total length. Length of outstretched ant measured from apex of closed mandibles to apex of gaster.
HW Head width. Maximum width of head, in full-face view behind eyes (excluding eyes).
HL Head length, in full-face view, excluding mandibles, measured at full-face view along midline, from anterior clypeal margin to posterior margin of occipital lobe.

- EL Eye length. Maximum diameter of eye.
 ML Mandibular length. Length of closed mandible measured in straight line from mandible apex to lateral clypeus tooth on the same side as mandible being measured, when basal length of mandible shaft perpendicular to viewing angle.
 MI Mandibular index. $ML/HL \times 100$.
 SL Scape length. Length of antennal scape, measured in straight line, excluding basal condyle.
 SI Scape index. $SL/HW \times 100$.
 PW Pronotal width. Maximum width of pronotum in dorsal view.
 WL Mesosoma length. Diagonal length of alitrunk in lateral view, from frontal-most point of declivitous area of pronotum to posterior-most point of apex of metapleural lobe.

TAXONOMY OF PHILIPPINE SPECIES

Key to Philippine species of *Myrmoteras* (workers and gynes)

- 1 Head (Fig. 1) and pronotum (Fig. 3) smooth and shiny 2
 – Head (Figs. 7, 11) and pronotum (Fig. 9) granulate and dull. 3
- 2 Median frontal sulcus distinct (Fig. 1). Body dark brown *M. glabrum*, new species
 – Median frontal sulcus absent. Body dark orange red *M. insulcatum*
- 3 Posterior face of temple (behind ridge) finely granulate. Mandible Index ≥ 1.45 (Fig. 7). Petiolar node wide (lateral aspect, Fig. 8). Antennomeres 2 and 3 of subequal length (Fig. 7) *M. mcarthuri*, new species
 – Posterior face of temple (behind ridge) smooth, without any sculpture. Mandible Index ≤ 1.30 (Fig. 11). Petiolar node narrow (lateral aspect). Antennomere 2 approximately 1.5 times as long as antennomere 3 (Fig. 11) *M. williamsi*

SPECIES ACCOUNTS

Myrmoteras (Myagroteras) glabrum, new species (Figs. 1–6, 13)

Etymology. – The Latin adjective *glaber* means smooth, and the epithet refers to the smooth surface of the whole body.

Material examined. – Holotype (worker) from the Philippines, Camiguin Island, municipality of Mambajao, barangay Tupsan, Macaw Cold Spring, ca. 10 m a.s.l., 09°11'N, 124°46'E, 17 March 2010, leg. H. Zettel & C. V. Pangantihon (# 517) (label see Fig. 4).

Paratypes: 17 workers and 1 alate gyne from the same nest as the holotype. 1 worker from the Philippines, Camiguin Island, west of Mambajao proper, Katibawasan spring area, ca. 350 m a.s.l., 15 March 2010, leg. H. Zettel & C. V. Pangantihon (# 515). 1 worker from the Philippines, Camiguin Island, municipality of Mambajao, barangay Dagoocan, spring area, c. 350 m a.s.l., 14 February 2007, leg. H. Zettel (# 472).

Diagnosis of worker. – Colour mainly dark brown. Dorsum of head smooth. Median frontal sulcus prominent. Gap between clypeus and frons narrow. Labrum not strongly projecting, without long trigger hairs. Mandible with apical part not bent ventrad, with two minute preapical denticles. Disk of pronotum smooth. Dorsum of propodeum strongly convex. Middle tibia strongly dilated, approximately 4.0–4.5 times longer than wide.

Description of worker. – Measurements of holotype worker: TL 4.48, HW 0.87, HL 0.88, EL 0.57, ML 1.21, MI 137, SL 0.95, SI 109, PW 0.54, WL 1.28.

Measurements of paratype workers: Range of 19 workers: TL 4.30–4.72, HW 0.83–0.90, MI 135–141, WL 1.18–1.29. Measurements of worker with smallest HW: TL 4.30, HL 0.85, EL 0.53, ML 1.20, MI 141, SL 0.88, SI 106, PW 0.52, WL 1.18. Measurements of worker with largest HW: TL 4.65, HL 0.91, EL 0.59, ML 1.27, MI 140, SL 0.99, SI 110, PW 0.56, WL 1.27.

