

Short communication

New record of the ant genus *Aenictus* Shuckard, 1840 (Hymenoptera: Formicidae: Dorylinae) from Thailand

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ABSTRACT:- *Aenictus peguensis* Emery, 1895 from the *A. minutulus* group is newly recorded for Thailand. All the specimens were collected with a single pitfall trap in a low-land secondary forest of Nong Tha Yu Arboretum, Chon Buri Province, Eastern Thailand. It is worth noting that this record represents a further range extension of *A. peguensis* to mainland Southeast Asia in addition to Myanmar and Vietnam. Morphological and bionomic information is also provided with illustrations based on the worker caste.

KEYWORDS: army ant, *Aenictus minutulus* species group, Thailand, Southeast Asia

INTRODUCTION

The doryline genus *Aenictus* Shuckard, 1840 is a diverse group of true army ants (Wilson, 1964) that are widely distributed throughout the Old World tropical and subtropical regions, beginning with Africa through the East Mediterranean, South Asia, South China, and the southernmost of Japan, as well as from Southeast Asia to New Guinea and Australia (Wilson, 1964; Bolton, 1994; Gotwald, 1995; Aktaş *et al.*, 2004; Radchenko and Alipanah, 2004; Shattuck, 2008; Jaitrong *et al.*, 2011; Jaitrong and Yamane, 2011, 2012). Most of the *Aenictus* species are specialized predators of other ants and other invertebrates and are known to use a large number of workers in raids (Gotwald, 1995; Rosciszewski and Maschwitz, 1994; Hirose *et al.*, 2000; Shattuck, 2008; Jaitrong and Yamane, 2011; Jaitrong *et al.*, 2012; Hashimoto and Yamane, 2014). Furthermore, some species tend to use plant-based resources as supplementary diets (Staab, 2014).

In Thailand, 34 named species of *Aenictus* have been recognized in ten species groups (Jaitrong and Nabhitabhata, 2005; Jaitrong, 2015): *A. ceylonicus* group, *A. currax* group, *A. hottai* group, *A. javanus* group, *A. leptotyphlatta* group, *A. laeviceps* group, *A. minutulus* group, *A. pachycerus* group, *A. silvestrii* group, and *A. wroughtonii* group. The *A. minutulus* species group was latest revised for the Southeast Asian species by Jaitrong and Hashimoto (2012), with six species recognized: *Aenictus changmaianus* Terayama and Kubota, 1993, *A. minimus* Jaitrong and Hashimoto, 2012, *A. minutulus* Terayama and Yamane, 1989, *A. peguensis* Emery, 1895, *A. subterraneus* Jaitrong and Hashimoto (2012), and an undescribed *Aenictus* sp. 56 of WJT. Recently, *Aenictus seletarius* was described as a new species from Singapore, a new addition to the *A. minutulus* group by Wong and Guénard (2016).

In this paper *Aenictus peguensis* Emery, 1895 belonging to this group is recorded for the first time in Thailand and for the third time

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in mainland Southeast Asia. This species was first collected in 1887 from Pegu, Burma by L. Fea and described by Emery (1895) with the specific epithet named after the type locality. Very recently Jaitrong and Hashimoto (2012) recorded it from Vietnam based on workers collected in Cát Tiên National Park, Đồng Nai Province by K. Eguchi in October 2004. Fortunately, we collected this species in June 2014 from a secondary forest of Nong Tha Yu Arboretum in Chon Buri Province, Eastern Thailand. With the addition of this species, the genus *Aenictus* is now represented by 35 species in Thailand. Based on this material (workers), morphological and bionomic information is presented with illustrations of the specimens.

MATERIALS AND METHODS

Source of material

Workers of *Aenictus peguensis* were obtained by the Nong Tha Yu Arboretum Biodiversity Project with the sample-plot method outlined in Lopwichan and Khachonpisitsak (2014). The field survey of ants was conducted every month in the arboretum located in Chon Buri Province, Eastern Thailand (13°09' N and 100°59' E; alt. 57-86 m). Ant specimens were collected from three selected study sites of different land uses, namely a secondary forest, *Casuarina* plantation, and tree collection garden. At each site, thirty pitfall traps were set up once a month. We found thirty eight ant species including *Aenictus peguensis*, which was collected from a single pitfall trap in the secondary forest in June 2014.

