



## Original article

Taxonomic review of ant genus *Nylanderia* Emery, 1906 (Hymenoptera: Formicidae) in IndiaAijaz Ahmad Wachkoo<sup>a,\*</sup>, Himender Bharti<sup>b</sup><sup>a</sup> Department of Zoology, University of Kashmir, Srinagar, India<sup>b</sup> Department of Zoology and Environmental Sciences, Punjabi University, Patiala, India

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## ABSTRACT

In this paper, Indian *Nylanderia* fauna is revised for the first time. Seven species are recognized, of which *Nylanderia himalayana* sp. nov. is described as new. Hitherto undescribed female and male castes of *N. birmana* are described for the first time. Photomontage images and comparative diagnosis by workers are provided. Information on the distribution of Indian *Nylanderia* is given. A revised key to the workers of *Nylanderia* for the Indian region is provided.

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## Introduction

The Indian *Nylanderia* fauna has been poorly known since most species were described in the 19<sup>th</sup> century, outside of a comparative framework and, apart from treatment by Bingham (1903), the fauna has been neglected taxonomically. LaPolla et al (2010) elevated the formerly synonymized ant subgenus *Nylanderia* to genus rank based on both morphological and molecular data. *Nylanderia* includes many species formerly assigned to *Paratrechina* (LaPolla et al 2010). It currently includes 108 extant species, 26 subspecies, and two fossil species, distributed worldwide, but reaches its highest diversity in the tropics (LaPolla et al 2010; Bolton 2014).

Although, species of the genus *Nylanderia* are routinely found in leaf litter, under stones, rotten wood, on the ground, and over plants, with nests built in all of these places as well as under flakes of tree bark (Ward 2000; LaPolla et al 2011a, 2011b); the taxonomy of this genus in India has been in an disorganized state (Bharti and Wachkoo 2014a; Wachkoo and Bharti 2014a). Recently, Bharti and Wachkoo (2014a) transferred *Nylanderia aseta* (Forel 1902) to *Paratrechina*, while Wachkoo and Bharti (2014a) described the worker caste of *Nylanderia smythiesii* (Forel 1894) for the first time

and considered *Nylanderia assimilis* (Jerdon 1851) a species *inquirenda* to decrease the taxonomic impediment that has gripped Indian *Nylanderia*.

While the majority of regions are awaiting taxonomic revision, as part of a world monographic series addressing the species-level taxonomy of the ant genus *Nylanderia*, the regional revisions include LaPolla et al (2011b) for Afrotropics; Kallal and LaPolla (2012) for Nearctic, and Sarnat and Economo (2012) for Fiji. Significant taxonomic contributions to this genus from Southeast Asia include, Forel (1894, 1902); Morisita et al (1991); Wu and Wang (1995); Terayama (1999, 2009) and Zhou (2001).

Here we present the first species level taxonomic treatment of the Indian *Nylanderia* with the hope of correcting some of the taxonomic neglect that has beset the Indian Formicinae (Bharti and Wachkoo 2012, 2014b, 2015; Wachkoo and Bharti 2014b, 2015). A total of seven species are revealed of which *N. himalayana* sp. nov. is described as new. Hitherto undescribed sexuals of *N. birmana* are described for the first time. Images, comparative diagnosis by workers, and information on the distribution of Indian *Nylanderia* is given. A revised identification key to the *Nylanderia* species of India is also provided.

## Material and methods

The specimens were collected through Winkler's extractor, pitfall traps, honey bait, beating vegetation, soil core, and hand

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searching methods. The taxonomic study was conducted on a Nikon SMZ 1500 stereomicroscope (Nikon Instruments Inc., Melville, NY, USA). For digital images, an MP evolution digital camera (Media Cybernetics, Inc., Washington Street, Rockville, MD, USA) was used on the same microscope with Auto-Montage (Syncroscopy, Division of Synoptics, Ltd., Cambridge, UK) software. Subsequently, the images were cleaned with Photoshop CS5 (Adobe Systems Inc., San Jose, CA, USA). Specimens examined for this study are deposited in the following institutions: BMNH, Natural History Museum, London, UK; CASC, California Academy of Sciences, SA, USA; MHNG, Muséum d' Histoire Naturelle, Geneva, Switzerland; PUAC, Punjabi University Ant Collection, Punjab, India; UZMH, Universitetets Zoologiska Museum, Helsinki, Finland.

Morphological terminology for measurements (given in mm) and indices include: HL (head length), maximum length of head in full-face view, measured in a straight line from the anterior most point of the median clypeal margin to a line drawn across the posterior margin from its highest points (to accommodate species where the posterior margin is concave); HW (head width), maximum width of head in full-face view; EL (eye length), maximum length of the eye as measured normally in oblique view of the head to show full surface of eye; SL (scape length), maximum length of the scape excluding the basal neck and condyle; PW (pronotal width), maximum width of the pronotum in dorsal view; WL (Weber's length), in lateral view, the distance from the posteriormost border of the metapleural lobe to the anteriormost border of the pronotum, excluding the anterior cervical flange; PrFL (profemur length), maximum length of the profemur from its margin with the trochanter to its margin with the tibia; PrFW (profemur width), maximum width of the profemur; SMC (scape macrosetal count), the number of erect macrosetae on the scape. Scape macrosetae can be difficult to count and the scape may need to be rotated to get an accurate count. This count does not include the terminal cluster of setae often found around the joint of the scape and the funiculus; PMC (pronotal macrosetal count), the number of erect macrosetae on the pronotum to one side of the sagittal plane; MMC (mesonotal macrosetal count), the number of erect macrosetae on the mesonotum to one side of the sagittal plane; CI (Cephalic index),  $HW/HL \times 100$ ; SI (Scape index),  $SL/HL \times 100$ ; and REL (Relative Eye Length Index),  $EL/HL \times 100$ .

The lateral cephalic margin used in descriptions is the maximum length of the head in lateral view, measured in a straight line from the mandibular articulation to the posterior margin.

## Systematic accounts

Order Hymenoptera  
Family Formicidae

Genus *Nylanderia* Emery, 1906

Type species: *Formica vividula* Nylander, 1846

**Worker diagnosis.** Mandible with six teeth; maxillary palps 6-segmented; labial palps 4-segmented; erect macrosetae on the dorsum of the head randomly placed; typically with abundant erect macrosetae on the head, scapes, legs, and dorsum of mesosoma. Eyes typically well developed and placed midlength and laterally on the head. Dorsal mesosomal macrosetae arranged loosely in pairs; propodeum lacking erect setae; propodeum with a low- to high-domed dorsal face; generally overall mesosoma shape compact (LaPolla et al 2010, 2011a). The diagnoses provided apply only for identifying *Nylanderia* in India.

**Distribution.** Worldwide in distribution but the genus reaches its highest diversity in the tropics, but in many temperate areas *Nylanderia* form important components of the fauna (Ward 2000).

## Key to Indian species of *Nylanderia* (workers)

- (1) Dorsal face of propodeum distinctly rounded, about the same length as declivitous face; in lateral view, propodeum on the same plane to remainder of dorsum, dorsally dome-like ---2
  - Dorsal face of propodeum shorter than declivitous face; in lateral view, propodeum lower than remainder of dorsum, dorsally angular or gently rounded -----5
- (2) Entire body unicolorous dark brown to black -----3
  - Body color variable with various shades of brown -----4
- (3) Head and mesosomal dorsum covered with a dense network of microreticulate sculpture ----- *N. birmana* (Forel, 1902)
  - Head and mesosomal dorsum not microreticulate, either smooth or covered with fine punctulae -----
  - *N. bourbonica* (Forel, 1886)
- (4) Gastral dorsum without a layer of pubescence underneath erect macrosetae ----- *N. smythiesii* (Forel, 1894)
  - Gastral dorsum with a layer of pubescence underneath erect macrosetae ----- *N. yerburyi* (Forel, 1894)
- (5) Dark brown color overall, covered by a dense layer of pubescence concealing cuticular sculpture -- *N. himalayana* sp. nov.
  - Lighter yellow brown color overall, covered by a relatively thin layer of pubescence not concealing cuticular sculpture -----6
- (6) Head subquadrate; compound eye small, taking 1/4<sup>th</sup> the length of lateral cephalic margin ----- *N. indica* (Forel, 1894)
  - Head oval; compound eye large, taking 1/3<sup>rd</sup> the length of lateral cephalic margin ----- *N. taylora* (Forel, 1894)

## *Nylanderia birmana* (Forel, 1902)

(Figures 1–3)

*Prenolepis birmana* Forel, 1902: 291 ♀ Burma. Combination in *Paratrechina* (*Nylanderia*): Emery 1925: 219; LaPolla et al., 2010: 127.

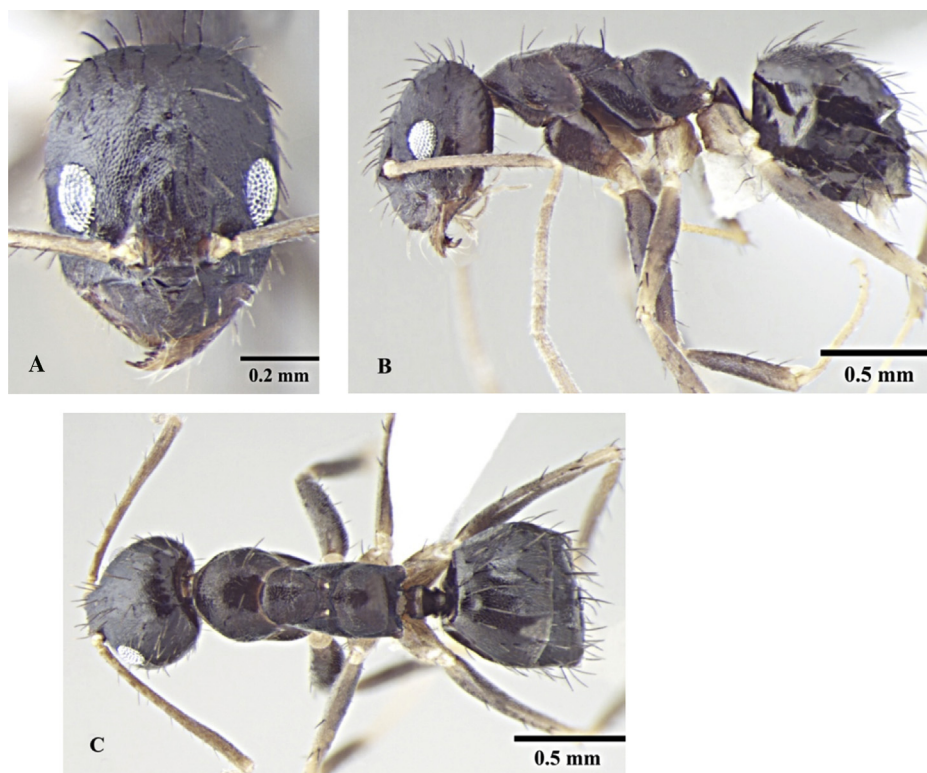
**Diagnosis.** The workers of this species can be immediately recognized from other Southeast Asian congeners by the presence of a microreticulate sculpture on head and mesosoma.

Worker measurements: HL 0.67–0.81 mm; HW 0.53–0.65 mm; EL 0.16–0.20 mm; SL 0.81–0.95 mm; PW 0.41–0.48 mm; PrFL 0.67–0.77 mm; PrFW 0.16–0.18 mm; WL 0.86–1.01 mm. Indices: CI 78.01–81.44; SI 140.35–154.16; REL 23.61–24.66 ( $n = 20$ ).

