

A new species of ant genus *Stictoponera* Mayr, 1887 (Hymenoptera: Formicidae) from India

TARUN DHADWAL¹ AND HIMENDER BHARTI^{1*}

¹Department of Zoology and Environmental Sciences, Punjabi University, Patiala

*Corresponding author: himenderbharti@gmail.com

ABSTRACT. A new species of the genus *Stictoponera* Mayr, 1887 is reported from India. *Stictoponera lattkei* sp. nov. is well differentiated from already described species of this genus. An updated identification key supplemented with digital images is provided for all known Indian species.

Keywords -

Zoobank <http://zoobank.org/08D42414-E2F0-4080-91C6-576A9EE297F8>

Citation Tarun Dhadwal & Himender Bharti (2022). A new species of ant genus *Stictoponera* Mayr, 1887 (Hymenoptera: Formicidae) from India. *Asian Myrmecology* 16: e016002

Copyright This article is distributed under a Creative Commons Attribution License CCBY4.0

Communicating Editor Francisco Hita Garcia

INTRODUCTION

Stictoponera Mayr, 1887 is represented by 42 valid species, which are distributed across the Oriental, Indo-Malayan, and Oceanian regions (through South-East Asia, including southern China, Sundas to Melanesia, Fiji, including the Philippines) (Bolton 2022; Camacho et al. 2022).

The genus has a chaotic taxonomic history, as it was designated as a subgenus of *Ectatomma* and was placed in the subfamily Pachycondylinae (Mayr 1887; Dalla Torre 1893; Emery 1895; Forel 1900; Bingham 1903; Ashmed 1905; Wheeler 1910). Subsequently, it was elevated to genus rank in the subfamily Ponerinae, tribe Ectatommini (Emery 1911). This scheme was accepted by taxonomists (Forel 1917; Wheeler 1922; Donisthorpe 1943) until Brown (1958) amended the tribe Ectatominae and relegated *Stictoponera* as a synonym under the genus *Gnamptogenys*. Very recently, on the basis of phylogenomic analyses,

Camacho et al. (2022) resurrected *Stictoponera* from synonymy in order to accommodate species formerly included in the *Gnamptogenys* groups *coxalis*, *laevior*, and *taivanensis* (Lattke 2004; Chen et al. 2017).

Stictoponera is distinguished by following combination of characters; occipital lobe present, antennal club absent, palp formula 3,2; pronotum usually unarmed, occasionally with humeral projections, mesonotum is not conspicuous, forming a continuous line with the propodeum and divided by a transverse suture, promesonotal suture absent to feebly impressed, never interrupting the dorsal mesosomal sculpture; propodeal spiracle oval to rounded and separated from the declivous face of propodeum by a distance longer than its diameter; the apex of the protibia lacks a robust seta close to the strigil base, the apex of the meso- and metatibia has two spurs, and the dorsum of the posterior coxae frequently has a lobe or spine (Camacho et al. 2022).

Table 1. Distribution of *Stictoponera* species across India

Sr. No.	Species	Distribution in India
	<i>Stictoponera bicolor</i> (Emery, 1889)	Arunachal Pradesh, Assam, Kerala, Manipur, Meghalaya, Mizoram, Sikkim, West Bengal
	<i>Stictoponera binghamii</i> (Forel, 1900)	Arunachal Pradesh, Assam, Kerala, Manipur, Meghalaya, Mizoram, Sikkim, Tamil Nadu, West Bengal
	<i>Stictoponera coxalis</i> (Roger, 1860)	Andaman and Nicobar Islands, Karnataka
	<i>Stictoponera lattkei</i> sp. nov.	Sikkim
	<i>Stictoponera meghalaya</i> (Lattke, 2004)	Arunachal Pradesh, Meghalaya
	<i>Stictoponera menadensis</i> (Mayr, 1887)	Assam, West Bengal

In India, the genus is represented by five species (Table 1). Herein, we report a new species viz. *Stictoponera lattkei* sp. nov. from India. An updated identification key supplemented with digital images is provided for all known Indian species.

