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# A new species of *Polyrhachis* Smith from Garbhanga Reserve Forest, Assam, India, with a key to the Indian species of *Polyrhachis mucronata* group (Hymenoptera: Formicidae)

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**ABSTRACT.** The study describes a new species of *Polyrhachis,* or spiny ant, named *Polyrhachis garbhangaensis* sp. nov., from the state of Assam, northeastern India. This species was collected and identified during field sampling in the Garbhanga Reserve Forest, near the city of Guwahati in Assam. It represents a third Indian species of the *P. mucronata* species group in the subgenus *Myrmhopla. Polyrhachis* Smith, 1857 is a genus of ants, found widely across the Old-World tropics, with significant diversity across Southeast Asia. The discovery and characterisation of this species clearly indicate the need to revise the classification key of the genus *Polyrhachis*. As a step towards this, we present an updated key to the species of the mucronata group of *Polyrhachis* (*Myrmhopla*), including the new species. This finding contributes to a deeper understanding of the taxonomic diversity of *Polyrhachis* and highlights the unexpected importance of urban and fragmented forest areas in sustaining tropical ant biodiversity.

**Keywords** Myrmecology, taxonomy, identification key, spiny ant, northeastern India
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## INTRODUCTION

The spiny ant genus *Polyrhachis* Smith, 1857 is considered to be one of the most diverse ant genera globally, both taxonomically and ecologically (Wong & Guénard 2021), and is widely distributed across the Old-World tropics, with a high diversity in tropical and subtropical regions of Australasia and Southeast Asia (Bharti 2003; Andersen et al. 2012). The genus includes over 700 described species and 82 valid subspecies globally (Blanchard & Moreau 2023). In India, *Polyrhachis* is the second-most diverse ant genus, after *Camponotus*, with 71 known species to date (Bharti et al. 2016). The genus typically consists of species that are generally arboreal, lignicolous, and with subterranean to terrestrial, occasionally lithocolous, nesting habits (Robson & Kohout 2007). *Polyrachis* species are morphologically characterised by prominent spines on their mesosoma and petioles, distinct and thick integuments, and often brightly coloured pubescence (Dorrow 1995; Robson 2020).

According to the last comprehensive checklist of ants prepared for Indian states (Bharti et al. 2016), the state of Assam recorded a total of 217 species, belonging to 58 genera. Amongst these, 21 species belonged to the genus *Polyrhachis,* making it the ant genus with the second-highest diversity from this state (Bharti et al. 2016). Assam, often referred to as the gateway to the northeast, is home to the region‘s largest city, Guwahati. Situated on the south bank of the river Brahmaputra, this city, which is undergoing rapid urbanisation, is located in a landscape that includes fragmented forests, various residual hills, low-lying valleys, wetlands (known as *beels)*, and marshes (Sharma et al., 2024). The Garbhanga Reserve Forest (91.6069–91.7958°E; 26.0919–25.9033°N) is one such fragment that constitutes a major part of Guwahati‘s green spaces (Yadav and Barua 2016). This forest range, spanning 117 km², is located on the border of Assam and Meghalaya states (Ahmed et al. 2024) and is contiguous with the Rani Reserve Forest, forming the largest network of protected forests in Assam (Mahananda et al. 2024). During our field sampling for a study on the impacts of urbanisation on the taxonomic and functional diversity of ant and spider assemblages in South Guwahati, we discovered a new species of *Polyrhachis* in the Garbhanga forest range (Figure 1). This new species, described and illustrated in this paper, is named *Polyrhachis garbhangaensis* sp. nov. We also propose the vernacular name ‘Assamese Spiny Ant’ for the species.

## MATERIALS AND METHODS

**Sample Collection:** As part of our aforementioned broader study, we set up pitfall traps along three transects (each 200 m long) within the Garbhanga Reserve Forest. The traps were kept for two days at each site and retrieved after 48 hours. The specimens of the new species (workers) were collected during the first round of seasonal sampling from the third transect, labelled Garbhanga Stream, located at 91.7476°E and 26.0918°N (Figure 1).