Colour: Dark brown, posterior half of mesosoma and petiole almost black. (One callow worker with soft integument pale, brown and yellow.) Mandibles and palpi yellow. Antennae brownish yellow. Legs dark brown except bases of tibiae light brown and tarsi yellowish.

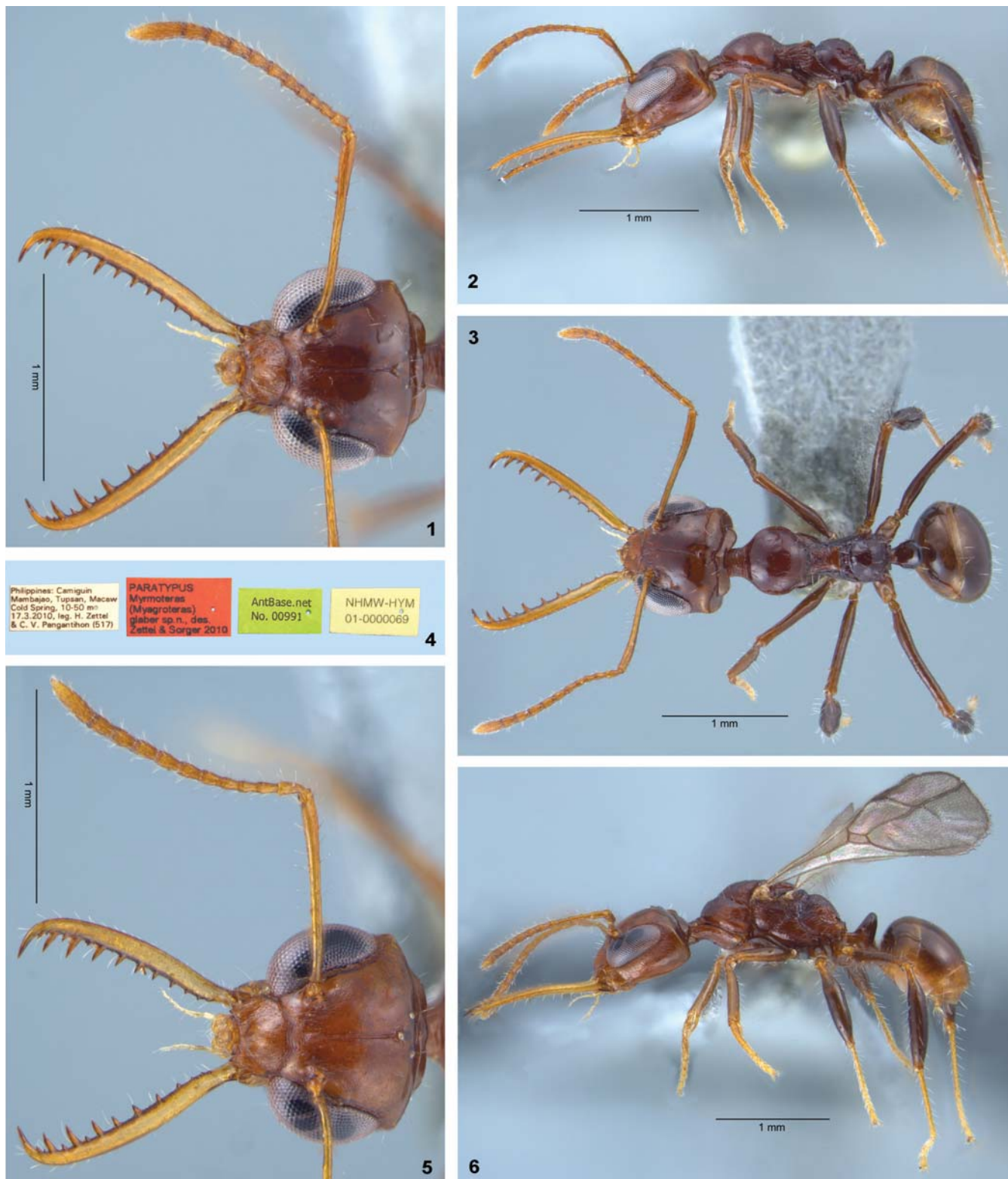
Structures: Head (Fig. 1) with sparse pilosity, longest hairs ca. 0.08 mm long. Frons, temples and vertex smooth and shiny. Frons with few faint rugulae anteriorly, median frontal sulcus narrow, neither reaching anterior frons margin nor anterior ocellus. Antennal scrobes indistinct, but anteriomedially limited by short, curved rugae. Temple with blunt ridge separating a flat anterior from slightly convex posterior face. Clypeus with broad posteromedial elevation, with some faint rugae, mostly near margins; anterior margin deeply concave. Mandibles long, smooth, dentition see Figure 1. Maxillary palp with 6, labial palp with 4 segments. Antenna with moderately slender funiculus, each segment less than twice as long as broad (except long ultimate), antennomere 3 slightly shorter than antennomere 2 (in holotype, measured at leading edge, 0.82 times). Mesosoma, node and gaster (Figs 2, 3) smooth and sparsely pilose, longest hairs ca. 0.12 mm long: Pronotum low and evenly convex, summit virtually level with anterior of mesonotum. Mesonotum with low, but distinct rugae, irregularly arranged, individually varying from predominately longitudinal to predominately transverse; with pair of distinct ridges extending from metanotal tubercle forward. Metanotal groove visible as feebly impressed notch in lateral aspect. Meso- and metapleura smooth. Propodeum dorsally smooth, in some individuals a few faint rugae indicated. Middle and hind tibiae strongly dilated, middle tibia of holotype 4.3 times as long as wide. Foretibia slender. Node of petiole slender in lateral aspect. Gaster smooth.