MATERIALS AND METHODS

Taxonomic analysis was conducted on a Nikon SMZ 1500 stereo zoom microscope with maximum magnification of 112.5X. Digital images of the specimens were prepared using a Nikon SMZ 1500 stereomicroscope fitted with an MP (Micro Publisher) digital camera and Auto Montage (syn-cros-copy, a division of synoptics Ltd.) software. All the images were cleaned with Adobe Photoshop CS5 and Helicon Filter 5. Morphological measurements were recorded in millimeters on a Nikon SMZ 1500 stereomicroscope.

Automontage images of specimens were provided by <http://www.antweb.org/> and <https://www.antwiki.org/>.

Morphological terminology and standard measurements follow Camacho et al. (2020).

HL head length; the length of head capsule excluding the mandible, measured in full face view, in a straight line from the midpoint of the anterior clypeal margin to the midpoint of the vertex margin.

HW head width; the width of the head capsule, measured in full face view, at a median transverse line that touches the superior margins of the compound eyes.

ML mandible length; in full face view taken with the mandible closed, the distance from the anterior clypeal margin to the apex of closed mandible.

SL antennal scape length; the chord length of the antennal scape, excluding the basal condyle and its peduncle.

EL eye length; maximum diameter of compound eyes in lateral view.

WL mesosoma length (Weber's length); the diagonal length of mesosoma in profile, from the midpoint of the anterior pronotal declivity to the posterior basal angle of the metapleuron.

PL petiole length; the length of petiole in lateral view, measured in a straight line from the anterior margin of the petiole peduncle to the posterior margin.

GL gaster length; the maximum length of gaster (abdominal segments III to VII) in lateral view, excluding sting.

TL total length; the summed length of HL, ML, WL, PL and GL.

CI cephalic index; $100 \cdot HW/HL$.

SI scape index; $100 \cdot SL/HW$.

OI ocular index; $100 \cdot EL/HW$

Depositories

PUAC "Punjabi University Patiala Ant Collection" at Department of Zoology and Environmental Sciences, Punjabi University, Patiala, Punjab, India.

RESULTS

Stictoponera lattkei sp. nov.

<http://zoobank.org/DF1BA4F3-A104-4131-85B8-4BA81A298252>

(Fig: 1-3)

Type material. Holotype worker: India, Sikkim, Rorathang, 27.1961°N, 88.6079°E, 560m, hand picking, 18.ix.2019, Tarun Dhadwal leg. [PUAC-T 17]; **Paratypes:** 5 workers with the same data as holotype [PUAC].

Measurements: Holotype: HL 1.14; HW 1.11; ML 0.42; SL 1.03; EL 0.22; WL 1.58; PL 0.64; GL 1.36; TL 5.14; CI 97.36; SI 92.79; OI 19.81.

Paratype: HL 1.12-1.18; HW 1.08-1.11; ML 0.42-0.50; SL 1.02-1.06; EL 0.21-0.24; WL 1.56-1.71; PL 0.63-0.66; GL 1.35-1.42; TL 5.08-5.47; CI 96.42-94.06; SI 94.44-95.49; OI 19.44-21.62 (n= 8).

Description: Body colour ferruginous brown, with gaster darker in color. Body weakly pilose. Mesosomal dorsum and petiole with one or two hairs, while scape and gaster with decumbent or subdecumbent hairs.

In dorsal view, mandibles striated. Dorsum of head irregularly and densely foveolate, area between frontal carinae lined with longitudinal striae.

Mesosoma gleaming and covered with foveae. Pronotum and mesonotum foveolate and foveate-reticulate. Metanotum, propodeum, and petiole densely foveate, with fovea being smaller in diameter than those of pronotum. Declivitous face of propodeum smooth and shiny. Coxae strigulose transversely. First gastral tergite mostly sparsely foveolate, lateral area densely foveolate. Gastral tergite II smooth and lustrous, laterally mostly strigulate with sparse punctae. Gastral sternite I mostly foveolate. Gastral sternite II sparsely punctured.