**Measurements and Indices:** A Leica M125 C stereomicroscope, equipped with a Leica MC190 HD digital camera, was used to measure and evaluate the specimens. We utilised a Flexacam C3 HD digital camera mounted on a Leica M205A stereomicroscope with 7.78X–160X magnification, to take multi-focus pictures of the specimens. The ImageJ software was used to record all measurements in millimetres. The morphological terms and indices have been based on those presented by Kohout (2010, 2014), Ješovnik and Schultz (2017), and Wong & Guénard (2021), with slight modifications. The holotype and paratype have been deposited in the following repositories:

1. Research Collections Facility, National Centre for Biological Sciences (NCBS), Bengaluru, India (https://www.ncbs.res.in/research-facilities/collections-facility).
2. Zoological Survey of India (ZSI), Shillong

The measurement ranges, provided in the subsequent sections, include data from the holotype and all five paratypes.

The following standard measurements have been used:

EL (Eye Length): Maximum eye diameter, observed laterally

HL (Head Length): Maximum distance from the anterior clypeal margin to the posterior margin of the head (excluding mandibles), in full-face view

HW (Head Width): Maximum head width, excluding compound eyes, in full-face view

ML (Mandible Length): Distance from the anterior margin of the clypeus to the distal tip of the mandibles, measured in full-face view

SL (Scape Length): Maximum scape length, excluding the basal condyle

IOD (Interocular distance): The maximum width of the head, measured at the midpoint of the internal margins of the eyes, in full-face view

WL (Weber's Length): Measured diagonally from the pronotum's anterior edge inflection to the posterior edge of the propodeal lobe, in lateral view

PTL (Petiole Length): Axial distance from the petiole's anterior-most ventral margin to its posterior-most margin, in lateral view

PTW (Petiole Width): Maximum transverse width across the petiole node, in dorsal view

PTH (Petiole Height): Height of the petiole in profile, perpendicular to PTL, and measured from the petiolar spiracle to the apex or tangent point of the petiolar space

GL (Gaster Length): Length of the gaster, in lateral view, from the anterior-most point of the first gastral segment (third abdominal segment) to the posterior-most point of the gaster

TL (Total Length): Computed as HL + WL + PTL + GL

MTL (Metatibial Length): Maximum length of the hind tibia

CI (Cephalic Index): Computed as (HW/HL) × 100

MI (Mandibular Index): Computed as (ML/HL) × 100

SI (Scape Index): Computed as (SL/HL) × 100

PTI (Petiolar Index): Computed as (PTW/PTL) × 100

PTHI (Petiole Height Index): Computed as (PTH/PTL) × 100

**Comparison with related species:** The holotypes of *Polyrhachis moeschi* Forel, 1912, *Polyrhachis hippomanes* Smith, 1861, and a syntype of *Polyrhachis hippomanes ceylonensis* Emery, 1893, as available on AntWeb (2024), all of which are known from India (Guénard & Dunn 2012; Bharti et al. 2016), were compared with the newly recognised species.

**Diagnosis Within *Polyrhachis* and the *Myrmhopla* Subgenus:** The species displays characteristic features of the genus *Polyrhachis*, including the absence of a metapleural gland, a prominently large first gastral segment which covers more than half the size of the abdomen and exceeds the size of the second segment, the presence of spines on the thorax and petiole, and the absence of distinct polymorphism (Dorrow, 1995). It also possesses some of the features of the subgenus *Myrmhopla* listed by Dorrow (1995), including pronotal spines that are shorter compared to propodeal spines, and a petiole that forms an elongated node in profile and diverges into a pair of distinct curved spines. However, as acknowledged by Dorrow and Kohout (2010), the subgenus *Myrmhopla* is difficult to define due to considerable variations in features among its species and species groups (Mezger & Moreau 2015). As such, we have included the diagnosis of the *P. mucronata* group of the subgenus *Myrmhopla*, which aligns well with the characteristics of the new species.

