

# An updated checklist of the ants of India with their specific distributions in Indian states (Hymenoptera, Formicidae)

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Academic editor: B. Fisher | Received 6 October 2015 | Accepted 18 November 2015 | Published 11 January 2016

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<http://zoobank.org/9F406589-BFE0-4670-A810-8A00C533CDA7>

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**Citation:** Bharti H, Guénard B, Bharti M, Economo EP (2016) An updated checklist of the ants of India with their specific distributions in Indian states (Hymenoptera, Formicidae). ZooKeys 551: 1–83. doi: 10.3897/zookeys.551.6767

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## Abstract

As one of the 17 megadiverse countries of the world and with four biodiversity hotspots represented in its borders, India is home to an impressive diversity of life forms. However, much work remains to document and catalogue the species of India and their geographic distributions, especially for diverse invertebrate groups. In the present study, a comprehensive and critical list of Indian ant species is provided with up-to-date state-wise distribution. A total of 828 valid species and subspecies names belonging to 100 genera are listed from India. Potential erroneous data, misidentifications and dubious distributional records that may exist in the literature are also identified. The present exhaustive listing of Indian ants will provide a holistic view about diversity and distribution and will also help to identify major undersampled areas where future sampling and taxonomic efforts should be directed.

## Keywords

Checklist, Indian Ants, Formicidae

## Introduction

The Indian subcontinent is well known for its high biodiversity, varied environments and habitats, and interesting geological history. However, much work remains to document and catalogue the species of India and their geographic distributions, especially for diverse invertebrate groups. The country, with a total land area of over 3.2 million km<sup>2</sup>, is positioned on the Indian Plate (the northern portion of Indo-Australian plate) which separated from Gondwanaland during the late Cretaceous, then collided with Eurasia in the Cenozoic (Briggs 2003, Lomolino et al. 2010), although the precise age of this event is still debated (Aitchison et al. 2007). The collision led to the formation of Tibetan Plateau and the Himalaya. The Indian Plate has acted as a vessel carrying fauna and flora from Africa and Madagascar to Eurasia (Briggs 2003). This varied geological history has led to the emergence of a wide diversity of flora and fauna in India, which comprises Malayan, Afrotropical, Mediterranean, central Asian and eastern Palearctic elements.

Most of the country's land can be assigned to one of two ecozones, the Palaearctic and Indo-Malayan, and 13 terrestrial ecoregions (Olson et al. 2001). The Himalayan system, part of the Palaearctic ecozone, stretches over 3000 kilometers in length, from Myanmar to east of Afghanistan (between longitudes 70E to 100E and latitudes 25N to 40N) and from 80 kilometers to 300 kilometers in width (Bharti 2008). The Himalayas, which form the northern boundary of the country, span across ten states (Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Meghalaya, Tripura, Manipur, Mizoram, Nagaland, Arunachal Pradesh and a little part of Assam and West Bengal). The mountain system extends from east of Brahmaputra to the bend of Indus in the west, but the Himalayan system stretches further from Myanmar to Afghanistan. Kunlun represents the northern extreme of the Himalayan range, followed by the Tibetan plateau. The mountain system meets with high ranges of Central Asia (Hindu Kush, Trans Karakoram, Tian Shan, Kunlun, Trans Alai) forming the Pamir Knot, and Tibet lies to the north-east. The Western Ghats are part of the Western Ghats-Sri Lanka global hotspot, running roughly in a North-south direction for about 1500 kilometres parallel to the coast bordering the Arabian Sea.

Approximately 21% of the country's landmass is covered by forests (tree canopy density >10%), of which 12% comprises moderately or very dense forests (tree canopy density >40%) (CBD 2014). These include tropical rainforests of the Andaman Islands, the Western Ghats, and Northeast India; coniferous forests of Himalaya; deciduous Sal (*Shorea robusta*) forest of Eastern India; the dry deciduous Teak (various species of *Tectona*) forest of Central and Southern India; and the Babul (*Acacia*) dominated thorn forest of the Central Deccan and Western Gangetic plain (Tritsch 2001). According to the latest estimates (CBD 2014), the country accounts for 7–8% of the total plant and animal species globally recorded, including over 45,000 species of plants and 92,873 species of animals. This included 423 mammalian species

(7.81% of Indian total), 1,233 avian species (13.66%), 526 reptilian species (5.7%), 342 amphibian species (5.05%), 3,022 fish species (9.41%) and 63,423 of insects species (6.22%). Out of these, about 4,045 species of flowering plant (angiosperms), 47 species of mammals, 53 species of birds, 156 species of reptiles and 168 species of amphibians are endemic to India (CBD 2014). Most of the endemic taxa listed above are localised in one of the four biodiversity hotspots recognised in India; Himalaya, Indo-Burma, the Western Ghats - Sri Lanka and Sundaland (Nicobar Islands) (Myers et al. 2000 and CBD 2014).

Current data about the diversity and distribution of Indian ants is provided in this work. Ants constitute an important fraction of the animal biomass in terrestrial ecosystems and respond to stress on a much finer scale compared to vertebrates (Hölldobler and Wilson 1990; Andersen 1997). They are widely used to assess landscape disturbance and species diversity (Paknia and Pfeiffer 2011). They perform major ecological functions (predators, scavengers, soil turners, nutrient cyclers, pollinators) and are also responsible for dispersal of numerous plant species (Lach et al. 2010, Del Toro et al. 2012, Guénard 2013). Furthermore, ants mark their presence at almost all levels of terrestrial food webs (Pfeiffer et al. 2013). In this context, knowledge about their diversity and distribution may add to our understanding of their ecological functions, biogeographic patterns and global affinities.

Jerdon (1851, 1854) catalogued the ants of Southern India. Later, Forel (1900a,b, 1901) extended the list by adding 267 new species from the region. Comprehensive documentation of Indian ants was carried by Bingham (1903), who included all the previous works. Later, further contributions were made by various myrmecologists including Forel, Donisthorpe, Emery, Santschi, Mukerjee, Brown, Bolton in terms of descriptions of new taxa (Appendix 1). However, the first ever checklist which cited Indian ants was published by Chapman and Capco (1951; Appendix 1) in their revision of Asian ants. Later efforts to combine knowledge on Indian ants were performed by Guénard and collaborators (Guénard et al. 2010; 2012) in the context of global generic richness and distribution in Asia. In recent years, Bharti and co-workers significantly increased our understanding of ant diversity with both new species descriptions and new distributional records (Appendix 1). This led Bharti (2011) to compile the first modern species checklist inclusive of all earlier records for 652 valid species and subspecies from India and include all the ant records from Himalaya irrespective of its political division. Despite all these efforts, our knowledge about the diversity and distribution of Indian ants remains incomplete and fragmentary, especially on finer geographic scales.

In the present study we provide a comprehensive and critical list of Indian ants with current known state-wise distribution. Our aim is to consolidate previous data, to identify potential erroneous data, misidentifications, dubious distributional records, and more generally to provide a holistic view about the diversity and distribution of Indian ants. This list should also help identify major undersampled areas where future sampling and taxonomic efforts should be directed.

## Methods

Species lists were compiled for 28 Indian states and two union territories (Andaman and Nicobar Islands and Delhi). Data from Union territories of Chandigarh were merged with Punjab, Dadra and Nagar Haveli with Maharashtra, Daman and Diu with Goa, Lakshadweep with Kerala, and data for the state of Telangana were merged with Andhra Pradesh. These lists have been generated based on the literature review of published material, physical examination of material lying in Natural History Museum, London; Indian depositories; personal collection of the first author and websites (cited in the reference section). Additionally, the outcome of recent surveys in approximately the last 15 years in the various regions of India have also significantly enriched the data and have added to the much needed distributional data of various species. Morphospecies have not been included in the list and species name validity, authority and spelling conform to Bolton's (2015) Synopsis of the Formicidae and Catalogue of Ants of the World.

## Misidentifications and dubious/erroneous records

The continuing accumulation of distributional records and knowledge on species habitats facilitates the identification of previously cited erroneous distributions. This is especially facilitated by the compilation of large global databases and visualization tools like Antweb.org and GABI/antmaps.org. Some of the material cited in the earlier literature have been found to bear either erroneous data in terms of locality, or erroneously presented from a region (e.g. potential occurrence), as in the latter case the concerned depositories couldn't verify the existence of such a material in their possession. Additionally, some of the specimens recorded in the old literature do not have specific locality labels, instead bear labels such as "Northwest Provinces", "Western India", "Himalaya", "Panchmarhi Hills", "India" to mention a few. Furthermore, as commented by Ward (2007), ant taxonomy is a difficult discipline and species definitions change with taxonomic revisions and with more input of material, so some of the records of Indian ants were found to be misidentifications. To minimize further confusion and future "taxonomic noise," we mark these records as dubious and provide brief explanation about their dubious status.

## Results and discussion

From India, distributional data for 828 species and subspecies is listed, representing 100 genera grouped in 10 subfamilies. In terms of species richness, the subfamily Myrmicinae is the most speciose (354 species, 42.7%), followed by Formicinae (241 species, 29.1%) Ponerinae (111 species, 13.4%), Dorylinae (55 species, 6.6%) and Dolichoderinae (30 species, 3.6%), while the rest of the smaller subfamilies together constitute 4.2% (Pseudomyrmecinae 11 species, Amblyoponinae 10 species, Proceratiinae

6 species, Ectatomminae 5 species and Leptanillinae 4 species). The trend for generic richness is almost the same except for the subfamily Ponerinae which represents a larger percentage of generic richness than Formicinae (Myrmicinae 37.4%, Ponerinae 20.2% and Formicinae 18.2%).

### Species diversity within genera

The most speciose ant genus is *Camponotus* with 83 named species (one tenth of the total known Indian species), followed by *Polyrhachis* (71 species, 8.5%), *Pheidole* (58 species, 7.0%). Other diverse genera include *Tetramorium* and *Crematogaster* (42 and 41 species, each 5.0%), *Leptogenys* (34 species, 4.1%), *Myrmica* (33 species, 4.0%), *Aenictus* (32 species, 3.8%), *Strumigenys* and *Carebara* (24 species each, 2.9%) respectively (Table 1). Above and beyond these ten genera which have wide distribution within India (except *Myrmica*, which is restricted to Himalayan region), a large majority of genera (66) can be at this point perceived as species-poor in India (5 or less species) including 30 monospecific genera in India (Table 1), and inclusive of two monotypic exotic genera *Anoplolepis* and *Paratrechina*.

Within India, several genera including *Myrmica*, *Formica*, *Lasius*, *Stenamma*, *Perissomyrmex* and a majority of the species of *Aphaenogaster* and *Temnothorax* are restricted to the Palearctic region of Himalaya (Table 2, Bharti 2008), while the genera *CalRYPTomyrmex*, *Emeryopone*, *Indomyrma*, *Lordomyrma*, *Myrmoteras*, *Tyrannomyrmex* and *Yavnella* represent tropical elements restricted to Western Ghats, and *Metapone* to Nicobar Islands. Other tropical genera (*Anillomyrma*, *Buniapone*, *Centromyrmex*, *Dilobocondyla*, *Discothyrea*, *Gauromyrmex*, *Gesomyrmex*, *Indomyrma*, *Kartidris*, *Liomyrmex*, *Mayriella*, *Myopopone*, *Odontoponera*, *Oecophylla*, *Paraparatrechina*, *Paratopula*, *Platythyrea*, *Probolomyrmex*, *Rhopalomastix*, *Tyrannomyrmex*, *Vollenhovia* and *Vombisidris*) are represented by one or few species (Table 2).

Despite including nearly a third of the global ant generic richness (100/323), no genera are known to be endemic to India.

### Regional diversity, endemism and exotic species

Two biogeographically significant regions of India, Himalaya and Western Ghats harbour a large number of ant species. 656 species from 88 genera were recorded from Himalaya, and 455 species from 75 genera were recorded from the Western Ghats.

From a total 828 species, 256 species (31%) we considered endemic to India and approximately 71% of these endemics are exclusively concentrated in two of the above listed biodiversity hotspots. Although we feel that some of the Indian states are under-represented in the existing data due to inadequacy of surveys, based on the currently available data the state of West Bengal has the highest number of species (382) representing 65 genera followed by state of Sikkim with 276 species representing 69 genera.

**Table 1.** Number of named species of ants per genus in India.

| Genus name           | # Species & subspecies in genus | Genus name             | # Species & subspecies in genus |
|----------------------|---------------------------------|------------------------|---------------------------------|
| <i>Camponotus</i>    | 83                              | <i>Cryptopone</i>      | 3                               |
| <i>Polyrhachis</i>   | 71                              | <i>Discothyrea</i>     | 3                               |
| <i>Pheidole</i>      | 58                              | <i>Harpegnathos</i>    | 3                               |
| <i>Tetramorium</i>   | 42                              | <i>Odontomachus</i>    | 3                               |
| <i>Crematogaster</i> | 41                              | <i>Paratopula</i>      | 3                               |
| <i>Leptogenys</i>    | 34                              | <i>Philidris</i>       | 3                               |
| <i>Myrmica</i>       | 33                              | <i>Platythyrea</i>     | 3                               |
| <i>Aenictus</i>      | 32                              | <i>Prenolepis</i>      | 3                               |
| <i>Carebara</i>      | 24                              | <i>Stenammas</i>       | 3                               |
| <i>Strumigenys</i>   | 24                              | <i>Vollenhovia</i>     | 3                               |
| <i>Monomorium</i>    | 20                              | <i>Acropyga</i>        | 2                               |
| <i>Aphaenogaster</i> | 15                              | <i>Dilobocondyla</i>   | 2                               |
| <i>Cerapachys</i>    | 15                              | <i>Echinopla</i>       | 2                               |
| <i>Lepisiota</i>     | 15                              | <i>Leptanilla</i>      | 2                               |
| <i>Lasius</i>        | 14                              | <i>Lordomyrma</i>      | 2                               |
| <i>Cardiocondyla</i> | 13                              | <i>Mayriella</i>       | 2                               |
| <i>Diacamma</i>      | 12                              | <i>Mesoponera</i>      | 2                               |
| <i>Formica</i>       | 12                              | <i>Parvaponera</i>     | 2                               |
| <i>Temnothorax</i>   | 12                              | <i>Pristomyrmex</i>    | 2                               |
| <i>Anochetus</i>     | 11                              | <i>Probolomyrmex</i>   | 2                               |
| <i>Tetraponera</i>   | 10                              | <i>Pseudoneoponera</i> | 2                               |
| <i>Dolichoderus</i>  | 10                              | <i>Recurvidris</i>     | 2                               |
| <i>Hypoponera</i>    | 9                               | <i>Solenopsis</i>      | 2                               |
| <i>Nylanderia</i>    | 9                               | <i>Sphinctomyrmex</i>  | 2                               |
| <i>Tecnomyrmex</i>   | 9                               | <i>Vombisidris</i>     | 2                               |
| <i>Plagiolepis</i>   | 8                               | <i>Anillomyrma</i>     | 1                               |
| <i>Lophomyrmex</i>   | 7                               | <i>Anoplolepis</i>     | 1                               |
| <i>Tapinoma</i>      | 7                               | <i>Bannapone</i>       | 1                               |
| <i>Trichomyrmex</i>  | 7                               | <i>Buniapone</i>       | 1                               |
| <i>Bothroponera</i>  | 6                               | <i>Calyptomyrmex</i>   | 1                               |
| <i>Brachyponera</i>  | 6                               | <i>Centromyrmex</i>    | 1                               |
| <i>Dorylus</i>       | 6                               | <i>Emeryopone</i>      | 1                               |
| <i>Ectomomyrmex</i>  | 6                               | <i>Gauromyrmex</i>     | 1                               |
| <i>Meranoplus</i>    | 6                               | <i>Gesomyrmex</i>      | 1                               |
| <i>Pseudolasius</i>  | 6                               | <i>Indomyrma</i>       | 1                               |
| <i>Stigmatomma</i>   | 6                               | <i>Iridomyrmex</i>     | 1                               |
| <i>Cataulacus</i>    | 5                               | <i>Kartidris</i>       | 1                               |
| <i>Gnamptogenys</i>  | 5                               | <i>Liometopum</i>      | 1                               |
| <i>Myrmoteras</i>    | 5                               | <i>Liomyrmex</i>       | 1                               |
| <i>Cataglyphis</i>   | 4                               | <i>Metapone</i>        | 1                               |
| <i>Chronoxenus</i>   | 4                               | <i>Myopias</i>         | 1                               |
| <i>Messor</i>        | 4                               | <i>Myopopone</i>       | 1                               |
| <i>Myrmecina</i>     | 4                               | <i>Mystrium</i>        | 1                               |
| <i>Myrmicaria</i>    | 4                               | <i>Ochetellus</i>      | 1                               |
| <i>Ponera</i>        | 4                               | <i>Odontoponera</i>    | 1                               |

| Genus name              | # Species & subspecies in genus | Genus name           | # Species & subspecies in genus |
|-------------------------|---------------------------------|----------------------|---------------------------------|
| <i>Oecophylla</i>       | 1                               | <i>Paratrechina</i>  | 1                               |
| <i>Paraparatrechina</i> | 1                               | <i>Perissomyrmex</i> | 1                               |
| <i>Prionopelta</i>      | 1                               | <i>Rhopalomastix</i> | 1                               |
| <i>Proceratium</i>      | 1                               | <i>Tyrannomyrmex</i> | 1                               |
| <i>Protanilla</i>       | 1                               | <i>Yavnella</i>      | 1                               |

**Table 2.** Known species and subspecies diversity per genus within the different Indian states considered.

|                      | Andaman &<br>Nicobar Islands | Andhra Pradesh | Arunachal<br>Pradesh | Assam | Bihar | Chhattisgarh | Delhi | Goa | Gujarat | Haryana |
|----------------------|------------------------------|----------------|----------------------|-------|-------|--------------|-------|-----|---------|---------|
| <i>Acropyga</i>      | 1                            |                | 1                    | 1     |       |              |       |     |         |         |
| <i>Aenictus</i>      | 4                            |                | 15                   | 11    |       | 1            | 1     | 1   | 4       | 1       |
| <i>Anillomyrma</i>   |                              |                |                      |       | 1     |              |       |     |         |         |
| <i>Anochetus</i>     | 1                            |                | 3                    | 2     | 1     |              |       | 1   | 3       | 1       |
| <i>Anoplolepis</i>   | 1                            |                | 1                    | 1     |       |              |       | 1   | 1       |         |
| <i>Aphaenogaster</i> | 4                            |                | 7                    | 1     |       |              |       | 1   |         |         |
| <i>Bothroponera</i>  |                              | 1              | 3                    | 3     | 1     |              |       | 3   |         | 1       |
| <i>Brachyponera</i>  | 1                            |                | 2                    | 3     |       |              |       |     |         | 2       |
| <i>Buniapone</i>     |                              |                |                      | 1     |       |              |       |     |         |         |
| <i>Calyptomyrmex</i> |                              |                |                      |       |       |              |       |     |         |         |
| <i>Camponotus</i>    | 16                           | 2              | 28                   | 26    | 4     | 1            | 6     | 7   | 5       | 6       |
| <i>Cardiocondyla</i> | 1                            |                | 3                    | 3     | 1     |              |       | 2   | 1       | 1       |
| <i>Carebara</i>      | 2                            |                | 6                    | 4     |       |              |       | 1   |         |         |
| <i>Cataglyphis</i>   |                              |                | 1                    |       | 1     |              | 1     |     | 1       | 2       |
| <i>Cataulacus</i>    | 4                            |                | 3                    | 3     | 1     |              |       | 2   |         | 2       |
| <i>Centromyrmex</i>  |                              |                |                      | 1     |       |              |       |     |         |         |
| <i>Cerapachys</i>    |                              |                | 3                    | 2     |       |              |       | 2   |         | 1       |
| <i>Chronoxenus</i>   | 1                            |                | 2                    | 3     |       |              | 1     |     |         |         |
| <i>Crematogaster</i> | 5                            |                | 17                   | 9     | 1     |              | 2     | 3   | 4       | 11      |
| <i>Cryptopone</i>    | 1                            |                |                      |       |       |              |       |     |         |         |
| <i>Diacamma</i>      | 3                            |                | 5                    | 5     | 1     |              |       | 2   |         |         |
| <i>Dilobocondyla</i> |                              |                |                      |       |       |              |       |     |         |         |
| <i>Discothyrea</i>   |                              |                |                      | 1     |       |              |       |     |         |         |
| <i>Dolichoderus</i>  | 1                            |                | 4                    | 5     |       |              |       |     | 1       |         |
| <i>Dorylus</i>       |                              |                | 4                    | 3     | 1     |              | 2     |     | 2       | 3       |
| <i>Echinopla</i>     | 1                            |                | 1                    |       |       |              |       |     |         |         |
| <i>Ectomyrmex</i>    |                              |                | 3                    | 3     |       |              |       |     |         |         |
| <i>Emeryopone</i>    |                              |                |                      |       |       |              |       |     |         |         |
| <i>Formica</i>       |                              |                |                      |       |       |              |       |     |         |         |
| <i>Gauromyrmex</i>   |                              |                | 1                    |       |       |              |       |     |         |         |
| <i>Gesomyrmex</i>    |                              |                |                      | 1     |       |              |       |     |         |         |
| <i>Gnamptogenys</i>  | 1                            |                | 3                    | 3     |       |              |       |     |         |         |
| <i>Harpegnathos</i>  |                              |                | 1                    | 2     |       |              |       | 1   |         |         |

|                         | Andaman &<br>Nicobar Islands | Andhra Pradesh | Arunachal<br>Pradesh | Assam | Bihar | Chhattisgarh | Delhi | Goa | Gujarat | Haryana |
|-------------------------|------------------------------|----------------|----------------------|-------|-------|--------------|-------|-----|---------|---------|
| <i>Hypoponera</i>       |                              |                | 7                    | 4     |       |              |       | 1   | 1       |         |
| <i>Indomyrma</i>        |                              |                |                      |       |       |              |       |     |         |         |
| <i>Iridomyrmex</i>      |                              |                |                      | 1     | 1     |              |       |     |         |         |
| <i>Kartidris</i>        |                              |                |                      |       |       |              |       |     |         |         |
| <i>Lasius</i>           |                              |                | 3                    | 1     |       |              |       |     |         |         |
| <i>Lepisiota</i>        |                              | 2              | 3                    | 3     | 1     |              | 1     | 2   | 2       | 4       |
| <i>Leptanilla</i>       |                              |                |                      |       |       |              |       |     |         |         |
| <i>Leptogenys</i>       | 2                            |                | 9                    | 13    | 1     | 1            |       | 2   | 4       |         |
| <i>Liometopum</i>       |                              |                | 1                    | 1     |       |              |       |     |         |         |
| <i>Liomyrmex</i>        | 1                            |                |                      |       |       |              |       |     |         |         |
| <i>Lophomyrmex</i>      |                              |                | 6                    | 2     |       |              |       |     |         | 1       |
| <i>Lordomyrma</i>       |                              |                |                      |       |       |              |       |     |         |         |
| <i>Mayriella</i>        |                              |                | 2                    |       |       |              |       |     |         |         |
| <i>Meranoplus</i>       |                              |                | 2                    | 2     | 1     |              | 1     | 1   | 1       | 1       |
| <i>Mesoponera</i>       |                              |                |                      |       |       |              |       |     |         |         |
| <i>Messor</i>           |                              |                |                      |       |       |              |       |     |         | 2       |
| <i>Metapone</i>         | 1                            |                |                      |       |       |              |       |     |         |         |
| <i>Monomorium</i>       | 4                            | 1              | 7                    | 7     |       |              | 2     | 2   | 2       | 2       |
| <i>Myopias</i>          |                              |                |                      |       |       |              |       |     |         |         |
| <i>Myopopone</i>        | 1                            |                | 1                    | 1     |       |              |       |     |         |         |
| <i>Myrmecina</i>        |                              |                | 1                    | 1     |       |              |       |     |         |         |
| <i>Myrmica</i>          |                              |                | 8                    |       | 1     |              |       |     |         |         |
| <i>Myrmicaria</i>       |                              |                | 2                    | 2     | 1     |              |       | 1   |         |         |
| <i>Myrmoteras</i>       |                              |                |                      |       |       |              |       |     |         |         |
| <i>Mystrium</i>         |                              |                |                      |       |       |              |       |     |         |         |
| <i>Nylanderia</i>       | 3                            | 1              | 2                    | 1     |       |              |       |     |         |         |
| <i>Ochetellus</i>       |                              |                |                      |       |       |              |       |     |         | 1       |
| <i>Odontomachus</i>     | 2                            |                | 3                    | 3     |       |              |       |     |         |         |
| <i>Odontoponera</i>     | 1                            |                | 1                    | 1     |       |              | 1     |     |         | 1       |
| <i>Oecophylla</i>       | 1                            | 1              | 1                    | 1     | 1     |              | 1     | 1   | 1       | 1       |
| <i>Paraparatrechina</i> |                              |                |                      |       |       |              |       |     | 1       |         |
| <i>Paratopula</i>       | 1                            |                |                      |       |       |              |       |     |         |         |
| <i>Paratrechina</i>     | 1                            |                | 1                    | 1     |       |              | 1     | 1   | 1       |         |
| <i>Parvaponera</i>      |                              |                | 1                    | 1     |       |              |       |     |         |         |
| <i>Perissomyrmex</i>    |                              |                |                      |       |       |              |       |     |         |         |
| <i>Pheidole</i>         | 6                            | 1              | 14                   | 15    | 2     |              | 7     | 3   | 4       | 4       |
| <i>Philidris</i>        | 3                            |                | 1                    | 1     |       |              |       |     |         |         |
| <i>Plagiolepis</i>      |                              |                | 2                    | 1     |       |              |       |     | 1       |         |
| <i>Platythyrea</i>      | 2                            |                | 1                    | 1     |       |              |       | 1   |         |         |
| <i>Polyrhachis</i>      | 18                           |                | 17                   | 21    | 1     |              | 1     | 2   | 3       | 1       |
| <i>Ponera</i>           |                              |                | 1                    |       |       |              |       |     |         |         |
| <i>Prenolepis</i>       |                              |                | 1                    | 1     |       |              |       |     |         | 1       |



|                      | Himachal Pradesh | Jammu & Kashmir | Jharkhand | Karnataka | Kerala | Madhya Pradesh | Maharashtra | Manipur | Meghalaya | Mizoram |
|----------------------|------------------|-----------------|-----------|-----------|--------|----------------|-------------|---------|-----------|---------|
| <i>Caloptomyrmex</i> |                  |                 |           |           | 1      |                |             |         |           |         |
| <i>Camponotus</i>    | 18               | 15              | 4         | 18        | 26     | 1              | 19          | 7       | 13        | 2       |
| <i>Cardiocondyla</i> | 5                | 2               |           | 5         | 3      |                | 5           | 2       | 1         | 2       |
| <i>Carebara</i>      | 8                | 5               |           | 7         | 8      |                | 2           | 1       | 3         | 2       |
| <i>Cataglyphis</i>   | 1                | 2               |           |           |        | 2              | 1           |         | 2         |         |
| <i>Cataulacus</i>    | 3                | 1               |           | 2         | 3      |                | 2           | 1       | 2         | 1       |
| <i>Centromyrmex</i>  |                  |                 |           | 1         | 1      |                |             |         |           |         |
| <i>Cerapachys</i>    | 4                | 2               |           | 3         | 11     |                | 1           | 1       | 3         | 1       |
| <i>Chronoxenus</i>   | 2                | 3               |           | 3         | 1      |                | 3           | 1       | 1         |         |
| <i>Crematogaster</i> | 13               | 10              | 1         | 18        | 11     | 2              | 13          | 9       | 11        | 4       |
| <i>Cryptopone</i>    | 1                | 1               |           |           | 1      |                |             |         |           |         |
| <i>Diacamma</i>      |                  | 1               |           | 8         | 7      |                | 3           | 2       | 2         | 2       |
| <i>Dilobocondyla</i> | 1                |                 |           | 1         |        |                |             |         |           |         |
| <i>Discothyrea</i>   |                  |                 |           | 1         | 2      |                |             |         |           |         |
| <i>Dolichoderus</i>  | 1                | 2               |           | 4         | 1      |                |             | 2       | 6         | 1       |
| <i>Dorylus</i>       | 2                | 2               | 1         | 2         | 1      |                | 2           | 2       | 1         | 2       |
| <i>Echinopla</i>     |                  |                 |           |           |        |                |             |         | 1         |         |
| <i>Ectomomyrmex</i>  | 1                |                 |           | 3         | 4      |                |             |         | 3         |         |
| <i>Emeryopone</i>    |                  |                 |           | 1         |        |                |             |         |           |         |
| <i>Formica</i>       | 10               | 12              |           |           |        | 1              |             |         |           |         |
| <i>Gauromyrmex</i>   | 1                |                 |           |           |        |                |             |         |           |         |
| <i>Gesomyrmex</i>    |                  |                 |           |           |        |                |             |         |           |         |
| <i>Gnamptogenys</i>  |                  |                 |           | 1         | 2      |                |             | 2       | 3         | 2       |
| <i>Harpegnathos</i>  | 1                | 1               |           | 2         | 2      |                | 2           | 1       | 1         |         |
| <i>Hypoponera</i>    | 3                | 4               |           | 7         | 4      |                | 3           | 1       |           | 2       |
| <i>Indomyrma</i>     |                  |                 |           | 1         | 1      |                |             |         |           |         |
| <i>Iridomyrmex</i>   |                  |                 | 1         |           |        |                | 1           |         | 1         |         |
| <i>Kartidris</i>     |                  |                 |           |           |        |                |             |         | 1         |         |
| <i>Lasius</i>        | 7                | 8               |           |           |        |                |             |         | 1         |         |
| <i>Lepisiota</i>     | 12               | 8               | 1         | 6         | 4      | 2              | 6           | 2       | 5         | 1       |
| <i>Leptanilla</i>    | 1                |                 |           |           | 1      |                |             |         |           |         |
| <i>Leptogenys</i>    | 5                | 3               | 1         | 13        | 17     | 1              | 7           | 3       | 9         | 2       |
| <i>Liometopum</i>    |                  |                 |           |           |        |                |             |         | 1         |         |
| <i>Liomyrmex</i>     |                  |                 |           |           |        |                |             |         |           |         |
| <i>Lophomyrmex</i>   | 4                | 3               |           | 1         | 1      |                | 1           |         | 4         | 1       |
| <i>Lordomyrma</i>    |                  |                 |           |           | 2      |                |             |         |           |         |
| <i>Mayriella</i>     | 1                | 1               |           |           |        |                |             |         | 1         |         |
| <i>Meranoplus</i>    | 1                | 1               | 1         | 2         | 5      |                | 2           | 2       | 3         | 2       |
| <i>Mesoponera</i>    |                  |                 |           | 1         | 1      |                | 1           |         |           |         |
| <i>Messor</i>        | 2                | 3               |           |           | 1      | 1              | 1           |         |           |         |
| <i>Metapone</i>      |                  |                 |           |           |        |                |             |         |           |         |
| <i>Monomorium</i>    | 6                | 6               |           | 10        | 6      | 1              | 7           | 6       | 5         | 2       |
| <i>Myopias</i>       |                  | 1               |           |           |        |                |             |         |           |         |