Head is subrectangular; distinctly longer than wide, equally wide anteriorly and posteriorly, lateral margins gently convex, posterior margin shallowly concave to convex with rounded posterolateral corners. Clypeus subcarinate in the middle; anterior clypeal margin feebly concave to convex. Eyes moderately large, oval, convex, covering approximately three-tenths of lateral cephalic margin; three small ocelli present. Antennae long, scape surpasses posterior margin by more than two-fifths their length.

Metanotal groove strongly developed, in lateral view interrupts the regular promesonotal convexity from propodeum; metanotal area distinct. Dorsal face of propodeum distinctly rounded, about the same length as declivitous face; in lateral view, its highest part on the same plane to remainder of dorsum, dorsally dome-like. In lateral view, petiole triangular, inclined forward, with posterior face longer than anterior face; dorsum rounded.

Cuticle mostly dull to feebly shiny and finely microreticulate; reticulations more pronounced on head followed by mesosoma and gaster; propodeum relatively smooth and shiny; petiole smooth and shiny; pubescence absent on head, very sparse on mesosoma and relatively denser on gaster; scape with erect macrosetae and abundant pubescence (SMC = 30–40); pronotum and mesonotum



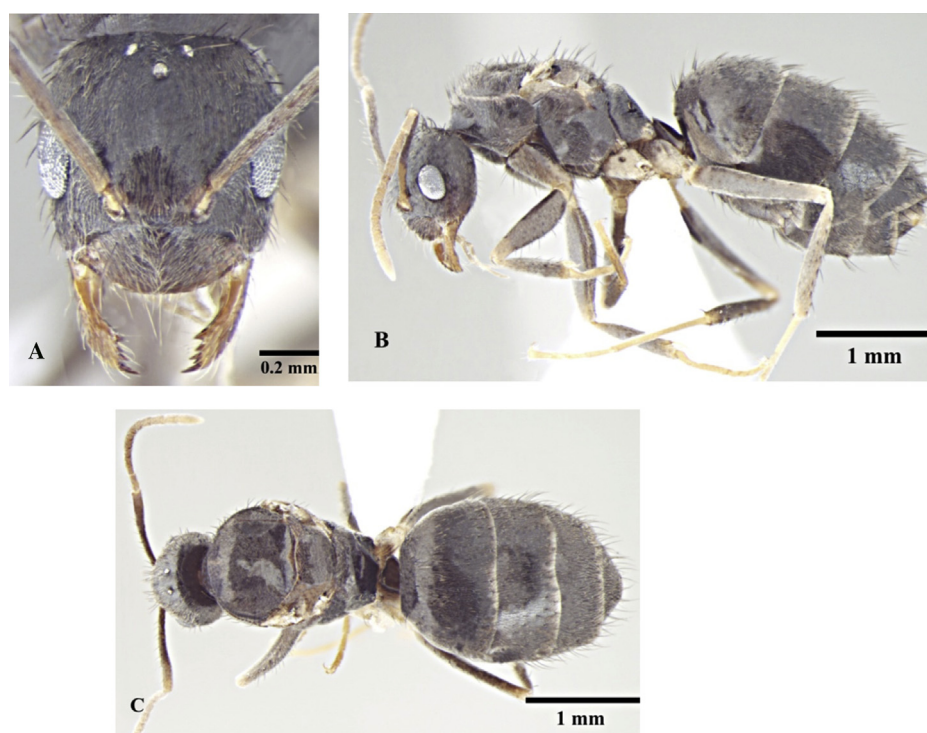
**Figure 1.** Worker; *Nylanderia birmana* (Forel, 1902): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.

with scattered, erect macrosetae of varying lengths (PMC = 2–4; MMC = 2–4).

Body color is blackish brown to black, antennae and legs brown; procoxae brown, mesocoxae and metacoxae yellowish brown; tarsi yellowish.

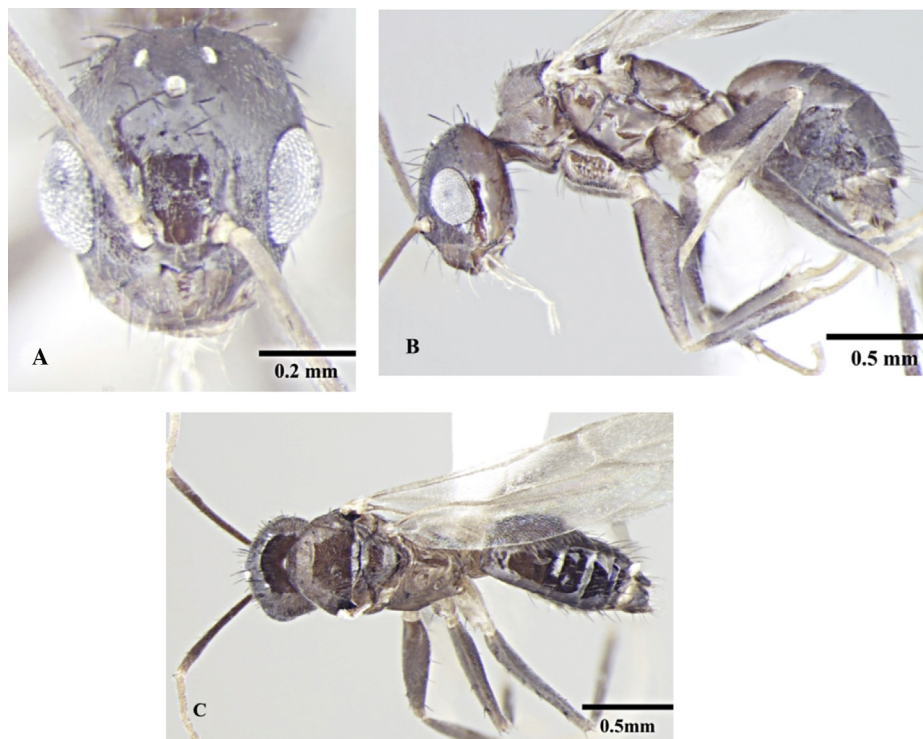
Queen measurements: HL 0.95 mm; HW 0.90 mm; EL 0.30 mm; SL 1.07 mm; PrFL 0.98 mm; PrFW 0.25 mm; WL 1.54 mm. Indices: CI 94.74; SI 118.89; REL 31.39 ( $n = 1$ ).

Generally, matches worker description, with modifications expected for caste and the following differences: head subtriangular



**Figure 2.** Queen; *Nylanderia birmana* (Forel, 1902): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.





**Figure 3.** Male; *Nylanderia birmana* (Forel, 1902): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.

with concave posterior margin; anterior clypeal margin nearly straight; petiole concave above; coloration pattern similar to adult workers; body covered with a more dense pubescence than in workers; overall microreticulate sculpture feebler than in workers (SMC 40 = 45; PMC = 6; MMC = 51).

Male measurements: HL 0.59–0.67 mm; HW 0.48–0.58 mm; EL 0.23–0.25 mm; SL 0.77–0.85 mm; PrFL 0.67–0.74 mm; PrFW 0.15–0.17 mm; and WL 0.87–0.95 mm. Indices: CI 81.48–89.28; SI 145.28–159.09; and REL 37.70–41.07 ( $n = 3$ ).

Head oval; longer than wide; eyes large, subglobulose, slightly projecting beyond head outline in full-face view; three prominent ocelli present. Antennae filiform, scapes long, surpass posterior margin by about half their length. Mandibles slender with prominent, pointed apical and small preapical tooth, remainder of masticatory margin smooth, with indistinct, rounded basal angle that seamlessly blends into inner mandibular margin.

Mesosoma modified for the presence of a wing; in lateral view scutum and scutellum flat; propodeum indistinct, not higher than remainder of notum with very short dorsal face and long declivitous face; petiole as in worker.

Genitalia: Parameres triangular, turning slightly inward toward midline of body posteriorly; long setae extending off of parameres. Cuspi small, indistinct dorsally; digiti smooth, as long as parameres; strongly curved toward parameres. Penis valves projecting but not extending parameres.

Sculpture very much reduced than in worker caste; body mostly smooth and shiny at most with fine punctations; scutum microreticulate. Vestiture and color as in worker caste, but head sparsely pubescent (SMC 25 = 30; PMC = 0; MMC = 25–28).

**Material examined.** Syntype ♀ from Burma (CASENT0911000) in MHNG. Other materials. 25♂, 1♀, 2♂, Palampur, Himachal Pradesh, India (1200 m, 32.1109°N 76.5430°E), 18 vi 2010 (leg. AA Wachkoo); 41♂, 2♂, FRI, Uttarakhand, India (640 m, 30.3416°N 77.9903°E), 30 ix 2008 (leg. AA Wachkoo); 37♂, FRI, Uttarakhand, India (640 m, 30.3416°N 77.9903°E), 1 x 2008 (leg. AA Wachkoo); 44♀, Selaqui,

Uttarakhand, India (670m, 30.3720°N 77.8605°E) 3 x 2008 (leg. AA Wachkoo).

**Distribution.** India, Myanmar.

**Remarks.** This species is infrequent in collections and seems to be restricted to the Himalayas. It was encountered underneath a stone along a roadside at Palampur, Himachal Pradesh, and was collected on honey bait in subtropical, semi-evergreen forests of Uttarakhand. This species is also distributed in Myanmar (Forel 1902; Bingham 1903).

#### *Nylanderia bourbonica* (Forel, 1886)

(Figures 4–6)

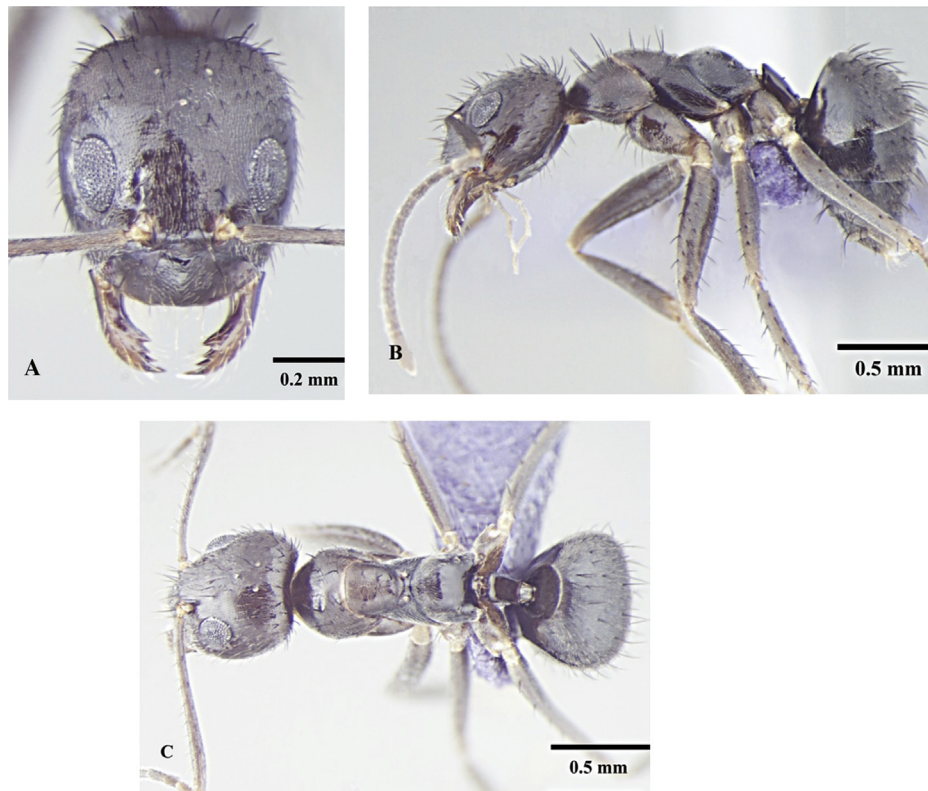
*Prenelepis nodifera* r. *bourbonica* Forel, 1886: 210 ♂, ♀, ♂ Reunion I.