**Diagnosis of the mucronata species group of *Polyrhachis* (*Myrmhopla*) (from Kohout, 2010, modified from Dorow, 1995):** Small to medium-sized ants (HL 1.25–2.10 mm) (Kohout, 2010), with general characteristics of the genus *Polyrhachis*. Mandibles are mostly longitudinally striate or finely rugose, with numerous piliferous pits. The anterior clypeal margin has a shallow, median flange or is shallowly truncated. The head is usually semi-circular in side view, oval in frontal view, and the genae are emarginate. Eyes are moderately to strongly convex, clearly exceeding the lateral cephalic outline in full-face view. The mesosoma is completely immarginate, usually highly convex and relatively short, but also somewhat elongated and distinctly less convex in some species. The pronotum is armed with acute teeth, rarely with long, slender spines, or simply rounded. The propodeal spines are relatively long and strong in most species, but may also be short. The petiole is columnar with a pair of lateral spines, usually embracing the first gastral segment; the spines are mostly slender, but also remarkably

massive in some species. The dorsum of the petiole has a pair of more-or-less distinct intercalary teeth, except in some species. The sculpturation of the head, mesosoma, and the petiole ranges from smooth and highly polished to closely punctate or micro-reticulate. The gaster is usually finely sculptured, shagreened, and polished, only rarely closely punctate and opaque. Body pilosity and pubescence are virtually lacking in most species; in some species, however, the whole body is covered with rather diluted, whitish pubescence. The body is mostly black, rarely with purple metallic reflections. The gaster is black or red to yellow, as in *P. garbhangaensis*, with appendages ranging from yellowish-orange or light reddish-brown to black.

## RESULTS

The various morphological features of the holotype of *Polyrachis garbhangaensis* sp. nov. have been shown in Figure 2.

**Measurements (in mm):**

**Worker holotype:** TL 5.60, WL 1.93, HL 1.37, HW 1.1, IOD 0.83, SL 1.97, EL 0.41, ML 0.59, PTH 0.79, PTL 0.57, MTL 2.10, PTW 1.01, GL 1.74

**Indices:** CI 80.29, EI 37.27, MI 43.07, SI 179.09, PTI 177.19, PTHI 137.72

**Worker Paratypes (n=5):** TL 5.21–5.82, WL 1.84–1.93, HL 1.35–1.47, HW 1.05–1.22, IOD 0.81–0.88, SL 1.57–1.97, EL 0.4–0.43, ML 0.51–0.63, PTH 0.68–0.91, PTL 0.49–0.61, MTL 1.95–2.17, PTW 0.92–1.13, GL 1.5–1.84

**Indices:**CI 75–83.7, EI 35.25–39.05, MI 34.69–46.67, SI 116.30–145.93, PTI 150.82–230.61, PTHI 120.35–150.39

**Description of *Polyrhachis garbhangaensis* sp. nov.**

**ZooBank:** http://zoobank.org/1CCF0925-D09F-4129-85E3-3E2AC2009FFB

As the new species *Polyrhachis garbhangaensis*, described here, is only known from individual workers, we offer a worker-based description of the new species, pending the discovery of males and queens for the taxon.

**Head:** The head is longer than broad (CI = 75–83), broader posteriorly. The lateral margins of the head in front of the eyes are slightly convex, converging towards the mandibular bases, rounding into a curved occipital margin behind the eyes. The eyes, located at the posterior part of the head, are large (EI = 35–39), moderately convex, and break the lateral cephalic outline in full-face view. The frontal carinae are sinuate with raised margins, while the frontal triangle is present but feeble. The clypeus has a faint median carina, anteriorly straight, and posteriorly rounded into the relatively impressed basal margin in profile. The anterior clypeal margin is slightly emarginate in the middle, laterally flanked by blunt teeth; the posterior margin is convex but medially moderately emarginate. The mandibular masticatory border has five teeth, with the apical tooth being the longest, followed by the sub-apical tooth. The remaining three teeth are much smaller and gradually decrease in length. The antennal scape is slender and longer than the head width (SI = 116–145) while the Antennal Segments 2 to 12 are all longer than broad, with Segments 2 and 12 slightly longer than the rest.