|                         | Himachal Pradesh | Jammu & Kashmir | Jharkhand | Karnataka | Kerala | Madhya Pradesh | Maharashtra | Manipur | Meghalaya | Mizoram |
|-------------------------|------------------|-----------------|-----------|-----------|--------|----------------|-------------|---------|-----------|---------|
| <i>Myopopone</i>        |                  |                 |           |           |        |                |             |         |           |         |
| <i>Myrmecina</i>        |                  |                 |           | 1         | 3      |                | 1           |         | 1         |         |
| <i>Myrmica</i>          | 15               | 20              |           |           |        | 3              |             |         | 3         |         |
| <i>Myrmicaria</i>       | 1                | 1               | 1         | 2         | 1      |                | 1           | 1       | 1         |         |
| <i>Myrmoteras</i>       |                  |                 |           | 1         | 5      |                |             |         |           |         |
| <i>Mystrium</i>         |                  |                 |           |           |        |                |             |         |           |         |
| <i>Nylanderia</i>       | 6                | 4               |           | 2         | 3      |                | 2           | 1       |           |         |
| <i>Ochetellus</i>       | 1                |                 |           | 1         |        |                | 1           |         |           |         |
| <i>Odontomachus</i>     | 1                | 2               |           | 1         | 1      |                |             | 1       | 3         |         |
| <i>Odontoponera</i>     | 1                | 1               |           | 1         | 1      |                |             |         | 1         |         |
| <i>Oecophylla</i>       | 1                | 1               | 1         | 1         | 1      | 1              | 1           | 1       | 1         | 1       |
| <i>Paraparatrechina</i> | 1                | 1               |           |           |        |                |             |         |           |         |
| <i>Paratopula</i>       |                  |                 |           | 1         | 1      |                |             |         |           |         |
| <i>Paratrechina</i>     | 1                | 1               |           | 1         | 1      |                | 1           | 1       | 1         | 1       |
| <i>Parvaponera</i>      |                  |                 |           | 1         | 1      |                |             |         |           |         |
| <i>Perissomyrmex</i>    |                  |                 |           |           |        |                |             |         |           |         |
| <i>Pheidole</i>         | 15               | 16              | 2         | 15        | 13     |                | 25          | 3       | 16        | 2       |
| <i>Philidris</i>        |                  |                 |           |           |        |                |             |         |           |         |
| <i>Plagiolepis</i>      | 2                | 3               |           | 4         | 1      |                | 2           |         | 1         |         |
| <i>Platythyrea</i>      | 2                | 1               |           | 2         | 1      |                | 1           |         |           |         |
| <i>Polyrhachis</i>      | 10               | 5               |           | 25        | 23     |                | 9           | 4       | 19        | 2       |
| <i>Ponera</i>           | 2                |                 |           |           |        |                |             |         |           |         |
| <i>Prenolepis</i>       | 1                | 1               |           |           |        |                |             | 1       |           |         |
| <i>Prionopelta</i>      | 1                | 1               |           |           |        |                |             |         |           |         |
| <i>Pristomyrmex</i>     |                  |                 |           |           |        |                |             |         |           |         |
| <i>Probolomyrmex</i>    |                  |                 |           | 1         |        |                |             |         |           |         |
| <i>Proceratium</i>      | 1                |                 |           |           |        |                |             |         | 1         |         |
| <i>Protanilla</i>       |                  |                 |           |           | 1      |                |             |         |           |         |
| <i>Pseudolasius</i>     | 3                | 2               |           |           |        |                |             |         | 1         |         |
| <i>Pseudoneoponera</i>  | 2                | 2               |           | 1         | 1      |                | 1           | 1       | 1         | 1       |
| <i>Recurvidris</i>      | 1                | 1               |           | 1         | 1      |                | 1           | 1       | 1         |         |
| <i>Rhopalomastix</i>    |                  |                 |           | 1         |        |                |             |         |           |         |
| <i>Solenopsis</i>       | 1                | 1               | 1         | 2         | 2      |                | 1           | 1       | 1         | 1       |
| <i>Sphinctomyrmex</i>   |                  |                 |           |           | 1      |                |             |         |           |         |
| <i>Stenamma</i>         | 3                | 1               |           |           |        |                |             |         |           |         |
| <i>Stigmatomma</i>      | 1                |                 |           | 2         | 2      |                |             |         |           |         |
| <i>Strumigenys</i>      | 5                | 1               |           | 6         | 14     |                | 4           | 2       | 4         | 3       |
| <i>Tapinoma</i>         | 2                | 3               |           | 3         | 2      |                | 2           | 2       | 2         | 1       |
| <i>Technomyrmex</i>     | 3                | 1               |           | 5         | 4      |                | 2           | 3       | 1         |         |
| <i>Temnothorax</i>      | 10               | 7               |           | 1         | 1      | 2              |             |         | 1         |         |
| <i>Tetramorium</i>      | 12               | 5               | 2         | 15        | 22     | 1              | 9           | 4       | 12        | 2       |
| <i>Tetraponera</i>      | 3                | 3               | 1         | 4         | 6      | 1              | 5           | 2       | 4         | 1       |
| <i>Trichomyrmex</i>     | 5                | 4               | 1         | 6         | 5      | 1              | 6           |         | 1         | 1       |

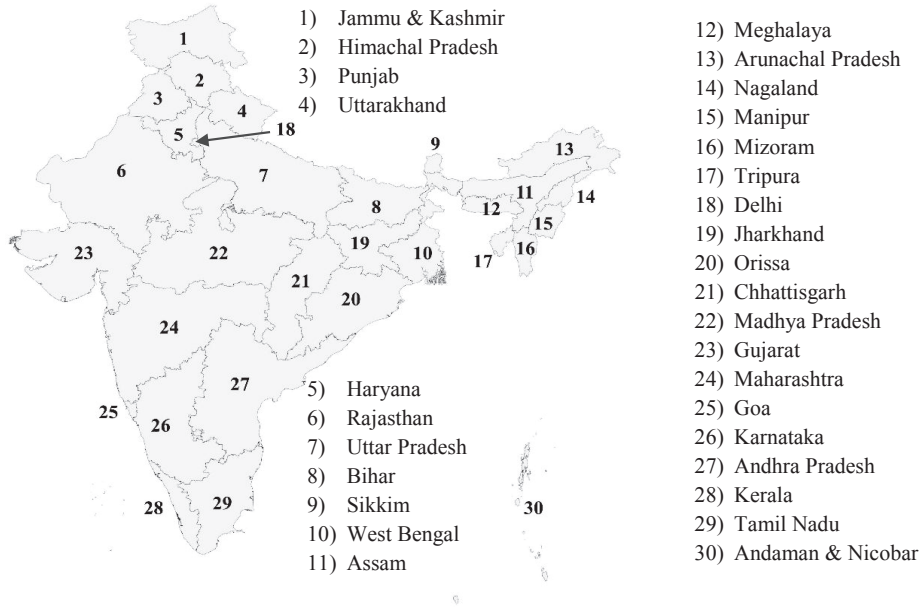
|                      | Himachal Pradesh | Jammu & Kashmir | Jharkhand | Karnataka  | Kerala     | Madhya Pradesh | Maharashtra | Manipur   | Meghalaya  | Mizoram   |
|----------------------|------------------|-----------------|-----------|------------|------------|----------------|-------------|-----------|------------|-----------|
| <i>Tyrannomyrmex</i> |                  |                 |           |            | 1          |                |             |           |            |           |
| <i>Vollenhovia</i>   | 1                |                 |           |            |            |                |             |           |            |           |
| <i>Vombisidris</i>   |                  |                 |           | 2          | 1          |                |             |           |            |           |
| <i>Yavnella</i>      |                  |                 |           |            | 1          |                |             |           |            |           |
| <b># Species</b>     | <b>259</b>       | <b>206</b>      | <b>21</b> | <b>257</b> | <b>268</b> | <b>26</b>      | <b>181</b>  | <b>87</b> | <b>178</b> | <b>55</b> |
| <b># Genera</b>      | <b>63</b>        | <b>55</b>       | <b>16</b> | <b>61</b>  | <b>63</b>  | <b>18</b>      | <b>46</b>   | <b>39</b> | <b>54</b>  | <b>33</b> |

**Table 2.** Continued.

|                      | Nagaland | Orissa | Punjab | Rajasthan | Sikkim | Tamil Nadu | Tripura | Uttar Pradesh | Uttarakhand | West Bengal |
|----------------------|----------|--------|--------|-----------|--------|------------|---------|---------------|-------------|-------------|
| <i>Acropyga</i>      | 1        | 1      |        |           | 1      |            |         |               | 1           | 1           |
| <i>Aenictus</i>      | 2        |        | 3      | 1         | 11     | 5          | 1       | 4             | 4           | 16          |
| <i>Anillomyrma</i>   |          |        |        |           |        |            |         |               |             |             |
| <i>Anochetus</i>     | 1        | 2      | 1      | 3         | 3      | 6          |         | 2             | 2           | 5           |
| <i>Anoplolepis</i>   | 1        | 1      | 1      |           | 1      | 1          | 1       |               |             | 1           |
| <i>Aphaenogaster</i> |          |        |        |           | 7      | 1          | 1       |               | 6           | 7           |
| <i>Bothroponera</i>  | 1        | 2      | 1      |           | 3      | 6          | 2       | 1             | 1           | 6           |
| <i>Brachyponera</i>  | 2        | 1      | 3      |           | 3      | 1          | 2       | 1             | 3           | 4           |
| <i>Buniapone</i>     |          |        |        |           | 1      |            |         |               | 1           |             |
| <i>Calyptomyrmex</i> |          |        |        |           |        |            |         |               |             |             |
| <i>Camponotus</i>    | 4        | 11     | 9      | 9         | 27     | 17         | 4       | 3             | 15          | 47          |
| <i>Cardiocondyla</i> | 3        |        | 1      |           | 4      | 2          | 1       | 1             | 2           | 5           |
| <i>Carebara</i>      |          | 4      | 4      | 1         | 5      | 2          |         | 1             | 4           | 10          |
| <i>Cataglyphis</i>   |          |        | 2      | 2         | 1      | 2          |         | 2             | 1           | 1           |
| <i>Cataulacus</i>    | 2        | 1      |        |           | 2      | 3          |         |               | 2           | 2           |
| <i>Centromyrmex</i>  |          | 1      |        |           |        |            |         |               |             | 1           |
| <i>Cerapachys</i>    | 2        | 1      | 2      | 1         | 3      | 2          | 1       | 1             | 4           | 5           |
| <i>Chronoxenus</i>   | 1        | 1      | 2      |           | 4      | 1          |         |               | 1           | 4           |
| <i>Crematogaster</i> | 6        | 5      | 8      | 2         | 20     | 14         | 2       | 3             | 8           | 28          |
| <i>Cryptopone</i>    |          |        |        |           |        | 1          |         |               |             | 1           |
| <i>Diacamma</i>      | 1        | 2      |        |           | 6      | 5          | 2       |               |             | 6           |
| <i>Dilobocondyla</i> |          |        |        |           | 1      |            |         |               | 1           |             |
| <i>Discothyrea</i>   |          |        |        |           | 1      |            |         |               |             |             |
| <i>Dolichoderus</i>  | 1        |        |        |           | 9      |            | 1       |               | 1           | 4           |
| <i>Dorylus</i>       | 2        | 2      | 2      | 2         | 3      | 3          |         | 2             | 2           | 5           |

[illegible]

|                         | Nagaland  | Orissa    | Punjab    | Rajasthan | Sikkim     | Tamil Nadu | Tripura   | Uttar Pradesh | Uttarakhand | West Bengal |
|-------------------------|-----------|-----------|-----------|-----------|------------|------------|-----------|---------------|-------------|-------------|
| <i>Paraparatrechina</i> |           |           |           |           | 1          |            |           |               |             | 1           |
| <i>Paratopula</i>       |           | 1         |           |           |            |            |           | 1             |             | 1           |
| <i>Paratrechina</i>     | 1         | 1         | 1         | 1         | 1          | 1          | 1         | 1             | 1           | 1           |
| <i>Parvaponera</i>      |           |           | 1         |           | 1          | 1          |           |               |             | 1           |
| <i>Perissomyrmex</i>    |           |           |           |           |            |            |           |               |             | 1           |
| <i>Pheidole</i>         | 3         | 6         | 6         | 2         | 17         | 16         | 3         | 5             | 8           | 27          |
| <i>Philidris</i>        |           |           |           |           | 1          |            |           |               |             | 1           |
| <i>Plagiolepis</i>      |           |           | 1         | 1         | 4          |            |           |               | 1           | 5           |
| <i>Platythyrea</i>      |           |           | 1         |           | 1          | 1          |           |               | 1           | 2           |
| <i>Polyrhachis</i>      | 1         | 4         | 3         | 1         | 12         | 13         | 5         | 1             | 6           | 31          |
| <i>Ponera</i>           |           |           |           |           | 2          |            |           |               | 1           |             |
| <i>Prenolepis</i>       |           |           | 1         |           |            |            |           |               | 2           |             |
| <i>Prionopelta</i>      |           |           |           |           |            |            |           |               |             |             |
| <i>Pristomyrmex</i>     |           |           |           |           | 1          |            |           |               |             |             |
| <i>Probolomyrmex</i>    |           |           |           |           |            | 2          |           |               |             |             |
| <i>Proceratium</i>      |           |           |           |           | 1          |            |           | 1             | 1           | 1           |
| <i>Protanilla</i>       |           |           |           |           |            |            |           |               |             |             |
| <i>Pseudolasius</i>     |           |           |           |           | 3          |            |           |               | 1           |             |
| <i>Pseudoneoponera</i>  | 1         | 1         | 2         |           | 1          | 1          | 1         |               | 2           | 2           |
| <i>Recurvidris</i>      |           | 1         | 1         |           | 1          | 1          |           | 1             | 1           | 1           |
| <i>Rhopalomastix</i>    |           |           |           |           | 1          |            |           |               |             | 1           |
| <i>Solenopsis</i>       | 1         | 1         | 1         | 1         | 1          | 1          | 1         |               |             | 1           |
| <i>Sphinctomyrmex</i>   |           | 1         |           |           | 1          | 1          |           |               |             | 1           |
| <i>Stenamma</i>         |           |           |           |           |            |            |           |               |             |             |
| <i>Stigmatomma</i>      |           |           |           |           | 2          | 2          |           |               |             | 3           |
| <i>Strumigenys</i>      | 2         |           |           |           | 11         | 4          | 1         | 2             | 3           | 9           |
| <i>Tapinoma</i>         | 1         | 2         | 2         | 1         | 1          | 1          | 1         | 2             | 1           | 3           |
| <i>Technomyrmex</i>     | 1         | 1         | 1         |           | 4          | 3          |           | 1             | 2           | 3           |
| <i>Temnothorax</i>      |           |           |           |           | 1          |            |           |               | 2           |             |
| <i>Tetramorium</i>      | 2         | 2         | 7         | 3         | 14         | 10         | 1         | 1             | 6           | 16          |
| <i>Tetraoponera</i>     | 3         | 3         | 4         | 1         | 4          | 6          | 1         | 2             | 3           | 6           |
| <i>Trichomyrmex</i>     |           | 1         | 5         | 6         | 3          | 5          |           | 2             | 4           | 5           |
| <i>Tyrannomyrmex</i>    |           |           |           |           |            |            |           |               |             |             |
| <i>Vollenhovia</i>      |           |           |           |           |            |            |           |               |             |             |
| <i>Vombisidris</i>      |           |           |           |           |            |            |           |               |             |             |
| <i>Yavnella</i>         |           |           |           |           |            |            |           |               |             |             |
| <b># Species</b>        | <b>56</b> | <b>79</b> | <b>98</b> | <b>52</b> | <b>276</b> | <b>184</b> | <b>43</b> | <b>53</b>     | <b>149</b>  | <b>382</b>  |
| <b># Genera</b>         | <b>33</b> | <b>37</b> | <b>39</b> | <b>24</b> | <b>69</b>  | <b>51</b>  | <b>25</b> | <b>31</b>     | <b>54</b>   | <b>65</b>   |



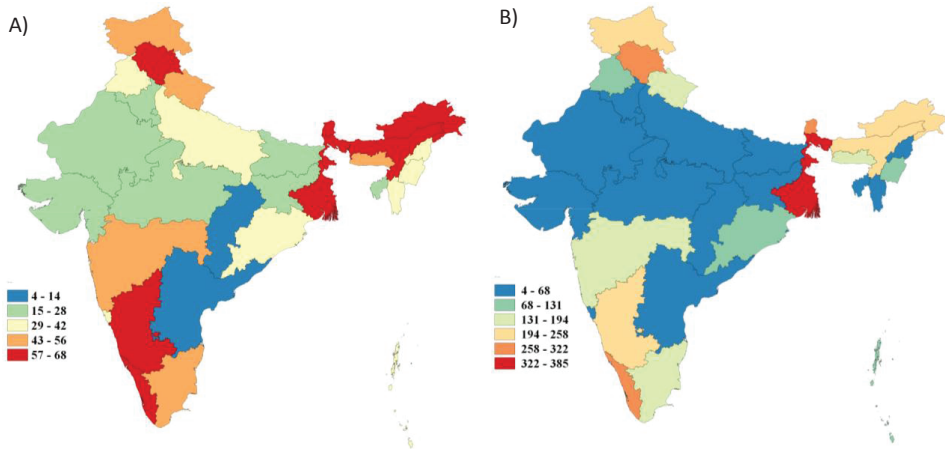
**Figure 1.** List and geographic position of Indian states considered in this study

The endemism of Indian ants (31%) is much higher than for birds (4.3%), fishes (8%), angiosperms (10%) or mammals (11%), lower than amphibians (49%) and most similar to reptiles (29%) (CBD 2014). With nearly one of three ant species known to be endemic to India, more conservation efforts should be directed to this group to evaluate the distribution and ecology of these species and evaluate the potential threat that some of these species might already experience.

### Undersampling and future directions

With 828 species recorded, India represents one of the richest countries in the Indo-Malayan region. India remains less diverse than China with over 950 species recorded (Guénard and Dunn 2012; Liu et al. 2015), but similar to the island of Borneo (Pfeiffer et al. 2011, <http://antmaps.org>) and more diverse than the Philippines (General and Alpert 2012, <http://antmaps.org>). However, considering the high number of species recently described from India by Bharti & co-workers (Appendix 1) and the lack of knowledge for a large part of India (Figure 2), there is little doubt the number of ant species reported from India should keep increasing in the foreseeable future.

We present, for the first time, patterns of species richness for the different Indian states, and thereby provide a more detailed biogeographic picture of ant richness. Above all, these results reveal large areas lacking surveys and/or taxonomic resolution on the local myrmecofauna (Figure 2A, B). Our results indicate that no less than seventeen of



**Figure 2.** Generic (A) and species (B) richness based on nominal species for the different states of India.

the thirty administrative regions studied (57%) have fewer than 100 species recorded. In comparison, this roughly corresponds to the species richness observed in countries located in cooler-temperate regions like Poland (Czechowski et al. 2012) or North Korea (Radchenko 2005). Considering the geographic position of Indian states and their climatic ranges (Attri and Tyagi 2010), with most of these regions located in humid subtropical, wet and dry tropical or semi-arid climates, the faunal richness for these regions should be much higher than our current data indicate. For example, the small, Himalayan state of Sikkim (278 species) has higher recorded richness than the tropical moist region of Kerala (259 species). Similarly, regions of the northeastern part of India bordering Myanmar have highly diverse tropical moist forest ecosystems, but only have sparse records for ants.

These gaps in our current knowledge underscores the need for vigorous sampling and identification programs to target specific regions of India. Moreover, due to this incomplete knowledge, the true richness of the Indian ant fauna cannot be assessed with high confidence at this time. However, in light of the undersampling of most regions of the country, we expect the true richness to be greater than 1000 species.

### Non-native species

Among the species present in India, 24 species are considered here as non-native (see Table 3), although the exact origin of a few other species is still uncertain and thus could be included (or removed) if more targeted future studies are conducted. Among the exotic species, several are known for their invasive ecological characteristics: *Anoplolepis gracilipes* (Smith), *Paratrechina longicornis* (Latreille), and *Pheidole megacephala* (Fabricius). The ecological impacts of these species in India have not been studied to date. Furthermore, this list could, and likely will, expand in the future with new arrivals. In particular, several damaging species including *Solenopsis invicta* Buren and *Wasmannia auropunctata*

**Table 3.** List of exotic ants in India

|                                  |
|----------------------------------|
| <b>Formicinae:</b>               |
| <i>Anoplolepis gracilipes</i>    |
| <i>Nylanderia vividula</i>       |
| <i>Paratrechina longicornis</i>  |
| <i>Plagiolepis alluaudi</i>      |
| <b>Myrmicinae:</b>               |
| <i>Cardiocondyla emeryi</i>      |
| <i>Cardiocondyla mauritanica</i> |
| <i>Monomorium carbonarium</i>    |
| <i>Monomorium monomorium</i>     |
| <i>Monomorium pharaonis</i>      |
| <i>Monomorium subopacum</i>      |
| <i>Pheidole megacephala</i>      |
| <i>Solenopsis geminata</i>       |
| <i>Strumigenys emmae</i>         |
| <i>Strumigenys membranifera</i>  |
| <i>Strumigenys rogeri</i>        |
| <i>Tetramorium bicarinatum</i>   |
| <i>Tetramorium caldarium</i>     |
| <i>Tetramorium pacificum</i>     |
| <i>Tetramorium simillimum</i>    |
| <i>Tetramorium tonganum</i>      |
| <i>Trichomyrmex destructor</i>   |
| <b>Ponerinae:</b>                |
| <i>Brachyponera sennaarensis</i> |
| <i>Hypoponera ragusai</i>        |
| <i>Leptogenys falcigera</i>      |

(Roger) are already widespread in tropical and subtropical parts of Asia and with no doubt could find suitable habitats within the diversity of Indian ecosystems if given the opportunity. Both prevention and control measures would be highly advisable to protect Indian ecosystems and economic interests from the arrival of invasive species.

## Conclusion

As some of the states/regions are clearly undersampled, future explorations will reveal more species diversity of ants from India. Similarly, upcoming taxonomic revisions will redefine species boundaries, species distributions and affinities with adjoining biogeographic regions. Consequently, the data presented here marks a waypoint in the effort towards elucidating the regional diversity and distribution of Indian ants. In light of the ecological importance of ants in most terrestrial ecosystems, the relatively poor available knowledge of ants in most Indian states, and the high level of endemism of Indian ants, we encourage urgent, large-scale, and sustained efforts to monitor, characterize, and conserve the Indian myrmecofauna.

## Species list

List of species of India with their known distribution in India states sorted by subfamily. Number in parentheses cite the source for each record and are presented in the Appendix 1. (I): Introduced species, (E) Endemic species to India.

### Taxonomy

### State records

#### AMBLIOPONINAE

##### *Bannapone*

*Bannapone pertinax* (Baroni Urbani, 1978) (E)

Sikkim (1), West Bengal (1)

##### *Myopopone*

*Myopopone castanea* (Smith, 1860)

Andaman and Nicobar Islands (105, 160, 189, 206, 254, 355), Arunachal Pradesh (1), Assam (382), Sikkim (7, 105, 114, 160, 206, 355)

##### *Mystrium*

*Mystrium camillae* Emery, 1889

Tamil Nadu (7, 402), Uttarakhand (1)

##### *Prionopelta*

*Prionopelta kraepelini* Forel, 1905

Himachal Pradesh (37), Jammu & Kashmir (37)

##### *Stigmatomma*

*Stigmatomma awa* (Xu & Chu, 2012)

Arunachal Pradesh (1)

*Stigmatomma bellii* (Forel, 1900)

Karnataka (7, 19, 20, 105, 114, 160, 179, 261, 352), Kerala (1), Tamil Nadu (7), West Bengal (352)

*Stigmatomma boltoni* (Bharti & Wachkoo, 2011) (E)

Himachal Pradesh (7, 36)

*Stigmatomma minutum* Forel, 1913

Kerala (1), Tamil Nadu (7)

*Stigmatomma rothneyi* (Forel, 1900)

Karnataka (261), Sikkim (1), West Bengal (1)

*Stigmatomma xui* Bharti & Rilta, 2015

Sikkim (413)

#### DOLICHODERINAE

##### *Chronoxenus*

*Chronoxenus dalyi* (Forel, 1895)

Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Jammu & Kashmir (348), Karnataka (178, 315), Maharashtra (178, 315), Sikkim (1), Tamil Nadu (7, 12, 178, 315, 352, 391), West Bengal (1)

*Chronoxenus myops* (Forel, 1895)

Assam (12, 315), Delhi (1), Himachal Pradesh (178, 315), Jammu & Kashmir (80), Karnataka (7, 178), Maharashtra (178, 315), Meghalaya (1), Punjab (79), Sikkim (1), West Bengal (1)

*Chronoxenus walshi* (Forel, 1895)

Kerala (1), Orissa (7, 12, 178, 315), Sikkim (1), West Bengal (1)

*Chronoxenus wroughtonii* (Forel, 1895)

Arunachal Pradesh (1), Assam (1), Himachal Pradesh (7, 178, 315), Jammu & Kashmir (1), Karnataka (7, 12, 178, 287, 315), Maharashtra (178, 315), Manipur (1), Nagaland (1), Punjab (79), Sikkim (1), Uttarakhand (1), West Bengal (1)

##### *Dolichoderus*

*Dolichoderus affinis* Emery, 1889

Assam (248, 249, 355), Karnataka (362), Manipur (131, 244), Meghalaya (248, 249, 355), Sikkim (131, 355), West Bengal (1)

*Dolichoderus affinis glabripes* Forel, 1895

Assam (12, 131, 315), Meghalaya (1), Sikkim (1)

*Dolichoderus feae* Emery, 1889

Arunachal Pradesh (1), Manipur (131, 244), Meghalaya (1), Sikkim (1)

