

A New Species of the Ant genus *Platythyrea* (Formicidae: Ponerinae) From the Indian Institute of Science campus, Bangalore, Karnataka

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Abstract. *Platythyrea ferruginea* sp. nov. is described from India, based on the worker caste. The new species represents the fourth species of the genus *Platythyrea* from India. It resembles *P. homasawini* but can be distinguished primarily by its larger size and the morphology of the petiolar node. *Platythyrea nicobarensis* is described from the Andaman and Nicobar Islands. *Platythyrea parallela* complex is widely distributed in India. The third species, *P. sagei* has a limited distribution. The latter two species are also known to be present in Karnataka. The new species, in the genus *Platythyrea*, was discovered on the Indian Institute of Science Campus in the grassy area with abundant trees.

Key words: Taxonomy, Ponerinae, *Platythyrea*, new species, Indian Institute of Science Campus.

INTRODUCTION

The ponerine ant genus *Platythyrea* Roger, 1863 comprises 40 species worldwide (Bolton, 2026; www.antweb.org, accessed February 2026). While primarily tropical in distribution, the genus *Platythyrea* has also been documented in subtropical regions of the New World, Africa, Asia, and Australia (Bolton, 2003; Schmidt and Shattuck, 2014; Phengsi et al., 2018; Jaitrong et al., 2022). These predatory ponerine ants are known to construct nests in diverse microhabitats, including rotten wood and leaf litter (Brown, 1975; Ito, 1994; Xu and Zeng, 2000; Djieto-Lordon et al., 2001; Molet and Peeters, 2006; Yeo et al., 2006; Schmidt and Shattuck, 2014). The African species, *P. lamellosa* is known to build nests at the base of termitaria (termite mounds) or under rocks (Arnold, 1915; Brown, 1975). As solitary foragers, they are recognised as specialists, consuming termites, beetles and probably seeds and nectar (Arnold, 1915; Brown, 1975; Déjean and Suzzoni, 1997; Lévieux, 1983).

Most *Platythyrea* species are known to have gamergates, except for *P. conradti* (Molet and Peeters, 2006). Nevertheless, some species are known to have alate queens also (Villet, 1993; Ito, 1994). *P. punctata* is known to have

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alate queens, parthenogenetic intercaste queens, mated gamergates and parthenogenetic workers (Schilder et al., 1999a; 1999b; and Hartmann et al., 2005) and thelytokus parthenogenesis (Heinze and Hölldobler, 1995).

Currently, eight species of this genus are known in Southeast Asia and out of which three species, *P. nicobarensis* Forel, 1905, *P. parallela* (Smith, 1859) and *P. sagei* Forel, 1900, are reported from India, and the latter two species are known from Karnataka (Bingham, 1903; Dubey, 2006; Bharti et al., 2016). However, only one species of this genus, *P. parallela* is reported from the Indian Institute of Science Campus (Varghese, 2004).

This study reports a second species of this genus, hitherto unknown to science, from the Indian Institute of Science campus and is named as *Platythyrea ferruginea* and provides a detailed description based on the worker caste. The new species is most similar to *P. homasawini* Jaitrong, Xu & Khachonpisitsak, 2022, but differs from it in many features, as given in the analysis section and is assigned to be a member of the *P. clypeata* group. An updated key to the *Platythyrea* species in the Oriental region is provided (based on Jaitrong et al., 2022).

Materials and Methods

The holotype worker is point-mounted, and all morphological observations and measurements were taken using a Leica S8 APO microscope. The holotype (CESM-1647/16) is deposited in the Museum at the Centre for Ecological Sciences, Indian Institute of Science, Bangalore. The images were taken by the Leica 205A microscope at the National Centre for Biological Sciences.

The linear measurements and indices used in this study are described below:

HL	Head Length: Length of head from the posterior margin of the head to the anterior extremity of the clypeus in full face view.
HW	Head Width: Maximum width of head in full-face view
SL	Scape Length: Length of the first antennal segment, excluding radicle
WL	Weber's Length (Mesosoma Length): Diagonal length of mesosoma in lateral view, from anterodorsal pronotal margin to posterior margin of propodeal lobe
PRNW	Pronotal Width: Maximum measurable width of pronotum in dorsal view
PTL	Petiole Length: Maximum length of petiole, measured in dorsal view
PTW	Petiole Width: Maximum width of petiole, measured in dorsal view
PTH	Petiole Height: Maximum height of petiole, measured in profile
GL	Gaster Length: Maximum length of gaster, measured in dorsal view
GW	Gaster Width: Maximum width of gaster, measured in dorsal view
GH	Gaster height: Maximum height of gaster, measured in profile
TL	Total Length: Maximum measurable length in profile from the anterior margin of the clypeus to the tip of the gaster.