**Mesosoma:** The mesosomal dorsum is weakly marginate laterally; the pronotum is large and moderately convex in profile, squarish, and only slightly trapezoid-shaped in dorsal view, with the anterior portion rounded and relatively the same length as the posterior portion; the humeri are with reduced, bluntly angular protrusions. The promesonotal suture is visible but not prominent; The mesonotum is almost flat in profile view, narrower than the pronotum, narrowing prominently towards its posterior portion in dorsal view; The metanotal groove is not visible, but a weak impression is recognised in its corresponding area. The propodeal dorsum is posteriorly armed with a pair of slender spines, which are elevated at a right angle, curve slightly upwards, and are directed posterolaterally. The propodeal lobe is conspicuous and projects outwards.

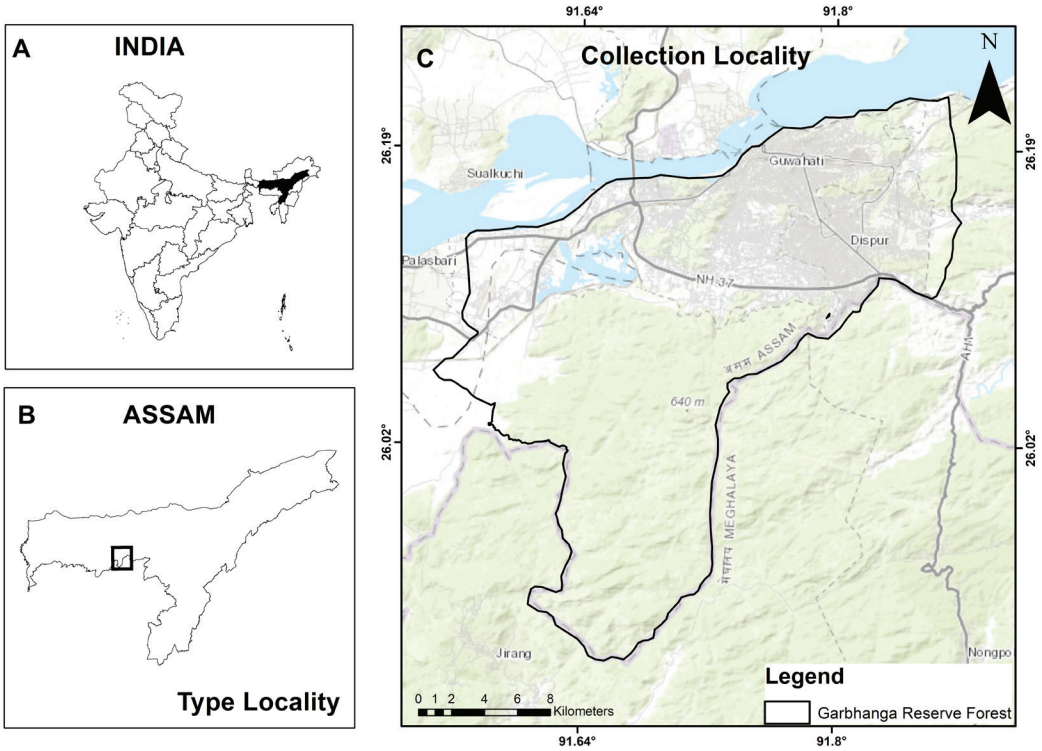


**Fig. 1.** Map showing the type locality of *Polyrachis garbhangaensis* sp. nov. in the Garbhanga Reserve Forest, Assam, northeastern India. A. India, with the state of Assam shown in black; B. The state of Assam, with the type locality and C. Garbhanga Reserve Forest, the location of the type locality

**Metasoma:** The petiole is columnar, with two horizontal acute spines conforming to the shape of the gaster in dorsal view; the intercalary region is entirely smooth, lacking any spines or projections. The anterior face of the first gastral tergite rounds extensively onto the dorsum of the segment.