*Dolichoderus moggridgei* Forel, 1886

Assam (114, 131, 161, 172, 178, 315, 355), Sikkim (1)

|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Dolichoderus moggridgei bicolor</i> Santschi, 1920 (E)      | Sikkim (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Dolichoderus moggridgei lugubris</i> Santschi, 1920 (E)     | Sikkim (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Dolichoderus sundari</i> Mathew & Tiwari, 2000 (E)          | Arunachal Pradesh (1), Meghalaya (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Dolichoderus taprobanae</i> (Smith, 1858)                   | Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (178, 262), Kerala (178), Meghalaya (1), Mizoram (1), Nagaland (1), Sikkim (1), Tripura (250), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Dolichoderus taprobanae gracilipes</i> (Mayr, 1879)         | Karnataka (178), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <i>Dolichoderus thoracicus</i> (Smith, 1860)                   | Arunachal Pradesh (1), Assam (1), Gujarat (340), Jammu & Kashmir (80), Karnataka (178, 262, 340), Meghalaya (1), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b><i>Iridomyrmex</i></b>                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Iridomyrmex anceps</i> (Roger, 1863)                        | Assam (178, 207, 249, 315), Bihar (7, 122, 207, 214), Jharkhand (7, 122, 207, 214), Maharashtra (115), Meghalaya (1), Orissa (415), Sikkim (1), Tamil Nadu (7, 122, 207), West Bengal (7, 122, 207, 300, 356)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b><i>Liometopum</i></b>                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Liometopum lindgreeni</i> Forel, 1902                       | Arunachal Pradesh (1), Assam (1), Meghalaya (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b><i>Ochetellus</i></b>                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Ochetellus glaber</i> (Mayr, 1862)                          | Haryana (23), Himachal Pradesh (23), Karnataka (178), Maharashtra (178), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b><i>Philidris</i></b>                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Philidris laevigata</i> (Emery, 1895)                       | Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Philidris myrmecodiae</i> (Emery, 1887)                     | Andaman and Nicobar Islands (254)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <i>Philidris myrmecodiae andamanensis</i> (Forel, 1903) (E)    | Andaman and Nicobar Islands (12, 161, 189, 254, 315)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b><i>Tapinoma</i></b>                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Tapinoma andamanense</i> Forel, 1903 (E)                    | Andaman and Nicobar Islands (114, 161, 189, 254, 315)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Tapinoma annandalei</i> (Wheeler, 1928)                     | Orissa (114, 315, 389)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>Tapinoma himalaica</i> Bharti, Kumar & Dubovikoff, 2013 (E) | Himachal Pradesh (1), Jammu & Kashmir (77), Punjab (77)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Tapinoma indicum</i> Forel, 1895                            | Goa (410), Karnataka (7, 122, 287), Kerala (7, 225), Maharashtra (115, 178, 214, 315, 383, 391), Manipur (244), Meghalaya (1), Uttar Pradesh (214), West Bengal (204)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Tapinoma luffae</i> (Kurian, 1955)                          | India (no state record, 32)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>Tapinoma melanocephalum</i> (Fabricius, 1793)               | Andaman and Nicobar Islands (254, 257), Arunachal Pradesh (1), Assam (1), Delhi (1), Goa (7, 410, 411, 412), Gujarat (178, 335, 337, 338, 340, 342, 344), Haryana (335, 337, 340), Himachal Pradesh (342), Jammu & Kashmir (67, 80), Karnataka (7, 124, 125, 178, 205, 206, 214, 260, 262, 287, 306, 315, 335, 337, 340, 342, 352, 362), Kerala (225), Maharashtra (129, 178, 229, 257, 335, 337, 340, 342), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (257, 335, 337, 340, 342), Punjab (29, 79, 342), Rajasthan (331, 333, 334, 335, 337, 338, 340, 342, 343, 344), Sikkim (1), Tamil Nadu (178, 205, 206, 286, 289, 293, 335, 337, 340, 342, 352), Tripura (1), Uttar Pradesh (2, 3, 326), Uttarakhand (1), West Bengal (1) |
| <i>Tapinoma wroughtonii</i> Forel, 1904                        | Haryana (408), Jammu & Kashmir (7, 114, 161, 162, 192, 315), Karnataka (352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

***Technomyrmex***

- Technomyrmex albipes* (Smith, 1861) Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Gujarat (178), Haryana (408), Himachal Pradesh (214), Jammu & Kashmir (80), Karnataka (97, 178, 202, 203, 262, 264, 265, 287, 288, 291, 306, 362), Kerala (178, 225), Maharashtra (129, 178, 229), Manipur (244), Meghalaya (1), Nagaland (1), Orissa (415), Punjab (1), Sikkim (1), Tamil Nadu (97, 178), Uttar Pradesh (97), Uttarakhand (1), West Bengal (1)
- Technomyrmex bicolor* Emery, 1893 Karnataka (124), Kerala (225), Manipur (357)
- Technomyrmex brunneus* Forel, 1895 Delhi (1), Haryana (408), Karnataka (124, 262), Maharashtra (97, 178, 315), Sikkim (1)
- Technomyrmex elatior* Forel, 1902 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Kerala (225), Manipur (357), West Bengal (255)
- Technomyrmex horni* Forel, 1912 Haryana (97), Kerala (1)
- Technomyrmex indicus* Bolton, 2007 (E) Karnataka (7, 97)
- Technomyrmex pratensis* (Smith, 1860) Sikkim (1)
- Technomyrmex rector* Bolton, 2007 (E) Arunachal Pradesh (1), Assam (1), Sikkim (1), Tamil Nadu (7, 97), Uttarakhand (1), West Bengal (1)
- Technomyrmex vitiensis* Mann, 1921 Himachal Pradesh (97), Karnataka (97, 127), Tamil Nadu (127)

**DORYLINAE*****Aenictus***

- Aenictus aitkenii* Forel, 1901 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (7, 19, 20, 114, 184, 261, 306, 318, 383), Kerala (184, 318), Maharashtra (184, 318), Manipur (1), Sikkim (1), West Bengal (1)
- Aenictus ambiguus* Shuckard, 1840 (E) Arunachal Pradesh (1), Assam (1), Gujarat (184, 355, 399), Himachal Pradesh (190, 192), Kerala (225), Maharashtra (184, 355, 399), Manipur (1), Nagaland (1), Sikkim (1), Uttar Pradesh (355, 399), West Bengal (1)
- Aenictus aratus* Forel, 1900 Himachal Pradesh (352, 399), Karnataka (287, 352, 362, 399), Kerala (352, 399), Maharashtra (352, 399), Tamil Nadu (352, 399), West Bengal (352)
- Aenictus arya* Forel, 1901 (E) Karnataka (7, 114, 158, 184, 261, 352), West Bengal (352)
- Aenictus binghami* Forel, 1900 Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Meghalaya (1), Tripura (1)
- Aenictus brevicornis* (Mayr, 1879) Arunachal Pradesh (1), Assam (1), Gujarat (335, 340, 342), Haryana (333, 335, 340), Himachal Pradesh (342), Karnataka (184, 249, 261, 287, 333, 335, 340, 342, 352, 356, 399), Kerala (184, 249, 261, 333, 335, 340, 342, 352, 356, 399), Maharashtra (335, 342, 356), Meghalaya (1), Mizoram (1), Punjab (214, 342), Rajasthan (7, 333, 334, 335, 340, 342), Sikkim (1), Tamil Nadu (335, 340, 342), Uttar Pradesh (335, 340, 342, 352, 356, 399), West Bengal (1)
- Aenictus certus* Westwood, 1842 India (no further state, 32)
- Aenictus ceylonicus* (Mayr, 1866) Arunachal Pradesh (1), Assam (1), Chhattisgarh (184), Himachal Pradesh (399), Jammu & Kashmir (1), Karnataka (184, 221, 261, 352, 362, 399), Madhya Pradesh (184), Maharashtra (7, 12, 114, 158, 184, 216, 229, 318, 352, 399), Manipur (1), Sikkim (1), Uttarakhand (1), Uttar Pradesh (399), West Bengal (1)
- Aenictus clavatus* Forel, 1901 Arunachal Pradesh (1), Assam (1), Gujarat (7, 184, 352, 355), Himachal Pradesh (1), Jammu & Kashmir (1), Karnataka (352, 355), Maharashtra (12, 184, 352, 355), Mizoram (1), Sikkim (1), West Bengal (1)
- Aenictus clavatus kanariensis* Forel, 1901 (E) Karnataka (7, 114, 158, 184, 352), West Bengal (352)
- Aenictus clavitibia* Forel, 1901 Arunachal Pradesh (1), Sikkim (1), West Bengal (1)

|                                                           |                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Aenictus dentatus</i> Forel, 1911                      | Maharashtra (399)                                                                                                                                                                                                                                                                                                                                        |
| <i>Aenictus doryloides</i> Wilson, 1964 (E)               | Arunachal Pradesh (1), Himachal Pradesh (216, 399), Jammu & Kashmir (80), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                   |
| <i>Aenictus fergusoni</i> Forel, 1901                     | Andaman and Nicobar Islands (254, 352, 355), Arunachal Pradesh (1), Assam (1), Goa (7), Gujarat (158, 184, 261, 352, 355, 399), Karnataka (7, 12, 114, 158, 184, 261, 287, 399), Kerala (7, 12, 114, 158, 184, 261, 352, 355, 391, 399), Maharashtra (355), Meghalaya (1), Nagaland (1), Sikkim (1), Tamil Nadu (7, 213, 352, 399), West Bengal (1)      |
| <i>Aenictus gleadowii</i> Forel, 1901 (E)                 | Andaman and Nicobar Islands (191), Karnataka (7, 114, 158, 184, 352), West Bengal (352)                                                                                                                                                                                                                                                                  |
| <i>Aenictus hodgsoni</i> Forel, 1901                      | Andaman and Nicobar Islands (189)                                                                                                                                                                                                                                                                                                                        |
| <i>Aenictus indicus</i> Bharti, Wachkoo & Kumar, 2012 (E) | Tamil Nadu (7, 35)                                                                                                                                                                                                                                                                                                                                       |
| <i>Aenictus laeviceps</i> (Smith, 1857)                   | Arunachal Pradesh (1), Assam (1), Kerala (1), Meghalaya (249)                                                                                                                                                                                                                                                                                            |
| <i>Aenictus latiscapus</i> Forel, 1901                    | Maharashtra (7, 114, 158, 184)                                                                                                                                                                                                                                                                                                                           |
| <i>Aenictus longi</i> Forel, 1901                         | Arunachal Pradesh (1), Assam (1), Meghalaya (1)                                                                                                                                                                                                                                                                                                          |
| <i>Aenictus pachycerus</i> (Smith, 1858)                  | Arunachal Pradesh (1), Assam (1), Delhi (1), Himachal Pradesh (28, 184, 192, 261, 352, 399), Jammu & Kashmir (80), Karnataka (114, 184, 261, 287, 352), Kerala (184, 261, 352, 399), Maharashtra (352, 399), Manipur (1), Punjab (29, 79), Sikkim (1), Tamil Nadu (7, 184, 213, 261, 352), Uttar Pradesh (7, 261, 352), Uttarakhand (1), West Bengal (1) |
| <i>Aenictus peguensis</i> Emery, 1895                     | Himachal Pradesh (1), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                    |
| <i>Aenictus piercei</i> Wheeler & Chapman, 1930           | Himachal Pradesh (399)                                                                                                                                                                                                                                                                                                                                   |
| <i>Aenictus porizonoides</i> Walker, 1860                 | Kerala (1)                                                                                                                                                                                                                                                                                                                                               |
| <i>Aenictus pubescens</i> Smith, 1859 (E)                 | Arunachal Pradesh (1), Assam (1), Manipur (1), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                               |
| <i>Aenictus punensis</i> Forel, 1901                      | Karnataka (287), Maharashtra (7, 114, 158, 184, 399)                                                                                                                                                                                                                                                                                                     |
| <i>Aenictus sagei</i> Forel, 1901                         | Himachal Pradesh (7, 184, 192, 218, 399), Punjab (114, 158)                                                                                                                                                                                                                                                                                              |
| <i>Aenictus shillongensis</i> Mathew & Tiwari, 2000 (E)   | Arunachal Pradesh (1), Meghalaya (1)                                                                                                                                                                                                                                                                                                                     |
| <i>Aenictus shuckardi</i> Forel, 1901                     | Arunachal Pradesh (1), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                                                       |
| <i>Aenictus westwoodi</i> Forel, 1901                     | Kerala (225)                                                                                                                                                                                                                                                                                                                                             |
| <i>Aenictus wilsoni</i> Bharti, Wachkoo & Kumar, 2012 (E) | Himachal Pradesh (7, 35)                                                                                                                                                                                                                                                                                                                                 |
| <i>Aenictus wroughtonii</i> Forel, 1890                   | Kerala (184, 352, 399), Madhya Pradesh (352), Maharashtra (7, 12, 173, 184, 218, 352, 399), West Bengal (352)                                                                                                                                                                                                                                            |
| <b><i>Cerapachys</i></b>                                  |                                                                                                                                                                                                                                                                                                                                                          |
| <i>Cerapachys aitkenii</i> Forel, 1900                    | Goa (410), Haryana (21), Karnataka (7, 160, 180, 248, 249, 261, 319, 362), Kerala (60), Meghalaya (1), Punjab (21), West Bengal (319)                                                                                                                                                                                                                    |
| <i>Cerapachys alii</i> Bharti & Akbar, 2013 (E)           | Kerala (60)                                                                                                                                                                                                                                                                                                                                              |
| <i>Cerapachys anokha</i> Bharti & Akbar, 2013 (E)         | Kerala (60)                                                                                                                                                                                                                                                                                                                                              |
| <i>Cerapachys besucheti</i> Brown, 1975 (E)               | Kerala (1), Tamil Nadu (7, 60, 108)                                                                                                                                                                                                                                                                                                                      |
| <i>Cerapachys biroii</i> Forel, 1907                      | Arunachal Pradesh (1), Assam (1), Goa (411), Himachal Pradesh (1), Jammu & Kashmir (80), Kerala (1), Manipur (1), Mizoram (1), Nagaland (1), Sikkim (1), Tripura (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                   |
| <i>Cerapachys browni</i> Bharti & Wachkoo, 2013 (E)       | Himachal Pradesh (42), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                   |
| <i>Cerapachys costatus</i> Bharti & Wachkoo, 2013 (E)     | Himachal Pradesh (42), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                   |

- Cerapachys indicus* Brown, 1975 (E) Kerala (7, 60, 108)
- Cerapachys longitarsus* (Mayr, 1879) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (139, 180, 192), Jammu & Kashmir (80), Karnataka (180, 261, 335, 356, 362), Kerala (139, 180, 261, 335, 343, 352), Maharashtra (139, 139, 180, 261, 335, 343, 352, 356), Meghalaya (1), Nagaland (1), Orissa (139, 180), Punjab (79), Rajasthan (334, 335, 343), Sikkim (1), Tamil Nadu (139, 180, 249, 352, 356), Uttar Pradesh (352, 356), Uttarakhand (1), West Bengal (1)
- Cerapachys nayana* Bharti & Akbar, 2013 (E) Karnataka (60), Kerala (60)
- Cerapachys parva* (Forel, 1900) West Bengal (7)
- Cerapachys schoedli* Bharti & Akbar, 2013 (E) Kerala (60)
- Cerapachys seema* Bharti & Akbar, 2013 (E) Kerala (60)
- Cerapachys sulcinodis* Emery, 1889 Arunachal Pradesh (206), Meghalaya (206, 228, 248, 249, 335, 355), Sikkim (1), West Bengal (1)
- Cerapachys wighti* Bharti & Akbar, 2013 (E) Kerala (60)
- Dorylus**
- Dorylus fulvus* (Westwood, 1839) West Bengal (7)
- Dorylus fulvus juvenculus* Shuckard, 1840 West Bengal (170)
- Dorylus labiatus* Shuckard, 1840 Arunachal Pradesh (1), Assam (1), Delhi (1), Gujarat (206, 237, 335, 337, 338, 340, 342, 344, 351, 355, 357), Haryana (206, 335, 337, 340, 342, 351, 355, 357), Himachal Pradesh (21, 184, 192, 206, 335, 337, 342, 355), Jammu & Kashmir (80), Karnataka (184, 261, 335, 337, 340, 342, 362), Maharashtra (184, 206, 335, 337, 342, 355), Manipur (1), Mizoram (1), Nagaland (1), Orissa (206, 335, 337, 342, 355, 357), Punjab (21, 29, 79, 335, 337, 340, 342), Rajasthan (116, 331, 334, 335, 337, 338, 339, 340, 342, 343, 344), Sikkim (1), Tamil Nadu (286), Uttar Pradesh (206, 335, 337, 342, 355, 357), Uttarakhand (1), West Bengal (1)
- Dorylus laevigatus* (Smith, 1857) Arunachal Pradesh (206), Haryana (408)
- Dorylus orientalis* Westwood, 1835 Arunachal Pradesh (1), Assam (1), Bihar (298, 360), Delhi (1), Gujarat (335, 340, 342), Haryana (335, 340, 342, 351), Himachal Pradesh (184, 192, 298, 342), Jammu & Kashmir (80), Jharkhand (360), Karnataka (7, 184, 260, 261, 287, 298, 335, 340, 342), Kerala (225, 335, 340, 342, 352, 355), Maharashtra (184, 298, 335, 340, 342, 351, 352, 355, 399), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (184, 298, 335, 340, 342, 351, 352, 355, 399), Punjab (79, 335, 340, 342), Rajasthan (116, 334, 335, 338, 339, 340, 342, 343, 344), Sikkim (1), Tamil Nadu (7, 167, 168, 184, 298, 335, 340, 342, 351, 399), Uttar Pradesh (298, 335, 340, 342, 355), Uttarakhand (1), West Bengal (1)
- Dorylus orientalis obscuriceps* Santschi, 1920 Arunachal Pradesh (1), Assam (1), Sikkim (1), Tamil Nadu (12, 114, 302, 303), West Bengal (1)
- Sphinctomyrmex**
- Sphinctomyrmex furcatus* (Emery, 1893) Kerala (7, 108), Tamil Nadu (7, 108)
- Sphinctomyrmex taylori* Forel, 1990 Orissa (108, 180), Sikkim (1), West Bengal (1)
- ECTATOMMINAE**
- Gnamptogenys**
- Gnamptogenys bicolor* (Emery, 1889) Arunachal Pradesh (1), Assam (1), Kerala (1), Manipur (1), Meghalaya (180, 239, 248, 249), Mizoram (1), Sikkim (1), West Bengal (1)

- Gnamptogenys binghamii* (Forel, 1990) Arunachal Pradesh (1), Assam (1), Kerala (7, 239), Manipur (1), Meghalaya (239), Mizoram (1), Sikkim (1), Tamil Nadu (239), West Bengal (1)
- Gnamptogenys coxalis* (Roger, 1860) Andaman and Nicobar Islands (254), Karnataka (261)
- Gnamptogenys meghalaya* Lattke, 2004 (E) Arunachal Pradesh (1), Meghalaya (1)
- Gnamptogenys menadensis* (Mayr, 1887) Assam (356), West Bengal (356)
- FORMICINAE**
- Acropyga***
- Acropyga acutiventris* Roger, 1862 Andaman and Nicobar Islands (177, 189, 238, 254, 262), Arunachal Pradesh (1), Assam (1), Himachal Pradesh (23), Karnataka (262, 306, 362), Maharashtra (177), Manipur (1), Meghalaya (122), Mizoram (1), Nagaland (1), Orissa (238), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Acropyga rubescens* Forel, 1894 Karnataka (7, 238)
- Anoplolepis***
- Anoplolepis gracilipes* (Smith, 1857) (I) Andaman and Nicobar Islands (117, 189, 254, 257, 262, 355, 378), Arunachal Pradesh (1), Assam (1), Goa (7, 410, 411, 412), Gujarat (1), Karnataka (7, 125, 214, 262, 264, 264, 265, 288, 327), Kerala (140, 225, 294, 329, 349, 352, 355, 357), Maharashtra (214, 229), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (415), Punjab (255), Sikkim (355), Tamil Nadu (122, 219, 286), Tripura (247, 250), West Bengal (1)
- Camponotus***
- Camponotus aethiops cachmiriensis* Emery, Jammu & Kashmir (7, 190, 192) 1925 (E)
- Camponotus albosparsus* Bingham, 1903 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (190, 192), Mizoram (1), Sikkim (1), West Bengal (1)
- Camponotus angusticollis* (Jerdon, 1851) Assam (23, 249, 287, 331, 335, 340, 343, 351, 352, 356), Delhi (1), Goa (410, 411, 412), Gujarat (335, 338, 340, 344), Karnataka (7, 174, 262, 265, 287, 288, 327, 335, 340), Kerala (8, 225, 255, 301, 305, 335, 340, 352, 369), Maharashtra (174, 335, 340), Meghalaya (1), Orissa (335), Rajasthan (331, 334, 335, 338, 339, 340, 343, 344), Tamil Nadu (140, 219, 335, 340, 352), West Bengal (335, 351, 352, 356)
- Camponotus angusticollis sanguinolentus* Forel, 1895 Arunachal Pradesh (1), Assam (1), West Bengal (1)
- Camponotus arrogans* (Smith, 1858) Arunachal Pradesh (1), Manipur (355, 357), Sikkim (1), West Bengal (1)
- Camponotus ashokai* Karmaly & Narendran, 2006 (E) Kerala (226)
- Camponotus auratus* Karavaiev, 1935 Andhra Pradesh (114)
- Camponotus badius* (Smith, 1857) Andaman and Nicobar Islands (254), West Bengal (132)
- Camponotus barbatus* Roger, 1863 Kerala (305, 352), Orissa (415), West Bengal (352)
- Camponotus barbatus taylori* Forel, 1892 Kerala (140, 335, 337, 352, 355), Maharashtra (115, 174, 331, 335, 337, 352, 355), Orissa (174, 331, 335, 337, 352, 355), Rajasthan (331, 334, 335, 337, 338, 344), Sikkim (331, 335, 337, 352, 355), Tamil Nadu (174, 187, 335, 337, 352), West Bengal (214, 300, 335, 337, 352, 356)
- Camponotus binghamii* Forel, 1894 Kerala (305)
- Camponotus buddhae* Forel, 1892 Arunachal Pradesh (1), Himachal Pradesh (23, 174, 192, 243, 367), Jammu & Kashmir (7), Sikkim (1), West Bengal (1)
- Camponotus camelinus* (Smith, 1857) Arunachal Pradesh (1), Meghalaya (1), Sikkim (1), Tripura (247, 250), West Bengal (1)

- Camponotus carin* Emery, 1889 Assam (187), Kerala (305), Maharashtra (174, 335, 337), Rajasthan (334, 335, 337)
- Camponotus cinerascens* (Fabricius, 1787) Arunachal Pradesh (1), Assam (1), Manipur (1), Sikkim (1), West Bengal (1)
- Camponotus compressus* (Fabricius, 1787) Andaman and Nicobar Islands (117, 254, 337, 340, 342, 355, 357), Arunachal Pradesh (1), Assam (1), Bihar (360), Delhi (1), Goa (410, 411, 412), Gujarat (227, 237, 335, 337, 338, 340, 342, 344), Haryana (258, 335, 337, 340, 351), Himachal Pradesh (174, 342), Jammu & Kashmir (67, 80), Jharkhand (360), Karnataka (7, 19, 20, 125, 256, 260, 262, 265, 287, 288, 306, 335, 337, 340, 342, 362), Kerala (8, 140, 225, 305, 369), Maharashtra (18, 154, 156, 174, 194, 229, 299, 335, 337, 340, 342), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (205, 335, 337, 340, 342, 355, 357), Punjab (29, 79, 299, 335, 337, 340, 342), Rajasthan (116, 331, 333, 334, 335, 337, 338, 339, 340, 342, 343, 344), Sikkim (1), Tamil Nadu (112, 140, 205, 206, 219, 255, 256, 286, 289, 293, 299, 335, 337, 340, 342, 352, 355, 357, 383), Tripura (1), Uttar Pradesh (2, 3, 299, 326), Uttarakhand (1), West Bengal (1)
- Camponotus confucii* Forel, 1894 Arunachal Pradesh (206), Karnataka (177, 206, 262, 352), Kerala (1), Tamil Nadu (1), West Bengal (352)
- Camponotus cotesii* Forel, 1893 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (175), Meghalaya (1), Uttarakhand (1)
- Camponotus crasssquamis* Forel, 1902 Arunachal Pradesh (1), Assam (1), Bihar (214), Jharkhand (360), Punjab (214)
- Camponotus dolendus* Forel, 1892 Andaman and Nicobar Islands (342, 355), Arunachal Pradesh (1), Maharashtra (214), Sikkim (1), Tamil Nadu (205, 342, 352, 355), West Bengal (1)
- Camponotus exiguoguttatus* Forel, 1886 Arunachal Pradesh (1), Assam (1)
- Camponotus festinus* (Smith, 1857) Delhi (1), Haryana (351)
- Camponotus fulvopilosus* (De Geer, 1778) Meghalaya (1)
- Camponotus gretae* Forel, 1902 Arunachal Pradesh (1), Assam (1), Sikkim (1), West Bengal (1)
- Camponotus himalayanus* Forel, 1893 Himachal Pradesh (1), Jammu & Kashmir (80)
- Camponotus holosericeus* Emery, 1889 Assam (222), Meghalaya (1)
- Camponotus horseshoetus* Datta & Ray Chaudhury, 1985 (E) Himachal Pradesh (1), Nagaland (1)
- Camponotus indeflexus* (Walker, 1859) Maharashtra (330)
- Camponotus invidus* Forel, 1892 (E) Andaman and Nicobar Islands (117, 206, 254, 337, 341, 355), Arunachal Pradesh (206), Delhi (1), Haryana (335, 337, 341, 342, 351), Karnataka (265, 288), Kerala (117), Orissa (23, 114, 117, 174, 206, 335, 337, 341, 342, 351, 355, 356), Rajasthan (334, 335, 337, 342), Sikkim (206, 335, 337, 341, 342, 355), West Bengal (206, 335, 337, 341, 342, 351, 355, 356)
- Camponotus irritans* (Smith, 1857) Andaman and Nicobar Islands (254), Arunachal Pradesh (206), Goa (411, 412), Gujarat (335, 338, 340, 344), Karnataka (262, 265, 287, 288, 335, 340), Kerala (301), Maharashtra (7), Orissa (415), Rajasthan (331, 334, 335, 338, 339, 340, 344), West Bengal (170, 206, 335, 356)
- Camponotus irritans carensis* Emery, 1920 Andaman and Nicobar Islands (7)
- Camponotus irritans pallidus* (Smith, 1857) Andaman and Nicobar Islands (189), Karnataka (260)
- Camponotus kattensis* Bingham, 1903 (E) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (192), Sikkim (1), West Bengal (1)
- Camponotus keralensis* Karmaly & Narendran, 2006 (E) Kerala (226)

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| <i>Camponotus lamarckii</i> Forel, 1892                   | Himachal Pradesh (23), Karnataka (175), Sikkim (355), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                                            |
| <i>Camponotus leonardi</i> Emery, 1889                    | Andaman and Nicobar Islands (189, 254)                                                                                                                                                                                                                                                                                                                                                                           |
| <i>Camponotus longi</i> Forel, 1902 (E)                   | Arunachal Pradesh (1), Assam (1), Meghalaya (187, 188)                                                                                                                                                                                                                                                                                                                                                           |
| <i>Camponotus luteus</i> (Smith, 1858) (E)                | Arunachal Pradesh (1), Assam (1), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                    |
| <i>Camponotus mendax</i> Forel, 1895                      | Karnataka (163, 178, 194, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                |
| <i>Camponotus misturus fornaronis</i> Forel, 1892         | Kerala (8, 225, 369)                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>Camponotus mitis</i> (Smith, 1858)                     | Andaman and Nicobar Islands (254, 355), Arunachal Pradesh (1), Assam (1), Bihar (214), Himachal Pradesh (255), Jammu & Kashmir (1), Jharkhand (214), Karnataka (214, 256, 256), Maharashtra (174, 335), Orissa (335), Punjab (1), Rajasthan (331, 334, 335, 338, 344), Sikkim (1), Tamil Nadu (256, 256, 335, 352, 355), Uttarakhand (1), West Bengal (1)                                                        |
| <i>Camponotus nicobarensis</i> Mayr, 1865                 | Andaman and Nicobar Islands (7, 117, 174, 189, 206, 254), Arunachal Pradesh (1), Assam (1), West Bengal (132, 193, 255)                                                                                                                                                                                                                                                                                          |
| <i>Camponotus nirvanae</i> Forel, 1893 (E)                | Himachal Pradesh (1), Jammu & Kashmir (1), Karnataka (175, 352), Maharashtra (175), Tamil Nadu (352), Uttarakhand (1), West Bengal (352)                                                                                                                                                                                                                                                                         |
| <i>Camponotus oblongus</i> (Smith, 1858)                  | Andaman and Nicobar Islands (117, 254, 355, 357), Assam (117, 355, 356, 357), Karnataka (125), Kerala (117), Manipur (355, 357), Sikkim (117, 355, 356, 357), West Bengal (355, 356, 357)                                                                                                                                                                                                                        |
| <i>Camponotus oblongus binominatus</i> Forel, 1916 (E)    | Arunachal Pradesh (1), Himachal Pradesh (1), Jammu & Kashmir (80), Sikkim (1), Tamil Nadu (194), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                                                                |
| <i>Camponotus opaciventris</i> Mayr, 1879                 | Arunachal Pradesh (1), Assam (1), Delhi (1), Himachal Pradesh (174), Jammu & Kashmir (1), Maharashtra (174), Orissa (174), Punjab (1), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                              |
| <i>Camponotus parabarbatus</i> Bharti & Wachkoo, 2014 (E) | Himachal Pradesh (45), Uttarakhand (45)                                                                                                                                                                                                                                                                                                                                                                          |
| <i>Camponotus parius</i> Emery, 1889                      | Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Goa (410, 411, 412), Haryana (408), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (7, 262, 265, 287, 288, 327, 362), Kerala (8, 140, 225, 305, 352, 369), Maharashtra (115), Meghalaya (1), Nagaland (1), Orissa (415), Punjab (79, 214), Sikkim (1), Tamil Nadu (293), Uttar Pradesh (2, 3, 326), Uttarakhand (1), West Bengal (1) |
| <i>Camponotus phragmaticola</i> Donisthorpe, 1943 (E)     | Kerala (7, 114, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                          |
| <i>Camponotus puniceps</i> Donisthorpe, 1942 (E)          | Kerala (1), Tamil Nadu (7, 114, 140, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                     |
| <i>Camponotus radiates</i> Forel, 1892 (E)                | Goa (410, 411, 412), Karnataka (7, 174, 352, 357), Kerala (8, 225, 301, 369), Maharashtra (174), Manipur (357), Tripura (1), West Bengal (352)                                                                                                                                                                                                                                                                   |
| <i>Camponotus reticulatus latitans</i> Forel, 1893        | India (no further state, 32)                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>Camponotus rothmeyei</i> Forel, 1893                   | Orissa (175, 356), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                  |
| <i>Camponotus rufifemur</i> Emery, 1900                   | Assam (7, 114)                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Camponotus rufoglaucus</i> (Jerdon, 1851)              | Arunachal Pradesh (1), Assam (1), Delhi (1), Goa (1), Haryana (249, 262, 351, 352), Jammu & Kashmir (80), Karnataka (260, 262, 265, 288, 306, 352), Kerala (249, 255, 262, 305, 352), Maharashtra (129), Meghalaya (1), Nagaland (1), Punjab (79), Sikkim (1), Tamil Nadu (140, 219, 352), Tripura (1), West Bengal (1)                                                                                          |
| <i>Camponotus rufoglaucus tenuis</i> Forel, 1907 (E)      | Tamil Nadu (194)                                                                                                                                                                                                                                                                                                                                                                                                 |