CI	Cephalic Index: $HW/HL \times 100$
LPtI	Lateral Petiolar Index: $Petiole\ node\ length \times 100/Petiole\ height$
SI	Scape Index: $SL/HW \times 100$
PTLI	Petiole Length Index: $PTH/PTL \times 100$
PTWI	Petiole Width Index: $PTW/PTL \times 100$
GLI	Gaster Length Index: $GL/HW \times 100$

Results

Platythyrea Roger, 1863

Diagnosis of the worker. The genus *Platythyrea* workers are unique in having pruinose sculpturing, metatibiae with two pectinate spurs, and toothed tarsal claws. Tarsal claws are usually armed with a single preapical tooth. The petiole nodiform, the node usually much longer than wide in dorsal view, with parallel sides and a distinct dorsal face, the posterodorsal margin straight/emarginate or bi- or tridentate. The head and body are usually uniformly pruinose.

The *Platythyrea clypeata* species group shows the following characteristics: 1) body reddish brown; 2) space between frontal carinae distinctly narrowed posteriorly; 3) masticatory margin of mandible triangular with a large apical tooth, followed by 9 or 10 smaller teeth, with large and smaller teeth alternating; 4) propodeal spiracle opening elliptical; and 5) posterior margin of petiole convex without spines in dorsal view (Jaitrong et al., 2022).

Platythyrea ferruginea sp. nov.

(Figs. 1-6)

Holotype: Worker: INDIA, Karnataka, Bangalore, Indian Institute of Science Campus, 13°01' N 77°34' E, collected by Thresiamma Varghese (All Out Search Method), 07.vi.2016 (Accession Number: CESM-1647/16).

Measurements and indices: TL 8.60, HL 1.76, HW 1.20, SL 1.80, EL 0.14, EW 0.11, WL 2.80, PRNW 1.04, PTL 1.16, PTW 0.52, PTH 0.68, GL 2.84, GW 1.12, CI 68, **EI 12**, SI 150.

Worker description: Head in frontal view 1.46x longer than broad with sides slightly convex, occipital corners round, and posterior margin broadly emarginated; antennae long and slender, extending beyond posterolateral corner of head, antennal segment III 1.5 times as long as segment II; III longer than rest of the flagellar segments; clypeus broad, in profile with median portion moderately convex; lateral portions narrower; mandible triangular, masticatory margin with a large apical tooth, followed by smaller teeth decreasing in size towards the base; eyes small, placed laterally anterior to the mid-length of head; frontal lobes narrow, partially covers the antennal base.

Mesosoma: Mesosoma elongate, in lateral view, the dorsal outline almost straight, pro-mesonotal suture distinct, meso-metanotal groove absent; mesopleuron de-



Fig. 1. *Platythyrea ferruginea* sp. nov., profile.



Fig. 2. *P. ferruginea* sp. nov., dorsal view.



Fig. 3. *P. ferruginea* sp. nov., Head frontal view.



Fig. 4. *P. ferruginea* sp. nov., Thorax, petiole and gaster lateral view, enlarged.



Fig. 5. *P. ferruginea* sp. nov., Petiole lateral view, enlarged.



Fig. 6. *P. ferruginea* sp. nov., Petiole dorsal view, enlarged.

marked from mesonotum and metapleuron by shallow furrows, propodeal outline almost straight with concave declivity; legs very long.

Petiole: Petiole sessile, elongate, and cylindrical, 2.23x longer than wide, petiole clearly wider posteriorly; dorsal outline broadly convex, broadly emarginate posteriorly; subpetiolar process present anteriorly.

Gaster: The first two gastral tergites together take up more than half of the total length of the gaster. Gaster 2.53x longer than wide with a prominent sting.

Sculpture and pubescence: Head, thorax, petiole and gaster more or less uniformly finely punctate, antennal scape minutely punctate. Whole body uniformly pruinose. Pubescence is very short and abundant.

Colouration: Head including antennae, mandibles, mesosoma, legs, petiole and gaster ferruginous.