Combination in *Pr.* (*Nylanderia*): Forel, 1912: 73; Emery, 1925: 219; Wheeler, 1936: 16; Trager, 1984: 147; LaPolla et al., 2010: 127. Raised to species: Forel, 1891: 82. Senior synonym of *ben-galensis*, *hawaiiensis*, *skottsbergi*: Wilson and Taylor, 1967: 88.

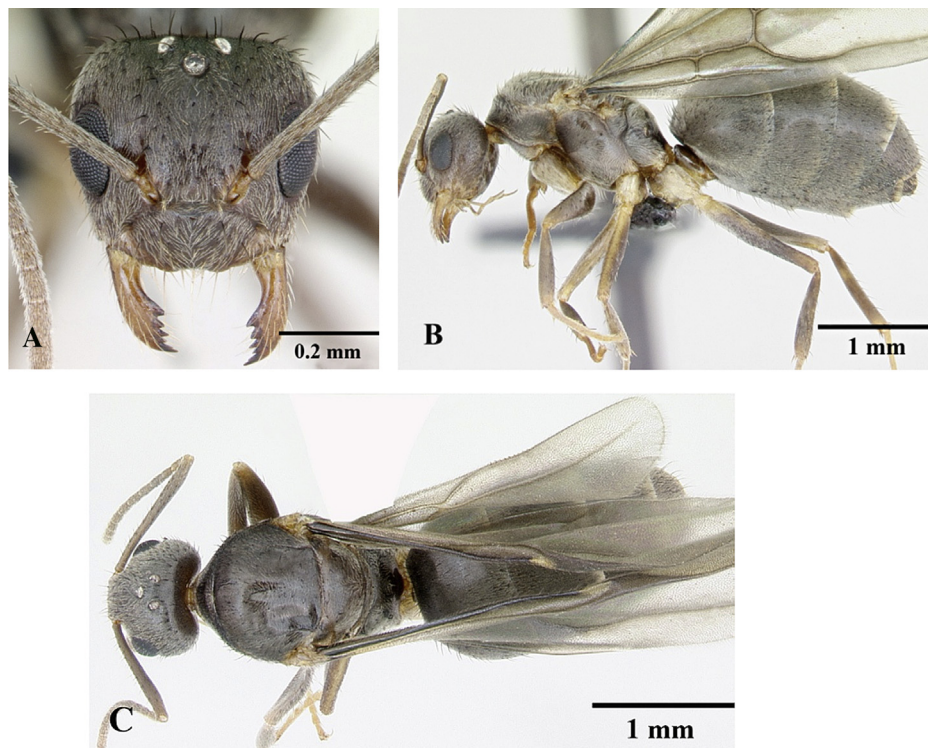
**Diagnosis.** Propodeum is on the same plane to remainder of dorsum and unicolorous dark body resembles those of *N. birmana*, but *N. bourbonica* can be easily distinguished by smooth or fine punctulae on head and mesosomal dorsum whilst in *N. birmana* head and mesosomal dorsum are covered with a dense network of microreticulate sculpture.

Worker measurements: TL 2.11–3.04 mm; HL 0.58–0.83 mm; HW 0.50–0.74 mm; EL 0.15–0.23 mm; SL 0.62–0.97 mm; PW 0.35–0.53 mm; PrFL 0.51–0.79 mm; PrFW 0.16–0.20 mm; WL 0.69–1.08 mm; GL 0.83–1.14 mm. Indices: CI 87.03–89.84; SI 123.11–135.38; REL 26.42–28.00 ( $n = 20$ ).

Head is subquadrate; slightly longer than wide, distinctly wider posteriorly than in front, lateral margins convex, posterior margin shallowly concave to convex with rounded posterolateral corners. Clypeus carinate in the middle; anterior clypeal margin, medially nearly straight to strongly concave. Eyes large, broadly rounded and weakly convex; covering approximately one-third of lateral

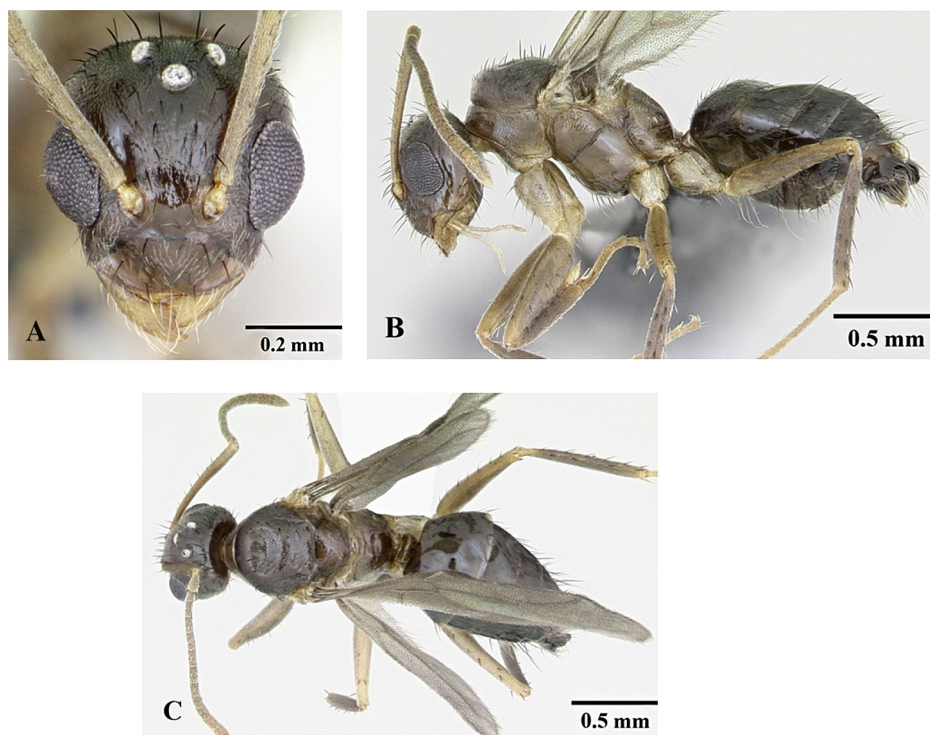


**Figure 4.** Worker; *Nylanderia bourbonica* (Forel, 1886): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.



**Figure 5.** Queen; *Nylanderia bourbonica* (Forel, 1886): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.





**Figure 6.** Male; *Nylanderia bourbonica* (Forel, 1886): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.

cephalic margin; three ocelli present. Antennae long, scape surpasses posterior margin by about two-fifths their length.

Metanotal groove strongly developed, in lateral view interrupts the regular promesonotal convexity from propodeum; metanotal area distinct. Dorsal face of propodeum rounded, about the same length as declivitous face; in lateral view, its highest part on the same plane to remainder of dorsum, dorsally dome-like. Petiole low and transverse, subtriangular in lateral view, inclined forward, with posterior face longer than anterior face.

Cuticle smooth and shining covered with fine punctulae. Body covered with fine pubescence, which is lacking on propodeal declivity and petiole. Scape with scattered erect macrosetae and a dense layer of pubescence (SMC = 45–60). Mesosoma with erect macrosetae of varying lengths concentrated on posterior pronotum and mesonotum (PMC = 8–12; MMC = 3–6).

Body is brown to black.

Queen measurements: HL 0.69–0.71 mm; HW 0.68–0.72 mm; EL 0.21–0.22 mm; SL 0.67–0.68 mm; PrFL 0.61–0.63 mm; PrFW 0.18–0.20 mm; WL 1.42–1.47 mm. Indices: CI 98.55–101.41; SI 94.44–98.53; REL 30.43–30.99 ( $n = 2$ ).

Generally, matches worker description, with modifications expected for caste and the following differences: head subtriangular with feebly concave posterior margin; anterior clypeal margin strongly concave; petiole concave above; coloration pattern similar to adult workers; body covered with much dense pubescence than in workers (SMC 50 = 65; PMC = 4–6; MMC = 45–54).

Male measurements: HL 0.59–0.62 mm; HW 0.48–0.51 mm; EL 0.23–0.25 mm; SL 0.75–0.78 mm; PrFL 0.65–0.69 mm; PrFW 0.14–0.16 mm; WL 0.86–0.91 mm. Indices: CI 81.36–82.26; SI 152.94–156.25; REL 38.98–40.32 ( $n = 3$ ).

Head is oval; longer than wide; eyes large, subglobulose, projecting beyond head outline in full-face view; three prominent ocelli present. Antennae filiform, scapes long, surpass posterior margin by about half their length. Mandibles slender with prominent, pointed apical and small preapical tooth, remainder of

masticatory margin smooth, with indistinct, rounded basal angle that seamlessly blends into inner mandibular margin.

Mesosoma modified for the presence of wing; propodeum indistinct, lower than remainder of notum with very short dorsal face and long declivitous face; petiole as in worker.

Genitalia: Parameres strongly emarginate with apical and ventral margins produced as finger like projections; long setae extending off of parameres. Cuspi rounded distally with many short peg-like teeth; digiti weakly paddle-shaped, about double the length of the digiti; penis valves projecting past parameres with apices of each penisvalva directed posterolaterally.

Sculpture very much reduced than in worker caste; body mostly smooth and shiny at most with fine punctations. Vestiture and color as in worker caste (SMC 22 = 28; PMC = 0; MMC = 27–32).

**Material examined.** Syntype ♂ from West Bengal, India (CASENT0910997) in MHNG. Other materials. 5♀, Gundlupet, Karnataka, India (800 m, 11.8044°N 76.6923°E) 12 x 2010 (leg. SA Akbar); 8♀, Periyar Tiger Reserve, Kerala, India (1500 m, 9.4625°N 77.2352°E), 12 x 2012 (leg. SA Akbar); 7♀, Trivandrum, Kerala, India (36 m, 8.5374°N 76.9985°E), 20 ix 2010 (leg. SA Akbar); 15♀, 2♀, 3♂, Meghamalai, Tamil Nadu, India (1400 m, 9.7136°N 77.3833°E), 11 iii 2002 (leg. H Bharti); 17♀, Nicco Park, West Bengal, India (7 m, 22.5713°N 88.4213°E), 13 iii 2012 (leg. AA Wachkoo); 9♀, Royal Botanical Garden, West Bengal, India (15 m, 22.5567°N 88.3041°E), 14 iii 2012 (leg. AA Wachkoo); 6♀, Alipore zoological garden, West Bengal, India (12 m, 22.5365°N 88.3320°E), 14 iii 2012 (leg. AA Wachkoo).

**Distribution.** India, Chagos, Easter Island, Hawaii, Mauritius, Reunion Island, and Seychelles Islands.

**Remarks.** This is a tramp species commonly encountered in the tropics and subtropics and has spread across large areas by human commerce, and is associated with human disturbance (Klotz et al 1995; Wilson and Taylor 1967; Wetterer 1998). It is commonly found in most parts of India, however, it was not found in North-west Himalaya. The workers were collected in leaf litter, rotting

wood, underneath stones, on walls of buildings and other establishments.