Description of gyne. – Measurements of paratype gyne: TL 4.62, HW 0.91, HL 0.91, EL 0.58, ML 1.20, MI 131, SL 0.95, SI 104, PW 0.61, WL 1.30. Length of forewing 2.88.

Colour: Similar to worker, but head lighter than mesosoma, more orange brown. Wings pale, veins yellow.

Structures: Very similar to worker. MI hardly smaller (Fig. 5). Mesosoma differently structured as typical for winged

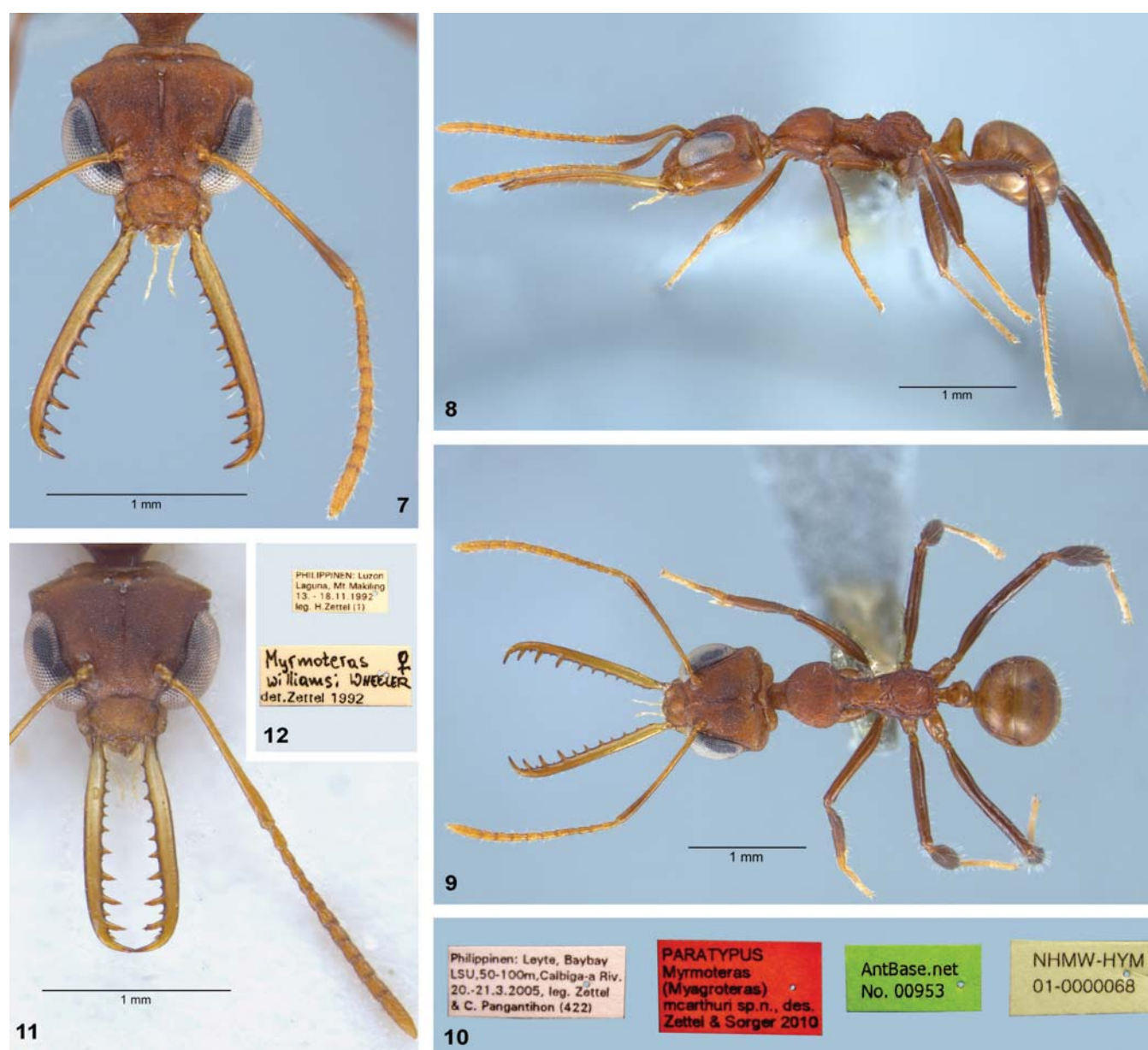
gynes (Fig. 6). Pronotum laterally with faint granulation. Mesoscutum posteromedially with some faint rugae. Meso- and metapleura with few longitudinal rugae. Dorsum of propodeum with low but rather distinct rugae. Wing venation as typical for the genus.



Figs. 1–6. *Myrmoteras (Myagroteras) glabrum*, new species. 1–4, paratype worker (Natural History Museum Vienna HYM # 01-0000069, Antbase.net # 00991; HW = 0.85 mm, TL = 4.35 mm), 5–6, paratype gyne (coll. H. Zettel, Vienna; HW = 0.91 mm, TL = 4.62 mm): (1, 5) Head, full face view. (2, 6) Habitus, lateral view. (3) Habitus, dorsal view. (4) Labels. © (1–4) NHMW Image Database & www.antbase.net, (5–6) www.antbase.net, published with permission.

Comparative notes. – Revisions by Moffett (1985) and Agosti (1992) treat all species of *Myrmoter*s except one later described species, *M. cuneonodum* Xu, 1998 from Yunnan, southwestern China (Xu 1998). This *Myagrot*er*s* species (erroneously listed as a species of the nominate subgenus by Bolton et al. 2007) differs from all Philippine species by head sculpture (smooth, but centre rugose). Both revisions contain identification keys. When using Moffett’s (1985) key, *Myrmoter*s (*Myagrot*er*s*) *glabrum* keys with *M. bakeri* Wheeler, 1919, a species recorded from Borneo and Peninsular Malaysia. When using Agosti’s (1992) key, the character combination of *M. glabrum* “body dark brown + coxae and femora dark brown + mesosoma length < 1.5 mm + propodeum smooth and shining” does not fit any of