Fig. 1. *Stictoponera lattkei* sp. nov. Head in full face view

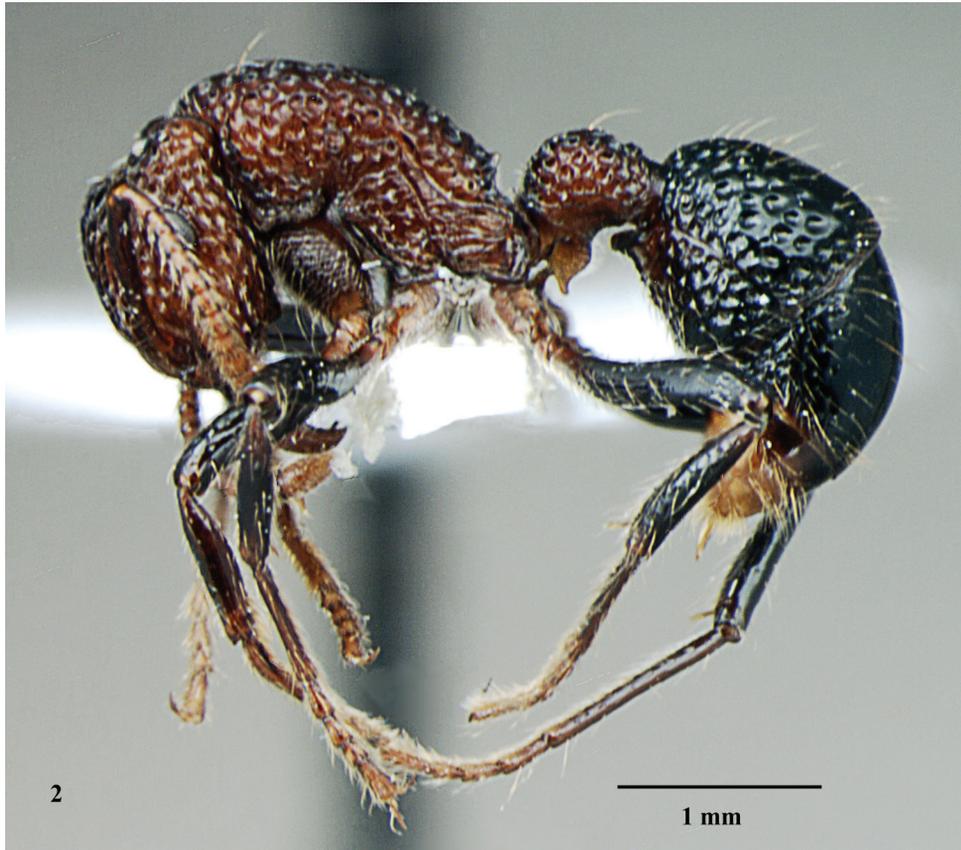


Fig. 2. *Stictoponera lattkei* sp. nov. Body in profile view

Mandibles triangular in shape. Anterior margin of clypeus slightly convex. The Clypeal lamella prominent and medially forming blunt lobe. Sides of head virtually straight and subparallel. Antennal scape narrow, apically wider, and almost reaching posterior head margin. In frontal view, eyes highly developed, rounded and convex, and located posteriorly to cephalic mid-length. Vertexal margin slightly convex. In lateral view, occipital corners prominent and rounded.

The pronotum with well-developed humeral angles protruding anteriorly into tiny denticles; promesonotal suture very slightly engraved. Propodeal spiracle raised above sculpture with very small entrance. The propodeum armed with small triangular protrusion and propodeal declivity marginate on both sides. Metacoxal spine slender and curved.

In lateral view, petiolar node rounded, not higher than long, and with tiny denticle on anterior border. Subpetiolar process polygonal with denticular lobe projecting anteriorly.

Diagnosis: *Stictoponera lattkei* sp. nov. resembles *S. menadensis* (Mayr, 1887), and *S. bicolor* (Emery, 1889) and can be distinguished from them as follows;

Stictoponera lattkei sp. nov. can be differentiated from *S. menadensis* (Mayr, 1887), by a combination of the following characteristics (Fig. 4A, 5A): in dorsal view, the mesonotum foveolate and foveate-reticulate; the propodeal declivity is margined on both sides with no projections or raised areas posterolaterally and the subpetiolar process is polygonal and ventrally produced into a denticle. While in *S. menadensis* (Mayr, 1887) (Fig. 4B, 5B) the mesosomal dorsum has a smooth median strip, the propodeal declivity surrounded posterolaterally by ridges creating a denticle or a low triangular projection, and a subquadrate or lobe-like subpetiolar process. In *S. menadensis* (Mayr, 1887) sculpture is areolate and foveo-reticulate, whereas in *Stictoponera lattkei* sp. nov. sculpture is mainly foveolate.