***Nylanderia himalayana*** sp. nov. LSID urn:lsid:zoobank.org:act:B3A3706C-FAE8-46C1-B133-4BAC16E09A19 (Figure 7)

**Types.** Holotype: ♂, Rewalsar, Himachal Pradesh, India (1360 m, 31.6345°N 76.8343°E), 30 vi 2010, hand collecting (leg. AA Wachkoo) (PUAC). Paratypes: 4 ♂, same data as holotype (PUAC, CASC).

**Diagnosis.** The uniform dark body color and a layer of pubescence resemble those of *N. bourbonica*, but *N. himalayana* can be easily distinguished by propodeum lower than remainder of dorsum in lateral view with dorsal face of propodeum shorter than declivitous face whilst in *N. bourbonica* propodeum is on the same plane to remainder of dorsum with dorsal face of propodeum about the same length as declivitous face. *N. himalayana* is characterized by a thick layer of pubescence hiding the sculpture of the body, whilst in *N. bourbonica* pubescence is relatively thin and does not hide the sculpture. In *N. himalayana* scape surpasses posterior margin by one-third their length and eyes distinctly occupy less than one-third of lateral cephalic margin whilst, in *N. bourbonica* scape surpasses posterior margin by two-fifths their length and eyes occupy one-third lateral cephalic margins.

**Worker measurements:** HL 0.66–0.74 mm; HW 0.58–0.66 mm; EL 0.16–0.18 mm; SL 0.66–0.73 mm; PW 0.43–0.48 mm; PrFL 0.55–0.63 mm; PrFW 0.15–0.18 mm; WL 0.77–0.87 mm. Indices: CI 88.33–92.31; SI 108.33–114.23; REL 23.88–25.00 ( $n = 5$ ).

Head is subquadrate; slightly longer than wide, narrowed anteriorly, lateral margins strongly convex, posterior margin almost straight to convex with rounded posterolateral corners. Clypeus

carinate in the middle; anterior clypeal margin weakly concave in middle. Eyes round, flattened to weakly convex, moderately large, covering approximately three-tenths of lateral cephalic margin; three small ocelli present. Antennae relatively shorter, scape surpasses posterior margin by about one-third their length.

Metanotal groove strongly developed, in lateral view interrupts the regular promesonotal convexity from propodeum; metanotal area long. Dorsal face of propodeum shorter than declivitous face; in lateral view, propodeum lower than remainder of dorsum; dorsally gently rounded, declivity steep. Petiole low triangular, inclined forward with posterior face longer than anterior face, dorsum rounded.

Overall cuticle dull and opaque covered with fine punctulae. Body covered by a dense layer of pubescence hiding sculpture, giving a pruinose appearance to the head and gaster, less so to the mesosoma; mesopleuron and propodeum smooth and shining. Macrosetae shorter on head, posterior to eyes and gaster, longer on anterior of head. Scape with scattered erect macrosetae and a dense layer of pubescence (SMC = 10–15). Pronotum and mesonotum with scattered erect to suberect macrosetae (PMC = 3–5; MMC = 2–4).

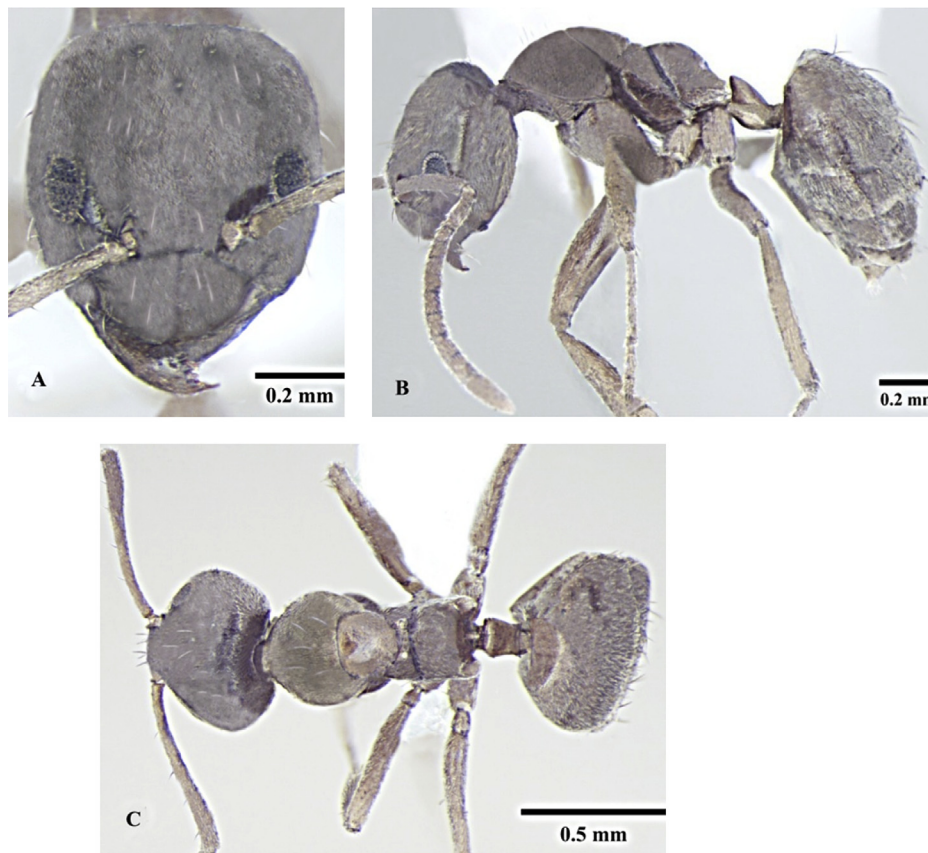
Body is uniformly dark brown.

The queen and male castes are currently unknown for this species.

**Distribution.** India (endemic).

**Remarks.** This species collected in the Shivalik range of North-west Himalaya seems to be rare and was collected underneath a stone from a nonforested region along the edge of the Rewalsar Lake.

**Etymology.** The species is named after the collection area, Himalaya.



**Figure 7.** Worker; *Nylanderia himalayana* sp. nov.: A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.

***Nylanderia indica* (Forel, 1894)**

(Figures 8–10)

*Prenolepis indica* Forel, 1894: 409 Figure 4 as in taxonomic history of other species ♂,♀,♂ India. Imai et al., 1984: 9 (k.). Combination in *Paratrechina* (*Nylanderia*): Emery 1925: 220; LaPolla et al., 2010: 127.

**Diagnosis.** *N. indica* is similar to *N. taylori* (Forel, 1894), but can be separated from the latter by small eyes occupying only one-fourth of the lateral cephalic margin and subquadrate head whilst eyes are large, covering one-third of the lateral cephalic margin in *N. taylori* with oval head.

Worker measurements: HL 0.52–0.72 mm; HW 0.43–0.63 mm; EL 0.13–0.17 mm; SL 0.53–0.81 mm; PW 0.35–0.48 mm; PrFL 0.51–0.66 mm; PrFW 0.13–0.18 mm; WL 0.56–0.90 mm. Indices: CI 82.98–87.69; SI 123.08–133.34; REL 21.43–24.07 ( $n = 20$ ).

Head is subquadrate; longer than wide, equally wide anteriorly and posteriorly, lateral margins gently convex, posterior margin shallowly concave to weakly convex with rounded posterolateral corners. Clypeus carinate; anterior clypeal margin medially concave. Eyes small, oval, weakly convex; covering one-fourth of lateral cephalic margin; three small ocelli present. Antennae long, scape surpasses posterior margin by about two-fifth their length.

Metanotal groove strongly developed, in lateral view interrupts the regular promesonotal convexity from propodeum; metanotal area distinct. Dorsal face of propodeum much shorter than declivitous face, in lateral view, propodeum lower than remainder of dorsum, dorsally angular to gently rounded. Petiole low, triangular in lateral view, inclined forward, with posterior face longer than anterior face; dorsum rounded.

Cuticle feebly shining covered with fine pubescence. Scape with scattered erect macrosetae and a dense layer of pubescence (SMC = 35–50). Erect macrosetae of varying length abundant on head and gaster, relatively sparse on pro-mesonotum. Pronotum and mesonotum with scattered erect macrosetae of varying lengths (PMC = 5–8; MMC = 2–5).

Body is yellowish brown to reddish brown with antennae and legs usually a shade lighter.

Queen measurements: HL 0.82–0.83 mm; HW 0.75–0.79 mm; EL 0.29–0.31 mm; SL 0.92–0.93 mm; PrFL 0.81–0.83 mm; PrFW 0.21–0.23 v; WL 1.37–1.38 mm. Indices: CI 91.27–96.00; SI 117.36–123.53; REL 37.33–37.58 ( $n = 8$ ).

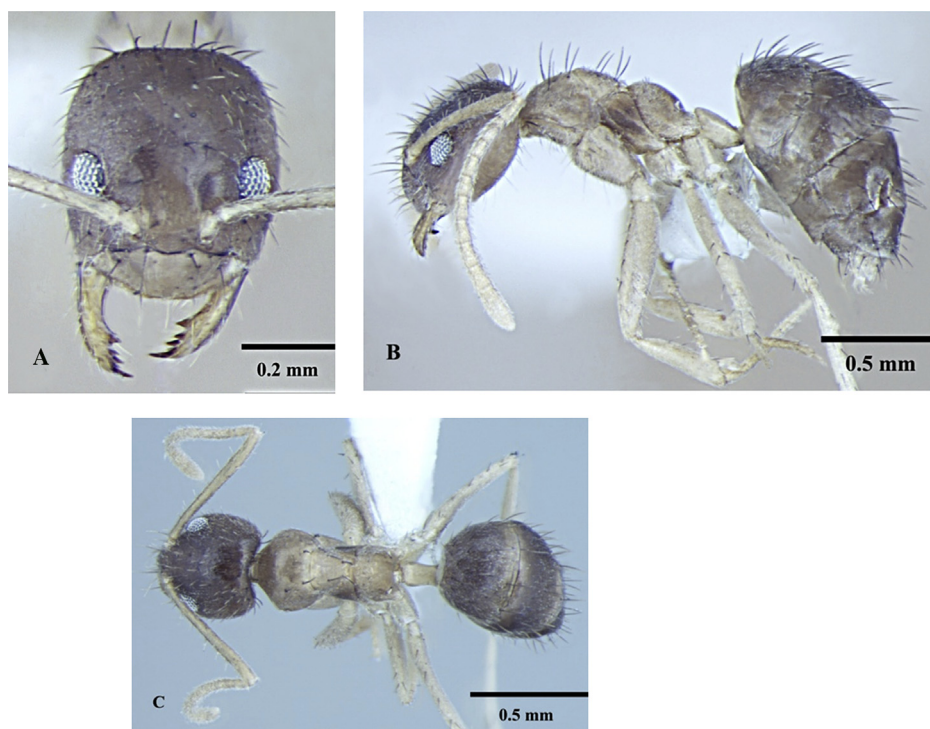
Generally, matches worker description, with modifications expected for caste and the following differences: head subtriangular with shallowly concave posterior margin; anterior clypeal margin nearly straight to shallowly concave; petiole concave above; color brown with antennae and legs usually a shade lighter; body covered with much dense pubescence than in workers (SMC = 44–62; PMC = 7–11; MMC = 48–62).