**Pilosity:** The anterior and basal clypeal margins, as well as the space between frontal carinae, have a few anteriorly projecting setae, while the gaster has sub-erect, sparsely distributed setae. The other parts of the head and mesosoma are largely glabrous, lacking any distinct pubescence.

**Sculpture:** The mandibles are longitudinally striate. The head is marked by minute striae encircling the frontal carinae and the frons region, which gradually transition into a micro-reticulate pattern towards the outer margins of the head. The clypeus has several sparsely distributed punctations. The pronotum, dorsum of mesonotum, and propodeum (except around the spines) are also reticulate, whereas the basal portions of the mesonotum and propodeum, extending towards propodeal spines, bear faint longitudinal striae. The petiole, along with petiolar spines, also possesses longitudinal striae.

**Colouration:** The body is black and reflective; the eye is a shade of rusty brown; the condylar bulb is yellowish orange; and the rest of the antennae are brown, slightly dark near the beginning of Antennal Segment 2. The coxae display a brownish-black colour, in stark contrast to the bright yellow femora and tibia, which darken to an orangish-brown. In ethanol-preserved specimens, the gaster exhibits a bright yellow colouration; however, after drying in a hot air oven (at 35°C for three days), it shifts to a yellow-brown hue, a natural colour change resulting from heat treatment.