the two combinations at couplet 12; but when ignoring dark colour and following 12–, workers of *M. glabrum* again key with *M. bakeri*. The differences between *M. bakeri* and *M. glabrum* are the following: While *M. bakeri* is an orange red species, *M. glabrum* is dark brown with yellowish mandibles, antennae and tarsi. The dorsum of the propodeum is almost flat in *M. bakeri*, but strongly convex in *M. glabrum*. Furthermore, in *M. glabrum* the middle tibia is strongly dilated and ca. 4.0–4.5 times as long as broad. This equals a “Tibia Width Index” (= middle tibia width / tibia length × 100) of ca. 22–25, but Moffett (1985) describes this index for *M. bakeri* differently in key (16–20), diagnosis (> 23) and description (26–27). Differences between *M. glabrum* and other Philippine species are described in the key.



Figs. 7–12. 7–10, *Myrmoter*s (*Myagrot*er*s*) *mcarthuri*, new species paratype worker (Natural History Museum Vienna HYM # 01-0000068, Antbase.net # 00953; HW = 0.91 mm, TL = 4.75 mm). 11–12, *Myrmoter*s (*Myagrot*er*s*) *williamsi*, gyne from the type locality (coll. H. Zettel, Vienna; HW = 0.96 mm, TL = 4.60 mm): (7, 11) Head, full face view. (8) Habitus, lateral view. (9) Habitus, dorsal view. (10, 12) Labels. © (7–10) NHMW Image Database & www.antbase.net, (11–12) www.antbase.net, published with permission.

Myrmoteras (Myagroteras) mcarthuri, new species
(Figs. 7–10, 13)

Etymology. – We name this species in honour of our friend and most enthusiastic myrmecologist Archie McArthur from the South Australia Museum. Coincidentally, the type locality is on the island where General Douglas MacArthur (1880–1964) landed in 1944 to end the Japanese occupation of the Philippines.

Material examined. – Holotype (worker) from the Philippines, Leyte Island, Baybay, at lower slopes of Mt. Pangasugan, on ground under and between stones at banks of Calbiga-a River near Leyte State University, ca. 50–100 m a.s.l., 20–21 March 2005, leg. H. Zettel & C. V. Pangantihon (# 422) (label see Fig. 10).

Paratypes: 7 workers from the same nest as the holotype. 3 workers from the Philippines, Leyte Island, Baybay, Lago-Lago River near

Leyte State University, ca. 50 m a.s.l., 19 March 2005, leg. H. Zettel & C. V. Pangantihon (# 421).

Diagnosis of worker. – Colour mainly medium brown. Dorsum of head densely granulate and dull. Median frontal sulcus anteriorly obliterate, posteriorly deep. Gap between clypeus and frons narrow. Posterior face of temples (behind ridge) finely granulate. Labrum not strongly projecting, without long trigger hairs. Mandible with apical part not bent ventrad, with two minute preapical denticles; Mandible Index 145–154. Funiculus of antenna slender, antennomere 3 ca. twice as long as broad and hardly shorter than antennomere 2. Disk of pronotum densely granulate and dull. Mesonotum strongly depressed. Dorsum of propodeum strongly convex. Middle tibia weakly dilated, more than 5 times as long as wide. Petiolar node wide in lateral aspect.

Description of worker. – Measurements of holotype worker: TL 5.21, HW 0.97, HL 0.96, EL 0.58, ML 1.49, MI 154, SL 1.12, SI 115, PW 0.64, WL 1.46.

Measurements of paratype workers: Range of 10 workers: TL 4.93–5.27, HW 0.92–1.01, MI 145–152, WL 1.38–1.52. Measurements of worker with smallest HW: TL 4.94, HL 0.95, EL 0.56, ML 1.40, MI 147, SL 1.06, SI 115, PW 0.60, WL 1.38. Measurements of worker with largest HW: TL 5.27, HL 1.00, EL 0.60, ML 1.48, MI 148, SL 1.17, SI 116, PW 0.65, WL 1.50.