**Key to known Oriental species of the genus *Platythyrea* based on the
worker caste
(Modified from Jaitrong et al. 2022)**

1. Frontal carinae very widely spaced, not continuing beyond the level of the posterior margin of antennal insertions; propodeal spiracle opening circular **2**
- Frontal carinae relatively narrowly separated, extending far beyond the level of the posterior margin of antennal insertions, where the space between them is very narrow; propodeal spiracle opening elliptical **8**
2. In dorsal view, posterior margin of petiole with 2 or 3 distinct spines, teeth or blunt angles **3**
- In dorsal view, posterior margin of petiole without distinct spines, teeth or sharp angles **6**
3. In dorsal view, the posterior margin of the petiole is clearly concave with distinct lateral blunt angles; in profile view, the petiole is almost as long as high **4**
- In dorsal view, the posterior margin of the petiole has 3 distinct spines; in profile view, the petiole is longer than high ***P. tricuspidata* Emery, 1900**
4. In full-face view, head oval, almost as long as broad, posterior margin broadly convex; in profile view, posterodorsal corner of petiole nearly right angle ***P. sagei* Forel, 1900**
- In full-face view, head subrectangular, slightly longer than broad, posterior margin broadly almost straight or weakly concave; in profile view, posterodorsal corner of petiole bearing a truncate spine **5**
5. In profile view, lateral face of pronotum punctate, with dense foveae; lateral face of petiole wrinkled; in profile view, dorsal outline of petiole roundly convex ***P. quadridenta* Donisthorpe, 1941**

- In profile view, the lateral faces of pronotum and petiole are rather smooth, without foveae; in profile view, the dorsal outline of petiole is almost straight or weakly convex ***P. bidentata* Brown, 1975**
- 6. In full-face view, head elongate (CI < 77), posterior margin deeply concave ***P. nicobarensis* Forel, 1905**
- In full-face view, head elongate (CI > 77), posterior margin shallowly concave **7**
- 7. In dorsal view, petiole clearly longer than broad; antennal scape relatively short, not reaching posterior corner of head ***P. parallela* (Smith, 1859)**
- In dorsal view, petiole almost as long as broad; antennal scape relatively long, slightly extending beyond the posterior corner of the head ***P. inermis* Forel, 1910**
- 8. Lateral face of head and pronotum punctate, with dense foveae; antennal scape relatively short (SI = 125–138); smaller species (TL 5.74–6.20; HW 0.86–0.89); eye with 5 or 6 ommatidia on longest axis ***P. clypeata* Forel, 1911**
- Lateral face of head and pronotum finely micropunctate; antennal scape relatively long (SI > 150); larger species (TL 7.59–7.80; HW 1.06–1.12) .. **9**
- 9. Head narrower posteriorly. Dorsal outline of petiole weakly convex, posterior margin of petiolar node without a concavity in the middle. Body surface with thin pubescence **10**
- Head not narrower posteriorly. The dorsal outline of the petiole is almost straight, posterior margin of the petiolar node has a concavity in the middle. Body surface with thick pubescence ***P. janyai* Phengsi et al., 2018**
- 10. Posterior margin of the head is almost straight. Smaller species with TL 7.72–7.80 mm. Head width 1.08; eye length 0.20. EI 19; SI 159. Posterior margin of petiolar node oblique and straight (as in Jatrong et al., 2022) ***P. homasawini* Jaitrong et al., 2022**
- Posterior margin of the head is broadly concave. Larger species with TL 8.60 mm. Head width 1.20; eye length 0.14. EI 12; SI 150. Posterior margin of petiolar node broadly concave medially ***P. ferruginea* sp. nov.**

Discussion

The newly proposed species, *P. ferruginea* sp. nov. belongs to the *P. clypeata* species group. This new species comes closer to *P. homasawini* from Thailand in the following features: 1. Head longer than broad and narrower posteriorly; 2. Frontal lobes narrower; 3. Long antennal scape; 4. Dorsal outline of petiole weakly convex; 5. Propodeal spiracle elliptical; 6. Body surface with thin pubescence; and 7. By similar body colour but differs from it by 1. Being larger in size; 2. Having smaller eyes, and by the 3. The shape of the petiolar node. The new species resembles *P. clypeata* in the following features: 1. Head longer than broad; 2. Frontal lobes narrower; 3. Long antennal scape; 4. Propodeal spiracle

elliptical; 5. Petiole longer than broad; 6. Subpetiolar process present. But differs from *P. clypeata* by the following features: 1. Lighter in colour; 2. Larger in size; 3. Larger eyes; 4. The petiolar node is broader posteriorly, whereas the petiolar node is narrower posteriorly in *P. clypeata*.

A quick check with the images of other species, both described and undescribed, given in Antweb confirmed that this specimen differs from all of them in external morphology.

Etymology: The specific name is derived from the nature of its general body colour, “ferruginous”.

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