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| <i>Camponotus selene</i> (Emery, 1889)                     | Arunachal Pradesh (1), Assam (187, 188), Meghalaya (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>Camponotus selene obtusatus</i> (Emery, 1895)           | Assam (7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <i>Camponotus sericeus</i> (Fabricius, 1798)               | Andhra Pradesh (128), Bihar (128, 214), Chhattisgarh (128), Goa (410, 411, 412), Gujarat (237, 335, 338, 340, 342, 344), Haryana (128, 333, 335, 340, 342, 357), Himachal Pradesh (342), Jammu & Kashmir (80), Jharkhand (128, 214), Karnataka (7, 125, 128, 174, 256, 260, 262, 265, 287, 288, 306, 333, 335, 340, 342, 352, 357, 362), Kerala (8, 225, 294, 349, 369), Madhya Pradesh (128), Maharashtra (174, 229, 335, 340, 342), Manipur (335, 342, 357), Meghalaya (249, 335, 340, 342, 357), Orissa (174, 335, 340, 342, 357), Punjab (79, 335, 340, 342), Rajasthan (333, 334, 335, 340, 342), Tamil Nadu (112, 119, 128, 140, 219, 256, 286, 289, 293, 335, 340, 342, 352, 357), West Bengal (174, 204, 255, 335, 340, 342, 352, 356, 357) |
| <i>Camponotus sericeus peguensis</i> Emery, 1895           | Assam (114, 355), Sikkim (355)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <i>Camponotus siemsseni</i> Forel, 1901                    | Arunachal Pradesh (1), Himachal Pradesh (1), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <i>Camponotus singularis</i> (Smith, 1858)                 | Sikkim (355), West Bengal (174, 255)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <i>Camponotus sklarus</i> Bolton, 1995                     | Kerala (7, 114, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>Camponotus socrates</i> Forel, 1904                     | Jammu & Kashmir (192)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Camponotus strictus</i> (Jerdon, 1851)                  | Kerala (175, 249, 352), Meghalaya (1), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Camponotus sylvaticus basalis</i> Smith, 1878 (E)       | Gujarat (340), Himachal Pradesh (1), Jammu & Kashmir (163, 187, 188, 192, 340, 357), Manipur (357), Punjab (1), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>Camponotus sylvaticus paradichrous</i> Emery, 1925      | Jammu & Kashmir (243)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Camponotus thraso</i> Forel, 1893                       | Karnataka (214), Kerala (114, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Camponotus timidus</i> (Jerdon, 1851) (E)               | Kerala (352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <i>Camponotus varians</i> Roger, 1863                      | India (no further state, 32)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>Camponotus variegatus</i> (Smith, 1858)                 | Andaman and Nicobar Islands (254), Kerala (352), Maharashtra (214), Rajasthan (334, 335, 337), Tamil Nadu (140, 289, 335, 352, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Camponotus variegatus bacchus</i> (Smith, 1858)         | Maharashtra (174), Tamil Nadu (256)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <i>Camponotus variegatus dulcis</i> Dalla Torre, 1893      | Andaman and Nicobar Islands (189), Maharashtra (174)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <i>Camponotus variegatus fuscithorax</i> Dalla Torre, 1893 | Maharashtra (174), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <i>Camponotus variegatus infuscus</i> Forel, 1892          | Andaman and Nicobar Islands (254), Karnataka (287), Uttar Pradesh (3, 326)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>Camponotus variegatus somnificus</i> Forel, 1902        | Kerala (352), Tamil Nadu (114, 187, 188, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Camponotus varius</i> Donisthorpe, 1943 (E)             | Tamil Nadu (7, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Camponotus velox</i> (Jerdon, 1851) (E)                 | Karnataka (352), Kerala (352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Camponotus vitreus</i> (Smith, 1860)                    | Andaman and Nicobar Islands (189, 254)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Camponotus vitreus angustulus</i> Emery, 1925           | Assam (356), West Bengal (114, 175, 356)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Camponotus wasmanni</i> Emery, 1893                     | Assam (7, 23, 178, 355), Maharashtra (115), Meghalaya (1), Sikkim (1), Uttarakhand (416), West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <i>Camponotus wasmanni mutilarius</i> Emery, 1893          | Arunachal Pradesh (1), Himachal Pradesh (1, 178), Jammu & Kashmir (1), Punjab (23), Sikkim (156), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

- Camponotus wroughtonii* Forel, 1893 Arunachal Pradesh (1), Sikkim (1), West Bengal (1)
- Cataglyphis**
- Cataglyphis cugiai* Menozzi, 1939 Jammu & Kashmir (4, 80, 243)
- Cataglyphis indica* Pisarski, 1962 (E) Maharashtra (4, 271)
- Cataglyphis longipedem* (Eichwald, 1841) Bihar (255), Haryana (351), Madhya Pradesh (177), Meghalaya (249), Punjab (249, 255, 351, 352, 356), Rajasthan (7, 177), Tamil Nadu (352), Uttar Pradesh (177, 255)
- Cataglyphis setipes* (Forel, 1894) Arunachal Pradesh (206), Delhi (1), Gujarat (338, 340, 344), Haryana (340), Himachal Pradesh (370), Jammu & Kashmir (370), Madhya Pradesh (1), Meghalaya (206, 355), Punjab (1, 79, 116, 206, 214, 331, 339, 340, 355), Rajasthan (4, 116, 331, 334, 338, 339, 340, 344, 386), Sikkim (206, 355), Tamil Nadu (206, 355), Uttarakhand (370), Uttar Pradesh (116), West Bengal (206, 340, 355)
- Echinopla**
- Echinopla cheraunjiensis* Bharti & Gul, 2012 Arunachal Pradesh (1), Meghalaya (1)
- Echinopla lineata senilis* Mayr, 1862 Andaman and Nicobar Islands (163, 189, 254, 406)
- Formica**
- Formica candida* Smith, 1878 Himachal Pradesh (1), Jammu & Kashmir (7, 313), Uttarakhand (1)
- Formica clara* Forel, 1886 Jammu & Kashmir (7, 80, 311)
- Formica cunicularia* Latreille, 1798 Himachal Pradesh (243), Jammu & Kashmir (80, 190, 243), Uttarakhand (1)
- Formica fusca* Linnaeus, 1758 Himachal Pradesh (177, 341), Jammu & Kashmir (67, 80, 341), Madhya Pradesh (177, 341, 355), Sikkim (192, 341, 355), Uttarakhand (1)
- Formica gagates* Latreille, 1798 Himachal Pradesh (177, 192, 243), Jammu & Kashmir (80)
- Formica gagatoides* Ruzsky, 1904 Himachal Pradesh (1), Jammu & Kashmir (80)
- Formica kashmirica* Starcke, 1935 (E) Jammu & Kashmir (312)
- Formica picea* Nylander, 1846 Himachal Pradesh (243), Jammu & Kashmir (243)
- Formica polycтена* Foerster, 1850 Himachal Pradesh (1), Jammu & Kashmir (1)
- Formica rufibarbis* Fabricius, 1793 Himachal Pradesh (177, 177, 192, 192, 243, 341, 355), Jammu & Kashmir (190)
- Formica sanguinea* Latreille, 1798 Himachal Pradesh (23, 177, 192, 243, 341, 381), Jammu & Kashmir (67, 80)
- Formica truncorum* Fabricius, 1804 Himachal Pradesh (177, 192, 243, 381), Jammu & Kashmir (67, 80)
- Gesomyrmex**
- Gesomyrmex spatulatus* Cole, 1949 (E) Assam (1)
- Lasius**
- Lasius alienoflavus* Bingham, 1903 Himachal Pradesh (51), Jammu & Kashmir (7, 51, 80, 121), Uttarakhand (1)
- Lasius alienus* (Foerster, 1850) Himachal Pradesh (1), Jammu & Kashmir (67, 80, 121, 190, 394), Uttarakhand (1)
- Lasius bicornis* (Foerster, 1850) Jammu & Kashmir (7, 121, 133, 394)
- Lasius breviscapus* Seifert, 1992 (E) Himachal Pradesh (309)
- Lasius brunneus* (Latreille, 1798) Himachal Pradesh (1), Jammu & Kashmir (80)
- Lasius crinitus* (Smith, 1858) Jammu & Kashmir (177, 192), Sikkim (121), West Bengal (7, 121, 132, 394)
- Lasius draco* Collingwood, 1982 Arunachal Pradesh (1), Sikkim (1), West Bengal (1)
- Lasius elevates* Bharti & Gul, 2013 (E) Himachal Pradesh (7, 50)
- Lasius himalayanus* Bingham, 1903 Himachal Pradesh (23, 309), Jammu & Kashmir (309), Uttarakhand (1)
- Lasius lawarai* Seifert, 1992 Arunachal Pradesh (1), Sikkim (1), West Bengal (1)

- Lasius magnus* Seifert, 1992      Arunachal Pradesh (1), Meghalaya (309), Sikkim (1), West Bengal (1)
- Lasius mikir* Collingwood, 1982 (E)      Assam (121), Sikkim (1), West Bengal (1)
- Lasius niger* (Linnaeus, 1758)      Himachal Pradesh (1), Jammu & Kashmir (80, 121)
- Lasius wittmeri* Seifert, 1992      Jammu & Kashmir (309)
- Lepisiota***
- Lepisiota annandalei* (Mukerjee, 1930) (E)      Himachal Pradesh (255), Punjab (1), Sikkim (1), West Bengal (1)
- Lepisiota bipartita* (Smith, 1861)      Andhra Pradesh (340), Gujarat (340), Haryana (340), Himachal Pradesh (177), Jammu & Kashmir (1), Karnataka (340), Maharashtra (340), Meghalaya (340), Punjab (340), Rajasthan (177, 339, 340), Uttarakhand (1), West Bengal (170, 177, 300, 340)
- Lepisiota capensis* (Mayr, 1862)      Arunachal Pradesh (1), Assam (1), Bihar (214), Goa (410, 411, 412), Haryana (408), Himachal Pradesh (177), Jammu & Kashmir (67, 80), Jharkhand (214), Karnataka (287), Madhya Pradesh (177), Maharashtra (177, 249), Manipur (1), Meghalaya (1), Mizoram (1), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Lepisiota capensis lunaris* (Emery, 1893)      Himachal Pradesh (214), Jammu & Kashmir (190)
- Lepisiota capensis simplex* (Forel, 1892)      Haryana (408), Himachal Pradesh (1), Jammu & Kashmir (1), Meghalaya (1), Orissa (177, 249, 356), Punjab (1), Uttarakhand (1), West Bengal (356)
- Lepisiota fergusonii* (Forel, 1895)      Karnataka (287), Kerala (114, 178, 352), West Bengal (352)
- Lepisiota frauenfeldi* (Mayr, 1855)      Andhra Pradesh (335, 342, 352, 357), Delhi (1), Gujarat (338, 344), Haryana (335), Himachal Pradesh (255, 342), Karnataka (262, 335, 342, 362), Maharashtra (229, 335, 342), Manipur (357), Meghalaya (249, 335, 342), Punjab (335, 342), Rajasthan (116, 331, 334, 335, 338, 342, 344), West Bengal (116, 170, 171, 177, 249, 255, 300, 335, 342, 352, 356, 357)
- Lepisiota frauenfeldi integra* (Forel, 1894)      Himachal Pradesh (177, 192), Jammu & Kashmir (80), Madhya Pradesh (177), Meghalaya (1), Punjab (79), Uttarakhand (1)
- Lepisiota modesta* (Forel, 1894)      Himachal Pradesh (25, 177), Punjab (1), Uttarakhand (1)
- Lepisiota opaca* (Forel, 1892)      Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Goa (177, 262, 287, 352, 410, 411, 412), Jammu & Kashmir (80), Karnataka (7, 177, 178, 262, 265, 287, 288, 306, 352), Kerala (225), Maharashtra (229), Sikkim (1), West Bengal (1)
- Lepisiota opaca pulchella* (Forel, 1892)      Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Jammu & Kashmir (80), Maharashtra (177), Punjab (79), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Lepisiota rothmeyii* (Forel, 1894)      Karnataka (177), Kerala (329), Orissa (177), Tamil Nadu (7), Uttarakhand (1), West Bengal (114, 177, 300, 356, 391)
- Lepisiota rothmeyii watsonii* (Forel, 1894)      West Bengal (384)
- Lepisiota rothmeyii wroughtonii* (Forel, 1902)      Himachal Pradesh (1), Kerala (352), Tamil Nadu (114, 187, 188, 352, 391), Uttarakhand (1), West Bengal (352)
- Lepisiota sericea* (Forel, 1892)      Himachal Pradesh (177), Jammu & Kashmir (1), Maharashtra (177), Uttar Pradesh (177), Uttarakhand (1)
- Myrmoterias***
- Myrmoterias agostii* Bharti & Akbar, 2014 (E)      Kerala (63)
- Myrmoterias brachygnathum* Moffett, 1985 (E)      Kerala (63), Tamil Nadu (7, 253)
- Myrmoterias indicum* Moffett, 1985 (E)      Karnataka (287), Kerala (253, 287), Tamil Nadu (7, 253, 287)
- Myrmoterias moffetti* Bharti & Akbar, 2014 (E)      Kerala (63)
- Myrmoterias scabrum* Moffett, 1985 (E)      Kerala (253)

**Nylanderia**

- Nylanderia assimilis* (Jerdon, 1851) (E) Kerala (352), West Bengal (352)
- Nylanderia birmana* (Forel, 1902) Himachal Pradesh (1), Uttarakhand (1)
- Nylanderia bourbonica* (Forel, 1886) Andaman and Nicobar Islands (189, 254), Arunachal Pradesh (1), Jammu & Kashmir (80), Manipur (357), Sikkim (1), Tamil Nadu (206, 352, 357), West Bengal (1)
- Nylanderia himalayana* Wachkoo & Bharti, 2015 (E) Himachal Pradesh (1)
- Nylanderia indica* (Forel, 1894) Andaman and Nicobar Islands (117, 189, 254), Andhra Pradesh (187, 188), Arunachal Pradesh (206), Himachal Pradesh (214, 341), Jammu & Kashmir (7), Karnataka (177, 262), Maharashtra (177, 206, 341, 391), Sikkim (1), Tamil Nadu (187, 188), Uttarakhand (1), West Bengal (1)
- Nylanderia smythiesii* (Forel, 1894) (E) Himachal Pradesh (177, 192, 371), Jammu & Kashmir (371), Punjab (1), Uttarakhand (1)
- Nylanderia taylori* (Forel, 1894) Assam (1), Himachal Pradesh (1), Jammu & Kashmir (80), Kerala (1), Maharashtra (187, 188), Orissa (114, 177, 335, 356, 391), Rajasthan (334, 335), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Nylanderia vividula* (Nylander, 1846) (I) West Bengal (171)
- Nylanderia yerburyi* (Forel, 1894) Andaman and Nicobar Islands (254), Himachal Pradesh (1), Karnataka (362), Kerala (352), Tamil Nadu (177, 352), West Bengal (300, 352)

**Oecophylla**

- Oecophylla smaragdina* (Fabricius, 1775) Andaman and Nicobar Islands (117, 172, 189, 206, 254, 257, 340, 342, 355, 357), Andhra Pradesh (9), Arunachal Pradesh (1), Assam (1), Bihar (122, 214, 257), Delhi (1), Goa (7, 410, 411, 412), Gujarat (237, 335, 340, 342), Haryana (335, 340), Himachal Pradesh (177, 257, 335, 340, 342), Jammu & Kashmir (80), Jharkhand (122, 214, 257), Karnataka (7, 19, 20, 124, 125, 206, 256, 260, 262, 264, 264, 265, 287, 288, 291, 306, 327, 335, 340, 342, 352, 355, 357, 362), Kerala (206, 225, 294, 305, 329, 335, 340, 342, 352, 355, 357), Madhya Pradesh (269), Maharashtra (115, 129, 177, 214, 229, 335, 340, 342), Manipur (1), Meghalaya (1), Mizoram (248), Nagaland (1), Orissa (206, 257, 335, 340, 342, 355), Punjab (52, 79, 342), Rajasthan (332, 334, 335, 340, 342), Sikkim (1), Tamil Nadu (122, 140, 206, 219, 256, 286, 289, 293, 335, 340, 342, 352, 355, 357), Tripura (1), Uttar Pradesh (122, 292, 335, 340, 342), Uttarakhand (1), West Bengal (1)

**Paraparatrechina**

- Paraparatrechina asea* (Forel, 1902) Gujarat (338, 340, 344), Himachal Pradesh (46), Jammu & Kashmir (80), Sikkim (1), West Bengal (1)

**Paratrechina**

- Paratrechina longicornis* (Latreille, 1802) (I) Andaman and Nicobar Islands (189, 254, 257, 357), Arunachal Pradesh (1), Assam (1), Delhi (1), Goa (410), Gujarat (237), Himachal Pradesh (177, 342), Jammu & Kashmir (80), Karnataka (125, 205, 260, 262, 264, 264, 265, 287, 288, 306, 327, 357, 362), Kerala (294, 305), Maharashtra (115, 129, 177, 214, 229, 257, 335, 342), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (205, 257, 335, 342, 357), Punjab (29, 79, 214), Rajasthan (334, 335, 342), Sikkim (1), Tamil Nadu (122, 205, 219, 289, 335, 342, 352, 357), Tripura (1), Uttar Pradesh (122, 214, 257, 335, 342), Uttarakhand (1), West Bengal (1)

**Plagiolepis**

- Plagiolepis alluaudi* Emery, 1894 (I) India (240, 380)
- Plagiolepis balestrierii* Menozzi, 1939 Arunachal Pradesh (1), Assam (1), Jammu & Kashmir (243), Sikkim (1), West Bengal (1)
- Plagiolepis dichroa* Forel, 1902 Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (362), Meghalaya (1), Sikkim (1), West Bengal (1)

*Plagiolepis exigua* Forel, 1894

*Plagiolepis jerdonii* Forel, 1894

*Plagiolepis moelleri* Bingham, 1903 (E)

*Plagiolepis pontii* Menozzi, 1939

*Plagiolepis rogeri* Forel, 1894

### ***Polyrhachis***

*Polyrhachis abdominalis* Smith, 1858

*Polyrhachis aculeate* Mayr, 1879

*Polyrhachis aedipus* Forel, 1893

*Polyrhachis alatisquamis* Forel, 1893

*Polyrhachis armata* (Le Guillou, 1842)

*Polyrhachis armata defensa* Smith, 1857

*Polyrhachis bicolor* Smith, 1858

*Polyrhachis bicolor aurinasis* Forel, 1901

*Polyrhachis bihamata* (Drury, 1773)

*Polyrhachis binghamii* Forel, 1893

*Polyrhachis calypso* Forel, 1911

*Polyrhachis convexa* Roger, 1863

*Polyrhachis corporaali* Santschi, 1928

*Polyrhachis dives* Smith, 1857

*Polyrhachis dives belli* Forel, 1912

*Polyrhachis exercita* (Walker, 1859)

*Polyrhachis exercita lucidiventris* Forel, 1907 (E)

*Polyrhachis exercita obtusisquama* Forel, 1902 (E)

*Polyrhachis exercita rastrata* Emery, 1889

*Polyrhachis fuscata* Smith, 1858

*Polyrhachis gracilior* Forel, 1893 (E)

*Polyrhachis halidayi* Emery, 1889

*Polyrhachis hauxwelli* Bingham, 1903

*Polyrhachis hector* Smith, 1857

*Polyrhachis hemiopticoides* Mukerjee, 1930

*Polyrhachis hippomanes* Smith, 1861

Karnataka (177, 287, 362), Maharashtra (7, 177, 314, 386, 391)

Gujarat (335, 340), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (125, 205, 262, 332, 333, 335, 340, 362), Kerala (114, 205, 262, 290, 332, 333, 335, 340, 352), Maharashtra (177, 205, 332, 333, 335, 340, 352, 391), Punjab (1), Rajasthan (332, 333, 334, 335, 340), Uttarakhand (1), West Bengal (205, 335, 352)

Sikkim (1)

Arunachal Pradesh (1), Sikkim (1), West Bengal (1)

Karnataka (177, 352), West Bengal (352)

Andaman and Nicobar Islands (297), Meghalaya (1)

Karnataka (176, 352), Kerala (176, 232, 297, 297, 352), West Bengal (352)

Andaman and Nicobar Islands (7)

Andaman and Nicobar Islands (232)

Andaman and Nicobar Islands (117, 254, 297, 297), Arunachal Pradesh (206, 319), Assam (1), Meghalaya (1), West Bengal (255, 319)

Assam (172, 176)

Andaman and Nicobar Islands (231, 254, 257, 297), Arunachal Pradesh (206), Meghalaya (1), Sikkim (1), West Bengal (1)

West Bengal (183)

Andaman and Nicobar Islands (189, 212, 254), Assam (297), Karnataka (362)

Kerala (7, 140, 352), West Bengal (352)

Andaman and Nicobar Islands (85)

Arunachal Pradesh (206, 358), Kerala (225), Meghalaya (249)

Karnataka (352), West Bengal (352)

Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (172, 231, 297, 382), Karnataka (262), Meghalaya (1), Sikkim (196, 206, 352, 355), Tamil Nadu (206, 352, 355), Tripura (1), West Bengal (132, 204)

Karnataka (198, 352), Meghalaya (228), West Bengal (352)

Goa (411, 412), Gujarat (340), Jammu & Kashmir (80), Karnataka (7, 176, 202, 256, 262, 287, 297, 327), Kerala (176, 262, 301, 305, 340, 352, 356), Maharashtra (176), Orissa (176), Tamil Nadu (7, 140, 213, 256, 262, 297, 297, 352), Tripura (1), West Bengal (176, 262, 340, 352, 356)

Himachal Pradesh (1), Karnataka (194), Kerala (1), Orissa (194)

Himachal Pradesh (1), Karnataka (352), Maharashtra (187, 188), West Bengal (352)

Assam (255)

Assam (114, 172, 176, 248, 249), Meghalaya (248, 249), West Bengal (1)

Arunachal Pradesh (1), Assam (1), Karnataka (202, 262), Kerala (7, 84, 114, 176, 262, 297, 352), West Bengal (352)

Arunachal Pradesh (382)

Karnataka (265, 327)

Andaman and Nicobar Islands (254), Meghalaya (248)

Karnataka (256), Sikkim (1), Tamil Nadu (232, 256), West Bengal (1)

Arunachal Pradesh (358)

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Polyrhachis hippomanes ceylonensis</i> Emery, 1893    | Arunachal Pradesh (206, 358), Meghalaya (1), Tripura (247, 250)                                                                                                                                                                                                                                                                                                                                                                                                 |
| <i>Polyrhachis horni</i> Emery, 1901                     | Bihar (262), Karnataka (262)                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Polyrhachis illaundata</i> Walker, 1859               | Andaman and Nicobar Islands (117, 206, 254, 355), Arunachal Pradesh (1), Assam (1), Goa (411, 412), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (117, 176, 206, 248, 249, 250, 255, 262, 288, 319, 352, 355), Kerala (7, 84, 114, 117, 140, 176, 206, 225, 248, 249, 250, 255, 262, 297, 319, 329, 352, 355), Meghalaya (1), Mizoram (1), Sikkim (1), Tamil Nadu (140, 206, 219, 262, 352, 355), Tripura (247, 250), Uttarakhand (1), West Bengal (1) |
| <i>Polyrhachis illaundata intermedia</i> Forel, 1886     | Assam (114, 172, 176, 249, 297), Meghalaya (249)                                                                                                                                                                                                                                                                                                                                                                                                                |
| <i>Polyrhachis illaundata pauperata</i> Emery, 1889      | West Bengal (194)                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Polyrhachis indicifans</i> (Jerdon, 1851) (E)         | Kerala (352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <i>Polyrhachis lacteipennis</i> Smith, 1858              | Arunachal Pradesh (1), Assam (1), Delhi (1), Gujarat (237, 335, 337, 338, 340, 344), Haryana (335, 337, 340), Himachal Pradesh (176), Jammu & Kashmir (67, 80, 84), Karnataka (256, 265, 287, 288), Maharashtra (176, 194, 229), Manipur (1), Punjab (79, 214), Rajasthan (7, 335, 337, 340, 343), Sikkim (1), Tamil Nadu (256, 335, 337, 340, 352, 357), Uttarakhand (1), West Bengal (1)                                                                      |
| <i>Polyrhachis lacteipennis obsoleta</i> Forel, 1893 (E) | Maharashtra (176)                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Polyrhachis laevisima</i> Smith, 1858                 | Andaman and Nicobar Islands (117, 189, 254, 257), Arunachal Pradesh (1), Assam (1), Maharashtra (117, 257), Meghalaya (1), Orissa (117, 176, 248, 249, 257), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                        |
| <i>Polyrhachis laevisima dichroa</i> Forel, 1893         | Assam (114, 172, 176)                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <i>Polyrhachis menelas</i> Forel, 1904                   | Himachal Pradesh (190, 192), Jammu & Kashmir (1), Punjab (1), Sikkim (1), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                                                                       |
| <i>Polyrhachis moeschi</i> Forel, 1912                   | Andaman and Nicobar Islands (297)                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Polyrhachis mutata</i> Smith, 1858                    | Meghalaya (1)                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <i>Polyrhachis narendrani</i> Karmaly, 2004 (E)          | Kerala (223)                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Polyrhachis numeria</i> Smith, 1861                   | Andaman and Nicobar Islands (7)                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <i>Polyrhachis pagana</i> Santschi, 1928                 | Karnataka (304), Tamil Nadu (289)                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Polyrhachis proxima</i> Roger, 1863                   | Assam (199), Kerala (305), Meghalaya (1)                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <i>Polyrhachis pubescens</i> Mayr, 1879                  | Kerala (305)                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <i>Polyrhachis punctillata</i> Roger, 1863               | Gujarat (340), Karnataka (249, 256, 287, 340, 352, 357, 362), Kerala (225, 297, 352), Manipur (357), Meghalaya (1), Tamil Nadu (7, 256, 352, 357), West Bengal (352)                                                                                                                                                                                                                                                                                            |
| <i>Polyrhachis punctillata fergusoni</i> Forel, 1902 (E) | Himachal Pradesh (1), Kerala (114, 187, 188, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Polyrhachis punctillata smythiesii</i> Forel, 1895    | Himachal Pradesh (178, 192), Jammu & Kashmir (80), Kerala (297), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                                                                                |
| <i>Polyrhachis punjabi</i> Bharti, 2003 (E)              | Himachal Pradesh (27), Punjab (27)                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Polyrhachis rastellata</i> (Latreille, 1802)          | Andaman and Nicobar Islands (254, introduced but no evidence for establishment), Arunachal Pradesh (1), Assam (1), Karnataka (176, 248, 249, 256, 265, 288, 306, 319, 352, 362), Kerala (305, 319), Maharashtra (115, 153, 248, 249), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (415), Tamil Nadu (219, 256), West Bengal (319, 352)                                                                                                        |
| <i>Polyrhachis rupicapra</i> Roger, 1863                 | Karnataka (256, 287), Tamil Nadu (256)                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>Polyrhachis saevisima</i> Smith, 1860                 | Assam (172), West Bengal (300)                                                                                                                                                                                                                                                                                                                                                                                                                                  |