Fig. 3. *Stictoponera lattkei* sp. nov. Body in dorsal view

However, from *S. bicolor* (Emery, 1889) it can be differentiated by following characteristics (Fig. 4A, 5A): Body weakly pilose, mesosomal dorsal margin with one or two hairs, metacoxal spine slender and curved, subpetiolar process is polygonal and ventrally produced into a denticle, mesosomal dorsum foveolate and foveate-reticulate and gastral tergite II smooth and lustrous. While in *S. bicolor* (Fig. 4C, 5C) body generally pilose with scattered suberect to subdecumbent hairs, metacoxal spine usually straight and slender, subpetiolar process subquadrate or lobe like, mesosomal dorsum densely foveolate to areolate with median longitudinal strip of strigae-rugulae extending from posterior pronotum to mesonotum and gastral tergite II smooth with scattered punctures.

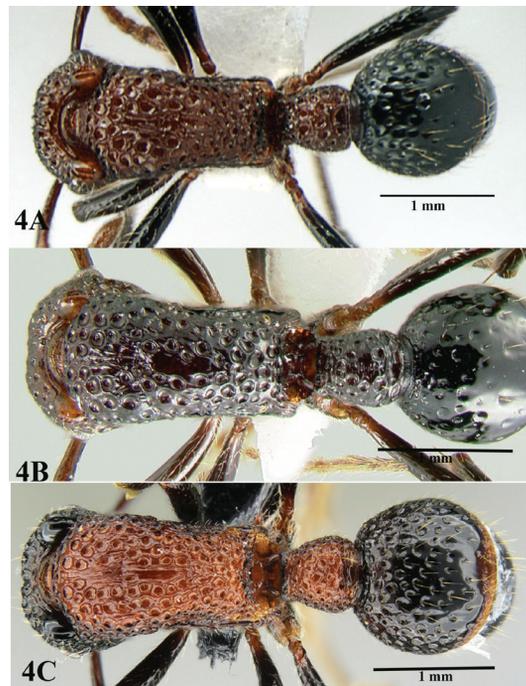


Fig. 4. Body in dorsal view, A. *S. lattkei* sp. nov. B. *S. menadensis* (Mayr, 1887) (from Antwikki- *G. menadensis*D3.2.jpg). C. *S. bicolor* (Emery, 1889) (from Antwikki- MCZ *G. bicolor* had2 5.jpg).



Fig. 5. Body in profile view, **A.** *S. lattkei* sp. nov. **B.** *S. menadensis* (Mayr, 1887) (from Antwiki- *G. menadensis* L3.2.jpg) **C.** *S. bicolor* (Emery, 1889) (From Antwiki- MCZ *G. bicolor* hal2 5.jpg).

Queen. Unknown.

Male. Unknown

Bionomics. The workers were handpicked from a tree trunk at Rorathang, East Sikkim. Rorathang is situated at an average elevation of 500 meters and has an average daily temperature of 30°C. The village is enclosed by dense forest area and have a good agricultural land. The workers of *Stictoponera lattkei* sp. nov. were collected along with workers of *Camponotus parius* Emery, 1889 during foraging. The association between the two species is yet to be determined.

Etymology:

The species is named in honour of Prof. John E. Lattke a distinguished Entomologist based at Department of Zoology, Universidade Federal do Parana, Curitiba, Parana, Brazil.

ACKNOWLEDGMENTS

We sincerely thank to Dr. John E. Lattkei for his suggestions and comments regarding manuscript. Financial assistance rendered by the Department of Science and Technology/ Science and Engineering Research Board (SERB), (Project File No. EMR/2017/000660), Govt. of India, New Delhi is gratefully acknowledged. We also thank Forest and Wildlife Department, Govt. of Sikkim for granting the permission to collect the research material vide Order No. 78/GOS/FEWMD/BDR/PCCF/Secy/R&E/36 dated 11.09.2019.

