Entomology

New distributional record of *Ochetellus glaber* (Mayr, 1862) and *Aphaenogaster beccarii* Emery, 1887 (Hymenoptera: Formicidae) from Northeast India

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Received 1 Dec 2025; Accepted 06 Jan 2026; Published 01 Feb 2026

DOI: https://doi.org/10.64171/JAE.6.1.26-30

Abstract

New distributional records are provided for two ant species from Northeast India. *Ochetellus glaber* (Mayr, 1862) is reported for the first time from the region, representing a significant eastward extension of its known Indian distribution, while *Aphaenogaster beccarii* Emery, 1887 is recorded for the first time from Meghalaya.

Keywords: Indo-Burma, Biodiversity, Insects, Forests, Rainfall, Fauna, Arthropods

Introduction

The Indo-Burma biodiversity hotspot is characterized by extraordinary species richness and high levels of endemism, encompassing a stretch of approximately 236,000 km² across Myanmar, Thailand, Laos, Cambodia, Vietnam, and parts of China, with significant representation in northeastern India (Myers *et al*., 2000; Mittermeier *et al*., 2004; Tordoff *et al*., 2012) [20, 19, 21]. Despite its recognized importance for global biodiversity conservation, the Indo-Burma hotspot faces severe and immediate threats arising from habitat loss, deforestation, and increasing developmental pressures (Tordoff *et al*., 2012) [21].

Meghalaya, located in northeastern India, constitutes a crucial component of the Indian portion of the Indo-Burma hotspot (Upadhaya *et al*., 2013) [22] and is characterized by complex topography and diverse climatic conditions, resulting in the development of unique montane subtropical forests and humid ecosystems (Haridasan & Rao, 1985; Khan *et al*., 1997; Mir *et al*., 2019) [14, 17, 18]. Such environmental heterogeneity provides favourable conditions for diverse insect communities, including ants.

Ants play crucial ecological roles as ecosystem engineers, predators, detritivores and nutrient cyclers, thereby significantly influencing ecosystem structure and functioning (Hölldobler & Wilson, 1990; Folgarait, 1998) [15, 13]. As of 2025, a total of 14,417 ant species has been described worldwide (Bolton, 2025) [10], 887 from India, although many regions, particularly northeastern India, remain inadequately surveyed (Bharti *et al*., 2016; AntWiki, 2025) [5, 2]. The genus *Ochetellus* is represented in India by a single species, while *Aphaenogaster* is represented by 13 species, of which *Aphaenogaster rothneyi*, *A. sagei*, *A. schurri*, and *A. smythiesii* have previously been recorded from Meghalaya. The present study reports the first records of *Ochetellus glaber* (Mayr, 1862) and *Aphaenogaster beccarii* Emery, 1887 from Meghalaya, Northeast India, and provides updated distributional data for both species.

Materials and Methods

The specimens were collected by hand picking method and were preserved in absolute ethanol. Later, sorted, cleaned and card-mounted for examination. Taxonomic analysis was conducted using Nikon SMZ 1500 stereo zoom microscope. Species identification is based on published standard taxonomic keys (Bingham, 1903; Bolton, 1994) [8, 9], and further comparison with already authenticated material housed in PUAC and holotype images on AntWeb, 2025 [1]. Digital images were captured in full-face, profile, and dorsal views using a Nikon D5600 DSLR camera equipped with a Laowa 25 mm ultra-macro lens mounted on a NiSi NM-200S macro focusing rail. Multiple focal-plane images were stacked to enhance depth of field, and final image processing was carried out using Adobe Photoshop 2022. Distribution map prepared by using QGIS version 3.44.6 (Fig. 1).

Morphological terminology and standard measurements follow (Bharti & Wachkoo, 2014; Baidwan *et al*., 2024) [6, 4].

Head length (HL): Maximum length of head in full-face view, measured in straight line from the anteriormost point of the median clypeal margin to the midpoint of a line drawn across the posterior margin of head.

Head width (HW): Maximum width of head in full-face view (excluding the portion of eyes that extends past the lateral margins of the head).