- Polyrhachis saevissima argentea* Mayr, 1862  
Karnataka (176), West Bengal (300)
- Polyrhachis scissa* (Roger, 1862)  
Karnataka (7), Kerala (7, 140, 141, 297, 352), Tamil Nadu (140, 141, 297, 352), West Bengal (352)
- Polyrhachis sculpturata* Smith, 1860  
Assam (176)
- Polyrhachis spinigera* Mayr, 1879  
Assam (172), West Bengal (130, 299, 300)
- Polyrhachis striata* Mayr, 1862  
Arunachal Pradesh (1), Assam (1), Meghalaya (1), Sikkim (1)
- Polyrhachis striatorugosa* Mayr, 1862  
Arunachal Pradesh (382)
- Polyrhachis subpilosa* Emery, 1895  
Manipur (7)
- Polyrhachis sylvicola* (Jerdon, 1851)  
Kerala (352), West Bengal (352)
- Polyrhachis textor brunneogaster* Donisthorpe, 1937  
Andaman and Nicobar Islands (7, 137, 297)
- Polyrhachis thompsoni* Bingham, 1903  
Himachal Pradesh (297), Sikkim (355), Tripura (250)
- Polyrhachis thrinax* Roger, 1863  
Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (104, 297), Karnataka (176, 262, 319, 352, 356), Kerala (7, 104, 140, 140, 176, 262, 294, 297, 319, 352), Maharashtra (104, 297), Sikkim (1), Tamil Nadu (319), West Bengal (1)
- Polyrhachis thrinax lancearia* Forel, 1893  
Karnataka (176, 297), Kerala (176, 297)
- Polyrhachis tibialis* Smith, 1858  
Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (382), Karnataka (7, 124, 206, 248, 249, 262, 265, 288, 319, 352, 356), Kerala (140, 206, 262, 297, 319, 352, 352), Meghalaya (1), Sikkim (1), Tamil Nadu (219), Uttarakhand (1), West Bengal (1)
- Polyrhachis tibialis caligata* Emery, 1895  
Assam (297), Maharashtra (129), Uttarakhand (1)
- Polyrhachis tibialis parris* Emery, 1900  
Karnataka (7), Kerala (140, 352), West Bengal (352)
- Polyrhachis tubericeps* Forel, 1893  
Himachal Pradesh (319), Kerala (319), Sikkim (1), Uttar Pradesh (176, 319), West Bengal (1)
- Polyrhachis tyrannical* Smith, 1858  
Tamil Nadu (297)
- Polyrhachis vicina* Roger, 1863  
Arunachal Pradesh (358), Meghalaya (249)
- Polyrhachis wallacei* Emery, 1887  
Andaman and Nicobar Islands (7, 297)
- Polyrhachis wroughtonii* Forel, 1894  
Karnataka (7, 177, 178, 233, 352), Kerala (233, 297), Maharashtra (233, 297), West Bengal (352)
- Prenolepis***
- Prenolepis fisheri* Bharti & Wachkoo, 2012 (E)  
Uttarakhand (1, 7, 40)
- Prenolepis melanogaster* Emery, 1893  
Manipur (357)
- Prenolepis naoroji* Forel, 1902  
Arunachal Pradesh (1), Assam (1), Haryana (408), Himachal Pradesh (7, 23, 40), Jammu & Kashmir (40, 80), Punjab (1), Uttarakhand (1)
- Pseudolasius***
- Pseudolasius binghami* Emery, 1911  
Sikkim (159)
- Pseudolasius diversus* Wachkoo & Bharti, 2014 (E)  
Uttarakhand (1, 372)
- Pseudolasius emeryi* Forel, 1911  
Sikkim (7)
- Pseudolasius familiaris* (Smith, 1860)  
Arunachal Pradesh (206), Himachal Pradesh (1), Jammu & Kashmir (80), Meghalaya (1), Sikkim (192, 249, 355)
- Pseudolasius machhedensis* Bharti, Gul & Sharma, 2012 (E)  
Himachal Pradesh (73), Jammu & Kashmir (73)
- Pseudolasius polymorphicus* Wachkoo & Bharti, 2014 (E)  
Himachal Pradesh (372)
- LEPTANILLINAE**
- Leptanilla***
- Leptanilla escheri* (Kutter, 1948) (E)  
Kerala (12, 13), Tamil Nadu (7, 12, 13, 54)

- Leptanilla lamellate* Bharti & Kumar, 2012 (E) Himachal Pradesh (7, 54)
- Protanilla***
- Protanilla wardi* Bharti & Akbar, 2015 (E) Kerala (1)
- Yavnella***
- Yavnella indica* Kugler, 1987 (E) Kerala (7, 236)
- MYRMICINAE**
- Anillomyrma***
- Anillomyrma decamera* (Emery, 1901) Bihar (92, 149)
- Aphaenogaster***
- Aphaenogaster annandalei* Mukerjee, 1930 (E) Himachal Pradesh (255)
- Aphaenogaster beccarii* Emery, 1887 Andaman and Nicobar Islands (254, 257), Arunachal Pradesh (1), Goa (410, 411, 412), Karnataka (7, 19, 20, 188, 262, 265, 287, 288, 306, 319, 352, 362), Maharashtra (152, 188, 214, 262, 287, 319, 352), Sikkim (1), Tamil Nadu (219), Tripura (1), West Bengal (1)
- Aphaenogaster beesoni* Donisthorpe, 1933 Himachal Pradesh (7, 76, 134), Jammu & Kashmir (1), Uttarakhand (1)
- Aphaenogaster cavernicola* Donisthorpe, 1938 (E) Himachal Pradesh (7, 138)
- Aphaenogaster cristata* (Forel, 1902) (E) Arunachal Pradesh (1), Himachal Pradesh (7, 186, 188, 192, 355), Jammu & Kashmir (80), Sikkim (1), West Bengal (1)
- Aphaenogaster feae* Emery, 1889 Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (188), Goa (411, 412), Jammu & Kashmir (80), Sikkim (1), West Bengal (1)
- Aphaenogaster feae nicobarensis* (Forel, 1903) (E) Andaman and Nicobar Islands (189, 254)
- Aphaenogaster longiceps* (Smith, 1858) Arunachal Pradesh (1), Sikkim (1), West Bengal (1)
- Aphaenogaster rothneyi* (Forel, 1902) Arunachal Pradesh (1), Himachal Pradesh (186, 188), Jammu & Kashmir (80), Madhya Pradesh (186, 188, 352, 355), Meghalaya (1), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Aphaenogaster sagei* (Forel, 1902) Himachal Pradesh (21, 186, 188, 190, 192, 243, 341), Jammu & Kashmir (80), Meghalaya (1), Uttarakhand (1)
- Aphaenogaster sagei pachei* (Forel, 1906) Himachal Pradesh (1), Jammu & Kashmir (80), Uttarakhand (1)
- Aphaenogaster schurri* (Forel, 1902) Arunachal Pradesh (1), Himachal Pradesh (1), Madhya Pradesh (186, 188), Maharashtra (115), Meghalaya (1), Sikkim (1), West Bengal (1)
- Aphaenogaster singaporensis* (Smith, 1858) Andaman and Nicobar Islands (254)
- Aphaenogaster smythiesii* (Forel, 1902) Arunachal Pradesh (1), Himachal Pradesh (186, 188, 214), Jammu & Kashmir (67, 80, 190), Meghalaya (206, 249, 355), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Aphaenogaster smythiesii prudens* (Forel, 1902) Himachal Pradesh (186), Jammu & Kashmir (80), Uttarakhand (1)
- Calpytomyrmex***
- Calpytomyrmex wittmeri* Baroni Urbani, 1975 Kerala (417)
- Cardiocondyla***
- Cardiocondyla breviscapa* Seifert, 2003 (E) Tamil Nadu (7, 310)
- Cardiocondyla carbonaria* Forel, 1907 (E) Karnataka (327), Maharashtra (114, 194, 310)
- Cardiocondyla emeryi* Forel, 1881 (I) Maharashtra (188), Tamil Nadu (188)
- Cardiocondyla goa* Seifert, 2003 (E) Goa (310), Karnataka (310), Kerala (310)

- Cardiocondyla kagutsuchi* Terayama, 1999 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (310), Nagaland (1), Sikkim (1), West Bengal (1)
- Cardiocondyla mauritanica* Forel, 1890 (I) Arunachal Pradesh (1), Assam (1), Haryana (310), Himachal Pradesh (310), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Sikkim (1), Tripura (1), West Bengal (1)
- Cardiocondyla minutior* Forel, 1899 Andaman and Nicobar Islands (189, 377), Himachal Pradesh (310), Jammu & Kashmir (1), Maharashtra (194), Uttarakhand (1)
- Cardiocondyla obscurior* Wheeler, 1929 Himachal Pradesh (310)
- Cardiocondyla opaca* Seifert, 2003 (E) Goa (310), Karnataka (310)
- Cardiocondyla parvinoda* Forel, 1902 (E) Kerala (225), Maharashtra (186, 188), Punjab (21), West Bengal (7)
- Cardiocondyla shagrinata* Seifert, 2003 (E) Karnataka (310)
- Cardiocondyla tiwarii* Ghosh, Sheela & Kundu, 2005 (E) Sikkim (1), West Bengal (1)
- Cardiocondyla wroughtonii* (Forel, 1890) Arunachal Pradesh (1), Assam (1), Bihar (90), Gujarat (188), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (262, 265, 287, 288, 362), Kerala (225), Maharashtra (7, 90, 173, 188, 235, 262, 310, 345), Manipur (1), Mizoram (1), Nagaland (1), Sikkim (1), Uttar Pradesh (310), Uttarakhand (1), West Bengal (1)
- Carebara**
- Carebara aborensis* (Wheeler, 1913) (E) Assam (382)
- Carebara affinis* (Jerdon, 1851) Andaman and Nicobar Islands (189, 254, 357), Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (188, 206, 262, 265, 287, 288, 335, 362), Kerala (188, 225, 249, 262, 287, 305, 335, 343, 352, 357), Maharashtra (188, 206, 249, 262, 287, 335, 343, 352, 357), Manipur (335, 357), Meghalaya (1), Mizoram (1), Rajasthan (334, 335, 343), Sikkim (1), Tamil Nadu (188, 287, 335, 352, 357), Uttarakhand (1), West Bengal (1)
- Carebara asina* (Forel, 1902) Himachal Pradesh (7), Karnataka (287), Orissa (186, 188), Punjab (214), Uttar Pradesh (214), West Bengal (287, 356)
- Carebara bengalensis* (Forel, 1902) Sikkim (1), West Bengal (1)
- Carebara carinata* Bharti & Kumar, 2013 (E) Himachal Pradesh (7, 59)
- Carebara dentata* Bharti & Kumar, 2013 (E) Himachal Pradesh (7, 59), Jammu & Kashmir (7, 59), Punjab (59), Uttarakhand (1)
- Carebara diversa* (Jerdon, 1851) Arunachal Pradesh (1), Assam (1), Goa (411, 412), Himachal Pradesh (1), Karnataka (188, 205, 206, 262, 264, 264, 265, 287, 288, 327, 352, 355, 356), Kerala (188, 205, 206, 262, 287, 305, 319, 329, 352, 355, 383, 386), Maharashtra (115, 129, 188, 205, 206, 262, 287, 319, 352, 355, 356), Mizoram (1), Sikkim (1), Tamil Nadu (255), Uttarakhand (1), West Bengal (1)
- Carebara hornata* Bharti & Kumar, 2013 (E) Himachal Pradesh (7, 59)
- Carebara lamellifrons* (Forel, 1902) (E) Karnataka (186, 188, 352), West Bengal (352)
- Carebara leei* (Forel, 1902) (E) Karnataka (186, 188, 262, 352), West Bengal (352)
- Carebara lignata* Westwood, 1840 Arunachal Pradesh (1), Assam (1), Karnataka (262), Meghalaya (1), West Bengal (205)
- Carebara mukkaliensis* Bharti & Akbar, 2014 (E) Kerala (65)
- Carebara nana* (Roger, 1863) Arunachal Pradesh (206, 358), Kerala (234)
- Carebara nayana* (Sheela & Narendran, 1997) (E) Karnataka (1), Kerala (322), Orissa (415)
- Carebara obtusidenta* (Xu, 2003) Arunachal Pradesh (1), Kerala (65), Sikkim (1), West Bengal (1)

|                                                         |                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Carebara propomegata</i> Bharti & Kumar, 2013 (E)    | Himachal Pradesh (59), Jammu & Kashmir (7, 59), Punjab (59)                                                                                                                                                                                                                                                                                                            |
| <i>Carebara raja</i> Forel, 1902                        | Orissa (1)                                                                                                                                                                                                                                                                                                                                                             |
| <i>Carebara rectangularata</i> Bharti & Kumar, 2013 (E) | Jammu & Kashmir (7, 59)                                                                                                                                                                                                                                                                                                                                                |
| <i>Carebara rectidorsa</i> (Xu, 2003)                   | Meghalaya (228)                                                                                                                                                                                                                                                                                                                                                        |
| <i>Carebara rothneyi</i> (Forel, 1902) (E)              | Punjab (21), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                                                                                               |
| <i>Carebara similis</i> (Mayr, 1862)                    | Andaman and Nicobar Islands (254)                                                                                                                                                                                                                                                                                                                                      |
| <i>Carebara spinata</i> Bharti & Kumar, 2013 (E)        | Himachal Pradesh (7, 59), Jammu & Kashmir (59), Uttarakhand (1)                                                                                                                                                                                                                                                                                                        |
| <i>Carebara terayamai</i> Bharti & Akbar, 2014 (E)      | Arunachal Pradesh (65), Kerala (65)                                                                                                                                                                                                                                                                                                                                    |
| <i>Carebara wroughtonii</i> (Forel, 1902)               | Kerala (225), Orissa (7, 186, 188, 356), West Bengal (356)                                                                                                                                                                                                                                                                                                             |
| <b>Cataulacus</b>                                       |                                                                                                                                                                                                                                                                                                                                                                        |
| <i>Cataulacus granularatus</i> (Latreille, 1802)        | Andaman and Nicobar Islands (83, 117, 189, 254), Arunachal Pradesh (1), Assam (1), Himachal Pradesh (83, 188, 192), Tamil Nadu (167)                                                                                                                                                                                                                                   |
| <i>Cataulacus latus</i> Forel, 1891                     | Arunachal Pradesh (1), Assam (1), Bihar (83), Goa (411), Himachal Pradesh (83), Karnataka (83, 188, 262, 287), Kerala (83, 140, 352), Maharashtra (83, 188), Manipur (1), Mizoram (1), Nagaland (1), Orissa (83, 188, 262, 287, 352, 356), Sikkim (1), Tamil Nadu (219, 262), Uttarakhand (1), West Bengal (1)                                                         |
| <i>Cataulacus muticus</i> Emery, 1889                   | Andaman and Nicobar Islands (254)                                                                                                                                                                                                                                                                                                                                      |
| <i>Cataulacus simoni</i> Emery, 1893                    | Andaman and Nicobar Islands (83, 114, 189, 254), Haryana (408), Kerala (1), Meghalaya (1)                                                                                                                                                                                                                                                                              |
| <i>Cataulacus taprobanae</i> Smith, 1853                | Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Goa (83, 411, 412), Haryana (408), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (7, 83, 188, 256, 262, 264, 265, 287, 288, 362), Kerala (83, 188, 248), Maharashtra (83, 229, 248), Meghalaya (1), Nagaland (1), Sikkim (1), Tamil Nadu (83, 219, 256), Uttarakhand (1), West Bengal (1) |
| <b>Crematogaster</b>                                    |                                                                                                                                                                                                                                                                                                                                                                        |
| <i>Crematogaster abdominalis</i> Motschoulsky, 1863     | India (no state record, 32, 210)                                                                                                                                                                                                                                                                                                                                       |
| <i>Crematogaster aberrans</i> Forel, 1892               | Arunachal Pradesh (206), Assam (1), Gujarat (237), Haryana (408), Karnataka (206, 210, 352), Kerala (82, 114, 186, 188, 209, 210, 352), Maharashtra (7, 81, 82, 114, 115, 186, 188, 199, 206, 209, 210, 255, 352), Nagaland (1), Sikkim (1), West Bengal (255, 300, 352)                                                                                               |
| <i>Crematogaster aitkenii</i> Forel, 1902               | Arunachal Pradesh (382), Karnataka (186, 188, 210, 352), West Bengal (352)                                                                                                                                                                                                                                                                                             |
| <i>Crematogaster anthracina</i> Smith, 1857             | Arunachal Pradesh (1), Assam (1), Haryana (408), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (287), Manipur (1), Meghalaya (1), Mizoram (1), Punjab (1), Sikkim (1), Tamil Nadu (1), Uttarakhand (1), West Bengal (1)                                                                                                                                        |
| <i>Crematogaster betapicalis</i> Bolton, 1995 (E)       | Punjab (210)                                                                                                                                                                                                                                                                                                                                                           |
| <i>Crematogaster binghamii</i> Forel, 1904              | Arunachal Pradesh (1), Himachal Pradesh (7, 81), Jammu & Kashmir (1), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                                     |
| <i>Crematogaster biroii</i> Mayr, 1897                  | Arunachal Pradesh (206), Himachal Pradesh (192, 210), Jammu & Kashmir (80), Karnataka (206, 210, 249, 352, 355), Meghalaya (1), Orissa (415), Punjab (214), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                               |
| <i>Crematogaster biroii smythiesii</i> Forel, 1902      | Arunachal Pradesh (1), Himachal Pradesh (114, 186, 188, 210), Jammu & Kashmir (1), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                        |

- Crematogaster brunnea* Smith, 1857 Tamil Nadu (352)
- Crematogaster brunnea contemta* Mayr, 1879 Arunachal Pradesh (1), Assam (1), Gujarat (335, 340, 342), Haryana (335, 340, 342, 351), Himachal Pradesh (335, 340, 342), Karnataka (256), Maharashtra (115), Nagaland (1), Punjab (29, 335, 340, 342), Rajasthan (116, 334, 335, 338, 339, 340, 342, 344), Sikkim (1), Tamil Nadu (256), Uttar Pradesh (335, 340, 342), West Bengal (1)
- Crematogaster brunnea nicevillei* Emery, 1922 Sikkim (1), West Bengal (1)
- Crematogaster brunnea nilgirica* Emery, 1922 (E) Tamil Nadu (114, 188, 210, 352), West Bengal (352)
- Crematogaster brunnea rabula* Forel, 1902 Karnataka (256), Maharashtra (7, 186, 188, 210, 214), Tamil Nadu (256), West Bengal (300)
- Crematogaster brunnea ruginota* Santschi, 1928 Madhya Pradesh (186, 188, 210, 391), West Bengal (186, 188)
- Crematogaster buddhae* Forel, 1902 Andaman and Nicobar Islands (355, 357), Arunachal Pradesh (1), Delhi (1), Kerala (305), Manipur (355, 357), Sikkim (1), West Bengal (1)
- Crematogaster dahyi* Forel, 1902 (E) Haryana (408), Karnataka (262, 287), Tamil Nadu (82, 114, 186, 188, 209, 210, 352), West Bengal (352)
- Crematogaster diffusa* (Jerdon, 1851) (E) Kerala (210, 352), Maharashtra (115)
- Crematogaster dohrni* Mayr, 1879 Haryana (408), Karnataka (202, 262, 287), Kerala (1), Manipur (250), Tamil Nadu (210, 219, 352), Tripura (247, 250)
- Crematogaster dohrni artifex* Mayr, 1879 Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Karnataka (124, 260), Meghalaya (249)
- Crematogaster ebenina* Forel, 1902 Arunachal Pradesh (1), Assam (1), Karnataka (7, 82, 186, 188, 209, 210, 262, 352, 355, 356), Kerala (225), Maharashtra (7, 82, 115, 186, 188, 209, 210, 262, 352, 355), Manipur (1), Nagaland (1), Sikkim (1), West Bengal (1)
- Crematogaster flava* Forel, 1886 Andaman and Nicobar Islands (355), Arunachal Pradesh (1), Assam (1), Himachal Pradesh (7, 81), Jammu & Kashmir (80), Karnataka (188), Kerala (188, 210, 249, 352, 355), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (188, 210, 249, 352, 355, 356), Sikkim (1), Tamil Nadu (210, 352, 355), Tripura (1), Uttarakhand (1), West Bengal (1)
- Crematogaster himalayana* Forel, 1902 Himachal Pradesh (7, 186, 188, 192, 210), Manipur (357)
- Crematogaster hogsoni* Forel, 1902 Haryana (351), Karnataka (262, 287), Meghalaya (1)
- Crematogaster inflata* Smith, 1857 Manipur (357)
- Crematogaster kirbii* (Sykes, 1835) (E) Maharashtra (210)
- Crematogaster perelegans* Forel, 1902 Himachal Pradesh (7), Karnataka (256), Maharashtra (186, 188, 210), Punjab (210), Tamil Nadu (256)
- Crematogaster politula* Forel, 1902 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (7), Jammu & Kashmir (80), Meghalaya (1), Sikkim (206, 355), West Bengal (255)
- Crematogaster pradipi* Tiwari, 1999 (E) Tamil Nadu (210, 352)
- Crematogaster ranssonneti* Mayr, 1868 Haryana (408), Karnataka (210, 287, 352, 355, 362), Maharashtra (229), Sikkim (1), West Bengal (204, 210, 352)
- Crematogaster rogenhoferi* Mayr, 1879 Andaman and Nicobar Islands (189, 254, 355, 357), Arunachal Pradesh (1), Assam (1), Goa (410, 411, 412), Jammu & Kashmir (67, 80), Karnataka (256, 262, 287), Kerala (210, 248, 249, 352, 355, 357), Maharashtra (115, 194, 210, 248, 249, 352, 355, 357), Manipur (244, 355, 357), Meghalaya (248, 249, 355, 357), Sikkim (1), Tamil Nadu (210, 256, 352, 355, 357), Uttarakhand (1), West Bengal (1)

- Crematogaster rothneyi* Mayr, 1879 Bihar (214), Goa (410, 411, 412), Gujarat (205, 210, 335, 337, 342, 352, 355, 356), Haryana (335, 337, 342), Himachal Pradesh (188, 192, 335, 337, 342), Jammu & Kashmir (1), Jharkhand (214), Karnataka (256, 265, 288, 362), Kerala (188), Maharashtra (115, 129, 188, 205, 210, 214, 229, 248, 249, 287, 335, 337, 342, 352, 355, 356), Meghalaya (1), Orissa (335, 337, 342), Punjab (335, 337, 342), Rajasthan (334, 335, 337, 342), Sikkim (1), Tamil Nadu (140, 188, 205, 210, 219, 256, 335, 337, 342, 352, 355), Uttar Pradesh (335, 337, 342), West Bengal (1)
- Crematogaster rothneyi civa* Forel, 1902 Maharashtra (186, 188, 194, 210), Sikkim (1), West Bengal (1)
- Crematogaster rufa* (Jerdon, 1851) (E) Kerala (210, 352), West Bengal (352)
- Crematogaster sagei* Forel, 1902 Arunachal Pradesh (1), Haryana (355), Himachal Pradesh (7, 81, 186, 188, 192, 210), Jammu & Kashmir (67, 80), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Crematogaster sagei laevinota* Forel, 1902 (E) Himachal Pradesh (186, 188, 210), Madhya Pradesh (186, 188, 210)
- Crematogaster sikkimensis* Forel, 1904 (E) Sikkim (1, 209), West Bengal (1)
- Crematogaster subnuda* Mayr, 1879 Arunachal Pradesh (1), Assam (1), Delhi (1), Goa (410, 411, 412), Gujarat (340, 342), Haryana (31, 340, 342), Himachal Pradesh (7, 31, 81, 340, 342), Jammu & Kashmir (67, 80), Karnataka (124, 125, 262, 287, 340, 342), Maharashtra (31, 229, 340, 342), Meghalaya (228), Mizoram (1), Nagaland (1), Orissa (188), Punjab (31, 79, 214, 340, 342), Sikkim (1), Tamil Nadu (140, 188, 219, 289, 340, 342, 352), Uttar Pradesh (214, 340, 342), Uttarakhand (1), West Bengal (1)
- Crematogaster travancorensis* Forel, 1902 Kerala (114, 186, 188, 210, 249, 352), Manipur (244), Meghalaya (1), West Bengal (352)
- Crematogaster urvijae* Bharti, 2003 (E) Punjab (7, 26, 210)
- Crematogaster walshi* Forel, 1902 Arunachal Pradesh (206), Assam (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (206, 249, 335, 337, 342, 355), Sikkim (1), West Bengal (1)
- Crematogaster wroughtonii* Forel, 1902 Andaman and Nicobar Islands (254, 257), Haryana (408), Karnataka (19, 20, 202, 256, 262, 265, 287, 288), Kerala (305), Maharashtra (186, 188, 210, 262, 352), Tamil Nadu (210, 219, 256, 352), West Bengal (210, 352, 356)
- Dilobocondyla***
- Dilobocondyla bangalorica* Varghese, 2006 (E) Karnataka (363)
- Dilobocondyla gasteroreticulatus* Bharti & Kumar, 2013 (E) Himachal Pradesh (7, 58), Sikkim (1), Uttarakhand (1)
- Gauromyrmex***
- Gauromyrmex acanthinus* (Karavaiev, 1935) Arunachal Pradesh (1), Himachal Pradesh (7), Sikkim (1)
- Indomyrma***
- Indomyrma dasypyx* Brown, 1986 (E) Karnataka (110), Kerala (7, 110)
- Kartidris***
- Kartidris nyos* Bolton, 1991 Meghalaya (1), Sikkim (1), West Bengal (1)
- Liomyrmex***
- Liomyrmex gestroi* (Emery, 1887) Andaman and Nicobar Islands (254, 296, 353), West Bengal (352)
- Lophomyrmex***
- Lophomyrmex ambiguus* Rigato, 1994 Arunachal Pradesh (1), Himachal Pradesh (295, 321), Jammu & Kashmir (80), Meghalaya (321), Sikkim (1), Uttarakhand (1), West Bengal (1)

- Lophomyrmex bedoti* Emery, 1893      Arunachal Pradesh (1), Himachal Pradesh (188, 214), Jammu & Kashmir (80), Meghalaya (1), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Lophomyrmex birmanus* Emery, 1893      Arunachal Pradesh (1), Meghalaya (1), Sikkim (321, 355)
- Lophomyrmex changlangensis* Sheela & Ghosh, 2008 (E)      Arunachal Pradesh (1)
- Lophomyrmex kali* Rigato, 1994 (E)      Arunachal Pradesh (1), Assam (1), West Bengal (204, 321)
- Lophomyrmex quadrispinosus* (Jerdon, 1851)      Arunachal Pradesh (1), Assam (1), Haryana (408), Himachal Pradesh (192), Jammu & Kashmir (80), Karnataka (7, 188, 248, 249, 260, 262, 265, 287, 288, 306, 352, 355, 356, 362), Kerala (248, 249, 262, 287, 349, 352, 355), Maharashtra (188), Meghalaya (1), Mizoram (1), Orissa (188, 248, 249, 262, 287, 295, 352, 355, 356), Sikkim (1), Tamil Nadu (295, 352, 355), Uttar Pradesh (248, 249, 352, 355, 356), Uttarakhand (1), West Bengal (1)
- Lophomyrmex terraceensis* Bharti & Kumar, 2012 (E)      Himachal Pradesh (7, 55, 55)
- Lordomyrma***
- Lordomyrma lakshmi* Taylor, 2012 (E)      Kerala (346)
- Lordomyrma taylora* Bharti & Ali, 2013 (E)      Kerala (7, 66)
- Mayriella***
- Mayriella transfuga* Baroni Urbani, 1977      Arunachal Pradesh (1), Himachal Pradesh (122, 317), Jammu & Kashmir (80), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Mayriella warchalowskii* Borowiec, 2007      Arunachal Pradesh (1), Meghalaya (102)
- Meranoplus***
- Meranoplus bellii* Forel, 1902      Karnataka (7, 186, 188, 262, 307, 352), Kerala (7, 114, 140, 307, 352), Maharashtra (307), Tamil Nadu (352), West Bengal (352)
- Meranoplus bicolor* (Guerin-Meneville, 1844)      Arunachal Pradesh (1), Assam (1), Bihar (7, 214, 307, 357), Delhi (1), Goa (307, 357, 411), Gujarat (335, 340, 342, 357), Haryana (307, 335, 340, 342, 351, 357), Himachal Pradesh (307, 342, 357), Jammu & Kashmir (80), Jharkhand (214, 307), Karnataka (7, 125, 262, 264, 265, 287, 288, 306, 307, 335, 340, 342, 357, 362), Kerala (188, 307, 335, 342, 349, 357), Maharashtra (194, 229, 307, 335, 342, 357), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (307, 335, 342, 357), Punjab (29, 79, 214, 307, 335, 340, 342, 357), Rajasthan (116, 307, 333, 334, 335, 338, 340, 342, 344, 357), Sikkim (1), Tamil Nadu (7, 213, 219, 289, 307, 335, 340, 342, 352, 357, 391), Tripura (1), Uttar Pradesh (214, 307, 335, 342, 357), Uttarakhand (1), West Bengal (1)
- Meranoplus laevis* Emery, 1889      Meghalaya (1)
- Meranoplus levis* Donisthorpe, 1942      Kerala (1), Tamil Nadu (7, 114, 140, 307, 352), West Bengal (352)
- Meranoplus periyarensis* Bharti & Akbar, 2014 (E)      Kerala (62)
- Meranoplus rothneyi* Forel, 1902      Arunachal Pradesh (1), Assam (1), Kerala (7, 186, 188, 206, 249, 307, 352), Manipur (1), Meghalaya (1), Mizoram (1), Sikkim (1), Tamil Nadu (194), Tripura (307), West Bengal (1)
- Messor***
- Messor himalayanus* (Forel, 1902)      Himachal Pradesh (7, 116, 186, 188, 192, 331, 332, 335, 336, 339, 342, 366), Jammu & Kashmir (67, 80, 186, 188, 190, 192), Kerala (275), Punjab (332, 335, 342), Rajasthan (116, 331, 332, 334, 335, 336, 338, 339, 342, 344)
- Messor instabilis* (Smith, 1858)      Haryana (408), Himachal Pradesh (188), Jammu & Kashmir (80, 386), Madhya Pradesh (188), Maharashtra (188), Punjab (79), Rajasthan (188), Uttar Pradesh (188)
- Messor minor* (Andre, 1883)      Haryana (114, 152, 152)
- Messor semirufus* (Andre, 1883)      Jammu & Kashmir (172)