Identification key:

An Identification key to the known Indian species of genus *Stictoponera* based on worker castes:

- 1.** Fourth abdominal tergite (II gastral tergite) with abundant costae, striae and strigulae (Fig: A).....
.....*S. coxalis* (Roger)
- Fourth abdominal tergite (II gastral tergite) mostly smooth and with scattered punctate (Fig: B)**2**

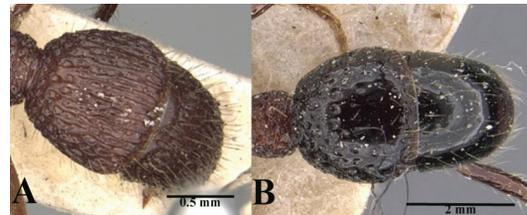


Fig. 6. Fourth abdominal tergite (II gastral tergite). **A.** *S. coxalis* (Roger, 1860) (from Antweb-CASENT0281842); **B.** *S. bicolor* (Emery, 1889) (from Antweb- CASENT0907201).

- 2.** Fourth abdominal sternite (II gastral sternite) mostly smooth, scattered punctae or punctulae may be present but do not form ridges or strigulae ...*S. binghamii* (Forel) (in part)
- Fourth abdominal sternite (II gastral sternite) with transverse rugae or rugulae on most of surface .**3**
- 3.** Occipital lobes posteroventrally protuberant; eyes separated from posterior cephalic margin, excluding lobes, by one ED or less (Fig: A)**4**
- Occipital lobes modest, usually more ventrally protuberant; eyes separated from posterior cephalic margin by more than one ED (Fig: B).....**6**

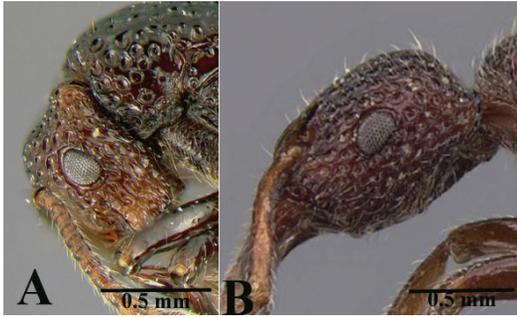


Fig. 7. Head in profile view. **A.** *S. menadensis* (Mayr, 1887) (from Antwikki- *G. menadensis*L3.2); **B.** *S. binghamii* (Forel, 1900) (from Antweb- CASENT0907195).

4. Mesosoma without standing hairs in lateral view, one or two at most; metacoxal spine robust and curved (Fig: A) **5**
 Mesosoma with abundant, scattered standing hairs in lateral view; metacoxal spine usually straight and slender (Fig: B)
 ***S. bicolor* (Emery)**

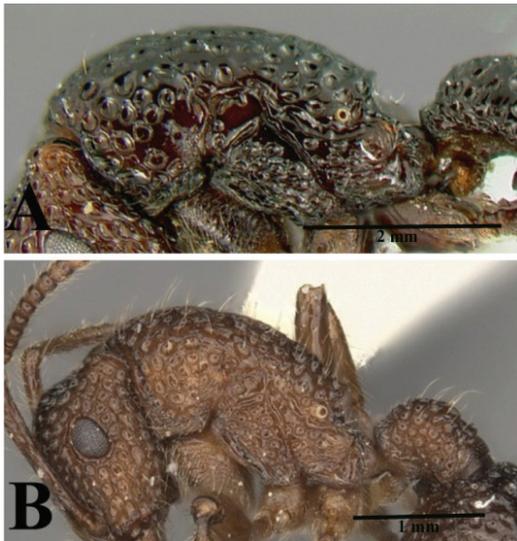


Fig. 8. Mesosoma in profile view. **A.** *S. menadensis* (Mayr, 1887) (from Antwikki- *G. menadensis*L3.2.jpg); **B.** *S. bicolor* (Emery, 1889) (from Antweb- CASENT0217481).

5. Body mostly foveolate; Subpetiolar process polygonal ventrally produced into denticle (Fig: A) ***S. lattkei* sp. nov.**
 Pronotum and mesonotum areolate, foveate-reticulate and mesosomal dorsum has a smooth median strip; Subpetiolar process subquadrate or lobe like (Fig: B)..... ***S. menadensis* (Mayr)**

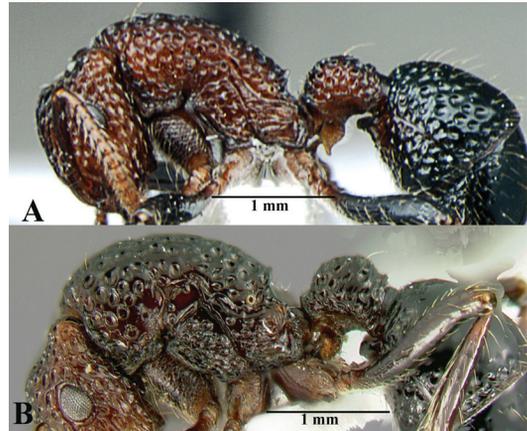


Fig. 9. Body in profile view. **A.** *S. lattkei* sp. nov.; **B.** *S. menadensis* (Mayr, 1887) (From Antwikki- *G. menadensis*L3.2.jpg).

