

Description of a new species of the *Aenictus pachycerus* group from Borneo

SEIKI YAMANE¹ AND WENDY WANG^{2*}

¹Kagoshima University Museum, Korimoto 1, Kagoshima-shi, 890-0065 Japan

²Insect Ecology Group, Department of Zoology, University of Cambridge, Downing Street, Cambridge CB2 3EJ, United Kingdom

*Corresponding author's email: wywang24@gmail.com

ABSTRACT. A unique new species of the *Aenictus pachycerus* species group, *Aenictus sirenicus*, is described from Borneo based on the worker caste. Features characteristic of this species are discussed.

Keywords: *Aenictus*; Malaysia; taxonomy; army ants; first record

INTRODUCTION

Recent intensive surveys have revealed a very rich army ant fauna from Borneo. The number of *Aenictus* species in Borneo has increased from 5 (Wilson 1964) to 23 (Jaitrong & Yamane 2011; Jaitrong & Hashimoto 2012). We recently found an additional species of *Aenictus* from the Danum Valley Conservation Area, Sabah, which apparently belongs to the *A. pachycerus* species group, but is very unique in some characters. Here we describe this species as new to science.

Aenictus sirenicus Yamane et Wang, sp. nov.

Types

Holotype: worker (Figs. 1, 2), Danum Valley, Lahad Datu District, Sabah, Borneo (E. Malaysia) (5°1.03'N; 117°44.87'E) vii 2012, leg. W. Wang, BRL2WF3 Aii (ITBC: Institute of Tropical Biology and Conservation, Malaysia Sabah University). Paratypes: 7 workers, same data as above (SKYC, Kitakyushu Museum of Natural History and Human History; Thailand Natural History Museum; ITBC).

Measurements (mm).

For the definitions of measurements and indices, see Jaitrong and Yamane (2011). Six workers measured (holotype in parentheses). Total body

length: 3.3-3.6 (3.3), head width (HW): 0.60-0.64 (0.60), head length (HL): 0.80-0.82 (0.82), scape length (SL): 0.66-0.74 (0.72), petiolar length: 0.40-0.42 (0.40), petiolar height: 0.22-0.24 (0.22), petiolar width: 0.15-0.16 (0.15), postpetiolar length: 0.32-0.36 (0.32), postpetiolar height: 0.22-0.24 (0.22), postpetiolar width: 0.16-0.18 (0.17), Cephalic index (HW × 100 / HL): 73.0-80.0 (73.0), Scape index (SI × 100 / HW): 106-120 (120).

Worker description

In full-face view head distinctly longer than broad, with nearly straight posterior margin; its sides parallel in anterior half, then weakly converging posteriad (Fig. 2); occipital carina low, absent on most part of gena. Frontal carinae continuous from rims forming posterior margin of clypeus, parallel, close to each other but not merging into a single carina, short, only reaching posterior margin of antennal sockets. Parafrontal ridge ill-developed, low and short. Clypeus composed of steeply sloping posterior half and triangularly produced anterior half that is lamellate. Mandible broadest at 3/5 length from base; masticatory margin weakly concave, with a pointed apical tooth that is very large so that its apex is very far from first denticle on masticatory margin (inner margin with a relatively long diastema); masticatory margin with 5-6 denticles

including basal tooth; basal margin with several minute denticles. Antenna 10-segmented; scape when laid back almost attaining posterior margin of head (Fig. 2); all flagellar segments longer than broad; antennal segment 3 longer than 2 and 4; apical segment long, 1.5 times as long as the preceding segment, apically sharply pointed. Mesosoma (Fig. 1) elongate, slightly longer than gaster; in profile pronotum higher posteriorly; weak indentation present between pronotum and mesonotum; mesonotum weakly convex, slightly higher than propodeum; dorsum of propodeum almost flat; propodeal declivity short and small, margined from lateral and dorsal faces with well-developed carina (wall); mesopleuron demarcated from metapleuron by deep furrow that extends anteriorly up to base of fore coxa; light-colored round area present at lowermost part of mesopleuron just above mid-coxa. Propodeal spiracle small, located at posterior end of elongate tubercle, far from metanotal gland orifice; the tubercle very prominent seen from above. Petiole elongate, in profile slightly less than twice as long as high, higher posteriorly, without subpetiolar process; ventral margin weakly convex; posterior face of node vertical, margined by weak carina; postpetiole shorter than and as high as petiole, in profile with anteroventral acute process and concave ventral margin; posterior face of node steep, not margined by carina. Gastral tergite 1 (abdominal tergite 4) distinctly longer than broad, much larger than remaining tergites.

Head capsule and mandible extensively smooth and shiny; clypeus entirely finely and densely sculptured and dull; antennal scape densely sculptured with fine, superficial punctures and very weakly shiny; flagellar segments densely sculptured with fine granules, and dull. Pronotal dorsum smooth and shiny; lateral face of pronotum and mesonotum with superficial punctation; posterior half of mesosoma more strongly sculptured. Petiole extensively and finely sculptured, with dorsum often smoother; dorsum of postpetiole almost smooth and shiny; other parts of postpetiole sculptured. Coxae, femora and tibiae superficially sculptured and weakly shiny; tarsi more distinctly microsculptured and dull. Gaster smooth and shiny.