**Distribution:** The species is currently known only from Assam state, northeastern India.

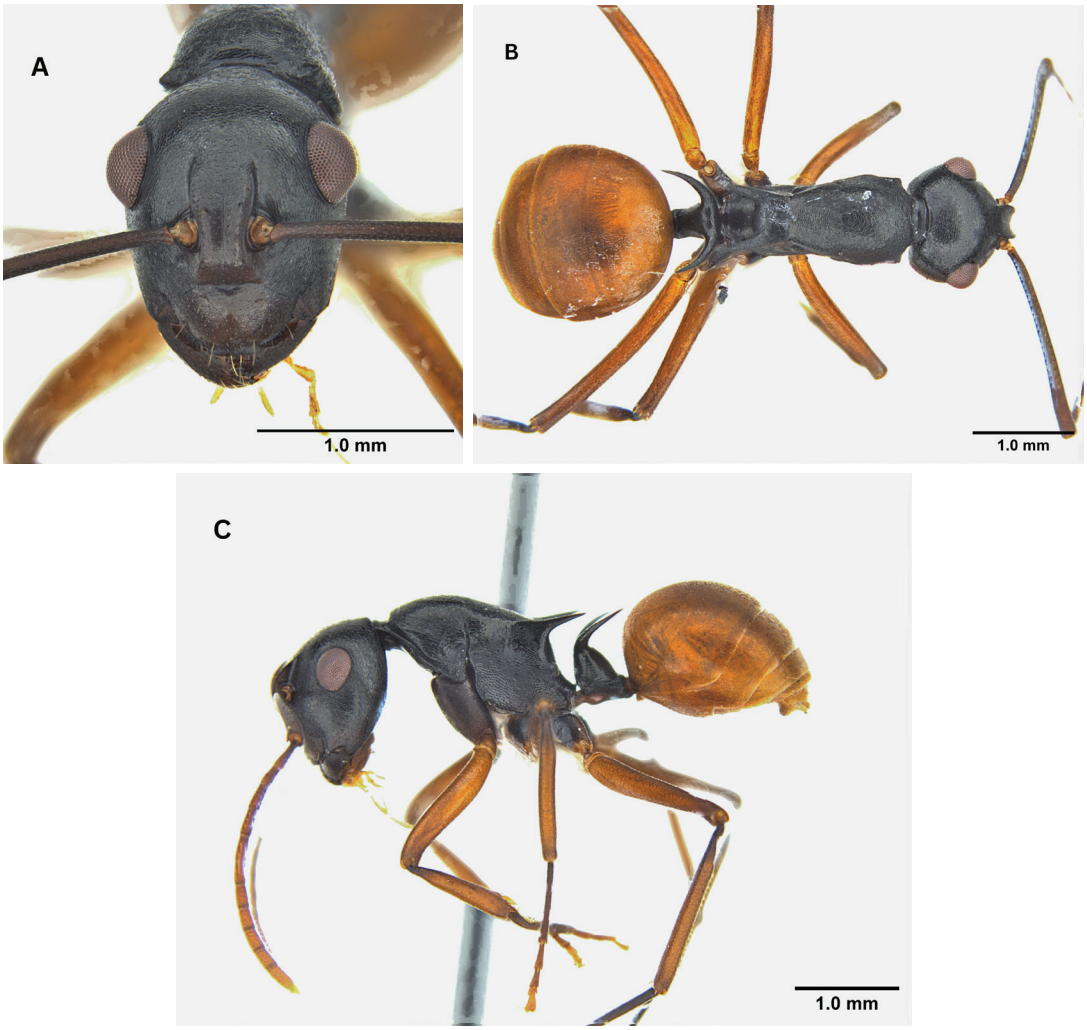


**Fig. 2.** Holotype of *Polyrhachis garbhangaensis* sp. nov. (NRC-AA-9438): A, full-face view; B, dorsal view; C, profile view.

**HOLOTYPE**: Worker, INDIA: Assam, Kamrup Metropolitan district, Guwahati, Garbhanga Reserve Forest (91.6069–91.7958°E; 26.0919–25.9033°N), 29 August 2023, Ankita Sharma, from a pitfall trap (NCBS, Bengaluru; Registration Number NRC-AA-9438). **PARATYPES**: Five workers, all with the same data as that of the holotype, with all specimens having been collected from the same pitfall trap. Three paratypes have been deposited in NCBS, Bengaluru, with Registration Numbers NRC-AA-9439, NRC-AB-0066, and NRC-AB-0067, while two paratypes have been deposited at the Zoological Survey of India, Shillong, with Registration Number I/ERS/HYM/18.

**Biology:** The individuals of the new species, *Polyrhachis garbhangaensis* sp. nov., described here, were collected using pitfall traps, and hence, we currently lack detailed information on the species' biology. Further investigations are required to ascertain the ecology and behaviour of this species.

**Etymology:** The ant species has been named after the Garbhanga Reserve Forest, where it was discovered, to honour the geographical source of this unique species.

**Key to the *Polyrhachis (Myrmhopla) mucronata* group species of India**

The key to the Indian *Polyrhachis* in Karmaly (2004) does not include *P. moeschi* and *P. hippomanes*, and erroneously includes *P. laevigata*. Further, *P. hippomanes ceylonensis is* considered a subspecies of *P. hippomanes,* and not a distinct species. It should thus be updated in the light of the revisions made by Bharti et al. (2016). We, therefore, provide here a separate key to the members of the *Polyrhachis mucronata* group, currently known from India.

(1) Head and thorax smooth and shiny all over, with feeble sculpturation, pronotum completely unarmed, petiolar spines straight ..... .....***Polyrhachis moeschi***

– Head and thorax with distinct sculpturation (striae, reticulae or punctures), pronotum with small projections or tubercles, petiolar spines curved..... **2**

(2) Propodeal spines moderately long, eyes moderately convex, head shiny with minute striae and micro-reticulation, frontal lobe with only minute sparsely distributed punctuations..... ***P. garbhangaensis* sp. nov.**

– Propodeal spines either excessively long or short, eyes only slightly convex, head with distinct sculpturation all over, including frontal lobe, abdomen black ..... **3**

(3) Propodeal and petiolar spines long, the former slightly bending downwards around the medial portion, promesonotal region of the thorax highly convex in profile .....***P. hippomanes***

– Propodeal and petiolar spines short, the former erect and straight, promesonotal region of thorax only very slightly convex in profile .....***P. hippomanes ceylonensis***