**Metapone**

*Metapone nicobarensis* Tiwari & Jonathan, 1986 (E) Andaman and Nicobar Islands (254, 354)

**Monomorium**

- Monomorium atomum* Forel, 1902 Arunachal Pradesh (1), Assam (1), Goa (411, 412), Karnataka (262, 335, 362), Maharashtra (186, 188, 262, 331, 335), Orissa (186, 188), Punjab (335), Rajasthan (331, 334, 335, 338, 344), Sikkim (1), West Bengal (1)
- Monomorium atomum integrum* Forel, 1902 (E) Maharashtra (186, 188, 194)
- Monomorium biroi* Forel, 1907 (E) Tamil Nadu (194)
- Monomorium carbonarium* (Smith, 1858) (I) Kerala (188)
- Monomorium dichroum* Forel, 1902 Karnataka (186, 188, 265, 287, 288), Maharashtra (7, 186, 188), Tamil Nadu (186, 188, 352), Uttar Pradesh (200), West Bengal (352)
- Monomorium effractor* Bolton, 1987 (E) Maharashtra (92)
- Monomorium floricola* (Jerdon, 1851) Andaman and Nicobar Islands (92, 254, 357), Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (92, 124, 125, 262, 265, 287, 288), Kerala (205, 352, 357, 383, 386), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (205, 357), Sikkim (1), Tamil Nadu (205, 289, 352, 357), Tripura (1), West Bengal (1)
- Monomorium indicum* Forel, 1902 Andhra Pradesh (335, 336, 337, 340, 342, 352), Arunachal Pradesh (1), Assam (1), Delhi (1), Gujarat (335, 336, 337, 338, 340, 342, 344), Haryana (335, 336, 337, 340), Himachal Pradesh (342), Jammu & Kashmir (80), Karnataka (262, 265, 287, 288, 306, 335, 336, 337, 340, 342), Maharashtra (7, 194, 195, 287, 331, 335, 336, 337, 340, 342, 352), Manipur (1), Orissa (415), Punjab (29, 79, 214, 287, 331, 335, 336, 337, 340, 342, 352), Rajasthan (116, 331, 332, 334, 335, 335, 336, 337, 338, 339, 340, 342, 344), Sikkim (1), Tamil Nadu (194, 331, 335, 336, 337, 340, 342, 352), Uttar Pradesh (214), West Bengal (1)
- Monomorium indicus* (Smith, 1873) (E) West Bengal (299)
- Monomorium kempi* Mukerjee, 1930 (E) Sikkim (1), West Bengal (1)
- Monomorium latinode* Mayr, 1872 Arunachal Pradesh (1), Assam (1), Karnataka (92, 188, 265, 287, 288), Kerala (294), Maharashtra (188, 214), Manipur (1), Orissa (188, 205, 335, 357), Rajasthan (331, 334, 335, 338, 344), Sikkim (1), Tamil Nadu (92, 194, 205, 289, 335, 352, 357), Uttar Pradesh (3, 326), Uttarakhand (1), West Bengal (1)
- Monomorium longi* Forel, 1902 Arunachal Pradesh (1), Assam (1), Meghalaya (1), Rajasthan (332, 334, 335), Tripura (247, 250, 335)
- Monomorium luisae* Forel, 1904 Jammu & Kashmir (166)
- Monomorium monomorium* Bolton, 1987 (I) (see also the dubious records section) Himachal Pradesh (342), Karnataka (205, 262, 287, 342), Kerala (249, 352), Manipur (244), Meghalaya (249), Tamil Nadu (262), Uttarakhand (1), West Bengal (205, 342, 352)
- Monomorium orientale* Mayr, 1879 Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (125, 188, 287), Manipur (1), Orissa (188), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Monomorium pharaonis* (Linnaeus, 1758) (I) Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Delhi (1), Goa (410, 411, 412), Gujarat (335, 336, 340, 342), Haryana (114, 335, 336, 340, 342), Himachal Pradesh (335, 336, 340, 342), Jammu & Kashmir (80), Karnataka (125, 205, 262, 265, 287, 288, 306, 336, 340, 352), Kerala (92), Maharashtra (129, 229), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (415), Punjab (79, 335, 336, 340, 342), Rajasthan (331, 334, 335, 336, 338, 342, 344), Sikkim (1), Tamil Nadu (286), Uttar Pradesh (335, 336, 340, 342), Uttarakhand (1), West Bengal (1)

- Monomorium rugifrons* (Smith, 1858) India (no further state, 32)
- Monomorium sagei* Forel, 1902 Andaman and Nicobar Islands (254, 257), Himachal Pradesh (186, 188, 192, 257, 272, 332, 342), Jammu & Kashmir (80), Karnataka (335, 342), Rajasthan (332, 334, 335, 342)
- Monomorium schurri* Forel, 1902 Kerala (249, 352), Madhya Pradesh (188), Meghalaya (1), Tamil Nadu (7, 352), West Bengal (352)
- Monomorium subopacum* (Smith, 1858) Karnataka (287, 362), Tamil Nadu (352)
- (I)**
- Myrmecina***
- Myrmecina pilicornis* Smith, 1858 (E) Maharashtra (114)
- Myrmecina striata* Emery, 1889 Arunachal Pradesh (1), Assam (1), Kerala (305), Meghalaya (1), Sikkim (1), West Bengal (1)
- Myrmecina urbanii* Tiwari, 1994 (E) Karnataka (362), Kerala (350, 352), Orissa (415), Tamil Nadu (1)
- Myrmecina vidyae* Tiwari, 1994 (E) Kerala (350, 352)
- Myrmica***
- Myrmica adrijae* Bharti, 2012 (E) Himachal Pradesh (7, 34)
- Myrmica aimonissabaudiae* Menozzi, 1939 Arunachal Pradesh (1), Himachal Pradesh (280), Jammu & Kashmir (7, 80, 280), Meghalaya (1), Sikkim (1), West Bengal (1)
- Myrmica cachmiriensis* Forel, 1904 Himachal Pradesh (1), Jammu & Kashmir (7, 80, 190, 190, 192, 280, 283, 375)
- Myrmica curvispinosa* Bharti & Sharma, 2013 (E) Himachal Pradesh (71, 71)
- Myrmica elmesi* Bharti & Sharma, 2011 (E) Jammu & Kashmir (7, 68, 80)
- Myrmica ereptrix* Bolton, 1988 (E) Jammu & Kashmir (7, 93, 280, 282, 283)
- Myrmica foreliana* Radchenko & Elmes, 2001 (E) Jammu & Kashmir (80), Madhya Pradesh (186, 188, 280, 280, 283, 375)
- Myrmica fortior* Forel, 1904 (E) Jammu & Kashmir (7, 80, 190, 192, 280, 281, 283, 375)
- Myrmica hecate* Weber, 1947 Arunachal Pradesh (1), Himachal Pradesh (280, 281), Jammu & Kashmir (280, 280), Sikkim (1), West Bengal (1)
- Myrmica indica* Weber, 1950 Arunachal Pradesh (1), Sikkim (1), West Bengal (1)
- Myrmica inezae* Forel, 1902 Himachal Pradesh (280, 281, 283), Madhya Pradesh (186, 188, 283, 375)
- Myrmica kothiensis* Bharti & Sharma, 2013 (E) Himachal Pradesh (71)
- Myrmica kozlovi* Ruzsky, 1915 Arunachal Pradesh (1), Sikkim (1), West Bengal (1)
- Myrmica longisculpta* Bharti & Sharma, 2011 (E) Jammu & Kashmir (69, 80)
- Myrmica margaritae* Emery, 1889 Meghalaya (1)
- Myrmica nefaria* Bharti, 2012 (E) Himachal Pradesh (7, 33, 33)
- Myrmica nitida* Radchenko & Elmes, 1999 (E) Himachal Pradesh (1), Jammu & Kashmir (7, 80, 279, 280, 283)
- Myrmica ordinaria* Radchenko & Elmes, 1999 Jammu & Kashmir (7, 80, 279, 280, 283)
- Myrmica pachei* Forel, 1906 Arunachal Pradesh (1), Sikkim (1), West Bengal (1)
- Myrmica petita* Radchenko & Elmes, 1999 (E) Jammu & Kashmir (279, 280, 283)
- Myrmica radchenkoi* Bharti & Sharma, 2011 (E) Jammu & Kashmir (70, 80)
- Myrmica religiosa* Bharti & Gul, 2013 (E) Uttarakhand (1)

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| <i>Myrmica rhytida</i> Radchenko & Elmes, 1999 (E)              | Himachal Pradesh (1), Jammu & Kashmir (7, 80, 279, 280, 283)                                                                                                                                                                                                                                                                                                                               |
| <i>Myrmica rita</i> Emery, 1889                                 | Sikkim (355)                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Myrmica rugosa</i> Mayr, 1865                                | Arunachal Pradesh (1), Himachal Pradesh (1), Jammu & Kashmir (67, 80, 280), Madhya Pradesh (188), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                                             |
| <i>Myrmica rupestris</i> Forel, 1902                            | Arunachal Pradesh (1), Himachal Pradesh (7, 186, 188, 280, 283, 375), Jammu & Kashmir (80, 190, 280), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                                                          |
| <i>Myrmica smythiesii</i> Forel, 1902                           | Himachal Pradesh (186, 190, 280, 281, 283, 375), Jammu & Kashmir (67, 80), Uttarakhand (1)                                                                                                                                                                                                                                                                                                 |
| <i>Myrmica urbanii</i> Radchenko & Elmes, 1998                  | Arunachal Pradesh (1), Meghalaya (1)                                                                                                                                                                                                                                                                                                                                                       |
| <i>Myrmica varisculpta</i> Radchenko & Elmes, 2009 (E)          | Jammu & Kashmir (7, 80, 283, 284)                                                                                                                                                                                                                                                                                                                                                          |
| <i>Myrmica wardi</i> Radchenko & Elmes, 1999                    | Himachal Pradesh (279, 280, 283), Jammu & Kashmir (7, 80, 279, 280, 283)                                                                                                                                                                                                                                                                                                                   |
| <i>Myrmica weberi</i> Elmes & Radchenko, 2009                   | Bihar (151, 283), West Bengal (151, 283)                                                                                                                                                                                                                                                                                                                                                   |
| <i>Myrmica williamsi</i> Radchenko & Elmes, 1999 (E)            | Jammu & Kashmir (7, 279, 280, 283)                                                                                                                                                                                                                                                                                                                                                         |
| <i>Myrmica wittmeri</i> Radchenko & Elmes, 1999                 | Himachal Pradesh (279, 280, 283), Jammu & Kashmir (80)                                                                                                                                                                                                                                                                                                                                     |
| <b><i>Myrmecaria</i></b>                                        |                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Myrmecaria brunnea</i> Saunders, 1842                        | Arunachal Pradesh (1), Assam (1), Bihar (214), Goa (410, 411, 412), Himachal Pradesh (1), Jammu & Kashmir (80), Jharkhand (214), Karnataka (260, 262, 264, 265, 287, 288, 291, 306, 362), Kerala (8, 140, 225, 301, 352, 369), Maharashtra (115, 188), Manipur (1), Meghalaya (1), Punjab (79), Sikkim (1), Tamil Nadu (7, 140, 213, 219, 256, 289, 352), Uttarakhand (1), West Bengal (1) |
| <i>Myrmecaria brunnea subcarinata</i> (Smith, 1857)             | West Bengal (170)                                                                                                                                                                                                                                                                                                                                                                          |
| <i>Myrmecaria carinata</i> (Smith, 1857)                        | Karnataka (7)                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Myrmecaria fodica</i> (Jerdon, 1851)                         | Arunachal Pradesh (1), Assam (1), Sikkim (1), Tamil Nadu (7), West Bengal (1)                                                                                                                                                                                                                                                                                                              |
| <b><i>Paratopula</i></b>                                        |                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Paratopula andamanensis</i> (Forel, 1903) (E)                | Andaman and Nicobar Islands (94, 114, 189, 254)                                                                                                                                                                                                                                                                                                                                            |
| <i>Paratopula ceylonica</i> (Emery, 1901)                       | Karnataka (1), Orissa (94, 186, 188, 320), Uttar Pradesh (320), West Bengal (94, 114, 186, 188, 300, 320, 356)                                                                                                                                                                                                                                                                             |
| <i>Paratopula intermedia</i> Sheela & Narendran, 1998 (E)       | Kerala (320, 323)                                                                                                                                                                                                                                                                                                                                                                          |
| <b><i>Perissomyrmex</i></b>                                     |                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Perissomyrmex monticola</i> Baroni Urbani & De Andrade, 1993 | West Bengal (1)                                                                                                                                                                                                                                                                                                                                                                            |
| <b><i>Pheidole</i></b>                                          |                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Pheidole allani</i> Bingham, 1903                            | Meghalaya (249)                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Pheidole asperata</i> Emery, 1895                            | Gujarat (1), Karnataka (1), Kerala (1), Maharashtra (1), Tamil Nadu (1)                                                                                                                                                                                                                                                                                                                    |
| <i>Pheidole bandata</i> Bharti, 2004 (E)                        | Himachal Pradesh (30)                                                                                                                                                                                                                                                                                                                                                                      |
| <i>Pheidole binghamii</i> Forel, 1902                           | Jammu & Kashmir (80)                                                                                                                                                                                                                                                                                                                                                                       |
| <i>Pheidole capellinii</i> Emery, 1887                          | Andaman and Nicobar Islands (254), Meghalaya (1)                                                                                                                                                                                                                                                                                                                                           |
| <i>Pheidole constanciae</i> Forel, 1902                         | Kerala (273), Meghalaya (1), Tamil Nadu (185, 186, 213, 249, 259, 273, 352), West Bengal (352)                                                                                                                                                                                                                                                                                             |

- Pheidole constanciae nigra* Forel, 1902 (E) Tamil Nadu (185, 186)
- Pheidole coonoorensis* Forel, 1902 (E) Tamil Nadu (145, 185, 186)
- Pheidole diffusa* (Jerdon, 1851) (E) Arunachal Pradesh (1), Assam (1), Sikkim (1), West Bengal (1)
- Pheidole duneraensis* Bharti, 2001 (E) Himachal Pradesh (22)
- Pheidole feae* Emery, 1895 Meghalaya (249)
- Pheidole fergusoni* Forel, 1902 Kerala (114, 185, 186, 352), Tamil Nadu (213, 259), West Bengal (352)
- Pheidole fervens* Smith, 1858 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (145, 145, 185, 186, 192), Jammu & Kashmir (80), Sikkim (1), West Bengal (1)
- Pheidole ghatika* Forel, 1902 (E) Kerala (273), Maharashtra (7, 185, 186, 213, 259)
- Pheidole grayi* Forel, 1902 (E) Goa (410), Maharashtra (185, 186, 213, 259), Sikkim (1)
- Pheidole horni* Emery, 1901 Manipur (357)
- Pheidole hospita* Bingham, 1903 (E) Sikkim (1), West Bengal (1)
- Pheidole indica* Mayr, 1879 Andaman and Nicobar Islands (189, 254), Arunachal Pradesh (1), Assam (1), Bihar (214), Delhi (1), Himachal Pradesh (7, 48, 145, 185, 186, 190, 192), Jammu & Kashmir (67, 80, 185, 186, 192, 273, 355), Jharkhand (214), Karnataka (185, 186), Kerala (185, 186, 273), Maharashtra (115, 145, 185, 186, 214), Meghalaya (249), Mizoram (1), Nagaland (1), Orissa (145, 185, 186), Punjab (79, 214), Sikkim (1), Tamil Nadu (219), Tripura (1), Uttarakhand (1), West Bengal (1)
- Pheidole jucunda* Forel, 1885 Arunachal Pradesh (1), Assam (1), Jammu & Kashmir (80), Maharashtra (185, 186), Meghalaya (1), Nagaland (1), Sikkim (1), West Bengal (1)
- Pheidole jucunda fassulata* Forel, 1902 Himachal Pradesh (1), Jammu & Kashmir (80), Maharashtra (7, 186), Sikkim (192, 355), Uttarakhand (1)
- Pheidole lamellinoda* Forel, 1902 Delhi (1), Maharashtra (115, 185, 186), Meghalaya (1)
- Pheidole lanuginosa* Wilson, 1984 (E) Arunachal Pradesh (1), Assam (1)
- Pheidole latinoda* Roger, 1863 Arunachal Pradesh (1), Assam (1), Bihar (214), Delhi (1), Himachal Pradesh (7), Jharkhand (214), Maharashtra (185, 186, 214), Manipur (1), Mizoram (1), Nagaland (1), Punjab (29, 214), Sikkim (1), Tamil Nadu (219, 289), Tripura (1), Uttar Pradesh (214), West Bengal (1)
- Pheidole latinoda angustior* Forel, 1902 Delhi (1), Jammu & Kashmir (80), Maharashtra (185, 186, 194, 213, 259), Punjab (79)
- Pheidole latinoda major* Forel, 1885 (E) Jammu & Kashmir (80), Punjab (1), Uttarakhand (1), West Bengal (114, 170, 185, 186)
- Pheidole malabarica* (Jerdon, 1851) (E) West Bengal (352)
- Pheidole malinsii* Forel, 1902 Haryana (408), Meghalaya (249, 355), Sikkim (249, 352, 355), Tamil Nadu (352, 355), West Bengal (7)
- Pheidole megacephala* (Fabricius, 1793) (I) Andaman and Nicobar Islands (189, 254)
- Pheidole minor* (Jerdon, 1851) (E) Kerala (352), West Bengal (352)
- Pheidole multidens* Forel, 1902 Karnataka (287), Maharashtra (7, 185, 186), Uttar Pradesh (319), West Bengal (319)
- Pheidole mus* Forel, 1902 Karnataka (185, 186, 249, 352, 356), Maharashtra (214), Meghalaya (1), Sikkim (1), West Bengal (1)
- Pheidole naoroji* Forel, 1902 (E) Maharashtra (185, 186)
- Pheidole noda* Smith, 1874 Andaman and Nicobar Islands (189, 254), Arunachal Pradesh (1), Assam (1), Goa (1), Himachal Pradesh (185, 186, 192), Karnataka (185, 186), Kerala (185, 186), Maharashtra (185, 186, 194), Manipur (1), Orissa (185, 186), Sikkim (1), Tamil Nadu (256), Tripura (1), West Bengal (1)
- Pheidole parasitica* Wilson, 1984 (E) Arunachal Pradesh (1), Assam (1), Kerala (400)
- Pheidole parva* Mayr, 1865 Arunachal Pradesh (1), Himachal Pradesh (147, 148), Jammu & Kashmir (1), Karnataka (185, 186, 265, 288), Kerala (148, 185, 186), Maharashtra (185, 186), Meghalaya (1), Uttar Pradesh (147), Uttarakhand (1), West Bengal (300)

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| <i>Pheidole phipsoni</i> Forel, 1902                 | Karnataka (7, 185, 186, 352), Maharashtra (194), Tamil Nadu (194, 352)                                                                                                                                                                                                                          |
| <i>Pheidole pronotalis</i> Forel, 1902               | Himachal Pradesh (1), Meghalaya (1), Sikkim (1)                                                                                                                                                                                                                                                 |
| <i>Pheidole providens</i> (Sykes, 1835)              | Maharashtra (330), West Bengal (352)                                                                                                                                                                                                                                                            |
| <i>Pheidole roberti</i> Forel, 1902                  | Gujarat (338, 340, 344), Karnataka (185, 186, 205, 249, 340, 352, 355, 356), Kerala (1), Maharashtra (340), Meghalaya (1), Sikkim (1), Tamil Nadu (1), West Bengal (204, 205, 266, 340, 352, 355, 356)                                                                                          |
| <i>Pheidole rogersi</i> Forel, 1902                  | Arunachal Pradesh (1), Assam (185, 186, 192), Sikkim (1), West Bengal (1)                                                                                                                                                                                                                       |
| <i>Pheidole rogersi taylori</i> Forel, 1902          | Orissa (185, 186), West Bengal (114)                                                                                                                                                                                                                                                            |
| <i>Pheidole sagei</i> Forel, 1902                    | Himachal Pradesh (7, 185, 186, 192, 249), Jammu & Kashmir (80), Meghalaya (1), Uttarakhand (1)                                                                                                                                                                                                  |
| <i>Pheidole sharpi</i> Forel, 1902                   | Goa (411, 412), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (185, 186, 265, 287), Kerala (274), Maharashtra (185, 186), Tamil Nadu (185, 186, 352), Uttarakhand (1)                                                                                                                   |
| <i>Pheidole sharpi hoogwerfi</i> Forel, 1902         | Karnataka (352), Maharashtra (114, 115, 185, 186, 352), West Bengal (352)                                                                                                                                                                                                                       |
| <i>Pheidole singaporensis</i> Ozdikmen, 2010         | Andaman and Nicobar Islands (254, 254), Jammu & Kashmir (80)                                                                                                                                                                                                                                    |
| <i>Pheidole smythiesii</i> Forel, 1902               | Arunachal Pradesh (1), Assam (1), Haryana (408), Himachal Pradesh (147), Jammu & Kashmir (80), Meghalaya (1), Sikkim (249, 355, 355), Uttarakhand (1), West Bengal (7, 147, 300, 355)                                                                                                           |
| <i>Pheidole spathifera</i> Forel, 1902               | Andhra Pradesh (352), Assam (262, 319, 351, 352, 356), Delhi (1), Haryana (351), Jammu & Kashmir (80), Karnataka (262, 265, 287, 288, 306, 319, 362), Kerala (185, 186, 225, 319, 352), Tamil Nadu (167, 168, 185, 186, 213, 259, 293, 319, 352), West Bengal (300, 319, 351, 352, 356)         |
| <i>Pheidole spathifera aspatha</i> Forel, 1902 (E)   | Assam (114, 185, 186), Delhi (1), Himachal Pradesh (1), Jammu & Kashmir (80), Kerala (185, 186), Punjab (79)                                                                                                                                                                                    |
| <i>Pheidole spathifera yerburyi</i> Forel, 1902      | Tamil Nadu (194)                                                                                                                                                                                                                                                                                |
| <i>Pheidole sulcaticeps</i> Roger, 1863              | Gujarat (335, 338, 340, 344), Maharashtra (185, 186), Orissa (185, 186), Rajasthan (116, 334, 335, 338, 339, 344), Tamil Nadu (1), West Bengal (114, 335, 339, 340, 356)                                                                                                                        |
| <i>Pheidole sulcaticeps punensis</i> Forel, 1902 (E) | Maharashtra (185, 186)                                                                                                                                                                                                                                                                          |
| <i>Pheidole sykesii</i> Forel, 1902 (E)              | Arunachal Pradesh (1), Assam (1), Karnataka (287), Maharashtra (185, 186, 213, 259), Sikkim (1), West Bengal (1)                                                                                                                                                                                |
| <i>Pheidole templaria</i> Forel, 1902                | Assam (185, 186)                                                                                                                                                                                                                                                                                |
| <i>Pheidole terraceensis</i> Bharti, 2001 (E)        | Himachal Pradesh (22)                                                                                                                                                                                                                                                                           |
| <i>Pheidole vulgaris</i> Eguchi, 2006                | Uttar Pradesh (146, 147, 148)                                                                                                                                                                                                                                                                   |
| <i>Pheidole watsoni</i> Forel, 1902                  | Andaman and Nicobar Islands (254), Arunachal Pradesh (206), Haryana (408), Jammu & Kashmir (80), Karnataka (265, 287, 288), Maharashtra (229), Meghalaya (249), Orissa (185, 186), West Bengal (186, 249, 287, 300, 356)                                                                        |
| <i>Pheidole woodmasoni</i> Forel, 1885               | Arunachal Pradesh (1), Assam (1), Delhi (1), Himachal Pradesh (185, 186, 192), Jammu & Kashmir (80), Karnataka (185, 262, 265, 287, 288, 306, 362), Maharashtra (185, 186), Meghalaya (1), Orissa (185, 186), Punjab (214), Sikkim (1), Tamil Nadu (185, 186), Uttarakhand (1), West Bengal (1) |
| <i>Pheidole wroughtonii</i> Forel, 1902 (E)          | Gujarat (335, 338, 340, 344), Karnataka (185, 186, 262, 335, 339, 340), Maharashtra (185, 186), Rajasthan (331, 334, 335, 338, 339, 344), Uttar Pradesh (7)                                                                                                                                     |
| <b><i>Pristomyrmex</i></b>                           |                                                                                                                                                                                                                                                                                                 |
| <i>Pristomyrmex brevispinosus</i> Emery, 1887        | Assam (382)                                                                                                                                                                                                                                                                                     |
| <i>Pristomyrmex sulcatus</i> Emery, 1895             | Sikkim (1)                                                                                                                                                                                                                                                                                      |

***Recurvidris***

- Recurvidris pickburni* Bolton, 1992 Uttar Pradesh (122)
- Recurvidris recurvispinosa* (Forel, 1890) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (96, 205, 324, 342), Jammu & Kashmir (80), Karnataka (205, 262, 265, 287, 288, 342, 362), Kerala (96, 205, 324, 342), Maharashtra (96, 114, 173, 188, 248, 249, 262, 388, 391), Manipur (1), Meghalaya (1), Orissa (415), Punjab (1), Sikkim (1), Tamil Nadu (96, 205, 324, 342), Uttarakhand (1), West Bengal (1)

***Rhopalomastix***

- Rhopalomastix rothneyi* Forel, 1900 Karnataka (122), Sikkim (1), West Bengal (1)

***Solenopsis***

- Solenopsis geminata* (Fabricius, 1804) (I) Andaman and Nicobar Islands (114, 117, 189, 254, 340, 355, 357), Arunachal Pradesh (1), Assam (1), Bihar (214, 360), Goa (7, 410, 411, 412), Gujarat (335, 340), Himachal Pradesh (1), Jammu & Kashmir (80), Jharkhand (214, 360), Karnataka (7, 125, 205, 214, 260, 262, 265, 288, 306, 335, 340, 352, 355, 357, 362), Kerala (205, 225, 335, 340, 352, 355, 357), Maharashtra (214, 229), Manipur (205, 355, 357), Meghalaya (205, 355, 357), Mizoram (1), Nagaland (1), Orissa (205, 335, 355, 357), Punjab (21, 335, 340), Rajasthan (334, 335, 340, 343), Sikkim (1), Tamil Nadu (112, 205, 219, 286, 293, 335, 340, 352, 355, 357), Tripura (1), West Bengal (1)
- Solenopsis nitens* Bingham, 1903 Karnataka (125), Kerala (305)

***Stenamma***

- Stenamma jhitingriense* Bharti, Gul & Sharma, 2012 (E) Himachal Pradesh (7, 74)
- Stenamma kashmirensis* Baroni Urbani, 1977 Himachal Pradesh (103), Jammu & Kashmir (7, 11, 143, 242)
- Stenamma wilsoni* Bharti, Gul & Sharma, 2012 (E) Himachal Pradesh (7, 74)

***Strumigenys***

- Strumigenys aduncomala* De Andrade, 2007 (E) Arunachal Pradesh (1), Meghalaya (16)
- Strumigenys assamensis* Baroni Urbani & De Andrade, 1994 (E) Arunachal Pradesh (1), Meghalaya (7, 15)
- Strumigenys emmae* (Emery, 1890) (I) Arunachal Pradesh (1), Assam (1), Gujarat (1), Karnataka (361, 362), Kerala (1), Maharashtra (1), Manipur (1), Sikkim (1), West Bengal (1)
- Strumigenys exilirhina* Bolton, 2000 Arunachal Pradesh (1), Assam (1), Nagaland (1), Sikkim (1), Tripura (1), Uttar Pradesh (1), Uttarakhand (1), West Bengal (1)
- Strumigenys fixata* Bolton, 2000 (E) Karnataka (1), Kerala (99), Maharashtra (1), Tamil Nadu (7)
- Strumigenys godeffroyi* Mayr, 1866 Karnataka (262), Kerala (1), Maharashtra (186, 188), Meghalaya (1), Sikkim (1), West Bengal (352)
- Strumigenys habropilosa* Bolton, 2000 (E) Kerala (1), Tamil Nadu (7)
- Strumigenys hemisobek* (Bolton, 2000) Kerala (61), Sikkim (1)
- Strumigenys hostilis* Bolton, 2000 (E) Goa (7, 99), Karnataka (7, 99)
- Strumigenys hypoturba* Bolton, 2000 (E) Kerala (99), Tamil Nadu (7)
- Strumigenys lyroessa* (Roger, 1862) Arunachal Pradesh (1), Assam (1), Goa (7, 99), Gujarat (1), Karnataka (7, 99), Kerala (99), Maharashtra (1), Nagaland (1), Sikkim (1), Tamil Nadu (1), West Bengal (1)
- Strumigenys membranifera* Emery, 1869 (I) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Jammu & Kashmir (1), Mizoram (1), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Strumigenys mitis* (Brown, 2000) Arunachal Pradesh (1), Assam (1), Kerala (61), Mizoram (1), Sikkim (1), West Bengal (1)