Colour: Medium brown, gaster slightly lighter than head and mesosoma, propodeum weakly infuscated in some specimens. Mandibles and antennae brownish yellow. Palpi yellow. Legs medium brown except tarsi brownish yellow.

Structures: Head (Fig. 7) with moderately dense pilosity, longest hairs ca. 0.13 mm long. Frons, temples densely granulate and dull (but granulation obsolete at ventro-posterior part of temples). At anterior of frons granulation more or less confluent to longitudinal rugae; median frontal sulcus narrow, posteriorly deeply impressed and reaching anterior ocellus, anteriorly not reaching frons margin. Antennal scrobes small, shiny, anteromedially limited by short, curved rugae. Temple with sharp ridge separating a concave anterior from flat posterior. Clypeus with slender medial elevation, with some faint longitudinal rugae, mostly near margins; anterior margin deeply concave. Mandibles very long, smooth, dentition see Figure 7. Maxillary palp with 6, labial palp with 4 segments. Antenna with slender funiculus, each segment about twice as long as broad (except long ultimate), antennomere 3 hardly shorter than antennomere 2 (in holotype, measured at leading edge, 0.96 times).

Mesosoma, node and gaster (Figs. 8, 9) with relatively dense pilosity, longest hairs ca. 0.13 mm long: Pronotum low and evenly convex, summit at level with anterior of mesonotum. Mesonotum and propodeum with granulation overlaid by some irregular rugae. Pair of distinct ridges extending from metanotal tubercle forward are present. Metanotal groove visible as impressed notch in lateral

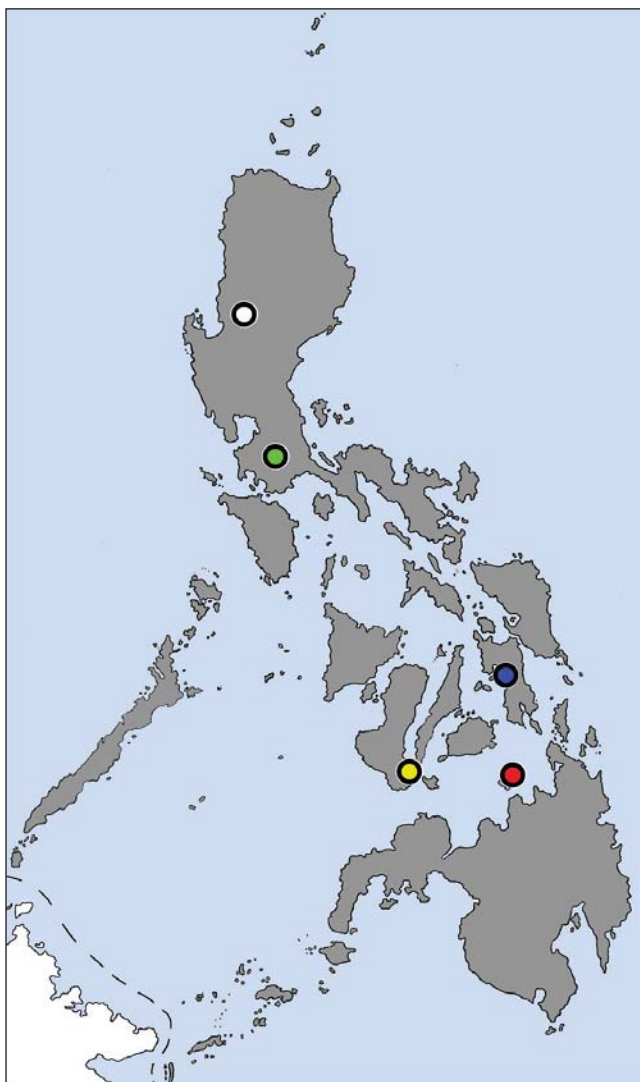


Fig. 13. Map of the Philippines with distributional data of *Myrmoteras* taken from literature and new findings: green – Los Baños, type locality of *M. williamsi* and *M. insulcatum*; white – Baguio, additional record of *M. williamsi* by Moffett (1985); yellow – Dumaguete, record of “*M. williamsi*” by Creighton (1930) and Moffett (1985), possibly based on an undescribed species; red – *M. glabrum*, new species (three close localities near Manbajao); blue – *M. mcarthuri*, new species (two close localities near Baybay).