## DISCUSSION

The new species, *Polyrhachis garbhangaensis,* is assigned to this genus as it exhibits characteristic traits of *Polyrhachis,* including a large first gastral segment, distinct thoracic and petiolar spines, and the absence of a metapleural gland or clear polymorphism (Dorrow, 1995). It also conforms to typical features of the variable *Myrmhopla* subgenus, particularly their shorter pronotal spines, longer propodeal spines and elongated petiolar node that splits into a pair of curved spines (Dorrow 1995; Kohout 2010). And finally, it shows some of the most distinct features of mucronata group such as the head appearing semicircular in profile, eyes strongly convex, anterior clypeal margin possessing a median flange, mesosoma largely immarginate except around the propodeum, pronotum armed with acute projections, propodeal spines erect and elongated, petiole columnar with a pair of curved lateral spines embracing the gaster, and intercalary teeth absent on the petiole (Dorrow, 1995). However, the species differs from the known *P. mucronata* group species of India and is therefore identified as a new species. These differential key traits include the following features: (1) the abdomen is bright yellowish orange in colour, as compared to black in *P. hippomanes* Smith, 1861, *P. hippomanes ceylonensis*, Emery, 1893, and *P. moeschi* Forel, 1912; (2) the head is shiny, yet visibly sculptured with distinct minute striae, encircling the median carina, as compared to it being densely punctate in *P. hippomanes*, densely reticulate in *P. hippomanes ceylonensis*, and smooth and shiny, with extremely faint striae encircling the median carina, in *P. moeschi*; (3) the petiolar spines are moderately long, thin, and curved, while they are extremely long, thick, and curved in *P. hippomanes*, short, thick, and curved in *P. hippomanes ceylonensis*, and short, thin, and straight in *P. moeschi*.

Interestingly, during the sampling, we also discovered an ant-mimicking spider, *Peng sp.*, belonging to the family Corinnidae (World Spider Catalogue 2025), which we observed to resemble *P. garbhangaensis*, from the same location. This spider family is known for exhibiting myrmecomorphy as a form of Batesian mimicry (Cushing 2022). The presence of a biological mimic suggests that the model species has ecological dominance or plays a significant role in the ecosystem. This supports the concept of Batesian mimicry, where a harmless species (the mimic) evolves to resemble the warning signals of a harmful or unappealing species (the model) to deter predators (Pekár 2014). It also highlights the important role the model species may play in shaping predator–prey interactions within the ecosystem. These findings underscore

the ecological significance of the described species and highlight the need for continued exploration of this study site to gain deeper insights into its biology, behaviour, and its role within the local predator–prey dynamics.

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## REFERENCES

Ahmed G, Das AN, Borah L, and Ahmed R, 2024. An analysis of moth diversity in Garbhanga Reserve Forest, Basistha, Assam, India. *Journal of Bioresource Management*, 11(4), 15.

Andersen AN, Kohout RJ, and Trainor CR, 2013. Biogeography of Timor and surrounding Wallacean islands: Endemism in ants of the genus *Polyrhachis* Fr. Smith. *Diversity*, *5*(1), 139–148.

AntWeb. Version 8.114. California Academy of Science, online at https://www.antweb.org. Accessed 18 September 2025.

Bharti H, 2003. *Polyrhachis punjabi* sp. n. (Hymenoptera: Formicidae: Formicinae) from India. *Folia Heyrovskyana*, 11(1), 1–3.

Bharti H, Guénard B, Bharti M, and Economo EP, 2016. An updated checklist of the ants of India with their specific distributions in Indian states (Hymenoptera, Formicidae). *ZooKeys*, 551, 1–83.

Blanchard BD, and Moreau CS, 2023. Defensive spines are associated with a large geographic range but not diversification in spiny ants (Hymenoptera: Formicidae: Polyrhachis). *Systematic Entomology*, 48(2), 328–340.

Cushing PE, 2012. Spider-ant associations: An updated review of myrmecomorphy, myrmecophily, and myrmecophagy in spiders. *Psyche: A Journal of Entomology* 2012, 151989.