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| <i>Strumigenys mukkaliensis</i> Bharti & Akbar, 2013 (E)           | Kerala (61)                                                                                                                                                                                                                                          |
| <i>Strumigenys mutica</i> (Brown, 1949)                            | Kerala (61)                                                                                                                                                                                                                                          |
| <i>Strumigenys nannosobek</i> (Bolton, 2000)                       | Kerala (61), Sikkim (1)                                                                                                                                                                                                                              |
| <i>Strumigenys nanzanensis</i> Lin & Wu, 1996                      | Sikkim (1), West Bengal (1)                                                                                                                                                                                                                          |
| <i>Strumigenys nepalensis</i> Baroni Urbani & De Andrade, 1994     | Arunachal Pradesh (1), Assam (1), Himachal Pradesh (122), Manipur (1), Meghalaya (15), Mizoram (1), Sikkim (1), Uttarakhand (1), West Bengal (1)                                                                                                     |
| <i>Strumigenys perauacta</i> Bolton, 2000 (E)                      | Goa (7, 99), Karnataka (7, 99)                                                                                                                                                                                                                       |
| <i>Strumigenys podarge</i> (Bolton, 2000)                          | Himachal Pradesh (122)                                                                                                                                                                                                                               |
| <i>Strumigenys rogeri</i> Emery, 1890 (I)                          | Kerala (61)                                                                                                                                                                                                                                          |
| <i>Strumigenys smythiesii</i> Forel, 1902 (E)                      | Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Kerala (225)                                                                                                                                                                                 |
| <i>Strumigenys thanikkudyensis</i> Bharti & Akbar, 2013 (E)        | Kerala (61)                                                                                                                                                                                                                                          |
| <i>Strumigenys virgila</i> Bolton, 2000                            | Arunachal Pradesh (1), Assam (1), Himachal Pradesh (7, 99), Sikkim (1), Uttar Pradesh (1), West Bengal (1)                                                                                                                                           |
| <b><i>Temnothorax</i></b>                                          |                                                                                                                                                                                                                                                      |
| <i>Temnothorax desioi</i> (Menozi, 1939)                           | Himachal Pradesh (1), Jammu & Kashmir (80), Uttarakhand (1)                                                                                                                                                                                          |
| <i>Temnothorax desioi melanicus</i> (Menozi, 1939) (E)             | Himachal Pradesh (1), Jammu & Kashmir (7, 80)                                                                                                                                                                                                        |
| <i>Temnothorax fultonii</i> (Forel, 1902)                          | Himachal Pradesh (186, 188, 192), Jammu & Kashmir (80)                                                                                                                                                                                               |
| <i>Temnothorax himachalensis</i> Bharti, Gul & Schulz, 2012 (E)    | Himachal Pradesh (7, 72), Jammu & Kashmir (72)                                                                                                                                                                                                       |
| <i>Temnothorax inermis</i> (Forel, 1902) (E)                       | Himachal Pradesh (186, 188, 192)                                                                                                                                                                                                                     |
| <i>Temnothorax kashmirensis</i> Bharti, Gul & Schulz, 2012 (E)     | Himachal Pradesh (7, 72), Jammu & Kashmir (7, 72)                                                                                                                                                                                                    |
| <i>Temnothorax microreticulatus</i> Bharti, Gul & schulz, 2012 (E) | Himachal Pradesh (7, 72)                                                                                                                                                                                                                             |
| <i>Temnothorax nordmeyer</i> (Schulz, 1997) (E)                    | Goa (308), Karnataka (308)                                                                                                                                                                                                                           |
| <i>Temnothorax rothneyi</i> (Forel, 1902) (E)                      | Himachal Pradesh (186, 188), Jammu & Kashmir (80), Kerala (225), Madhya Pradesh (186, 188, 355), Meghalaya (228), Sikkim (114, 192, 355), Uttarakhand (1)                                                                                            |
| <i>Temnothorax rothneyi similensis</i> (Forel, 1904) (E)           | Himachal Pradesh (190, 192)                                                                                                                                                                                                                          |
| <i>Temnothorax schurri</i> (Forel, 1902) (E)                       | Himachal Pradesh (1), Madhya Pradesh (186, 188)                                                                                                                                                                                                      |
| <i>Temnothorax wroughtonii</i> (Forel, 1904) (E)                   | Jammu & Kashmir (190, 192)                                                                                                                                                                                                                           |
| <b><i>Tetramorium</i></b>                                          |                                                                                                                                                                                                                                                      |
| <i>Tetramorium barryi</i> Mathew, 1981 (E)                         | Arunachal Pradesh (1), Meghalaya (1), Sikkim (1)                                                                                                                                                                                                     |
| <i>Tetramorium beesoni</i> (Mukerjee, 1934) (E)                    | Karnataka (256), Tamil Nadu (256)                                                                                                                                                                                                                    |
| <i>Tetramorium belgaense</i> Forel, 1902 (E)                       | Goa (7), Karnataka (7, 87, 88, 186, 188, 352), West Bengal (352)                                                                                                                                                                                     |
| <i>Tetramorium bicarinatum</i> (Nylander, 1846) (I)                | Andaman and Nicobar Islands (87, 248, 249, 254, 355), Arunachal Pradesh (248, 249), Assam (87, 248, 249, 355), Himachal Pradesh (1), Karnataka (87, 248, 249, 262, 265), Maharashtra (229), Meghalaya (248, 249, 355), Sikkim (355), Uttarakhand (1) |
| <i>Tetramorium browni</i> Bolton, 1980                             | Arunachal Pradesh (1)                                                                                                                                                                                                                                |
| <i>Tetramorium caldarium</i> (Roger, 1857) (I)                     | Punjab (56), Rajasthan (89)                                                                                                                                                                                                                          |
| <i>Tetramorium christiei</i> Forel, 1902                           | Meghalaya (1), Sikkim (1), West Bengal (1)                                                                                                                                                                                                           |

- Tetramorium coonoorens* Forel, 1902 (E) Himachal Pradesh (1), Kerala (352), Tamil Nadu (7, 86, 186, 188, 352), Uttarakhand (1), West Bengal (352)
- Tetramorium cordatum* Sheela & Narendran, 1998 (E) Kerala (325)
- Tetramorium decamerum* (Forel, 1902) (E) Karnataka (86, 114, 186, 188, 256, 262, 352), Tamil Nadu (256), West Bengal (352)
- Tetramorium elisabethae* Forel, 1904 (E) Jammu & Kashmir (7, 87, 190, 192)
- Tetramorium fergusoni* Forel, 1902 (E) Kerala (7, 87, 186, 188, 352), West Bengal (352)
- Tetramorium indicum* Forel, 1913 Andaman and Nicobar Islands (87, 254), Kerala (87), Sikkim (1), West Bengal (1)
- Tetramorium ingleyi* Forel, 1902 Goa (1), Gujarat (1), Karnataka (287), Kerala (7, 87, 186, 188, 287, 352), Maharashtra (1), Tamil Nadu (1), West Bengal (352)
- Tetramorium keralense* Sheela & Narendran, 1998 (E) Kerala (325)
- Tetramorium kheperra* (Bolton, 1976) Assam (86)
- Tetramorium lanuginosum* Mayr, 1870 Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Delhi (1), Goa (7), Gujarat (206, 355), Haryana (1), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (7, 214), Kerala (86, 249), Maharashtra (86, 249), Meghalaya (1), Orissa (86, 188, 208, 249, 356), Punjab (214), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Tetramorium malabarens* Sheela & Narendran, 1998 (E) Kerala (325)
- Tetramorium mayri* (Forel, 1912) Maharashtra (7, 88, 91, 106, 114, 400)
- Tetramorium meghalayense* Bharti, 2011 (E) Meghalaya (1)
- Tetramorium mixtum* Forel, 1902 Goa (7), Karnataka (7, 262, 287, 362), Kerala (87, 249, 352), Meghalaya (1), Tamil Nadu (7, 87, 114, 186, 188, 249, 352), West Bengal (352)
- Tetramorium myops* Bolton, 1977 (E) Chhattisgarh (7, 87), Kerala (1), Madhya Pradesh (7, 87, 87)
- Tetramorium nursei* Bingham, 1903 Haryana (408), Kerala (305)
- Tetramorium obesum* Andre, 1887 Arunachal Pradesh (1), Assam (1), Himachal Pradesh (1), Karnataka (125, 188, 256, 352, 356), Kerala (86, 188), Maharashtra (115, 352, 356), Sikkim (1), Tamil Nadu (188, 256), West Bengal (1)
- Tetramorium pacificum* Mayr, 1870 (I) Andaman and Nicobar Islands (254, 355), Arunachal Pradesh (1), Assam (1), Karnataka (327), Kerala (1), Manipur (1), Mizoram (1), Sikkim (1), West Bengal (1)
- Tetramorium petiolatum* Sheela & Narendran, 1998 (E) Kerala (325)
- Tetramorium pilosum* Emery, 1893 Haryana (408)
- Tetramorium rossi* (Bolton, 1976) (E) Kerala (7, 86)
- Tetramorium rugigaster* Bolton, 1977 (E) Karnataka (287), Kerala (7, 87, 287)
- Tetramorium salvatum* Forel, 1902 Gujarat (335, 340, 342), Himachal Pradesh (342), Rajasthan (334, 335, 338, 339, 340, 342, 344)
- Tetramorium scabrum* Mayr, 1879 Sikkim (192)
- Tetramorium sentosum* Sheela & Narendran, 1998 (E) Kerala (325)
- Tetramorium shivalikense* Bharti & Kumar, 2012 (E) Himachal Pradesh (56), Punjab (56), Uttarakhand (1)
- Tetramorium simillimum* (Smith, 1851) (I) Arunachal Pradesh (1), Assam (1), Bihar (214), Goa (7), Himachal Pradesh (1), Jammu & Kashmir (80), Jharkhand (214), Karnataka (7), Maharashtra (188), Manipur (1), Meghalaya (1), Punjab (87, 214, 249), Sikkim (1), West Bengal (1)

- Tetramorium smithi* Mayr, 1879  
Arunachal Pradesh (1), Assam (1), Bihar (214), Goa (7), Haryana (21), Himachal Pradesh (21), Jammu & Kashmir (80), Jharkhand (214), Karnataka (7, 87, 125, 188, 262, 362), Kerala (87, 225, 249), Maharashtra (87, 229, 249), Meghalaya (1), Punjab (21), Sikkim (1), West Bengal (1)
- Tetramorium tonganum* Mayr, 1870 (I)  
Himachal Pradesh (56), Uttarakhand (1)
- Tetramorium tortuosum* Roger, 1863  
Karnataka (19, 20, 87, 114, 186, 188, 262, 352), Kerala (87), Meghalaya (249), Sikkim (355), Tamil Nadu (87), West Bengal (352)
- Tetramorium triangulatum* Bharti & Kumar, 2012 (E)  
Himachal Pradesh (56), Punjab (56), Uttarakhand (1)
- Tetramorium urbanii* Bolton, 1977  
Meghalaya (56, 228), Sikkim (1)
- Tetramorium walsli* (Forel, 1890)  
Arunachal Pradesh (1), Assam (1), Bihar (214), Delhi (1), Himachal Pradesh (262, 319, 333, 335, 342, 343), Jammu & Kashmir (80), Jharkhand (214), Karnataka (125, 188, 262, 265, 287, 288, 319, 333, 335, 342, 343, 362), Kerala (7, 188, 249, 319, 335, 342, 352), Maharashtra (173, 188), Manipur (1), Meghalaya (1), Nagaland (1), Orissa (249, 319, 335, 342), Punjab (79, 214), Rajasthan (333, 334, 335, 342, 343), Sikkim (1), Tamil Nadu (114, 186, 188, 219, 249, 256, 289, 319, 335, 342, 352), Uttar Pradesh (214, 319), West Bengal (1)
- Tetramorium wroughtonii* (Forel, 1902)  
Arunachal Pradesh (1), Assam (1), Goa (410), Gujarat (340), Himachal Pradesh (21, 21), Karnataka (1, 7, 86, 91, 107, 186, 188, 248, 249, 340, 345, 352, 355, 362, 391), Kerala (1, 225), Maharashtra (340), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Sikkim (1), Tamil Nadu (219), Tripura (355), West Bengal (1)
- Tetramorium yerburyi* Forel, 1902  
Kerala (305), Tamil Nadu (352)
- Trichomyrmex***
- Trichomyrmex aberrans* (Forel, 1902)  
Arunachal Pradesh (206), Haryana (408), Himachal Pradesh (1), Jammu & Kashmir (80), Madhya Pradesh (186, 188, 206), Meghalaya (249), Uttarakhand (1)
- Trichomyrmex criniceps* (Mayr, 1879)  
Arunachal Pradesh (1), Assam (1), Gujarat (335, 340), Haryana (335, 340), Karnataka (7, 186, 188, 262, 277, 285, 287, 335, 340, 352, 362), Maharashtra (115, 186, 188, 277, 285, 352), Punjab (79), Rajasthan (331, 334, 335, 338, 340, 344), Sikkim (1), Tamil Nadu (277), West Bengal (1)
- Trichomyrmex destructor* (Jerdon, 1851) (I)  
Andaman and Nicobar Islands (92, 189, 254), Delhi (1), Goa (410, 411, 412), Gujarat (335, 340, 342), Haryana (122, 335, 340, 342), Himachal Pradesh (190, 335, 340, 342), Jammu & Kashmir (80), Karnataka (262, 265, 287, 288, 335, 340, 342, 362), Kerala (92, 335), Maharashtra (194, 194), Punjab (79, 335, 340, 342), Rajasthan (334, 335, 338, 339, 340, 340, 342, 344), Tamil Nadu (122, 256, 289, 335, 340), Uttar Pradesh (335, 340, 342), Uttarakhand (1), West Bengal (92, 205, 335, 342, 352)
- Trichomyrmex glaber* (Andre, 1883)  
Arunachal Pradesh (1), Assam (1), Gujarat (335, 338, 340, 344), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (186, 188, 214, 277, 287, 352, 362), Kerala (7), Maharashtra (114, 186, 188, 277, 352), Mizoram (1), Punjab (79, 335, 340), Rajasthan (331, 334, 335, 338, 339, 340, 344), Sikkim (1), Tamil Nadu (140, 277, 335, 340, 352), Uttarakhand (1), West Bengal (1)
- Trichomyrmex mayri* (Forel, 1902)  
Gujarat (337), Karnataka (7), Kerala (337, 352), Maharashtra (7, 194), Rajasthan (331, 334, 337, 338, 339, 344), Tamil Nadu (92, 337, 352)
- Trichomyrmex scabriceps* (Mayr, 1879)  
Arunachal Pradesh (1), Assam (1), Bihar (214), Delhi (1), Goa (1, 214), Gujarat (335, 336, 340), Haryana (335), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (186, 188, 260, 262, 265, 277, 287, 288, 306, 335, 336, 340, 352), Kerala (285, 319, 335, 336, 339, 340, 352), Maharashtra (188), Orissa (335), Punjab (214, 319, 335, 336, 339, 340, 352), Rajasthan (334, 335, 336, 338, 339, 340, 344), Sikkim (1), Tamil Nadu (140, 289, 335, 336, 340, 352), Uttarakhand (1), West Bengal (1)

*Trichomyrmex wroughtoni* Forel, 1902      Goa (1), Gujarat (335, 340, 342), Haryana (335, 342), Himachal Pradesh (335, 342), Karnataka (7, 186, 188, 197, 262, 331, 335, 342, 352), Kerala (225), Maharashtra (186, 188, 194, 195, 331, 335, 340, 342, 352), Punjab (335, 342), Rajasthan (331, 334, 335, 338, 340, 342, 344), Uttar Pradesh (335, 342), West Bengal (352)

### ***Tyrannomyrmex***

*Tyrannomyrmex dux* Borowiec, 2007 (E)      Kerala (7, 101)

### ***Vollenhovia***

*Vollenhovia gastropunctata* Bharti & Kumar, 2013 (E)      Himachal Pradesh (57)

*Vollenhovia oblonga laevithorax* Emery, 1889      Andaman and Nicobar Islands (189, 254)

*Vollenhovia penetrans* (Smith, 1857)      Andaman and Nicobar Islands (7)

### ***Vombisidris***

*Vombisidris humboldticola* Zacharias & Rajan, 2004 (E)      Karnataka (202, 404), Kerala (404)

*Vombisidris occidua* Bolton, 1991 (E)      Karnataka (7, 95, 122)

## **PONERINAE**

### ***Anochetus***

*Anochetus cryptus* Bharti & Wachkoo, 2013 (E)      Himachal Pradesh (44), Jammu & Kashmir (7, 44)

*Anochetus graeffei* Mayr, 1870      Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Goa (7), Gujarat (335, 337, 338, 340, 344), Haryana (7, 122, 261, 316), Himachal Pradesh (1), Jammu & Kashmir (80), Karnataka (7, 179, 260, 261, 287, 335, 337, 340, 352, 362), Kerala (179, 352), Maharashtra (179, 335, 337, 340, 340, 352), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (179, 335, 337, 340), Rajasthan (331, 334, 335, 337, 338, 340, 344), Sikkim (1), Tamil Nadu (7, 111, 179, 213, 261, 316, 335, 337, 340, 352), Uttar Pradesh (214), Uttarakhand (1), West Bengal (1)

*Anochetus kanariensis* Forel, 1900 (E)      Karnataka (7, 160, 179, 261, 352), Kerala (261), Tamil Nadu (160, 179, 261, 352), West Bengal (352)

*Anochetus madaraszi* Mayr, 1897      Arunachal Pradesh (1), Assam (1), Jammu & Kashmir (1), Karnataka (111, 179), Manipur (1), Mizoram (1), Orissa (111, 179), Sikkim (1), Uttar Pradesh (7, 122), West Bengal (1)

*Anochetus myops* Emery, 1893      Arunachal Pradesh (1), Himachal Pradesh (1), Meghalaya (1), Sikkim (1), Uttarakhand (1), West Bengal (1)

*Anochetus obscurior* Brown, 1978      Karnataka (362), Tamil Nadu (7)

*Anochetus pupulatus* Brown, 1978 (E)      Gujarat (1), Karnataka (1), Kerala (7, 111), Maharashtra (1), Tamil Nadu (111)

*Anochetus rufus* (Jerdon, 1851) (E)      Tamil Nadu (7, 111, 114, 140, 352), West Bengal (352)

*Anochetus sedilloti* Emery, 1884      Gujarat (111, 179, 338, 340, 344), Karnataka (179), Maharashtra (7, 179, 340), Punjab (1), Rajasthan (340), Tamil Nadu (111, 179, 340, 352)

*Anochetus validus* Bharti & Wachkoo, 2013 (E)      Jammu & Kashmir (7, 44)

*Anochetus yerburyi* Forel, 1900      Bihar (7, 122, 214), Goa (7, 122, 214), Karnataka (335, 337, 362), Rajasthan (334, 335, 337)

### ***Bothroponera***

*Bothroponera henryi* Donisthorpe, 1942 (E)      Goa (411, 412), Karnataka (288), Tamil Nadu (7, 114, 140, 352), West Bengal (352)

*Bothroponera rubiginosa* (Emery, 1889)      Arunachal Pradesh (1), Assam (1), Bihar (214), Jharkhand (214), Maharashtra (160, 352), Manipur (1), Mizoram (1), Sikkim (1), Tamil Nadu (256, 352), West Bengal (1)

|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Bothroponera sulcata</i> (Mayr, 1867)                         | Andhra Pradesh (352), Arunachal Pradesh (1), Assam (1), Goa (410, 411, 412), Haryana (180), Himachal Pradesh (180, 192), Jammu & Kashmir (80), Karnataka (261, 265, 287), Kerala (261), Madhya Pradesh (261), Maharashtra (180, 194, 261), Manipur (1), Orissa (180), Sikkim (1), Tamil Nadu (7, 180, 256, 289, 352), Tripura (1), West Bengal (1)                                                                                                      |
| <i>Bothroponera sulcata fossulata</i> (Forel, 1900) (E)          | Tamil Nadu (7, 114, 160, 180, 352), West Bengal (114, 352)                                                                                                                                                                                                                                                                                                                                                                                              |
| <i>Bothroponera sulcata sulcatotesserinoda</i> (Forel, 1900) (E) | Kerala (160, 180), Tamil Nadu (7, 114, 160, 180, 201), West Bengal (114)                                                                                                                                                                                                                                                                                                                                                                                |
| <i>Bothroponera tesserinoda</i> (Emery, 1877)                    | Arunachal Pradesh (1), Assam (1), Goa (1), Himachal Pradesh (180, 192), Karnataka (180, 215, 261, 265, 287, 288, 327), Kerala (180, 261, 352), Maharashtra (180, 194), Mizoram (1), Nagaland (1), Orissa (180), Punjab (79), Sikkim (1), Tamil Nadu (140, 180, 194, 219, 352), Tripura (1), Uttar Pradesh (2, 3, 287, 326, 352, 356), Uttarakhand (1), West Bengal (1)                                                                                  |
| <b><i>Brachyponera</i></b>                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Brachyponera jerdonii</i> (Forel, 1900)                       | Arunachal Pradesh (1), Assam (1), Himachal Pradesh (7), Jammu & Kashmir (1), Kerala (114, 180, 352), Maharashtra (180), Manipur (1), Mizoram (1), Nagaland (1), Sikkim (1), Tripura (1), Uttarakhand (1), West Bengal (1)                                                                                                                                                                                                                               |
| <i>Brachyponera luteipes</i> (Mayr, 1862)                        | Andaman and Nicobar Islands (160, 189, 217, 254, 345, 356, 383, 393), Arunachal Pradesh (1), Assam (1), Haryana (180), Himachal Pradesh (180, 190, 192), Jammu & Kashmir (80), Karnataka (180, 261, 265, 288, 306), Kerala (180, 206, 352), Madhya Pradesh (180), Maharashtra (180), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (415), Punjab (79), Sikkim (1), Tamil Nadu (180, 219), Tripura (1), Uttarakhand (1), West Bengal (1) |
| <i>Brachyponera luteipes continentalis</i> (Karavaiev, 1925) (E) | Karnataka (220, 221, 352), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                            |
| <i>Brachyponera nigrita</i> (Emery, 1895)                        | Assam (382), Haryana (408), Meghalaya (249, 355), Punjab (79), Sikkim (160, 249, 355), Uttarakhand (1), West Bengal (7, 132, 180, 192)                                                                                                                                                                                                                                                                                                                  |
| <i>Brachyponera obscurans</i> (Walker, 1859)                     | Himachal Pradesh (214), Punjab (214), Uttar Pradesh (214)                                                                                                                                                                                                                                                                                                                                                                                               |
| <i>Brachyponera sennaarensis</i> (Mayr, 1862) (I)                | Maharashtra (379)                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b><i>Buniapone</i></b>                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Buniapone amblyops</i> (Emery, 1887)                          | Assam (1), Meghalaya (248, 249, 355), Sikkim (1), Uttarakhand (1)                                                                                                                                                                                                                                                                                                                                                                                       |
| <b><i>Centromyrmex</i></b>                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Centromyrmex feae</i> (Emery, 1889)                           | Assam (382), Karnataka (261, 263), Kerala (1), Orissa (415), West Bengal (214, 356)                                                                                                                                                                                                                                                                                                                                                                     |
| <b><i>Cryptopone</i></b>                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Cryptopone nicobarensis</i> Forel, 1905 (E)                   | Andaman and Nicobar Islands (160, 191, 392)                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>Cryptopone subterranea</i> Bharti & Wachkoo, 2013 (E)         | Himachal Pradesh (41), Jammu & Kashmir (7, 41)                                                                                                                                                                                                                                                                                                                                                                                                          |
| <i>Cryptopone testacea</i> Emery, 1893                           | Kerala (140, 352), Tamil Nadu (140), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b><i>Diacamma</i></b>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <i>Diacamma assamense</i> Emery, 1897                            | Arunachal Pradesh (1), Assam (1), Karnataka (1), Sikkim (206, 355), Tamil Nadu (1), Tripura (247, 250)                                                                                                                                                                                                                                                                                                                                                  |
| <i>Diacamma ceylonense</i> Emery, 1897                           | Goa (411), Karnataka (10, 362, 365), Kerala (160, 352), Maharashtra (229), Tamil Nadu (352)                                                                                                                                                                                                                                                                                                                                                             |
| <i>Diacamma cyaneiventris</i> Andre, 1887                        | Karnataka (6, 261, 287), Kerala (261, 287, 352), Tamil Nadu (5, 157, 180), West Bengal (352)                                                                                                                                                                                                                                                                                                                                                            |

- Diacamma indicum* Santschi, 1920 Andaman and Nicobar Islands (7, 114, 160, 189), Arunachal Pradesh (1), Assam (1), Karnataka (7, 368), Manipur (1), Mizoram (1), Sikkim (1), West Bengal (1)
- Diacamma rugosum* (Le Guillou, 1842) Andaman and Nicobar Islands (117, 254, 257, 352, 355), Arunachal Pradesh (1), Assam (1), Bihar (117), Goa (410, 411, 412), Karnataka (19, 20, 117, 180, 214, 248, 249, 260, 261, 265, 288, 306, 319, 327, 352, 355), Kerala (180, 261, 349, 352), Maharashtra (117, 205, 229, 248, 249, 257, 261, 319, 352, 355, 356), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (117, 205, 248, 249, 257, 261, 352, 355, 356), Sikkim (1), Tamil Nadu (256, 289, 352, 355), Tripura (1), West Bengal (1)
- Diacamma rugosum doveri* Mukherjee, 1934 (E) Karnataka (256)
- Diacamma rugosum jerdoni* Forel, 1903 Kerala (114, 140, 352), West Bengal (352)
- Diacamma rugosum rothmeyei* Forel, 1900 Kerala (7, 160, 180)
- Diacamma rugosum sculptum* (Jerdon, 1851) Andaman and Nicobar Islands (206, 355), Arunachal Pradesh (1), Assam (1), Karnataka (180, 206, 352, 355, 356), Kerala (180, 206, 225, 352, 355), Maharashtra (180, 206, 355, 356), Orissa (180), Sikkim (1), Tamil Nadu (206, 352, 355), West Bengal (1)
- Diacamma rugosum sikkimense* Forel, 1903 Sikkim (1)
- Diacamma rugosum viridipurpureum* Emery, 1893 India (no further state, 32)
- Diacamma scalpratum* (Smith, 1858) Arunachal Pradesh (1), Assam (160, 180, 248, 249, 261, 355, 356), Jammu & Kashmir (114), Karnataka (261), Kerala (225, 261), Meghalaya (1), Sikkim (1), West Bengal (1)
- Ectomomyrmex***
- Ectomomyrmex annamitus* (Andre, 1892) Karnataka (287), Kerala (352), Tamil Nadu (1), West Bengal (352)
- Ectomomyrmex annamitus arcuatus* Forel, 1900 (E) Kerala (7, 160, 180), West Bengal (114)
- Ectomomyrmex astutus* (Smith, 1858) Arunachal Pradesh (206, 382), Assam (1), Meghalaya (1), Sikkim (206, 355)
- Ectomomyrmex javanus* Mayr, 1867 Arunachal Pradesh (1), Assam (1), Meghalaya (228, 249), Sikkim (132, 206, 355), West Bengal (132, 206, 249, 355, 356, 359)
- Ectomomyrmex leeuwenhoekii* (Forel, 1886) Arunachal Pradesh (206), Assam (7, 114, 160, 172, 206, 247, 248, 249, 250, 287, 352, 355), Karnataka (287), Kerala (160, 206, 247, 249, 250, 352, 355), Meghalaya (206, 248, 249, 355), Sikkim (206, 355), Tripura (247, 250), West Bengal (114, 248, 249, 352)
- Ectomomyrmex striolatus* Donisthorpe, 1933 Himachal Pradesh (7, 135), Uttarakhand (1)
- Emeryopone***
- Emeryopone narendrani* Varghese, 2006 (E) Karnataka (364)
- Harpegnathos***
- Harpegnathos saltator* Jerdon, 1851 Assam (114, 199, 261, 352), Goa (411, 412), Karnataka (7, 19, 20, 100, 136, 179, 241, 256, 260, 261, 264, 265, 270, 287, 288, 352, 362), Kerala (114, 136, 160, 179, 261, 305, 329, 352), Maharashtra (1), Punjab (21), Tamil Nadu (256), West Bengal (352)
- Harpegnathos saltator cruentatus* (Smith, 1858) Karnataka (136, 179), Kerala (136, 179), Maharashtra (136, 179)
- Harpegnathos venator* (Smith, 1858) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (136, 179, 192), Jammu & Kashmir (80), Manipur (1), Meghalaya (1), Nagaland (1), Punjab (79), Sikkim (1), Tamil Nadu (7, 114, 136, 154, 160, 179, 319, 352, 355, 391), Uttarakhand (1), West Bengal (1)