Tab. 1: List of *Myrmoter*s species including information on known morphs and distribution. Data compiled from Moffett (1985), Agosti (1992), Xu (1998), and this paper. Type localities are marked with *.

Genus	Subgenus	Species	Worker	Gyne	Male	Distribution
<i>Myrmoter</i> s	<i>Myrmoter</i> s	<i>barbouri</i> Creighton, 1930	x	x		Indonesia: Java*. Malaysia: Peninsular, Sabah, Sarawak. Singapore.
<i>Myrmoter</i> s	<i>Myrmoter</i> s	<i>baslerorum</i> Agosti, 1992	x			Indonesia: Sumatra*.
<i>Myrmoter</i> s	<i>Myrmoter</i> s	<i>binghami</i> Forel, 1893	x			Burma*. Thailand.
<i>Myrmoter</i> s	<i>Myrmoter</i> s	<i>brachygnathum</i> Moffett, 1985	x	x		India*.
<i>Myrmoter</i> s	<i>Myrmoter</i> s	<i>ceylonicum</i> Gregg, 1956	x			Sri Lanka*.
<i>Myrmoter</i> s	<i>Myrmoter</i> s	<i>iriodum</i> Moffett, 1985	x	x		Indonesia: Kalimantan*. Malaysia: Sarawak, Peninsular.
<i>Myrmoter</i> s	<i>Myrmoteas</i>	<i>mjoebergi</i> Wheeler (in Creighton, 1930)	x			Malaysia: Sarawak*.
<i>Myrmoter</i> s	<i>Myrmoter</i> s	<i>scabrum</i> Moffett, 1985	x			India*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>arcoelinae</i> Agosti, 1992	x			Malaysia: Sabah*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>bakeri</i> Wheeler, 1919	x	x	x	Malaysia: Sabah*, Peninsular.
<i>Myrmoteas</i>	<i>Myagroteras</i>	<i>brigitteae</i> Agosti, 1992	x	x		Indonesia: Bali, Lombok*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>chondrogastrum</i> Moffett, 1985	x	x		Malaysia: Sarawak*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>cuneonodum</i> Xu, 1998	x			China*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>danieli</i> Agosti, 1992	x	x	x	Malaysia: Sabah*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>diastematum</i> Moffett, 1985	x	x		Malaysia: Sarawak*, Sabah.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>donisthorpei</i> Wheeler, 1916	x	x	x	Indonesia: Kalimantan. Malaysia: Sarawak*, Sabah.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>elfeorum</i> Agosti, 1992	x			Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>estrudae</i> Agosti, 1992	x	x		Indonesia: Sumatra*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>glabrum</i> new species	x	x		Philippines: Camiguin*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>indicum</i> Moffett, 1985	x	x	x	India*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>insulcatum</i> Moffett, 1985		x		Philippines: Luzon*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>ivani</i> Agosti, 1992	x	x		Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>jacquelineae</i> Agosti, 1992	x			Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>karnyi</i> Gregg, 1954	x			Indonesia: Mentawai Archipelago*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>mariannae</i> Agosti, 1992	x			Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>maudeae</i> Agosti, 1992	x			Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>mcarthuri</i> new species	x			Philippines: Leyte*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>morowali</i> Moffett, 1985	x	x		Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>nicoletteae</i> Agosti, 1992	x	x		Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>susanneae</i> Agosti, 1992	x	x		Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>tonboli</i> Agosti, 1992	x			Malaysia: Sabah*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>toro</i> Moffett, 1985	x	x		Indonesia: Sulawesi*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>williamsi</i> Wheeler, 1919	x	x	x	Philippines: Luzon*.
<i>Myrmoter</i> s	<i>Myagroteras</i>	<i>wolasi</i> Moffett, 1985	x			Indonesia: Sulawesi*.

aspect. Meso- and metapleura with longitudinal striation, partly some granulation visible in addition. Middle and hind tibiae moderately dilated, middle tibia of holotype 5.4 times as long as wide. Foretibia slender. Node of petiole thickened in lateral aspect. Gaster smooth.