Eye length (EL): Maximum length of eye as measured normally in oblique view of the head to show full surface of eye.

Eye width (EW): In lateral view maximum width of eye.

Scape length (SL): Maximum length of the scape, excluding the basal neck and condyle.

Pronotal width (PnW): Maximum width of the pronotum in dorsal view.

Mesosoma length (ML): Mesosomal length in profile, from the anteriormost border of the pronotum, excluding the neck to the posterior basal angle of the metapleuron.

Petiole length (PL): Maximum length of the Petiole in profile.

Postpetiole length (PPL): Maximum length of the postpetiole in profile, from the anterior and posterior extensions of the postpetiolar node, excluding the anterior and posterior condyles.

Gaster length (GL): The length of the gaster in profile from the anteriormost point of the first gastral segment to the posteriormost point (excluding sting).

Total length (TL): Total outstretched length of a specimen, excluding mandibles.

The following ratios were calculated from the preceding measurements and multiplied by 100 are denominated as indices:
Cephalic index (CI): HW/HL x 100.
Scape index (SI): SL/HW x 100.

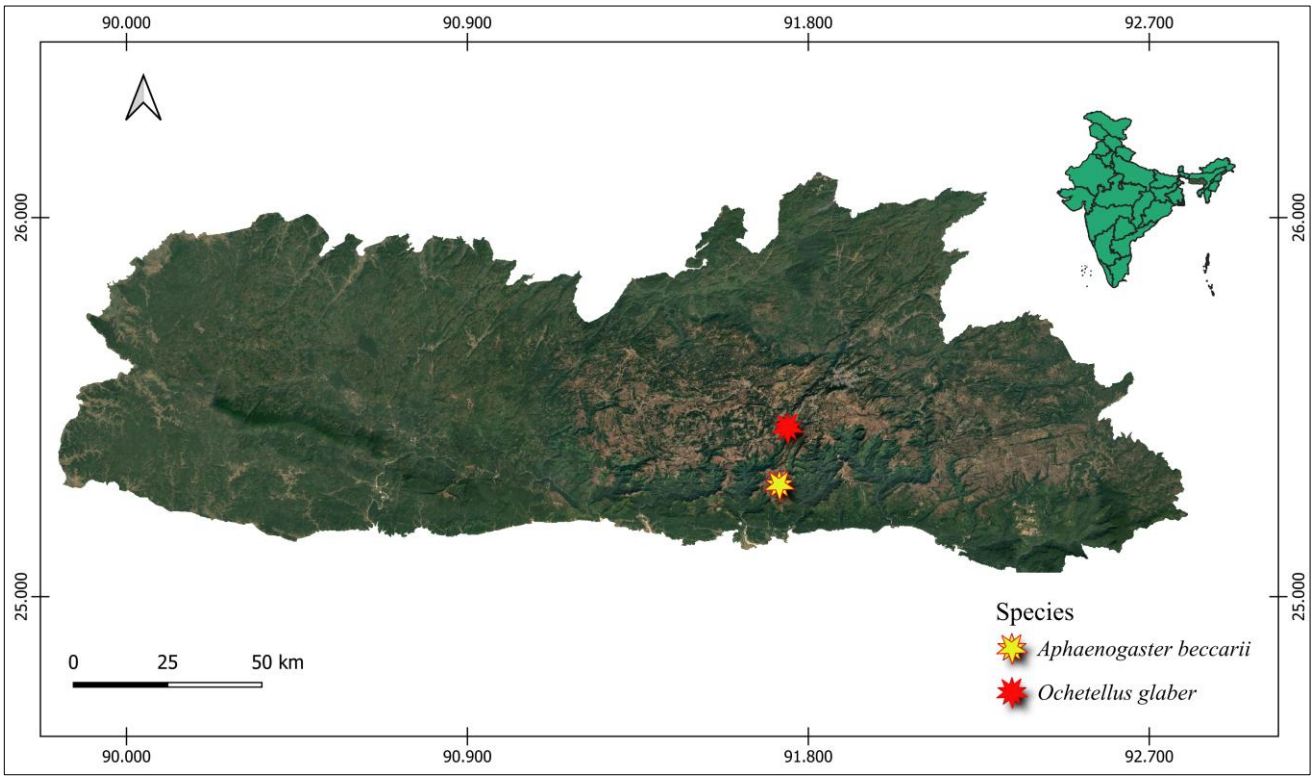


Fig 1: Localities of newly recorded *Ochetellus glaber* and *Aphaenogaster beccarii* in Meghalaya, Northeast India