Dorsum of head and pronotum sparsely covered with rather long hairs that are slightly

shorter than the apical segment of antenna, mixed with much shorter hairs. Mesonotum, propodeum, waist, and gastral tergites and sternites more densely covered with standing hairs that are shorter than sparse long hairs on head dorsum. Outer face of mandible and antennal scape with standing hairs of variable length; flagellar segments with much shorter hairs; apical segment densely covered with erect pubescence, without standing hairs. Legs with standing hairs of variable length.

Body rather distinctly bicoloured; head, antenna, waist, gaster and legs yellowish to light brown or orange; vertex of head darker; mesosoma blackish except for dorsum and ventral margin of pronotum yellowish brown.

Etymology. The specific epithet *sirenicus* means “bewitching” in Latin, and refers to the attractive body proportion and coloration of the new species.

Distribution. Sabah, Borneo (E. Malaysia).

Biology. Specimens were collected in the daytime from a bivouac in soil, obscured by networks of tree roots, in a primary lowland dipterocarp forest. Collection was made in July 2012, a month of supposed relatively low rainfall, just before the low rainfall (dry) season of August – September in Danum Valley (Walsh & Newbery 1999).

Discussion. *Aenictus sirenicus* sp. nov. belongs to the *Aenictus pachycerus* species group that has a very wide distribution range from Sri Lanka through Indochina and the Sunda region to Australia (Jaitrong & Yamane 2011). The present species is, however, exceptional among members of this group. The body is very slender, with an exceptionally elongate petiole that is almost twice as long as high in profile. The mandible is more slender than usual, almost entirely smooth and shiny, with the basal margin bearing several small denticles. The clypeus is more strongly produced anteriorly with a rather pointed apex. The frontal ridges are short, parallel to each other, and do not merge into a single carina. The parafrontal ridges are poorly developed, only reaching the posterior margin of the antennal sockets.

In Borneo three species of the *A. pachycerus* group, i.e., *A. dentatus* Forel, *A. kutai* Jaitrong et



Fig. 1. *Aenictus sirenicus* Yamane et Wang, sp. nov. (holotype worker) in profile.



Fig. 2. Ditto, head in full-face view.

Wiwatwitaya and *A. levior* Karavaiev, have been recorded (Jaitrong & Wiwatwitaya 2013). The present newly described species resembles neither of these, and seems not to have any closely related species in other parts of the range of this group. Three Philippine species, *A. carolianus* Zettel et Sorger, *A. powersi* Wheeler et Chapman and *A. reyesi* Chapman, have smooth heads but have densely sculptured mandibles and other character conditions shared by the remaining species of the group (Wilson 1964; Zettel & Sorger 2010).

Aenictus sirenicus is known only from the type series collected in Danum Valley, Lahad Datu, Sabah. Another strange Bornean species, *A. inflatus* Yamane et Hashimoto (the only member of the *A. inflatus* group), has also been collected from a single locality, Lambir Hills National Park, Sarawak (Yamane & Hashimoto 1999). At present it is not certain if these are endemic species specialized to particular localities in Borneo or represent relict species that have become extinct in other places. Exploring primary forests that have been untouched by myrmecologists will likely reveal more unnamed *Aenictus* species in Borneo.

ACKNOWLEDGEMENTS

We would like to thank Dr. Takeshi Yamasaki of Tokyo Metropolitan University for taking the pictures used in this paper.

REFERENCES

- Jaitrong, W. and Hashimoto, Y. 2012. Revision of the *Aenictus minutulus* species group (Hymenoptera: Formicidae: Aenictinae) from Southeast Asia. *Zootaxa* 3426: 29-44.
- Jaitrong, W. and Wiwatwitaya, D. 2013. Two new species of the *Aenictus pachycerus* species group (Hymenoptera: Formicidae: Aenictinae) from Southeast Asia. *The Raffles Bulletin of Zoology*, 61: 97-102.
- Jaitrong, W. and Yamane, Sk. 2011. Synopsis of *Aenictus* species groups and revision of the *A. currax* and *A. laeviceps* groups in the eastern Oriental, Indo-Australian, and Australasian regions (Hymenoptera: Formicidae: Aenictinae). *Zootaxa* 3128: 1-46.
- Walsh, R.P.D. and Newbery, D.M. 1999. The ecoclimatology of Danum, Sabah, in the context of the world's rainforest regions, with particular reference to dry periods and their impact. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences* 354 (1391): 1869 – 1883.
- Wilson, E. O. 1964. The true army ants of the Indo-Australian area. *Pacific Insects* 6: 427-483.
- Yamane, Sk. and Hashimoto, Y. 1999. A remarkable new species of the army ant genus *Aenictus* (Hymenoptera, Formicidae) with a polymorphic worker caste. *Tropics* 8: 427-432.
- Zettel, H. and Sorger, M. 2010. Three new species of the army ant genus *Aenictus* Shuckard, 1840 (Hymenoptera: Formicidae: Aenictinae) from Borneo and the Philippines. *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen* 62: 115-125.

ASIAN MYRMECOLOGY

A Journal of the International Network for the Study of Asian Ants

Communicating Editor: Masashi Yoshimura