6. Antennal scapes are devoid of longitudinal strigae, and the occipital lobes are absent. (Fig: A) ***S. meghalaya* (Lattke)**
 Antennal scapes frequently include strigae; occipital lobes are small but distinct (Fig: B).....
 ***S. binghamii* (Forel)**



Fig. 10. Head in full face view. **A.** *S. meghalaya* (Lattke, 2004) (from Antweb- CASENT0900563); **B.** *S. binghamii* (Forel, 1900) (from Antweb- CASENT0217482).

REFERENCES

Ashmead WH, 1905. A skeleton of a new arrangement of the families, subfamilies, tribes and genera of the ants, or the superfamily Formicoidea. *Canadian Entomologist* 37: 381 – 384.
 Bingham CT, 1903. The fauna of British India, including Ceylon and Burma. Hymenoptera, Vol. II. Ants and Cuckoo-wasps. London: Taylor and Francis, 506 pp.
 Brown WL Jr, 1958. Contributions toward a reclassification of the Formicidae. II. Tribe Ectatommini (Hymenoptera). *Bulletin of the Museum of Comparative Zoology* 118:173 – 362.

- Camacho GP, Franco W and Feitosa RM 2020. Additions to the taxonomy of *Gnamptogenys* Roger (Hymenoptera: Formicidae: Ectatomminae) with an updated key to the New World species. *Zootaxa* 4747(3): 470 – 476.
- Camacho GP, Franco W, Branstetter MG, Pie MR, Longino JT, Schultz TR, Feitosa RM, 2022. UCE phylogenomics resolves major relationships among ectaheteromorph ants (Hymenoptera: Formicidae: Ectatomminae, Heteroponerinae): a new classification for the subfamilies and the description of a new genus. *Insect Systematics and Diversity* 6 (1): 5:1-20. 10.1093/isd/ixab026
- Chen Z, Lattke JE, Shi F, and Zhou S, 2017. Three new species of the genus *Gnamptogenys* (Hymenoptera, Formicidae) from southern China with a key to the known Chinese species. *Journal of Hymenoptera Research* 54: 93.
- Dalla Torre KW, 1893. *Catalogus Hymenopterorum hucusque descriptorum systematicus et synonymicus*. Vol. 7. Formicidae (Heterogyna). Leipzig: W. Engelmann, 289 pp.
- Donisthorpe H, 1943. A list of the type-species of the genera and subgenera of the Formicidae. [concl.]. *Annals and Magazine of Natural History* (11)10:721 – 737.
- Emery C, 1895. Die Gattung *Dorylus* Fab. und die systematische Eintheilung der Formiciden. *Zoologische Jahrbücher. Abteilung für Systematik, Geographie und Biologie der Tiere* 8:685 – 778.
- 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.
- Forel A, 1917. Cadre synoptique actuel de la faune universelle des fourmis. *Bulletin de la Société Vaudoise des Sciences Naturelles* 51:229 – 253
- Lattke JE, 2004. A taxonomic revision and phylogenetic analysis of the ant genus *Gnamptogenys* Roger in Southeast Asia and Australasia (Hymenoptera: Formicidae: Ponerinae). *University of California Publications in Entomology* 122: 1 – 266.
- Mayr G, 1887. Südamerikanische Formiciden. *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* 37:511 – 632.
- Wheeler WM, 1910. *Ants: their structure, development and behavior*. New York: Columbia University Press, xxv + 663 pp.
- Wheeler WM, 1922. *Ants of the American Museum Congo expedition*. New York: Bulletin of the American Museum of Natural History, 1139

ASIAN MYRMECOLOGY

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

Communicating Editor: Francisco Hita Garcia