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

Results and Discussion
Species account
Ochetellus glaber (Mayr, 1862) (Figs. 2a-c) 705 (w.m.) AUSTRALIA (New South Wales). Australasia. Primary type information: Primary type material: syntype workers (number not stated), syntype male(s). Primary type locality: Australia: New South Wales, Sydney (Novara Expd.) (sent by R. von Frauenfeld). Primary type depositories: BMNH, NHMW. Type notes: Shattuck, 1994: 132, cites a holotype worker in BMNH, but from the original description more than 1 worker was apparently present, and at least 1 male.

Material Examined
India: Meghalaya: Mawphlang Sacred Forest, 25.44583 N 91.745 E, 1848 m, Hand picking, 16.vi.2025, 7 w., Rakeshwar Kapoor leg (PUAC).

Measurements
HL 0.62-0.69; HW 0.6; EL 0.17; EW 0.12; SL 0.54-0.55; PnW 0.4; ML 0.76-0.79; PL 0.12-0.13; GL 0.90-1.03; TL 2.43-2.61mm. Indices: CI 86.95-96.77; SI 90-91.66. (n = 2).

Diagnosis
Head in full-face view subrectangular, slightly longer than broad; lateral margins convex; occipital margin straight to feebly convex medially; occipital corners rounded. Clypeus with anterior margin weakly convex. Eyes well developed, oval, positioned approximately at mid-length of head.

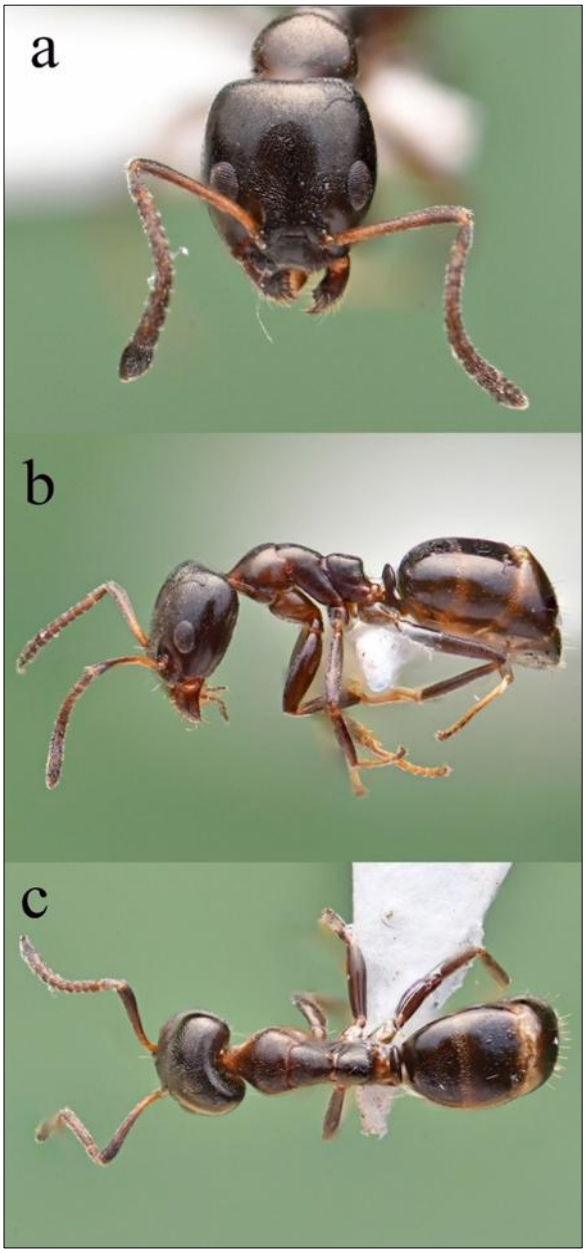
Antennae 12-segmented; scape moderately long, reaching or nearly reaching the posterior margin of the head.
Mesosoma in dorsal view compact and narrow; pronotum rounded; promesonotal and meso-metanotal sutures distinct. Petiolar node transverse, distinctly broader than long. Gaster moderately enlarged, subrounded posteriorly, with brownish coloration at the intersegmental joints of tergites.
In lateral view, promesosoma evenly convex; propodeal declivity slightly concave; propodeal spiracle small, rounded, and situated at mid-height of the declivity. Petiolar node scale-like, thin, vertical, and narrowed basally.
Body surface smooth with fine micro-reticulation.
Pilosity and pubescence. Erect hairs present on mandibles and at the apex of the gaster; pubescence silvery and sparse.
Colouration. Body dark brown to blackish; antennae and tarsi brown.