Male measurements: HL 0.60–0.62 mm; HW 0.51–0.56 mm; EL 0.25–0.26 mm; SL 0.67–0.72 mm; PrFL 0.61–0.66 mm; PrFW 0.17–0.18 mm; WL 0.86–0.91 mm. Indices: CI 83.64–91.07; SI 127.45–132.61; REL 40.18–41.87 ( $n = 8$ ).

Head is subquadrate; longer than wide; eyes large, convex, slightly projecting beyond head outline in full-face view; three prominent ocelli present. Antennae filiform, scapes long, surpass posterior margin by about half their length. Mandibles slender with prominent, pointed apical and small preapical tooth, remainder of masticatory margin smooth, with indistinct, rounded basal angle that seamlessly blends into inner mandibular margin.

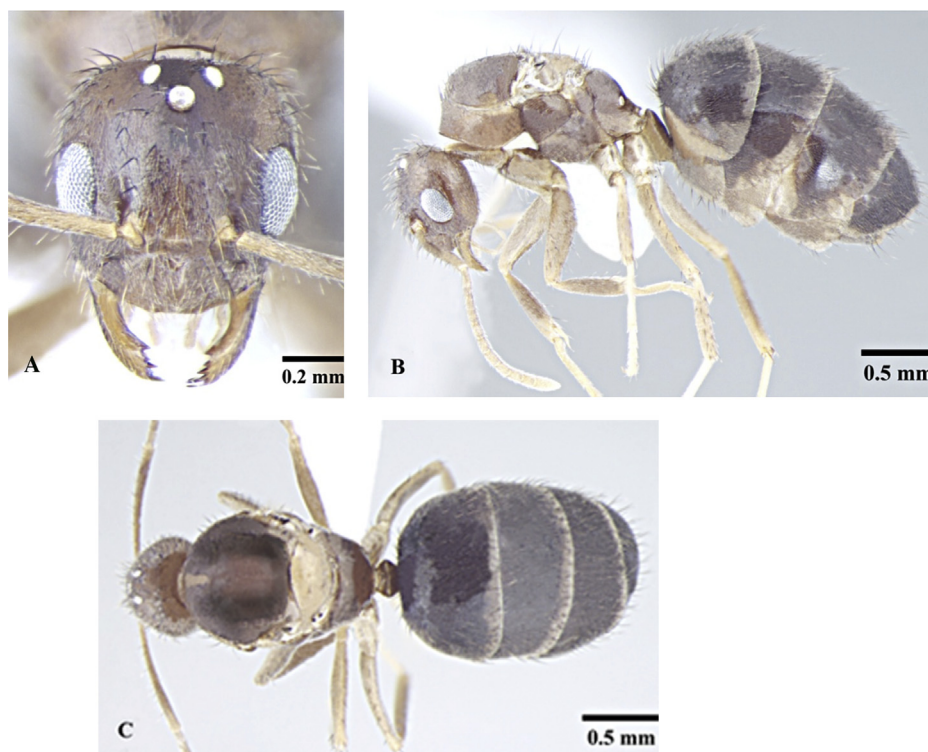
Mesosoma modified for presence of a wing; in lateral view scutum and scutellum flat; propodeum indistinct, not higher than remainder of notum with very short dorsal face and long declivitous face; petiole as in worker.

Genitalia: Parameres broadly rounded at apices curving dorsally; apical margin large finger like projection; ventral margin small triangular; long setae extending off of parameres. Cuspi bent toward digiti, long and tubular reaching digiti dorsally with short peg-like teeth; digiti weakly paddle-shaped; covered with short peg-like teeth. Penis valves projecting but not extending parameres.



**Figure 8.** Worker; *Nylanderia indica* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.



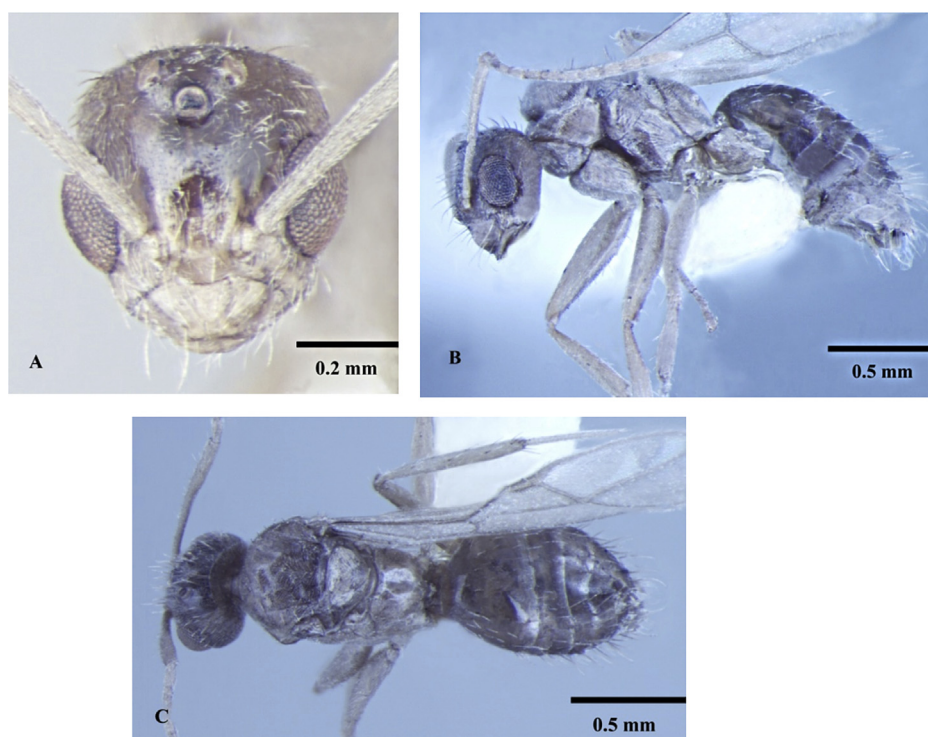


**Figure 9.** Queen; *Nylanderia indica* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.

Color is yellowish-brown with darker gaster; sculpture and vestiture as in worker caste (SMC = 18–22; PMC = 0; MMC = 18–23).

*Material examined.* Syntype ♀ from Pune, India (CASENT0911008) in MHNG. Other materials. 9♀, Dakpathar,

Himachal Pradesh, India (750 m, 30.5164°N 77.7848°E), 20 viii 2009 (leg. AA Wachkoo); 13♀, 3♂, Lwasa, Himachal Pradesh, India (1200 m, 30.7394°N 77.1528°E) 27 viii 2009 (leg. AA Wachkoo); 5♀, Nahan, Himachal Pradesh, India (760 m, 30.5596°N 77.2960°E), 27 ix 2009 (leg. AA Wachkoo); 5♀, Terrace, Himachal Pradesh, India



**Figure 10.** Male; *Nylanderia indica* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.

(420 m, 31.9234°N 75.9294°E), 24 ix 2009 (leg. AA Wachkoo); 10♂, 5♀, Rajaji Forest Area, Uttarakhand, India (660 m, 30.2483°N 77.9878°E), 5 viii 2009 (leg. AA Wachkoo); 9♂, Selaqui, Uttarakhand, India (670 m, 30.3720°N 77.8605°E) 9 viii 2009 (leg. AA Wachkoo).

**Compared material.** *Nylanderia vividula* (Nylander, 1846), Lectotype ♂ (CASENT0102536), Paralectotype ♀ (CASENT0102537), Paralectotype ♂ (CASENT0102538; CASENT0102539) from Poland in UZMH.

**Distribution.** India (endemic).

**Remarks.** This species seems to be generally distributed in India. It has been reported through most parts of India and Sri Lanka (Forel 1894; Bingham 1903). The workers were collected in leaf litter, rotting wood, and underneath stones.

***Nylanderia smythiesii* (Forel, 1894)**

(Figures 11–13)

*Prenolepis smythiesii* Forel, 1894: 410, Figure 5 ♀, ♂ India. Combination in *Paratrechina* (*Nylanderia*): Emery, 1925: 220; LaPolla et al., 2010: 127, Wachkoo & Bharti, 2014a: 6 ♀.

**Diagnosis.** The worker caste of this species can be easily distinguished from other Southeast Asian congeners by the combination of characters: bicolored body with oval shape of head, and smooth and shiny cuticle without any pubescence.

**Worker measurements:** HL 0.60–0.68 mm; HW 0.47–0.56 mm; EL 0.14–0.19 mm; SL 0.70–0.77 mm; PW 0.37–0.43 mm; PrFL 0.56–0.64 mm; PrFW 0.13–0.17 mm; WL 0.73–0.88 mm. Indices: CI 77.68–82.26; SI 137.25–151.16; REL 23.64–27.42 ( $n = 20$ ).

Head is broadly oval; distinctly longer than wide, slightly wider posteriorly, lateral margins strongly convex, posterior margin

shallowly concave to gently convex with rounded posterolateral corners. Clypeus subcarinate in the middle; anterior clypeal margin weakly concave. Eyes oval, weakly convex, large, covering one-third of lateral cephalic margin; three small ocelli present. Antennae long, scape surpasses the posterior margin by two-fifth their length.

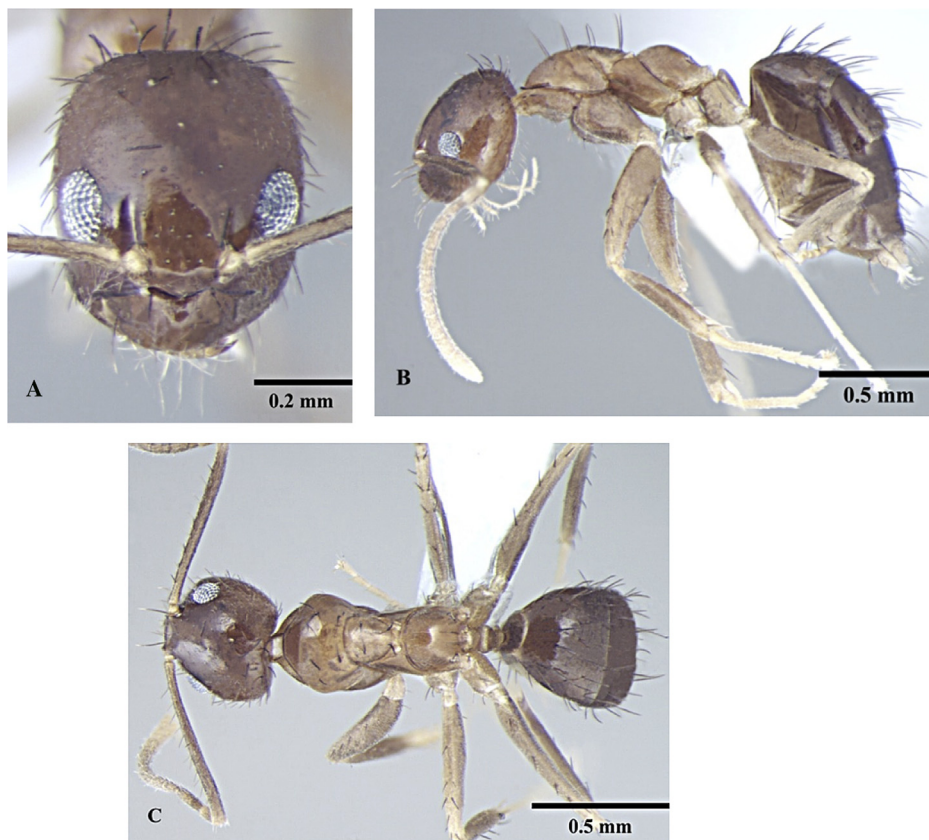
Metanotal groove strongly developed, in lateral view interrupts the regular pro-mesonotal convexity from propodeum; metanotal area long. Dorsal face of propodeum rounded, about the same length as declivitous face; in lateral view, its highest part on the same plane to remainder of dorsum, dorsally dome-like. In lateral view, petiole triangular with dorsum of the petiole well below the dorsum of propodeum, rounded above with posterior face much longer than anterior face.