Comparative notes. – *Myrmoter*s *mcarthuri* is similar to *M. williamsi* and has been initially mistaken for this species by the first author. However, close examination of material from Leyte yielded the discovery that in fact it represents a distinct new species. *Myrmoter*s *williamsi* was described

based on sexuals (two gynes and one male) from Los Baños, Laguna, Luzon Island (Wheeler 1919; Fig. 13). Moffett (1985) redescribed gynes (types and additional specimens) from Luzon and Negros and workers from Dumaguete, Negros Island. Although he noted important differences between the material from the two islands, he considered them as conspecific, following Creighton (1930).

*Myrmoter*s *williamsi* gynes (Fig. 11) collected at the type locality and deposited in the first author's collection agree perfectly with the original description of this

taxon. *Myrmoteras mcarthuri* differs in some important characteristics from *M. williamsi*: In *M. mcarthuri* the posterior face of the temples, behind a blunt ridge, is granulate, where it is smooth and shiny in *M. williamsi*. The Mandible Index is larger in *M. mcarthuri* (145–154) than in *M. williamsi* (124–130; measurements partly from Moffett 1985) (comp. Figs. 7 and 11). In lateral aspect, the petiolar node is wide in *M. mcarthuri* (Fig. 8), but narrow in *M. williamsi*. Another very obvious difference is found in the antenna: The funiculus of *M. williamsi* is stouter than that of *M. mcarthuri*, especially the basal joints (except antennomere 2) are not much longer than broad in *M. williamsi*, while their length is almost twice their width in *M. mcarthuri*. The length of antennomere 3 is approximately 0.7 times the length of antennomere 2 in *M. williamsi*, but almost 1.0 times in *M. mcarthuri*. In addition, the length of setae, especially on pronotum, is slightly longer in *M. mcarthuri* than in *M. williamsi*.

Although this compares a gyne with a worker, all characters mentioned do not seem to be morph-related, at least there are no differences in the differential diagnoses of worker and gynes of other species (see Moffett 1985).

Myrmoteras mcarthuri differs from Moffett's (1985) description of "*M. williamsi*" workers from Negros, as the latter "have a feeble granulate sculpture on the legs, scapes, and mandibles" which is absent in *M. mcarthuri*. We suspect that this Negros material will turn out being another undescribed species.

***Myrmoteras (Myagroteras) williamsi* Wheeler, 1919**
(Figs. 11–12)

Material examined. – 2 gynes and 1 male from Luzon, Laguna, Mt. Makiling, 13–18 November 1992 (label see Fig. 12) (in the first author's collection).

Notes. – Although Moffett (1985) describes workers from Negros, only sexuals (gynes and males) from Central Luzon belong to *M. williamsi* without doubt. At the Discover Life website, Alpert et al. (2010) present another record from Camarines Sur in southern Luzon; however, this record should be reconfirmed, since the first author studied males from the same province which did not fully agree with the *M. williamsi*-male from the type locality. See comparative notes of *M. mcarthuri*.

***Myrmoteras (Myagroteras) insulcatum* Moffett, 1985**

Notes. – This taxon is only known from the holotype gyne originating from Mt. Makiling, Laguna, Luzon Island. The specimen was illustrated in detail by Moffett (1985) and is available in colour at the Discover Life website by Alpert et al. (2010). The specimen is unique in the genus by the combination of an absent median frontal sulcus and smooth and shiny surfaces of head and pronotum.

ACKNOWLEDGEMENTS

Clister V. Pangantihon (University of San Carlos, Cebu City) is sincerely thanked for his help in field work, Archie McArthur (South Australia Museum) for a linguistic review, and two anonymous reviewers for their useful comments.

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