

## New record of *Diacamma assamense* Forel, 1897 (Hymenoptera: Formicidae: Ponerinae) from Thailand

Netnapa Phosrithong and Kaewpawika Rattanachan

Forest Entomology and Microbiology Research Group, Forest and Plant Conservation Research Office, Department of National Parks, Wildlife and Plant Conservation, 61 Phaholyothin Road, Chatuchak, Bangkok 10900, Thailand

### Article History

Received: 25 July 2022

Accepted: 8 August 2022

Published Online: 31 August 2022

Printed: 31 December 2022

### Corresponding author

Netnapa Phosrithong

E-mail: netnapaphosrithong@gmail.com

### Editor

Dr. Weeyawat Jaitrong

E-mail: polyrhachis@yahoo.com/  
weeyawat@nsm.or.th

### Abstract

*Diacamma assamense* Forel, 1897 is recorded for the first time in Thailand. The description based on the Thai specimens is provided. This species mainly inhabits mixed deciduous forest in Khlong Wang Chao and Khlong Lan National Parks, Kamphaeng Phet Province.

### Keywords

new record, Thailand, pitfall trap, western forest complex

## Introduction

*Diacamma* Mayr, 1862 is a small genus of the subfamily Ponerinae, distributed from India, South China, South Japan, Southeast Asia to North Australia (Suwabe *et al.*, 2007; Schmidt and Shattuck, 2014; Antweb, 2022). The genus was described by Mayr (1862), with *Ponera rugosa* Smith, 1857 (obsolete combination of *Diacamma rugosum*) as the type species. Currently, 44 valid species and 23 subspecies have been described in the genus (Bolton, 2022). Among them, five named species of the genus were recorded from Thailand (Khachonpisitsak *et al.*, 2020).

During our ant surveys under the project “survey and monitoring on invasive alien species of ants in the west forest complex” in November 2021, we collected several ant

specimens of the genus *Diacamma* from the ground in mixed deciduous forest. After carefully examining specimens under a stereoscope, we concluded that this species is *D. assamense* Forel, 1897. *Diacamma assamense* was described from Assam (India) by Forel, in Emery (1897). Recently, this species was known from India, Bangladesh, and Myanmar (Bingham, 1903; Antwiki, 2022). In the present paper, *D. assamense* is recorded for the first time in Thailand.

### Materials and Methods

Specimens of *Diacamma assamense* Forel, 1897 were collected from Khlong Wang Chao and Khlong Lan National Parks, Kamphaeng Phet Province under the project “survey and monitoring on invasive alien species of ants in the west forest complex”. The specimens were collected using the pitfall trapping method in primary mixed deciduous forest. All specimens were pin-mounted dry specimens and compared with the high-resolution images of the syntype of *D. assamense*, available on Antweb (2022). The material examined was deposited in Department of National Parks, Wildlife and Plant Conservation (DNP) and the Natural History Museum of the National Science Museum, Thailand (THNHM). Most morphological observations were made with a Nikon SMZ745T stereoscope. Multi-focused montage images were produced using NIS-Elements-D-[Sequence6\*-Focused] from a series of source images taken by a Nikon Digital Sight-Ri1 camera attached to a Nikon AZ100M stereoscope. Ten workers were measured using an ocular micrometer recorded to the nearest 0.01 mm.

The abbreviations used for the measurements and indices (after Laciny *et al.*, 2015).

- TL** Total length. The added lengths of head (including mandibles), mesosoma, petiole, and gaster (excluding sting).
- HW** Head width. Maximum width of head in full-face view including eyes.
- HL** Head length. Maximum length of head in full-face view, excluding mandibles, measured from anterior-most point of clypeus to posterior-most point of head vertex, parallel to midline.
- SL** Scape length. Maximum length of antennal scape in dorsal view excluding basal neck and condyle.
- ML** Mesosomal length measured laterally from anterior surface of pronotum proper (excluding collar) to posterior extension of propodeal lobes.
- MTL** Middle tibial length. Maximum length of second tibia, measured at extensor side.
- PH** Petiole height. Maximum height of petiole, measured laterally, from dorsal-most point of spines to ventral-most point of tergite (sternite not included in measurement).
- PL** Petiole length. Maximum length of main petiolar body (excluding spines) measured laterally, perpendicular to posterior face.
- PW** Petiole width. Maximum width of petiolar body, measured fronto-dorsally, perpendicular to midline
- SpD** Spine distance. Distance of distal tips of petiolar spines, measured dorsally.

- SpL** Spine length. Length of petiolar spines, measured fronto-dorsally, from the midpoint of a line between spine-tips to the point of inflexion at base of spines.
- EL** Eye length. Maximum diameter of compound eye measured laterally.
- CI** Cephalic index.  $HW / HL \times 100$ .
- SI** Scape index.  $SL / HW \times 100$ .
- PI** Petiolar index.  $PL / PH \times 100$ .
- SpDI** Spine distance index.  $SpD / PW \times 100$ .
- SpLI** Spine length index.  $SpL / PW \times 100$ .
- EI** Eye index.  $EL / HW \times 100$ .

## Results

### *Diacamma assamense* Forel, 1897

(Figures 1A–C)

*Diacamma trilschleri* r. *assamense*, Forel, in Emery, 1897: 151 (footnote). Type locality: India (Assam). Raised to species: Forel, 1900: 319.

*Diacamma assamense*: Bingham, 1903: 79; Emery, 1911: 65.