Overall cuticle very smooth and shiny. Pubescence on body very sparse; almost entirely absent. Scape with scattered erect macrosetae and a dense layer of pubescence (SMC = 40–55). Erect macrosetae of varying length cover head, pronotum, mesonotum and gaster. Macrosetae very densely spaced on head and gaster. Pronotum and mesonotum with scattered erect macrosetae of varying lengths (PMC = 3–5; MMC = 2–4).

Head is brown; gaster brown to black; mesosoma, antennae, and legs yellowish brown.

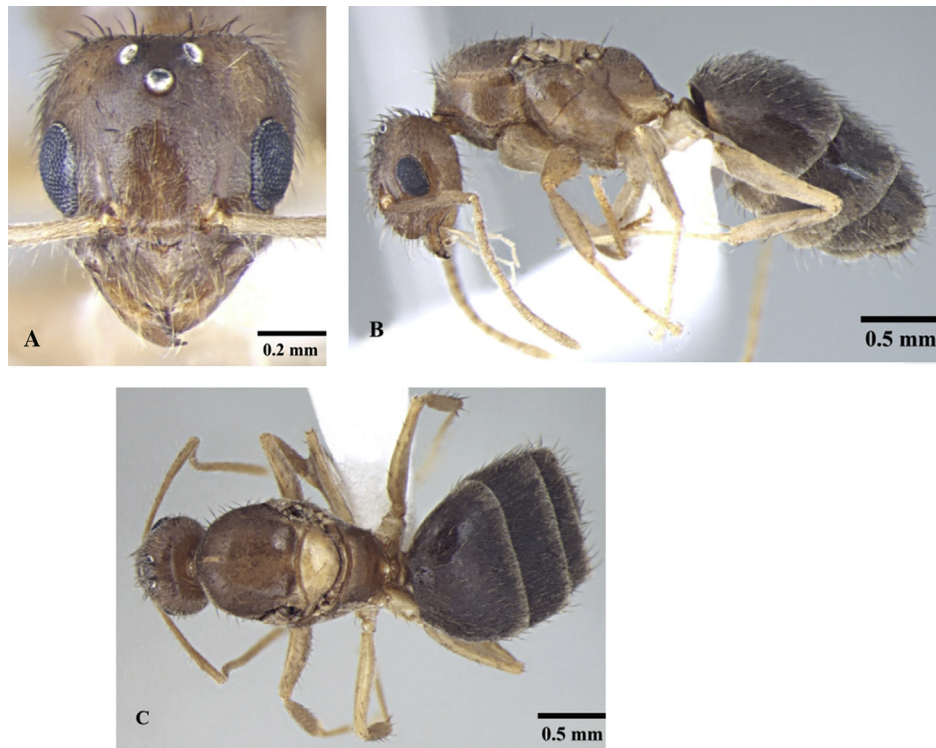
**Queen measurements:** HL 0.84 mm; HW 0.80 mm; EL 0.30 mm; SL 0.93 mm; PrFL 0.82 mm; PrFW 0.23 mm; WL 0.88 mm. Indices: CI 95.59; SI 115.82; REL 35.71 ( $n = 1$ ).

Generally matches worker description, with modifications expected for caste and the following differences: body covered with dense pubescent and fine punctulae; head subtriangular, posterior margin concave; petiole with flat dorsum; head yellow brown, gaster brown, a shade lighter than in workers (SMC 47 = 50; PMC = 13; MMC = 34).

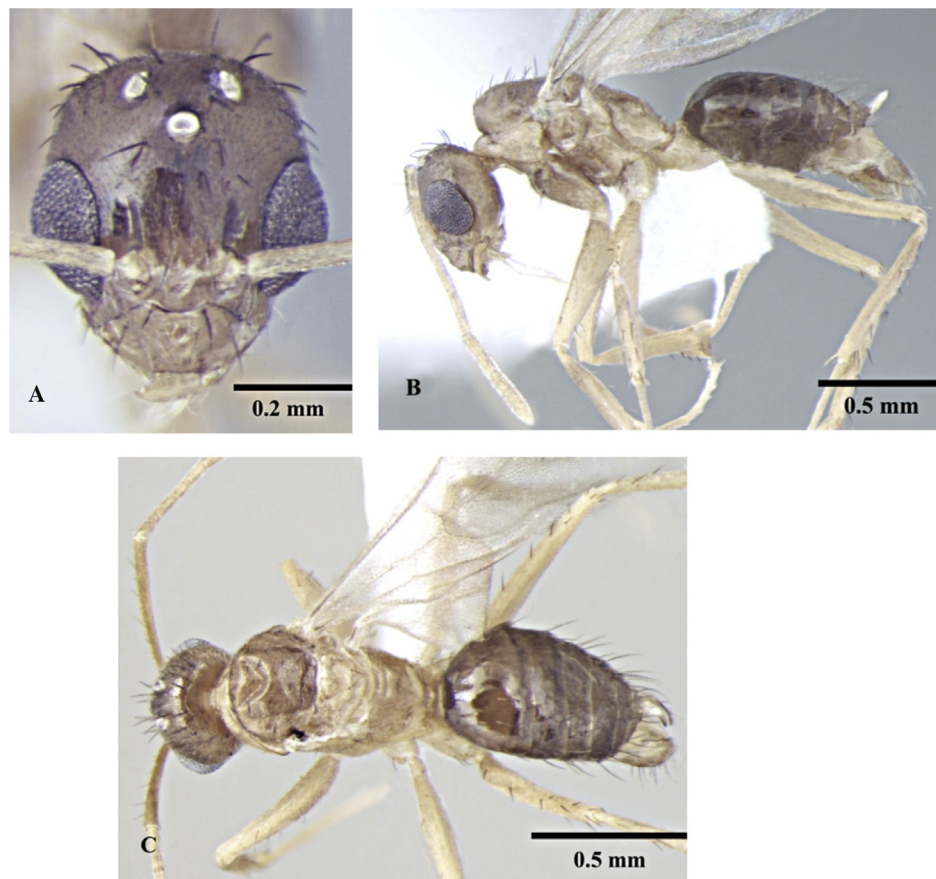


**Figure 11.** Worker; *Nylanderia smythiesii* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.





**Figure 12.** Queen; *Nylanderia smythiesii* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.



**Figure 13.** Male; *Nylanderia smythiesii* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.



Male measurements: HL 0.52–0.55 mm; HW 0.42–0.46 mm; EL 0.22–0.24 mm; SL 0.66–0.72 mm; PrFL 0.56–0.62 mm; PrFW 0.13–0.15 mm; WL 0.75–0.85 mm. Indices: CI 80.00–85.42; SI 146.34–157.89; REL 41.67–44.44 ( $n = 8$ ).

Head is broadly oval; longer than wide; eyes large, subglobulose, slightly projecting beyond head outline in full-face view; three prominent ocelli present. Antennae filiform, scapes long, surpass posterior margin by about half their length. Mandibles slender, curved strap like with prominent, pointed apical and a small pre-apical tooth, remainder of masticatory margin smooth, without any teeth or denticles. Basal angle rounded, indistinct and seamlessly blends into inner mandibular margin.

Mesosoma enlarged to accommodate flight muscles; in lateral view scutum and scutellum flat; propodeum indistinct, lower than remainder of notum with very short dorsal face and long declivitous face; petiole as in worker.

Genitalia: Parameres paddle-shaped, rounded apically, turning strongly inward toward midline of body posteriorly, as long as digiti; long setae extending off of parameres. Cuspi long and tubular reaching digiti dorsally; bent toward digiti; digiti weakly anvil-shaped; directed upward and covered with short peg-like teeth; digiti visible in lateral view; penis valves projecting barely past parameres.

Sculpture, vestiture and color as in worker caste (SMC = 16–21; PMC = 0; MMC = 17–22).

**Material examined.** Syntype ♀ from Dehradun, India (CASENT0911010) in MHNG. Other materials. 13♂, Andretta, Himachal Pradesh, India (940 m, 32.0744°N 76.5856°E), 21 vi 2010 (leg. AA Wachkoo); 110♂, Baijnath, Himachal Pradesh, India (1125 m, 32.0527°N 76.6500°E), 17 vi 2010 (leg. AA Wachkoo); 1♂, Bakhra, Himachal Pradesh, India (650 m, 31.4087°N 76.4327°E), 7 x 2008 (leg. AA Wachkoo); 99♂, Bilaspur, Himachal Pradesh, India (520 m, 31.3423°N 76.7616°E), 1 vii 2010 (leg. AA Wachkoo); 204♂, Chanaur, Himachal Pradesh, India (600 m, 31.9067°N 76.1428°E) 20 x 2008 (leg. AA Wachkoo); 1♂, Chohal, Himachal Pradesh, India (450 m, 31.6666°N 76.0666°E), 8 x 2008 (leg. AA Wachkoo); 11♂, Dakpathar, Himachal Pradesh, India (750 m, 30.5164°N 77.7848°E), 20 viii 2009 (leg. AA Wachkoo); 19♂, Kotla, Himachal Pradesh, India (500 m, 31.8821°N 75.9963°E), 30 ix 2009 (leg. AA Wachkoo), 9♂, Kotla, Himachal Pradesh, India (500 m, 31.8821°N 75.9963°E), 13 vii 2010 (leg. AA Wachkoo); 20♂, Lwasa, Himachal Pradesh, India (1200 m, 30.7394°N 77.1528°E), 27 viii 2009 (leg. AA Wachkoo); 6♂, Nagabari, Himachal Pradesh, India (420 m, 32.3004°N 75.8901°E), 18 vi 2009 (leg. AA Wachkoo); 3♂, Nahan, Himachal Pradesh, India (760 m, 30.5596°N 77.2960°E), 27 ix 2009 (leg. AA Wachkoo); 216♂, Poanta Sahib, Himachal Pradesh, India (420 m, 30.4384°N 77.6239°E), 9 v 2009 (leg. AA Wachkoo); 171♂, Poanta Sahib, Himachal Pradesh, India (420 m, 30.4384°N 77.6239°E), 19 viii 2009 (leg. AA Wachkoo); 8♂, Renuka, Himachal Pradesh, India (600 m, 30.6083°N 77.4615°E), 26 viii 2009 (leg. AA Wachkoo); 5♂, Terrace, Himachal Pradesh, India (420 m, 31.9234°N 75.9294°E), 13 vi 2009 (leg. AA Wachkoo), 2♂, Terrace, Himachal Pradesh, India (420 m, 31.9234°N 75.9294°E), 24 ix 2009 (leg. AA Wachkoo), 4♂, Terrace, Himachal Pradesh, India (420 m, 31.9234°N 75.9294°E), 19 vii 2010 (leg. AA Wachkoo); 3♂, Mansar, Jammu & Kashmir, India (690m, 32.6979°N 75.1489°E), 13 vii 2009 (leg. AA Wachkoo); 12♂, Surinsar, Jammu & Kashmir, India (700 m, 32.7009°N 75.1512°E), 14 vii 2009 (leg. AA Wachkoo); 204♂, Assan Barrage, Uttarakhand, India (750 m, 30.4417°N 77.6754°E), 3 vi 2010 (leg. AA Wachkoo); 12♂, FRI, Uttarakhand, India (640 m, 30.3416°N 77.9903°E), 30 ix 2008 (leg. AA Wachkoo); 1♂, FRI, Uttarakhand, India (640 m, 30.3416°N 77.9903°E), 2 x 2008 (leg. AA Wachkoo), 16♂, FRI, Uttarakhand, India (640 m, 30.3416°N 77.9903°E), 31 vii 2009 (leg. AA Wachkoo); 5♂, 1♀, 9♂, Rajaji Forest Area, Uttarakhand, India (660 m, 30.2483°N 77.9878°E), 5 viii 2009 (leg. AA Wachkoo), 21♂, Rajaji Forest Area, Uttarakhand, India

(660 m, 30.2483°N 77.9878°E), 11 viii 2009 (leg. AA Wachkoo), 18♂, Rajaji Forest Area, Uttarakhand, India (660 m, 30.2483°N 77.9878°E), 7 ix 2010 (leg. AA Wachkoo); 7♂, Selaqui, Uttarakhand, India (670 m, 30.3720°N 77.8605°E), 8 viii 2009 (leg. AA Wachkoo).