All specimens were dry-mounted on card triangles and deposited in the Natural History Museum of the National Science Museum, Thailand (THNHM).

Observation

Most morphological observations were made with an Olympus SZ51 stereoscope. Specimens used in this study were compared with the lectotype and paralectotypes of *A. peguensis* by Dr. Weeyawat Jaitrong (THNHM). Multi-focused montage images were produced using Axio Vision SE64 from a series of source images taken by a Digital AxioCam MRc 5 camera attached to a ZEISS Discovery V12 stereoscope.

Measurements and indices

All worker specimens were measured according to Jaitrong and Hashimoto (2012) and Jaitrong (2015). Worker measurements were made using an ocular micrometer, recorded to the nearest 0.01 mm. All measurements are expressed in millimeters.

The abbreviations used for the measurements and indices are as follows:

- TL Total length, roughly measured from the anterior margin of head to the tip of gaster in stretched specimens.
- HL Maximum head length in full-face view, measured from the anterior clypeal margin to the midpoint of a line drawn across the posterior margin of head.
- HW Maximum head width in full-face view.
- SL Scape length excluding the basal constriction and condylar bulb.
- ML Mesosomal length measured from the point at which the pronotum meets the cervical shield to the posterior margin of metapleuron in profile.
- PL Petiole length measured from the anterior margin of the peduncle to the posterior-most point of tergite.
- SI Scape index, $SL/HW \times 100$.
- CI Cephalic index, $HW/HL \times 100$.

Abbreviations of the type and non-type depositories are as follows:

MCSN Museo Civico di Storia Naturale
"Giacomo Doria", Genova, Italy.
SKYC SKY Collection, Kagoshima, Japan.
THNHM Natural History Museum of the
National Science Museum, Thailand.

The general terminology for morphology and the important characters of the worker caste in the genus *Aenictus* used in this paper follow Jaitrong and Hashimoto (2012) and Jaitrong (2015).

***Aenictus peguensis* Emery, 1895**
(Fig. 1A-D)

Aenictus peguensis Emery, 1895: 452; Wilson, 1964: 471, figs 34, 35; Bolton, 1995: 60; Jaitrong and Hashimoto, 2012: 38, figs 5A-F, 7.

Types. Lectotype and paralectotype workers from Palon, at Pegu, Burma, L. Fea leg., 8.IX.1887 (MCSN, examined by WJT).

Non-type material examined.

VIETNAM: 1 worker, S. Vietnam, Đồng Nai, S. Cát Tiên National Park (ca. 160 m), 21.X.2004, K. Eguchi leg., Eg04-VN-762 (SKYC).

THAILAND: 6 workers, E. Thailand, Chon Buri Prov., Nong Tha Yu Arboretum, 21.VI.2014, S. Lopwichan leg., SL210614-1 (THNHM).

Measurements and indices. Lectotype: TL 3.25 mm; HL 0.73 mm; HW 0.60 mm; SL 0.48 mm; ML 1.00 mm; PL 0.23 mm; CI 83; SI 79. **Paralectotypes** (n = 5): TL 2.95-3.15 mm; HL 0.60-0.70 mm; HW 0.52-0.58 mm; SL 0.40-0.45 mm; ML 0.88-0.95 mm; PL 0.20-0.23 mm; CI 82-96; SI 74-79. **Non-types:** workers (n = 6): TL 2.77-2.87 mm; HL 0.59-0.69 mm; HW 0.53-0.56 mm; SL 0.41-0.45 mm; ML 0.83-0.89 mm; PL 0.20-0.23 mm; CI 80-89; SI 77-79.