Distribution and habitat. In India, previously recorded from Haryana, Himachal Pradesh, Karnataka, Maharashtra, Sikkim, Uttarakhand, and West Bengal. It is recorded here for the first time from Northeast India. The nest was found beneath a stone.

Aphaenogaster beccarii Emery, 1887 (Figs. 3a-c)
Aphaenogaster (Ischnomyrmex) beccarii Emery, 1887g: 456, pl. 1, fig. 12 (w.m.) INDONESIA (Sumatra). Indomalaya. Primary type information: Primary type material: syntype workers (number not stated), 1 syntype male. Primary type locality: Indonesia: Sumatra, Elefanta I. (*Beccari*). Primary type depository: MSNG.

Material Examined. India: Meghalaya: Cherrapunji, 25.2950 N 91.72333 E, 1478 m, Hand picking,14.vi.2025, 12 w., Rakeshwar Kapoor leg (PUAC).

Worker Measurements: HL 1.03–1.15; HW 0.76–0.84; SL 1.48–1.63; EL 0.24; WL 1.53–1.75; GL 1.15–1.36; PL 0.36–0.48; PPL 0.50–0.52; TL 4.57–5.26 mm; CI 135.52; SI 143.68–144.34; (n = 4).



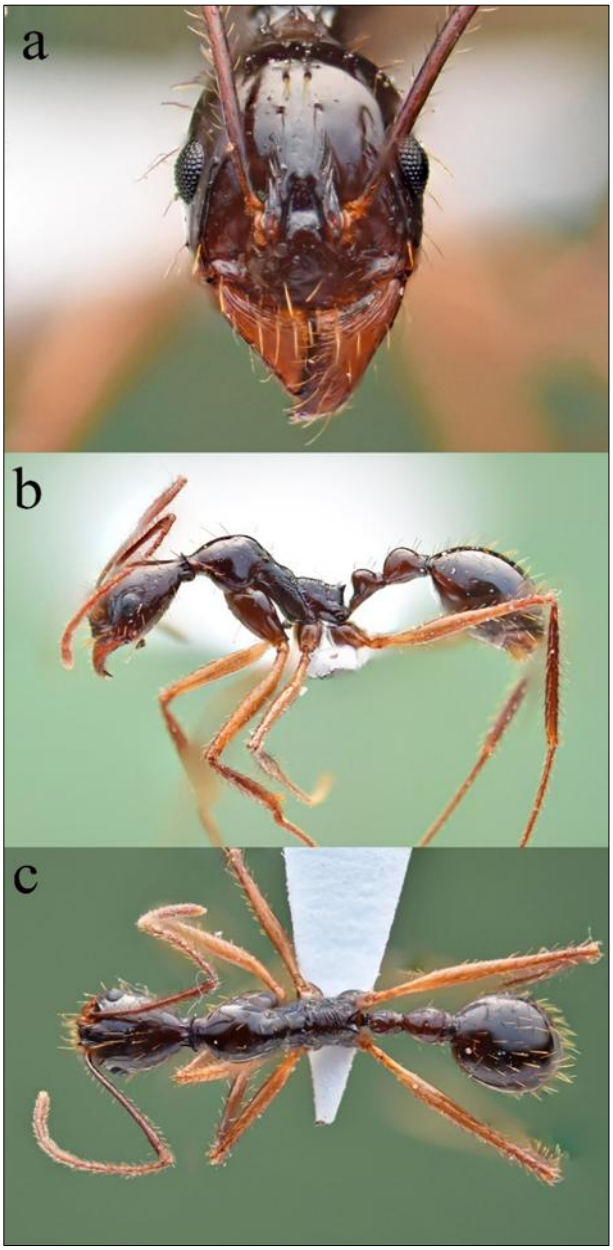


Fig 2: *Ochetellus glaber* (Mayr, 1862), worker: (a) head in full-face view; (b) body in lateral view; (c) body in dorsal view
Fig 3: *Aphaenogaster beccarii* Emery, 1887, worker: (a) head in full-face view; (b) body in lateral view; (c) body in dorsal view

Diagnosis

Head in full-face view elongated; posterior margin forming a more or less cylindrical neck or collar. Clypeus with anterior margin convex. Mandibles triangular, finely striate. Eyes large and oval. Antennal scrobes very large. Antennae 12-segmented, with a 4-segmented club; scape extending well beyond the posterior margin of the head.

Mesosoma in dorsal view elongated; meso-metanotal suture distinct. Propodeum armed with a pair of small spines. Petiolar node longer than broad; postpetiole large and suboval. Gaster large and oval.

In lateral view, dorsal surface of pronotum convex; dorsal surface of propodeum flat; propodeum with two small acute spines. Petiole conical, anteriorly with a long peduncle; dorsal surface of postpetiole rounded.

Dorsal surfaces of head, pronotum, mesonotum, petiole, and postpetiole smooth and shiny; dorsal surface of propodeum with transverse striations. Laterally, pronotum smooth, while mesopleuron and metapleuron striated.