**Compared material.** *Nylanderia flavipes* (Smith, 1874), Lectotype ♂ from Hyogo, Japan (CASENT0903130) in BMNH.

**Distribution.** India (endemic).

**Remarks.** This species is generally in distribution in low altitude areas of Northwest India. Nests can be found easily underneath stones and leaf litter whilst foraging workers are fairly frequent on trees and fallen trunks (Wachkoo and Bharti 2014a).

### *Nylanderia taylori* (Forel, 1894)

(Figures 14–15)

*Prenolepis taylori* Forel, 1894: 410, Figure 2 ♀, ♂ India. Combination in *Pr.* (*Nylanderia*): Forel, 1913: 438; Emery, 1925: 220; LaPolla et al., 2010: 127

**Diagnosis.** *N. taylori* resembles most to Indonesian *Nylanderia kraepelini* (Forel, 1905), but can be easily separated from latter by larger eyes (facets > 50) and darker brown body whilst *N. kraepelini* is characterized by small eyes (facets < 25) and pale brown body.

Worker measurements: HL 0.55–0.63 mm; HW 0.46–0.53 mm; EL 0.15–0.17 mm; SL 0.52–0.61 mm; PW 0.32–0.40 mm; PrFL 0.40–0.50 mm; PrFW 0.12–0.16 mm; WL 0.63–0.72 mm. Indices: CI 80.00–84.00; SI 111.90–120.45; REL 26.31–28.00 ( $n = 15$ ).

Head is mostly oval; distinctly longer than wide, lateral margins strongly convex, posterior margin concave to convex with rounded posterolateral corners. Clypeus subcarinate in the middle; anterior clypeal margin shallowly concave. Eyes oval, weakly convex, large, covering one-third of lateral cephalic margin; three small ocelli present. Antennae relatively shorter, scape surpasses the posterior margin by not more than one-third their length.

Metanotal groove relatively weakly developed, in lateral view interrupts the regular promesonotal convexity from propodeum; metanotal area short. Dorsal face of propodeum much shorter than declivitous face; in lateral view, propodeum lower than remainder of dorsum, dorsally angular; declivity steep. Petiole low, inclined forward with rounded dorsum.

Overall cuticle dull and opaque covered with fine punctulae; clypeus and mesosoma relatively shining. Body covered with dense pubescence on the head and gaster, less so on the mesosoma. Scape with erect macrosetae and abundant appressed to decumbent pubescence (SMC = 30–45). Mesosoma with erect macrosetae of varying lengths (PMC = 3–6; MMC = 2–4).

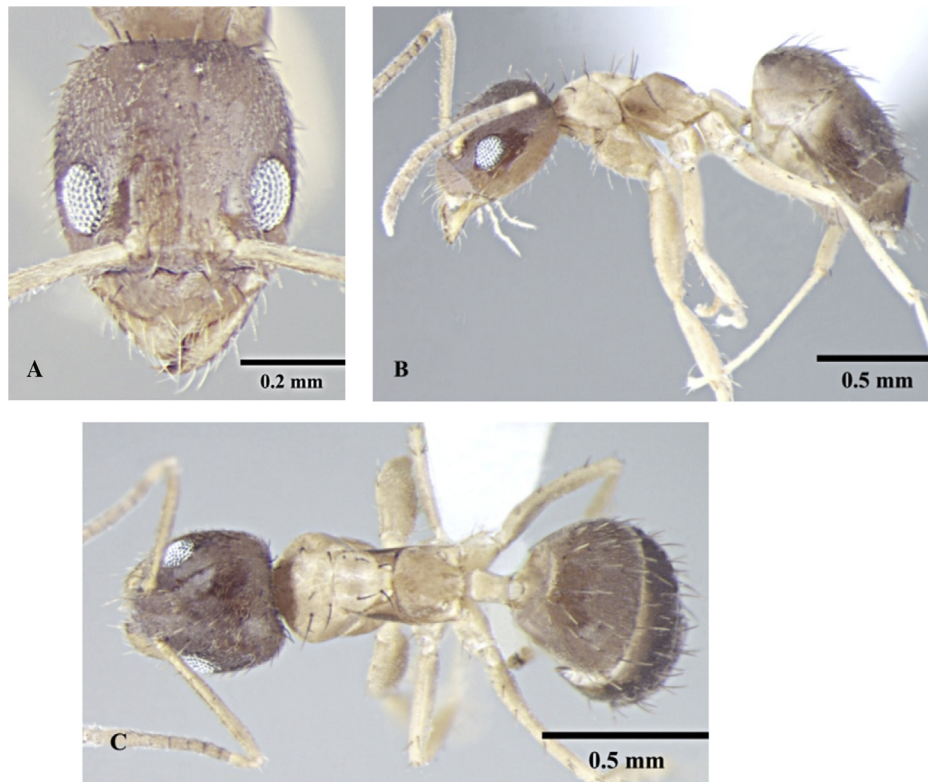
Head and gaster are brown; mesosoma varies from yellow to brown; antennae and legs yellow to yellowish brown.

Queen measurements: HL 0.73–0.74 mm; HW 0.69–0.72 mm; EL 0.24–0.25 mm; SL 0.72–0.74 mm; PrFL 0.65–0.68 mm; PrFW 0.20–0.21 mm; WL 1.20–1.30 mm. Indices: CI 94.31–97.01; SI 102.94–103.53; REL 32.84–33.15 ( $n = 2$ ).

Generally matches worker description, with modifications expected for caste and the following differences: head subquadrate with concave posterior margin; petiole concave above; coloration pattern lighter than in workers with yellow brown head, mesosoma and antennae; legs yellow; gaster brown (SMC 60 = 65; PMC = 9–11; MMC = 47–54).

Male caste for this species not examined.

**Material examined.** Syntype ♀ from Orissa, India (CASENT0911011) in MHNG, Geneva, Switzerland. Other materials. 4♂, Dakpathar, Himachal Pradesh, India (750 m, 30.5164°N 77.7848°E), 20 viii 2009 (leg. AA Wachkoo); 1♂, Lwasa, Himachal Pradesh, India (1200 m, 30.7394°N 77.1528°E), 27 viii 2009 (leg. AA Wachkoo); 6♂, 3♀, Kushinagar, Himachal Pradesh, India (760 m,



**Figure 14.** Worker; *Nylanderia taylora* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.

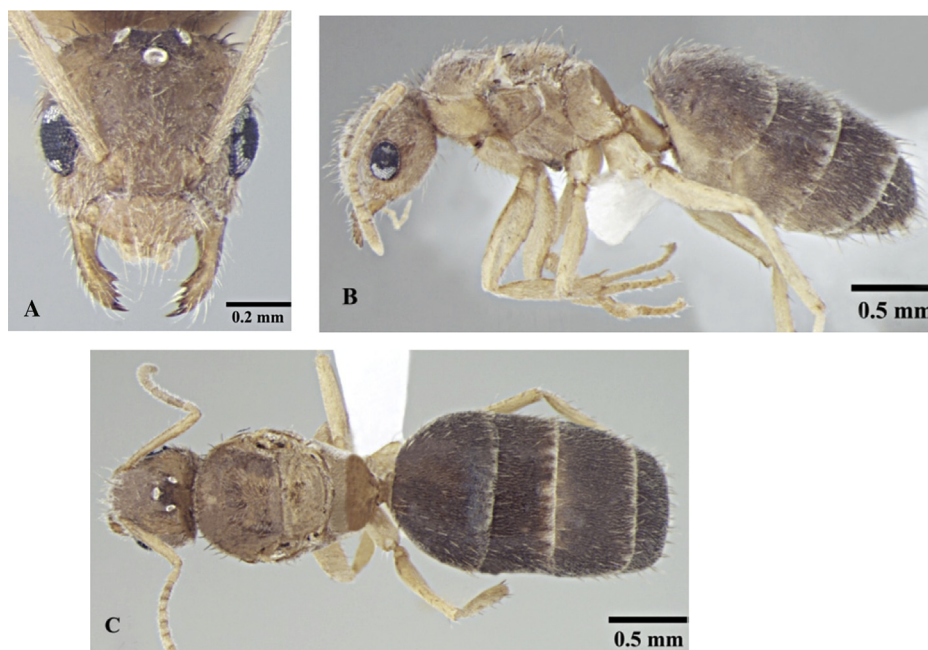
32.3010°N 75.8913°E), 17 vi 2009 (leg. AA Wachkoo); 3♂, Rajaji Forest Area, Uttarakhand, India (660 m, 30.2483°N 77.9878°E), 5 viii 2009 (leg. AA Wachkoo); 1♂ Selaqui, Uttarakhand, India (670 m, 30.3720°N 77.8605°E), 9 viii 2009 (leg. AA Wachkoo).

*Compared material.* *Nylanderia flavipes* (Smith, 1874), Lectotype ♀ from Hyogo, Japan (CASENT0903130) in BMNH.

*Distribution.* India (endemic).

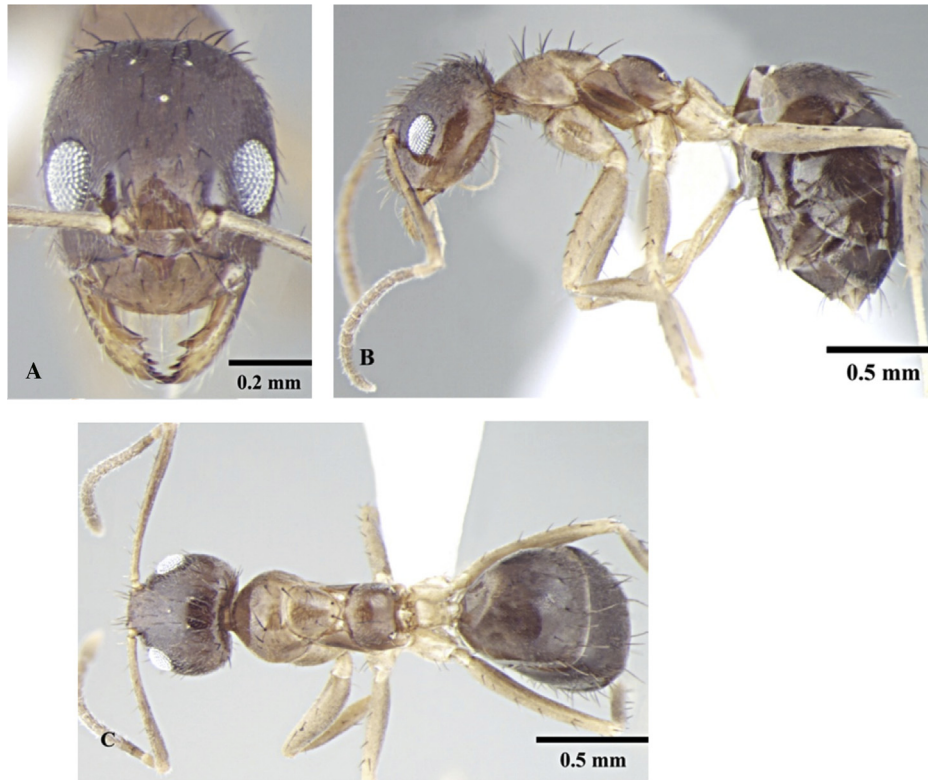
*Remarks.* This species is widespread in India. It has been reported through most parts of India and Sri Lanka (Forel 1894; Bingham 1903). The workers were collected in leaf litter, rotting wood and underneath stones.