Worker description. *Aenictus peguensis* is redescribed in Jaitrong and Hashimoto

(2012: 38) as follows:- **Head.** "Head in full-face view slightly longer than broad, with convex sides and feebly convex posterior margin; occipital margin bearing a carina. Antennal scape reaching midlength of head; antennal segments II-X each longer than broad; II and III slenderer than IV-VI; terminal segment almost as long as VII+VIII+IX and 2.4 times as long as broad. Frontal carina short, posteriorly fused to form a single carina, slightly extending beyond the level of posterior margin of torulus. Masticatory margin of mandible with a large apical tooth followed by a medium-sized subapical tooth, 5-6 denticles, and a medium-sized basal tooth; basal margin with 4-5 small denticles."

Mesosoma. "Promesonotum in profile strongly convex dorsally and sloping gradually to metanotal groove; metapleural gland bulla relatively small and transparent; distance between propodeal spiracle and metapleural gland bulla clearly longer than spiracular diameter. Propodeum in profile with convex dorsal outline; propodeal junction right-angled; declivity of propodeum seen from back convergent above."

Metasoma. "Petiole excluding subpetiolar process shorter than high, with its dorsal outline convex; subpetiolar process rather developed, with a sharply pointed lamellate appendage directed downward. Postpetiole clearly shorter than petiole, its dorsal outline convex."

Sculpture. "Head including mandible and antennal scape smooth and shiny; basal portion of scape finely sculptured. Entire pronotum smooth and shiny except for its anteriormost portion punctate; mesothorax, petiole, and postpetiole entirely punctate but metapleuron at least partly impunctate. Legs entirely smooth and shiny."

Pubescence. "Head and mesosoma dorsally with relatively sparse standing hairs mixed with sparse short hairs over the surface; longest pronotal hair 0.18-0.23 mm long."