Pilosity and pubescence. Body covered with dense, short, stout, erect and suberect yellowish hairs; pubescence almost absent over the body surface.

Colouration. Body dark brownish; antennae and legs slightly lighter in colour.

Distribution and habitat. India: Andaman & Nicobar Islands, Arunachal Pradesh, Goa, Karnataka, Maharashtra, Manipur, Sikkim, Tamil Nadu, Tripura, and West Bengal; newly recorded from Meghalaya. The species was collected from a nest in the soil.

Regional inventories and documented range extensions play a critical role in understanding species distributions and their ecological significance (Bharti *et al*., 2017; Dad *et al*., 2019; Baidwan *et al*., 2025; Kapoor *et al*., 2025) [7, 11, 3, 16]. The discovery of *Ochetellus glaber* and *Aphaenogaster beccarii* in Meghalaya highlights the inadequacy of current ant biodiversity documentation across much of northeastern India and the Indo-Burma biodiversity hotspot. Although 887 ant species are currently recorded from India, only a small proportion has been documented from the northeastern region, with several states remaining substantially undersampled relative to their ecological heterogeneity and geographic extent (Bharti *et al*., 2016) [5]. Recent targeted surveys in Manipur, a neighbouring northeastern state, resulted in the addition of 26 new species and four new genera for the state, demonstrating that focused sampling across specific habitat types and elevational zones can yield significant faunal discoveries (Dhar & Saroj, 2025) [12]. The present records from Meghalaya follow a similar pattern and further emphasize the need for continued systematic and habitat-focused surveys to improve our understanding of ant diversity and distribution in the northeastern region of India.

Acknowledgements

This study was financially supported by the Council of Scientific & Industrial Research (File No. 09/0140(13270)/2022-EMR-I) and the University Grants Commission (ID No. 21161002260). The authors are grateful to Virender Kumar for his assistance during fieldwork and to the anonymous reviewers for their valuable comments and suggestions.

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