***Nylanderia yerburyi* (Forel, 1894)**  
(Figures 16–18)



**Figure 15.** Queen; *Nylanderia taylora* (Forel, 1894): A, Head in full-face view; B, Body, lateral view; C, Body, dorsal view.





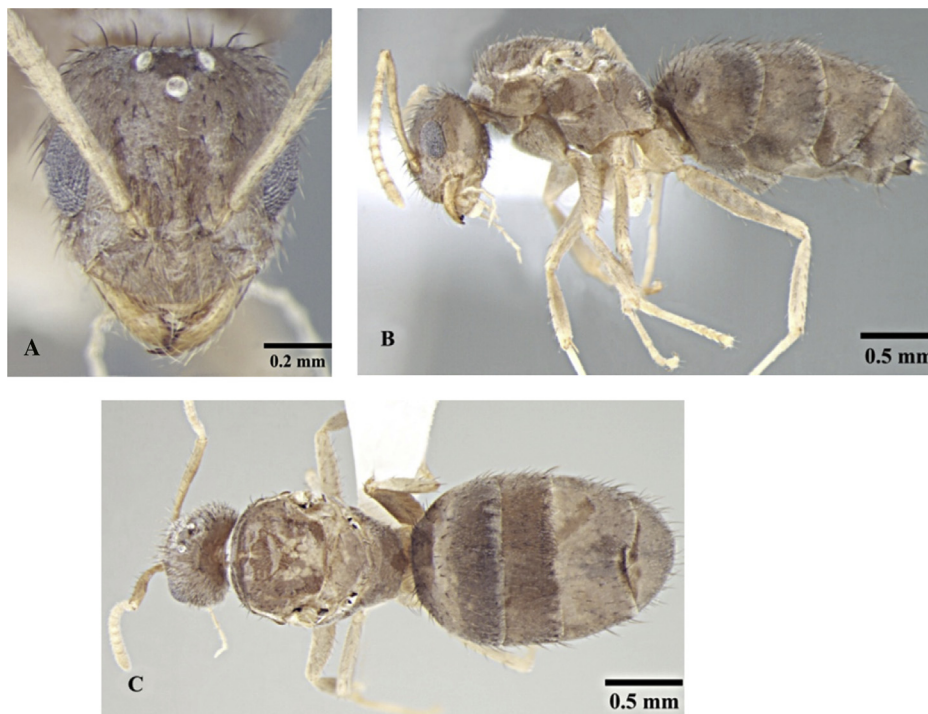
**Figure 16.** Worker; *Nylanderia yerburyi* (Forel, 1894): A, Head in full-face view B, Body, lateral view; C, Body, dorsal view.

*Prenolepis yerburyi* Forel, 1894: 409, Figure 1 ♀, ♂ Sri Lanka. Combination in *Pr.* (*Nylanderia*): Viehmeyer, 1916: 147; Wheeler, 1921: 112; LaPolla et al., 2010: 127.

**Diagnosis.** Bicolored body of *N. yerburyi* resembles most to *N. taylori* and *N. indica* but can be distinguished from the latter

by distinctly rounded dorsal face of propodeum, about the same length as declivitous face whilst in latter dorsal face of propodeum is dorsally angular much shorter than declivitous face.

Worker measurements: HL 0.65–0.75 mm; HW 0.55–0.66 mm; EL 0.19–0.22 mm; SL 0.75–0.85 mm; PW 0.42–0.45 mm; PrFL



**Figure 17.** Queen; *Nylanderia yerburyi* (Forel, 1894): A, Head in full-face view B, Body, lateral view; C, Body, dorsal view.



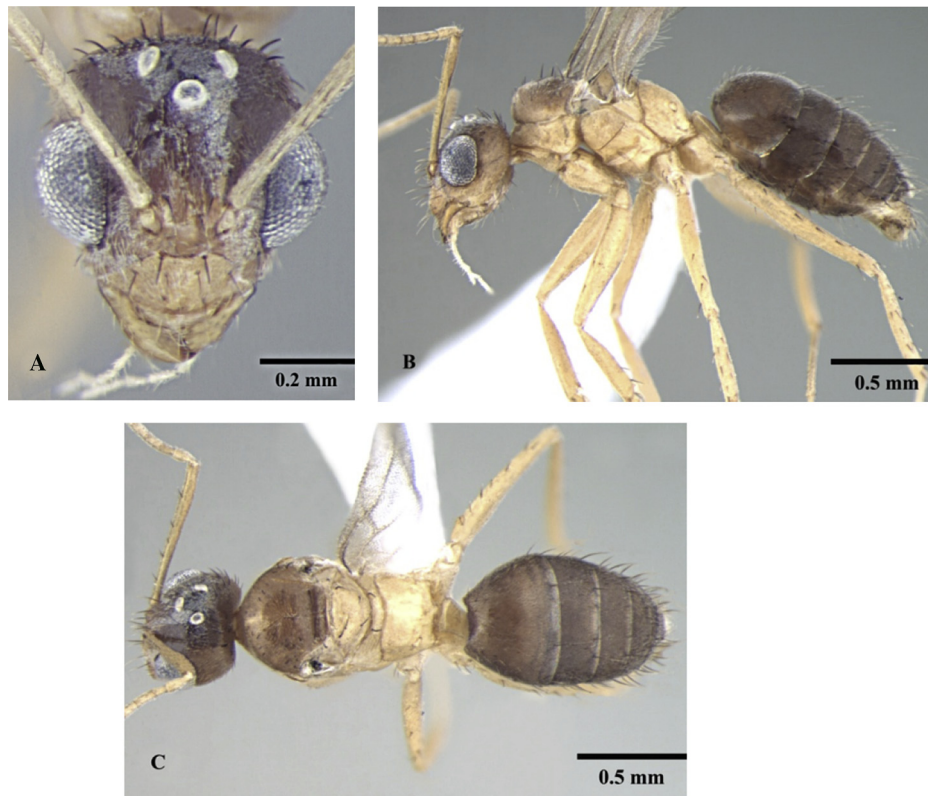


Figure 18. Male; *Nylanderia yerburyi* (Forel, 1894): A, Head in full-face view B, Body, lateral view; C, Body, dorsal view.

0.58–0.65 mm; PrFW 0.16–0.18 mm; WL 0.80–0.99 mm. Indices: CI 82.81–88.24; SI 128.79–137.74; REL 28.12–29.41 ( $n = 20$ ).

Head is subquadrate; longer than wide, narrowed anteriorly, lateral margins strongly convex, posterior margin weakly concave to gently convex with rounded posterolateral corners. Clypeus subcarinate in the middle; anterior clypeal margin shallowly concave. Eyes oval, weakly convex, large, covering one-third of lateral cephalic margin; three small ocelli present. Antennae long, scape surpasses posterior margin by two-fifth their length.

Metanotal groove strongly developed, in lateral view interrupts the regular promesonotal convexity from propodeum; metanotal area distinct. Dorsal face of propodeum rounded, about the same length as declivitous face; in lateral view, its highest part on the same plane to remainder of dorsum, dorsally dome-like. Petiole low triangular, inclined forward with posterior face longer than anterior face, dorsum rounded.

Head and gaster dull covered with a fine layer of pubescence; mesosoma relatively shiny with sparse pubescence. Scape with scattered erect macrosetae and a dense layer of pubescence (SMC = 35–55). Erect macrosetae of varying length abundant on head and gaster, relatively sparse on pro-mesonotum. Pronotum and mesonotum with scattered erect macrosetae of varying lengths (PMC = 3–7; MMC = 3–5).

Mesosoma are yellow brown to reddish brown, head and gaster darker brown; antennae and legs yellow brown to reddish brown.

Queen measurements: HL 0.82 mm; HW 0.81 mm; EL 0.30 mm; SL 0.91 mm; PrFL 0.81 mm; PrFW 0.23 mm; WL 1.30 mm. Indices: CI 98.78; SI 112.35; REL 36.48 ( $n = 1$ ).

Generally matches worker description, with modifications expected for caste and the following differences: head subtriangular with concave posterior margin; petiole concave above; pubescence denser than in workers; color yellowish-brown (SMC 55 = 59; PMC = 14; MMC = 57).

Male measurements: HL 0.62 mm; HW 0.55 mm; EL 0.28 mm; SL 0.77 mm; PrFL 0.67 mm; PrFW 0.17 mm; WL 0.94 mm. Indices: CI 88.71; SI 140.00; REL 44.64 ( $n = 1$ ).

Head is subtriangular; longer than wide; eyes relatively larger, subglobulose, projecting well beyond head outline in full-face view; three prominent ocelli present. Antennae filiform, scapes long, surpass posterior margin by about half their length. Mandibles slender, curved strap like with prominent, pointed apical and a small preapical tooth, remainder of masticatory margin smooth, without any teeth or denticles. Basal angle rounded, indistinct and seamlessly blends into inner mandibular margin.

Mesosoma modified for presence of a wing; propodeum indistinct, lower than remainder of notum with very short dorsal face and long declivitous face; petiole as in worker.

Genitalia: Parameres broadly rounded at apices; apical margin large finger like projection; ventral margin triangular; long setae extending off of parameres. Cuspi long and tubular with short peg-like teeth, strongly bent toward and covering digiti dorsally; digiti weakly paddle-shaped; strongly curved outward and covered with short peg-like teeth; penis valves projecting past parameres.

Head, scutum, and gaster brown remainder yellowish; sculpture and vestiture as in worker caste (SMC = 20–22; PMC = 0; MMC = 23).

**Material examined.** Syntype ♀ from Sri Lanka (CASENT0911013) in MHNG, Geneva, Switzerland. Other materials. 7♂♂ Terrace, Himachal Pradesh, India (420 m, 31.9234°N 75.9294°E), 24 v 2009 (leg. AA Wachkoo); 18♂♂, 1♀, 1♂, Terrace, Himachal Pradesh, India (420 m, 31.9234°N 75.9294°E), 26 v 2009 (leg. AA Wachkoo).

**Compared material.** *Nylanderia flavipes* (Smith 1874), Lectotype ♀ from Hyogo, Japan (CASENT0903130) in BMNH.

**Distribution.** India, Sri Lanka.

**Remarks.** This species is spread throughout tropical and sub-tropical India. It has also been reported Sri Lanka (Bingham 1903). The workers were collected in leaf litter and underneath stones.

## Acknowledgments

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