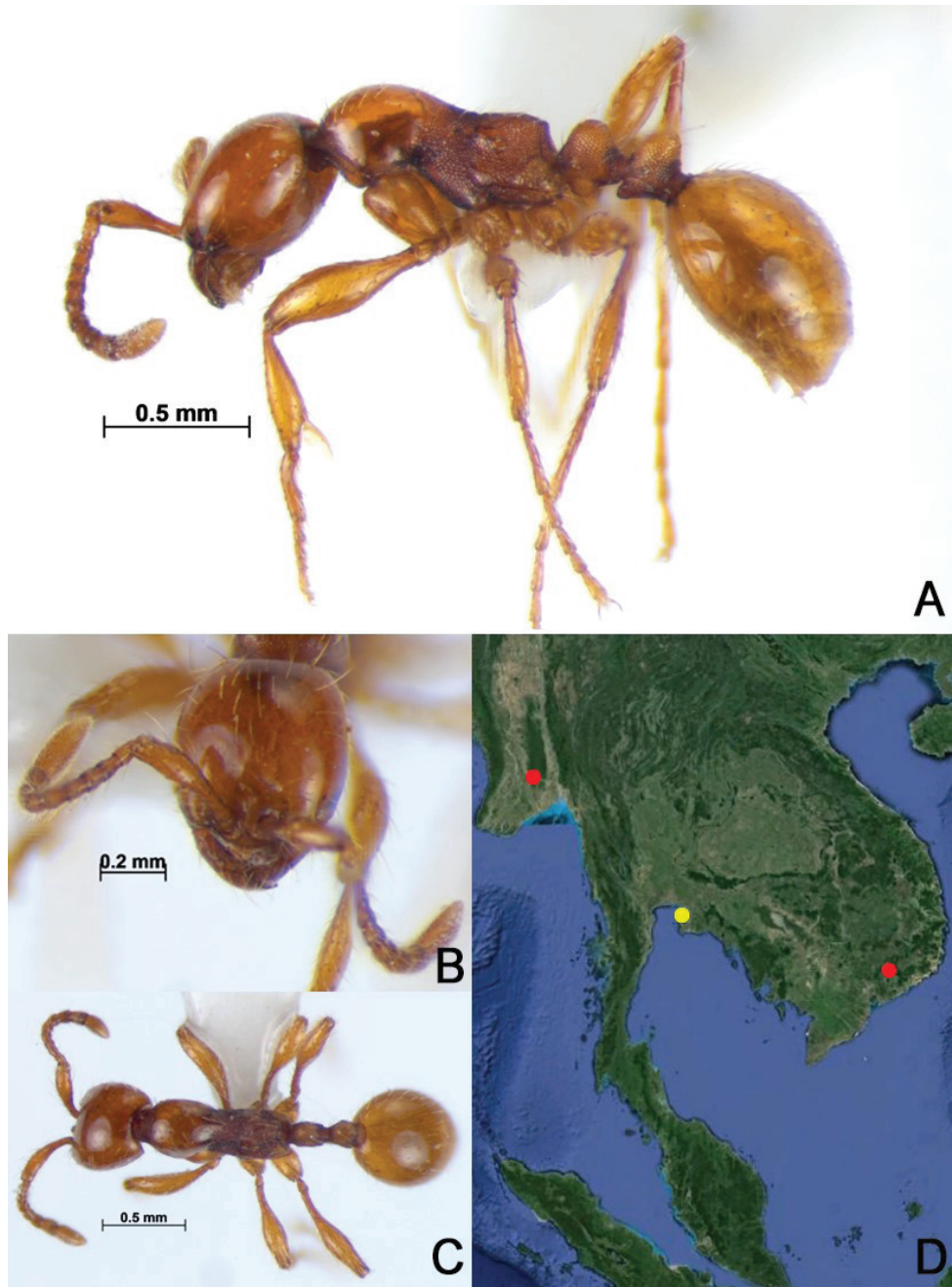


Figure 1. *Aenictus peguensis* worker (A-C, non-type from Thailand). A, body in profile view; B, head in full-face view; C, body in dorsal view; D, distribution map of *Aenictus peguensis*. Previously known distribution: red circles. New locality from Chon Buri Province, Eastern Thailand: yellow circle.



Figure 2. Nong Tha Yu Arboretum in Surasak Subdistrict, Si Racha District, Chon Buri Province, Eastern Thailand. A, overview of the arboretum area. B and C, secondary forest in the arboretum at the new locality of *Aenictus peguensis* from Thailand.

Coloration. “Head, pronotum and gaster yellowish-brown; methothrax, propodeum, waist darker and often slightly reddish.”

In addition, comparing workers of *A. peguensis* from Thailand with the lectotype and paralectotype workers from Myanmar, the former are smaller in size than the latter (TL 2.77–2.87 mm in the former vs. TL 2.95–3.25 mm in the latter; ML 0.83–0.89 mm vs. ML 0.88–0.95, respectively). The former also has a slightly smaller head (HL 0.59–0.69 vs. HL 0.60–0.73; HW 0.53–0.56 vs. HW 0.52–0.60, respectively).

Distribution. Southeast Asia: Myanmar and Vietnam (Jaitrong and Hashimoto, 2012), Thailand (new record) (Figs 1D, 2A–C).

Bionomics. Little is known about the

bionomics of *A. peguensis*. However, judging from the type locality and the localities of non-type materials examined, this species is likely to inhabit lowland secondary forest areas. In the secondary forest where the present colony was found, *Dipterocarpus alatus* Roxb. Ex G. Don., *Oroxylum indicum* (L.) Kurz., *Pterocarpus macrocarpus* Kurz., *Swietenia macrophylla* King., *Tectona grandis* L.f. were among the common tree species. *A. peguensis* is probably a rare species and restricted to a specific microhabitat of lowland seasonal forests located northward from the Isthmus of Kra, Malay Peninsula (Jaitrong and Hashimoto, 2012).

Remarks. Among the *A. minutulus* group, *Aenictus peguensis* has a resemblance in

general appearance to *Aenictus subterraneus* Jaitrong and Hashimoto, 2012, from Borneo, another species in the *A. minutulus* group. However, *A. peguensis* can be distinguished from *A. subterraneus* by having a distinctly larger body size (TL 2.77-3.25 mm, in *A. peguensis* vs. 2.10-2.15 mm in *A. subterraneus*), slightly broader head (HW 0.52-0.60 mm vs. 0.48-0.50 mm, respectively), convex posterior margin of head in full-face view (feebly concave in *A. subterraneus*); angulated, right-angled propodeal junction (roundly angulated in *A. subterraneus*); and smaller number of denticles on masticatory margin of mandible (5-6 vs. 7-8, respectively).

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