**Material examined. Central Thailand.** Four workers (THNHM-I-00022977, THNHM), Kampang Phet Prov., Kosampee Dist., Khlong Wang Chao N.P., primary forest, XI.2021, N. Phosrithong leg.; 8 workers (THNHM-I-00022978, THNHM), Kampang Phet Prov., Khlong Lan Dist., Khlong Lan N.P., primary forest, XI.2021, N. Phosrithong leg.; 1 worker (THNHM-I-00022979, THNHM), Kampang Phet Prov., Khlong Lan Dist., Khlong Lan N.P., near the head quarter, XI.2021, N. Phosrithong leg.

**Description of worker. Measurements and indices.** TL 10.80–11.65, HW 1.60–1.75, HL 2.30–2.55, EL 0.50, SL 2.65–2.90, ML 3.20–3.80, MTL 2.00–2.15, PH 1.50–1.70, PL 1.10–1.25, PW 0.90–1.05, SpD 0.35–0.40, SpL 0.20–0.25, CI 69–70, SI 166, SpDI 38–39, SpLI 20–22, EI 29–31. Head in full-face view, elongate, clearly longer than broad, and almost parallel lateral margins. Eye relatively small. Antenna 12-segmented; scape relatively long, clavate, extending beyond posterior margin of head about one-third of its length; antennal segments II–XI combined almost as long as antennal scape. Mesosoma elongate, pronotum in profile view weakly convex dorsal outline, its lateral margin roundly convex; mesonotum in profile fused with propodeum; promesonotal suture distinct; metanotal groove distinct or almost absent; mesopleuron narrow and clearly demarcated from metapleuron by distinct suture. Petiole stout, slightly higher than long, with short spines. Head, mesonotum, mesopleuron, metapleuron, lateral face of propodeum, petiole, gastral tergite I with longitudinal coarse rugae; pronotum with semi-circular rugae; gastral tergite II with short longitudinal medially; clypeus finely punctate; antennal scape and legs micropunctate. Body entirely

covered with dense short setae mixed dense pubescent. Body color black, without metallic shimmer. Antennae black. Mandibles and parts of legs dark reddish brown.



**Figure 1.** *Diacamma assamense*, worker. A, Body in profile; B, head in full-face view; C, body in dorsal view.

**Distribution.** India, Bangladesh, Myanmar, and Thailand (Kamphaeng Phet Province, new record).

**Remarks.** *Diacamma assamense* is easily distinguishable from other species by the following characteristics: 1) head elongated, clearly longer than broad and almost parallel lateral margin; 2) pronotum with semi-circular rugae 3) gastral tergite I with longitudinal rugae; 4) gastral tergite II with short longitudinal rugae medially. This species is similar to *Diacamma longitudinale* Emery, 1889 in having longitudinal rugae on pronotum, but body size is smaller than *D. longitudinale*.

**Habitats.** The species was collected in mixed deciduous forest and disturbed forest near the head quarter by using pitfall traps.

---

## Acknowledgements

This study is supported by Department of National Parks, Wildlife and Plant Conservation. We also express our sincere thanks to Dr. Weeyawat Jaitrong (National Science Museum, Thailand) for identification of *Diacamma* species, comments, and suggestions.

## References

- Antweb. 2022. Genus: *Diacamma* Mayr, 1862. Accessed online from <https://www.antweb.org/browse.do?subfamily=ponerinae&genus=diacamma&rank=genus&project=allantwebants> on 4 August 2022.
- Antwiki. 2022. Checklist of *Diacamma* species. Accessed online from [https://www.antwiki.org/wiki/Checklist\\_of\\_Diacamma\\_species](https://www.antwiki.org/wiki/Checklist_of_Diacamma_species) on 8 August 2022.
- Bingham, C.T. 1903. *The fauna of British India, including Ceylon and Burma, Hymenoptera* Volume 2. Taylor & Francis, London, 506 pp.
- Bolton, B. 2022. *An Online Catalog of the Ants of the World by Barry Bolton*. Accessed online from <https://www.antcat.org/catalog/430079> on 8 August 2022.
- Emery, C. 1897. Revisione del genere *Diacamma* Mayr. *Rendiconti delle Sessioni della Reale Accademia delle Scienze dell'Istituto di Bologna* 1: 147–167.
- Emery, C. 1911. Hymenoptera. Fam. Formicidae. Subfam. Ponerinae. *Genera Insectorum* 118: 1–125.
- Forel, A. 1900. Les Formicides de l'Empire des Indes et de Ceylan. Part VII. *Journal of the Bombay Natural History Society* 13: 303–332.
- Khachonpisitsak, S., Sk. Yamane, P. Sriwichai and W. Jaitrong. 2020. An updated checklist of the ants of Thailand (Hymenoptera, Formicidae). *ZooKeys* 998: 1–182.
- Laciny, A., A. Pal and H. Zettel. 2015. Taxonomic notes on the ant genus *Diacamma* Mayr, 1862 (Hymenoptera: Formicidae), part 1. *Zeitschrift der Arbeitsgemeinschaft österreichischer Entomologen* 67: 83–136.
- Schmidt, C.A. and S.O. Shattuck. 2014. The higher classification of the ant subfamily Ponerinae (Hymenoptera: Formicidae), with a review of ponerine ecology and behavior. *Zootaxa*. 3817:1–242. doi:10.11646/zootaxa.3817.1.1
- Suwabe, M., H. Ohnishi, T. Kikuchi and K. Tsuji. 2007. Nestmate discrimination in the queenless ponerine ant *Diacamma* sp. from Japan. *Entomological Science* 10: 7–10. <http://dx.doi.org/10.1111/j.1479-8298.2006.00193.x>