Dorow WHO, 1995. Revision of the ant genus *Polyrhachis* Smith, 1857 (Hymenoptera: Formicidae: Formicinae) on subgenus level with keys, checklist of species, and bibliography. *Courier Forschungsinstitut Senckenberg* 185, 1–113.

Emery C, 1893. Formicides de l'Archipel Malais. *Revue Suisse de Zoologie,* 1, 187–229.

Forel A, 1912. Einige neue und interessante Ameisenformen aus Sumatra etc. *Zoologische Jahrbücher Supplement,* 15, 51–78.

Guénard B, and Dunn RR, 2012. A checklist of the ants of China. *Zootaxa*, 3558, 1–77.

Ješovnik A, and Schultz TR 2017. Revision of the fungus-farming ant genus *Sericomyrmex* Mayr (Hymenoptera, Formicidae, Myrmicinae). *ZooKeys* 670: 1–109.

Karmaly KA, 2004. A new species and a key to species of *Polyrhachis* Smith (Hymenoptera: Formicidae) from India. In: Rajmohana, K., Sudheer, K., Girish Kumar, P., and Santhosh, S. (eds.), *Perspectives on Biosystematics and Biodiversity. Prof T C Narendran Commemoration Volume.* Systematic Entomology Research Scholars Association, Kerala, pp. 539–551.

Kohout RJ, 2010. A review of the Australian *Polyrhachis* ants of the subgenera *Myrmhopla* Forel and *Hirtomyrma* subgen. nov. (Hymenoptera: Formicidae: Formicinae). *Memoirs of the Queensland Museum – Nature*, 55, 167–204.

Kohout RJ, 2014. A review of the subgenus *Polyrhachis (Polyrhachis)* Fr. Smith (Hymenoptera: Formicidae: Formicinae) with keys and description of a new species. *Asian Myrmecology*, 6, 1–31.

Mahananda P, Jelil SN, Bohra SC, Mahanta N, Saikia RB, and Purkayastha J, 2023. Terrestrial vertebrate and butterfly diversity of Garbhanga landscape, Assam, India. *Journal of Threatened Taxa*, 15(4), 23029–23046.

Mezger, D., & Moreau, C. S. (2016). Out of South-East Asia: Phylogeny and biogeography of the spiny ant genus *Polyrhachis* Smith (Hymenoptera: formicidae). *Systematic Entomology*, *41*(2), 369–378. https://doi.org/10.1111/syen.12163

*Nmbe—World spider catalog*. (n.d.). Retrieved September 10, 2025, from https://wsc.nmbe.ch/genus/6418/Peng

Pekár S, 2014. Is inaccurate mimicry ancestral to accurate in myrmecomorphic spiders (Araneae)? *Biological Journal of the Linnean Society*, 113(1), 97–111.

Robson S, 2020. Spiny ants (*Polyrhachis*). In: Starr, C. (ed.), *Encyclopedia of Social Insects*. Springer, Cham, Switzerland, pp. 1–6.

Robson S, and Kohout R, 2007. A review of nesting habits and socioecology of the ant genus *Polyrhachis* Smith. *Asian Myrmecology*, 1(1), 81–99.

Sharma A, Deka B, Bishaya P, Kumar R, and Sharma N, 2024. Impact of urbanisation on the taxonomic and functional diversity of spider assemblages in Guwahati City, Assam, India. *Urban Ecosystems*, 27(1), 239–249.

Smith F, 1861. Catalogue of hymenopterous insects collected by Mr A R Wallace in the Islands of Ceram, Celebes, Ternate, and Gilolo. *Zoological Journal of the Linnean Society*, 6(21), 36–48.

Wong TL, and Guénard B, 2021. Review of ants from the genus *Polyrhachis* Smith (Hymenoptera: Formicidae: Formicinae) in Hong Kong and Macao, with notes on their natural history. *Asian Myrmecology*, 13, e013001.

Yadav R, and Barua A, 2016. Study of urbanization and ecosystem services of Guwahati city from forest footprint perspective. *Journal of Ecosystem & Ecography* S5, 004.