**Hypoponera**

- Hypoponera aitkenii* (Forel, 1900) (E) Goa (1), Gujarat (1), Karnataka (7, 78), Kerala (78), Maharashtra (1), Tamil Nadu (78), West Bengal (114, 160, 180)
- Hypoponera assmuthi* (Forel, 1905) (E) Arunachal Pradesh (1), Assam (1), Jammu & Kashmir (78), Karnataka (78), Maharashtra (7, 114, 160, 191), Nagaland (1), Sikkim (1), West Bengal (1)
- Hypoponera confinis* (Roger, 1860) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (78), Jammu & Kashmir (78, 80), Karnataka (352, 356), Kerala (187, 188), Mizoram (1), Nagaland (1), Punjab (1), Sikkim (1), Uttarakhand (1), West Bengal (1)
- Hypoponera kashmirensis* Bharti, Akbar, Wachkoo & Singh, 2015 (E) Jammu & Kashmir (78)
- Hypoponera ragusai* (Emery, 1894) (I) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (78, 180, 192), Jammu & Kashmir (78), Karnataka (78), Kerala (78), Maharashtra (7, 98, 180, 386, 395), Manipur (1), Mizoram (1), Orissa (180, 395), Punjab (1), Sikkim (1), West Bengal (1)
- Hypoponera schmidtii* Bharti, Akbar, Wachkoo & Singh, 2015 (E) Arunachal Pradesh (1), Karnataka (78)
- Hypoponera shattuckii* Bharti, Akbar, Wachkoo & Singh, 2015 (E) Arunachal Pradesh (1), Kerala (78)
- Hypoponera truncata* (Smith, 1860) Arunachal Pradesh (206, 359), Karnataka (359), Sikkim (206, 355), Tamil Nadu (206, 352, 355), West Bengal (206, 352, 355, 356, 359)
- Hypoponera wroughtonii* (Forel, 1900) (E) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (78), Karnataka (7), Sikkim (1), Uttarakhand (1), West Bengal (1)

**Leptogenys**

- Leptogenys assamensis* Forel, 1900 Assam (1), Meghalaya (1)
- Leptogenys binghamii* Forel, 1900 Assam (1), Karnataka (249), Meghalaya (1)
- Leptogenys birmana* Forel, 1900 Assam (1), Karnataka (1), Kerala (1), Meghalaya (1), Tamil Nadu (7, 213, 352), Tripura (1), West Bengal (249, 352, 356)
- Leptogenys carinata* Donisthorpe, 1943 (E) Kerala (7, 114, 352), West Bengal (352)
- Leptogenys chinensis* (Mayr, 1870) Arunachal Pradesh (1), Assam (1), Gujarat (237), Jammu & Kashmir (1), Karnataka (7, 180, 261, 265, 287, 306, 362), Kerala (180), Maharashtra (180, 229), Manipur (1), Orissa (180), Tamil Nadu (180, 286), Tripura (1), Uttarakhand (1), West Bengal (170, 180, 299, 300, 356)
- Leptogenys dalyi* Forel, 1900 Karnataka (180, 261, 352), Kerala (180, 261, 352), Tamil Nadu (7, 114, 180, 261, 352), West Bengal (352)
- Leptogenys dentilobis* Forel, 1900 (E) Arunachal Pradesh (1), Assam (1), Gujarat (1), Karnataka (7, 180, 261, 287, 352), Kerala (7, 160, 180, 261, 287, 305, 352), Maharashtra (115, 180, 261, 287, 352), Manipur (1), Mizoram (1), Sikkim (1), Tamil Nadu (180, 261, 287, 352), West Bengal (1)
- Leptogenys diminuta* (Smith, 1857) Andaman and Nicobar Islands (117, 254), Arunachal Pradesh (1), Assam (1), Goa (410), Jammu & Kashmir (80), Karnataka (261, 265, 288, 306, 352), Kerala (305), Maharashtra (115, 180), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (180), Sikkim (1, 355), Tamil Nadu (180, 352, 396), West Bengal (1, 355, 356)
- Leptogenys diminuta deceptrix* Forel, 1901 Arunachal Pradesh (1), Assam (1), Maharashtra (7), Sikkim (1), West Bengal (1)
- Leptogenys diminuta diminutolaeviceps* Forel, 1900 Arunachal Pradesh (1), Assam (1), Maharashtra (180), Orissa (180), Sikkim (1), West Bengal (1)
- Leptogenys diminuta laeviceps* (Smith, 1857) Arunachal Pradesh (1), Assam (1), Himachal Pradesh (180, 192, 214), Jammu & Kashmir (1), Karnataka (260), Maharashtra (180), Punjab (79), Sikkim (1), Uttarakhand (1), West Bengal (1)

- Leptogenys diminuta palliseri* Forel, 1900 Karnataka (7, 114, 160, 352), West Bengal (352)
- Leptogenys diminuta striatula* Emery, 1895 West Bengal (356)
- Leptogenys diminuta woodmasoni* (Forel, 1886) (E) Arunachal Pradesh (1), Assam (1), Sikkim (1), West Bengal (1)
- Leptogenys emiliae* Forel, 1902 (E) Gujarat (7, 114, 160, 187, 188)
- Leptogenys falcigera* Roger, 1861 (I) Kerala (305)
- Leptogenys hysterica* Forel, 1900 Himachal Pradesh (1), Karnataka (180), Uttar Pradesh (214), Uttarakhand (1)
- Leptogenys iridipennis* (Smith, 1858) (E) Sikkim (1), West Bengal (1)
- Leptogenys jeanettei* Mathew & Tiwari, 2000 (E) Meghalaya (1)
- Leptogenys kitteli* (Mayr, 1870) Arunachal Pradesh (1), Assam (114, 160, 180, 199, 247, 248, 249, 250, 319, 355, 356), Himachal Pradesh (355, 356), Karnataka (287), Kerala (319), Manipur (250), Meghalaya (1), Sikkim (1), Tripura (247, 250), Uttar Pradesh (355, 356), West Bengal (1)
- Leptogenys kitteli minor* Forel, 1900 Sikkim (1), West Bengal (1)
- Leptogenys lattkei* Bharti & Wachkoo, 2013 (E) Himachal Pradesh (7, 43)
- Leptogenys longiscapa* Donisthorpe, 1943 (E) Kerala (7, 114, 352), West Bengal (352)
- Leptogenys lucidula* Emery, 1895 Sikkim (1), Uttarakhand (1), West Bengal (1)
- Leptogenys moelleri* (Bingham, 1903) (E) Sikkim (1)
- Leptogenys mutabilis* (Smith, 1861) Assam (172)
- Leptogenys peuqueti* (Andre, 1887) Andaman and Nicobar Islands (254), Karnataka (1), Kerala (1, 180, 305), Meghalaya (1), Sikkim (1), West Bengal (1, 7)
- Leptogenys processionalis* (Jerdon, 1851) Bihar (214), Chhattisgarh (180), Goa (410, 411, 412), Gujarat (335, 338, 340, 344), Jharkhand (214), Karnataka (7, 180, 260, 261, 264, 265, 287, 288, 306, 333, 335, 340, 362), Kerala (114, 140, 180, 225, 249, 261, 305, 333, 335, 340, 352), Madhya Pradesh (180), Maharashtra (180, 229), Meghalaya (249, 335, 340), Orissa (180, 335), Rajasthan (333, 334, 335, 340), Tamil Nadu (114, 219, 249, 256, 261, 333, 335, 340, 352), Tripura (1), West Bengal (180, 300, 335, 352, 356)
- Leptogenys punctiventris* (Mayr, 1879) Kerala (1), Meghalaya (1), Sikkim (1), West Bengal (1)
- Leptogenys roberti* Forel, 1900 Arunachal Pradesh (1), Assam (1)
- Leptogenys roberti coonoorensis* Forel, 1900 (E) Kerala (352), Tamil Nadu (7, 180, 352, 356), West Bengal (352, 356)
- Leptogenys stenocheilus* (Jerdon, 1851) (E) Kerala (352), Tamil Nadu (114, 352)
- Leptogenys transitionis* Bharti & Wachkoo, 2013 (E) Himachal Pradesh (7, 43)
- Leptogenys yerburyi* Forel, 1900 Karnataka (180), Kerala (180)
- Mesoponera**
- Mesoponera manni* (Viehmeyer, 1924) Maharashtra (180)
- Mesoponera melanaria* (Emery, 1893) Karnataka (180, 261, 352, 362), Kerala (7, 140, 352), West Bengal (352)
- Myopias**
- Myopias shivalikensis* Bharti & Wachkoo, 2012 (E) Jammu & Kashmir (7, 38)
- Odontomachus**
- Odontomachus monticola* Emery, 1892 Andaman and Nicobar Islands (206, 355), Arunachal Pradesh (1), Assam (7, 109, 114, 160, 179, 199, 206, 249, 355, 356, 391, 403), Himachal Pradesh (1), Jammu & Kashmir (80), Meghalaya (1), Sikkim (1), West Bengal (1)

- Odontomachus rixosus* Smith, 1857      Arunachal Pradesh (1), Assam (1), Jammu & Kashmir (80), Meghalaya (1)
- Odontomachus simillimus* Smith, 1858      Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Karnataka (261), Kerala (109, 111, 261), Manipur (1), Meghalaya (1), Nagaland (1), Sikkim (1), West Bengal (1)
- Odontoponera***
- Odontoponera denticulata* (Smith, 1858)      Andaman and Nicobar Islands (1), Arunachal Pradesh (1), Assam (1), Delhi (1), Haryana (408), Himachal Pradesh (1), Jammu & Kashmir (1), Karnataka (1), Kerala (1), Meghalaya (1), Nagaland (1), Punjab (1), Sikkim (1,172), Uttar Pradesh (1), Uttarakhand (1), West Bengal (1)
- Parvaponera***
- Parvaponera darwinii* (Forel, 1893)      Arunachal Pradesh (1), Assam (1), Karnataka (352), Kerala (7, 114, 352), Punjab (1), Sikkim (1), Tamil Nadu (352), West Bengal (1)
- Parvaponera darwinii indica* (Emery, 1899)      India (no state record, 32)
- Platythyrea***
- Platythyrea nicobarensis* Forel, 1905      Andaman and Nicobar Islands (108, 142, 160, 191)
- Platythyrea parallela* (Smith, 1859)      Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Goa (411), Himachal Pradesh (1), Jammu & Kashmir (1), Karnataka (7, 19, 20, 108, 114, 142, 160, 180, 205, 261, 265, 288, 352, 356, 362), Kerala (7, 108, 114, 142, 160, 180, 261, 352, 385), Sikkim (1), Tamil Nadu (205, 261, 352), Uttarakhand (1), West Bengal (1)
- Platythyrea sagei* Forel, 1900      Himachal Pradesh (7, 108, 180, 192), Karnataka (108, 142, 160, 180, 261, 265, 288, 352), Maharashtra (229), Punjab (142, 160, 261), West Bengal (352)
- Ponera***
- Ponera indica* Bharti & Wachkoo, 2012 (E)      Himachal Pradesh (7, 39), Sikkim (414)
- Ponera paedericera* Zhou, 2001      Arunachal Pradesh (1)
- Ponera sikkimensis* Bharti & Rilta, 2015 (E)      Sikkim (414)
- Ponera taylori* Bharti & Wachkoo, 2012 (E)      Himachal Pradesh (7, 39), Uttarakhand (1)
- Pseudoneoponera***
- Pseudoneoponera bispinosa* Smith, 1858      Arunachal Pradesh (1), Assam (1), Himachal Pradesh (180, 192), Jammu & Kashmir (80), Punjab (79), Uttarakhand (1), West Bengal (356)
- Pseudoneoponera rufipes* (Jerdon, 1851)      Andaman and Nicobar Islands (206, 254, 257, 355), Arunachal Pradesh (1), Assam (1), Goa (411), Himachal Pradesh (180, 192), Jammu & Kashmir (80), Karnataka (180, 205, 206, 250, 261, 264, 265, 287, 288, 352, 355, 356, 359), Kerala (205, 206, 250, 261, 352, 355, 356, 359), Maharashtra (180), Manipur (1), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (180, 205, 206, 355), Punjab (79), Sikkim (1), Tamil Nadu (219), Tripura (247, 250), Uttarakhand (1), West Bengal (1)

## PROCERATIINAE

### ***Discothyrea***

- Discothyrea periyarensis* Bharti, Akbar & Singh, 2015 (E)      Kerala (409)
- Discothyrea sringerensis* Zacharias & Rajan, 2004 (E)      Karnataka (405), Kerala (1)
- Discothyrea stumperi* Baroni Urbani, 1977      Assam (1), Sikkim (1)

***Probolomyrmex****Probolomyrmex bidens* Brown, 1975 (E) Tamil Nadu (7, 108, 150)*Probolomyrmex procne* Brown, 1975 (E) Karnataka (7), Tamil Nadu (7, 108, 150)***Proceratium****Proceratium williamsi* Mathew & Tiwari, 2000 Arunachal Pradesh (1), Himachal Pradesh (47), Meghalaya (1), Meghalaya (47, 249), Sikkim (1), Uttar Pradesh (1), Uttarakhand (1), West Bengal (1,47)**PSEUDOMYRMECINAE*****Tetraponera****Tetraponera aitkenii* (Forel, 1902)

Andaman and Nicobar Islands (254), Goa (373), Karnataka (114, 124, 189, 248, 249, 262, 265, 288, 306, 306, 352, 362, 373), Kerala (294, 373), Maharashtra (129), Meghalaya (1), Tamil Nadu (286, 352, 373)

*Tetraponera allaborans* (Walker, 1859)

Andaman and Nicobar Islands (254), Arunachal Pradesh (1), Assam (1), Goa (373, 410, 411), Gujarat (188, 338, 340, 344, 373), Haryana (340), Himachal Pradesh (1), Jammu &amp; Kashmir (80), Karnataka (7, 124, 188, 256, 262, 287, 327, 340, 362, 373, 374), Kerala (188, 373), Maharashtra (129, 188, 373), Meghalaya (1), Nagaland (1), Orissa (188, 373), Punjab (79), Sikkim (1), Tamil Nadu (205, 256, 286, 340, 352, 373), Uttarakhand (1), West Bengal (1)

*Tetraponera attenuate* Smith, 1877

Arunachal Pradesh (1), Assam (1), Sikkim (1), West Bengal (7, 373)

*Tetraponera binghami* (Forel, 1902)

Arunachal Pradesh (1), Assam (1), Maharashtra (12, 186, 188), Tamil Nadu (7, 373), West Bengal (356, 373)

*Tetraponera modesta* (Smith, 1860)

Manipur (1)

*Tetraponera nigra* (Jerdon, 1851)

Andhra Pradesh (373), Arunachal Pradesh (1), Assam (1), Delhi (1), Goa (411, 412), Haryana (21), Himachal Pradesh (21, 188, 192, 373), Jammu &amp; Kashmir (80), Karnataka (7, 124, 125, 188, 256, 262, 265, 287, 288, 352, 355, 362, 373), Kerala (7, 114, 186, 188, 188, 262, 287, 352, 355, 356, 373, 374), Madhya Pradesh (373), Maharashtra (7, 114, 115, 188, 262, 352, 355, 356, 373), Meghalaya (1), Nagaland (1), Orissa (373), Punjab (21, 21), Sikkim (1), Tamil Nadu (140, 188, 256, 262, 286, 289, 352, 355, 373), Uttar Pradesh (319, 373), Uttarakhand (1), West Bengal (1)

*Tetraponera nitida* (Smith, 1860)

Andaman and Nicobar Islands (114, 189, 254, 373), Kerala (12, 186, 188, 352, 373), Punjab (21), Tamil Nadu (186), West Bengal (352)

*Tetraponera periyarensis* Bharti & Akbar, 2014 (E)

Kerala (64)

*Tetraponera pilosa* (Smith, 1858)

Andaman and Nicobar Islands (114, 189, 254, 373)

*Tetraponera rufonigra* (Jerdon, 1851)

Andaman and Nicobar Islands (114, 189, 254, 373, 385), Arunachal Pradesh (1), Assam (1), Bihar (360), Delhi (1), Goa (373, 410, 411, 412), Gujarat (7, 237, 335, 337, 340, 342, 373), Haryana (21, 335, 337, 340, 342, 373), Himachal Pradesh (21, 335, 337, 340, 342, 373), Jammu &amp; Kashmir (80), Jharkhand (360), Karnataka (7, 205, 206, 256, 262, 265, 287, 288, 306, 335, 337, 340, 342, 352, 357, 362, 373, 374), Kerala (7, 140, 205, 206, 305, 335, 337, 340, 342, 352, 357, 373), Maharashtra (229, 373), Manipur (335, 337, 342, 357), Meghalaya (1), Mizoram (1), Nagaland (1), Orissa (335, 337, 342, 373), Punjab (21, 79, 335, 337, 340, 342), Rajasthan (7, 116, 331, 333, 334, 335, 337, 338, 342, 344, 373), Sikkim (1), Tamil Nadu (7, 140, 205, 219, 256, 286, 289, 335, 337, 340, 342, 352, 357, 373), Tripura (1), Uttar Pradesh (335, 337, 340, 342, 373), Uttarakhand (1), West Bengal (1)

## Dubious records

Several records have been historically reported either from India or from specific states that we have excluded from the list above. Here we briefly present them and explain why those records have been excluded.

| Taxonomy                                         | State(s) recorded                      | Explanation                                                                |
|--------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------|
| <b>Amblyoponinae</b>                             |                                        |                                                                            |
| <i>Myopopone castanea</i> (Smith, 1860)          | Haryana, Punjab                        | Erroneous locality                                                         |
| <b>Dolichoderinae</b>                            |                                        |                                                                            |
| <i>Tapinoma indicum</i> Forel, 1895              | Haryana, Punjab                        | Misidentification ( <i>Tapinoma melanocephalum</i> )                       |
| <b>Dorylinae</b>                                 |                                        |                                                                            |
| <i>Aenictus clavatus</i> Forel, 1901             | Haryana                                | Erroneous locality                                                         |
| <i>Cerapachys keralensis</i> Karmaly, 2012       | Kerala                                 | Considered species <i>species inquirenda</i> (60)                          |
| <i>Cerapachys sulcinodis</i> Emery, 1889         | Haryana, Punjab, Rajasthan             | Misidentification ( <i>Cerapachys longitarsus</i> ) and erroneous locality |
| <b>Formicinae</b>                                |                                        |                                                                            |
| <i>Camponotus angusticollis</i> (Jerdon, 1851)   | Haryana                                | Erroneous locality                                                         |
| <i>Camponotus arrogans</i> (Smith, 1858)         | Punjab                                 | Erroneous locality                                                         |
| <i>Camponotus dolendus</i> Forel, 1892           | Himachal Pradesh                       | Erroneous locality                                                         |
| <i>Camponotus invidus</i> Forel, 1892            | Himachal Pradesh                       | Erroneous locality                                                         |
| <i>Camponotus mitis</i> (Smith, 1858)            | Haryana                                | Erroneous locality                                                         |
| <i>Camponotus oblongus</i> (Smith, 1858)         | Himachal Pradesh                       | Erroneous locality                                                         |
| <i>Camponotus sericeus</i> (Fabricius, 1798)     | Uttar Pradesh                          | Misidentification ( <i>Camponotus opaciventris</i> )                       |
| <i>Camponotus siemseni</i> Forel, 1901           | Uttar Pradesh                          | Exact locality not known                                                   |
| <i>Camponotus wasmanni</i> Emery, 1893           | Jammu & Kashmir, Uttar Pradesh         | Misidentification ( <i>Camponotus wasmanni mutilaris</i> )                 |
| <i>Formica clava</i> Forel, 1886                 | Himachal Pradesh, Punjab               | Erroneous locality                                                         |
| <i>Formica fusca</i> Linnaeus, 1758              | Uttar Pradesh                          | Erroneous locality                                                         |
| <i>Formica gagates</i> Latreille, 1798           | Haryana                                | Erroneous locality                                                         |
| <i>Formica graveyji</i> Mukerjee, 1930           | West Bengal                            | Erroneous locality                                                         |
| <i>Formica rufibarbis</i> Fabricius, 1793        | Sikkim                                 | Misidentification ( <i>Formica fusca</i> )                                 |
| <i>Lasius niger</i> (Linnaeus, 1758)             | Punjab                                 | Erroneous locality                                                         |
| <i>Polyrhachis exercita nistrata</i> Emery, 1889 | Goa                                    | Misidentification ( <i>Polyrhachis exercita</i> )                          |
| <i>Polyrhachis jerdonii</i> Forel, 1894          | Punjab                                 | Erroneous locality                                                         |
| <i>Polyrhachis rupicapra</i> Roger, 1863         | Punjab                                 | Erroneous locality                                                         |
| <b>Myrmicinae</b>                                |                                        |                                                                            |
| <i>Aphaenogaster beccarii</i> Emery, 1887        | Haryana, Himachal Pradesh, Punjab      | Erroneous locality                                                         |
| <i>Aphaenogaster feae</i> Emery, 1889            | Goa                                    | Misidentification ( <i>Aphaenogaster baccarii</i> )                        |
| <i>Aphaenogaster rothmeyei</i> (Forel, 1902)     | Maharashtra, Tamil Nadu, Uttar Pradesh | Erroneous locality                                                         |
| <i>Aphaenogaster sagei</i> (Forel, 1902)         | Haryana, Punjab                        | Erroneous locality                                                         |

| Taxonomy                                           | State(s) recorded                                                                                                            | Explanation                                                                                                                                                                                         |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Cardiocondyla nuda</i> (Mayr, 1866)             | Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, West Bengal                                | Misidentification (potentially <i>C. kagutsuchi</i> or <i>C. mauritanica</i> , see Seifert 2003)                                                                                                    |
| <i>Crematogaster buddhae</i> Forel, 1902           | Haryana                                                                                                                      | Erroneous locality                                                                                                                                                                                  |
| <i>Crematogaster walshi</i> Forel, 1902            | Haryana, Himachal Pradesh, Punjab, Rajasthan, Uttar Pradesh                                                                  | Erroneous locality                                                                                                                                                                                  |
| <i>Meranoplus rothneyi</i> Forel, 1902             | Haryana, Himachal Pradesh, Punjab                                                                                            | Erroneous locality                                                                                                                                                                                  |
| <i>Messor himalayanus</i> (Forel, 1902)            | Haryana, Uttar Pradesh                                                                                                       | Misidentification ( <i>Messor instabilis</i> )                                                                                                                                                      |
| <i>Monomorium dichroum</i> Forel, 1902             | Punjab                                                                                                                       | Erroneous locality                                                                                                                                                                                  |
| <i>Monomorium longi</i> Forel, 1902                | Haryana, Punjab                                                                                                              | Erroneous locality                                                                                                                                                                                  |
| <i>Monomorium monomorium</i><br>Bolton, 1987       |                                                                                                                              | The status of this species is uncertain and needs extensive taxonomic work. Here we tentatively considered the species valid in the species list of India, but future work might change its status. |
| <i>Monomorium orientale</i> Mayr, 1879             | Punjab                                                                                                                       | Erroneous locality                                                                                                                                                                                  |
| <i>Myrmica pachei</i> Forel, 1906                  | Jammu & Kashmir                                                                                                              | Erroneous locality                                                                                                                                                                                  |
| <i>Pheidole lamellinoda</i> Forel, 1902            | Haryana                                                                                                                      | Erroneous locality                                                                                                                                                                                  |
| <i>Solenopsis invicta</i> Buren, 1972              |                                                                                                                              | Misidentification ( <i>Solenopsis geminata</i> )                                                                                                                                                    |
| <i>Temnothorax rothneyi</i> Forel, 1902            | Punjab, Uttar Pradesh                                                                                                        | Erroneous locality                                                                                                                                                                                  |
| <i>Tetramorium caespitum</i><br>(Linnaeus, 1758)   | Himachal Pradesh                                                                                                             | Erroneous locality                                                                                                                                                                                  |
| <i>Tetramorium christiei</i> Forel, 1902           | Haryana                                                                                                                      | Erroneous locality                                                                                                                                                                                  |
| <b>Ponerinae</b>                                   |                                                                                                                              |                                                                                                                                                                                                     |
| <i>Harpegnathos venator</i> (Smith, 1858)          | Uttar Pradesh                                                                                                                | Erroneous locality                                                                                                                                                                                  |
| <i>Leptogenys dalyi</i> Forel, 1900                | Punjab                                                                                                                       | Erroneous locality                                                                                                                                                                                  |
| <i>Leptogenys dentilobis</i> Forel, 1900           | Punjab                                                                                                                       | Erroneous locality                                                                                                                                                                                  |
| <i>Odontomachus haematodus</i><br>(Linnaeus, 1758) | Arunachal Pradesh, Assam, Goa, Karnataka, Kerala, Maharashtra, Manipur, Meghalaya, Nagaland, Sikkim, Tamil Nadu, West Bengal | Misidentification (potentially <i>O. simillimus</i> )                                                                                                                                               |
| <i>Ponera affinis</i> Heer, 1849                   | Kerala                                                                                                                       | <i>incertae sedis</i> in <i>Ponera</i>                                                                                                                                                              |
| <b>Pseudomyrmecinae</b>                            |                                                                                                                              |                                                                                                                                                                                                     |
| <i>Tetraponera carbonaria</i> (Smith, 1863)        | West Bengal                                                                                                                  | Erroneous locality                                                                                                                                                                                  |

## Acknowledgements

We would like to thank Department of Science and Technology, Ministry of Science and Technology, Ministry of Environment and Forest and Climate change, Govt. of India, New Delhi for assigning research grants to Dr Himender Bharti for the last 16 years, which helped to generate this data. EPE was supported by subsidy funding to OIST. The authors would like to warmly thank all the participants who graciously provided records and publication to the Global Ant Biodiversity Informatics (GABI) Project.

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## Appendix I.

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# Seven species new to science and one newly recorded species of the ant genus *Myrmica* Latreille, 1804 from China, with proposal of a new synonym (Hymenoptera, Formicidae)

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Academic editor: Brian Fisher | Received 6 April 2014 | Accepted 16 November 2015 | Published 11 January 2016

<http://zoobank.org/4329FEDA-47F9-4B8E-84D3-10B47AF2A1B9>

**Citation:** Chen ZL, Zhou SY, Huang JH (2016) Seven species new to science and one newly recorded species of the ant genus *Myrmica* Latreille, 1804 from China, with proposal of a new synonym (Hymenoptera: Formicidae). ZooKeys 551: 85–128. doi: 10.3897/zookeys.551.6005

## Abstract

Seven new species of the genus *Myrmica* Latreille, 1804 are described from China: *M. dongi* sp. n., *M. huaii* sp. n., *M. liui* sp. n., *M. mifui* sp. n., *M. oui* sp. n., *M. wangi* sp. n. and *M. yani* sp. n. *Myrmica forcipata* Karawaiew, 1931 is recorded from China for the first time, while *M. zhengi* Ma & Xu, 2011 is synonymized with *M. luteola* Kupyanskaya, 1990. Identification keys based on worker caste are provided to the *Myrmica* species of China and the *pachei*-group species of the Old World, respectively.

## Keywords

Formicidae, *Myrmica*, new species, new synonym, new Chinese record

## Introduction

*Myrmica* Latreille, 1804 is a large genus belonging to the family Formicidae, with 200 species and 12 subspecies known worldwide to date (Bolton 2014). Although there was confusion of the concept of the genus *Myrmica* before the start of the twentieth century (Nylander 1846a, 1846b, 1849, 1856, 1857, Curtis 1854), which led to the additions to the genus of numerous taxa that did not truly belong to *Myrmica* (Radchenko and Elmes 2010), the works by Finzi (1926), Santschi (1931) and Arnol'di (1934) clarified the genus definition. The first revision of the genus *Myrmica* was provided by Weber (1947, 1948, 1950), who paid most of his attention to the Nearctic species but presented a comprehensive synopsis of the Palearctic species as well. From then on, a series of revisions were devoted to the genus *Myrmica* in the subsequent decades (Sadil 1952, Yarrow 1955, Arnol'di 1970, 1976, Kutter 1970, 1973, Francoeur 1981, 2007, Kupyanskaya 1986a, 1986b, Bolton 1988, Seifert 1988, 2003, 2011, Czekes et al. 2013). Besides the efforts described above, a more extensive revisionary project was launched by Radchenko and his colleagues. Radchenko's interest was first focused on the *Myrmica* species of the central and eastern Palaearctic region (Radchenko 1994a–f, Radchenko et al. 1997), but soon extended to the Himalaya, south-east Asia and the whole Oriental region (Radchenko and Elmes 1998, 1999a, 1999b, Elmes and Radchenko 1998). With the cardinal revisions of more species groups (Radchenko and Elmes 2001a, 2003a, 2004, 2009a, 2009b, Radchenko et al. 2002, Radchenko et al. 2006) and regional faunistic investigations (Radchenko and Elmes 2001, 2002, 2003, 2009c, Radchenko et al. 2001, Elmes et al. 2001, Elmes et al. 2002, Radchenko et al. 2006, Radchenko et al. 2008a, 2008b, Elmes and Radchenko 2009), many new species were described from the regions with poorly known *Myrmica* fauna (e.g. China, Korea, Vietnam, Turkey, Sicily etc.), and the taxonomy of *Myrmica* in the Old World culminated with the publication of the monograph by Radchenko and Elmes (2010), in which a total of 147 species were recognized, including five fossil species from the European late Eocene ambers. Stappen (2014) made a systemic evaluation on work of Radchenko and Elmes (2010) with some modifications, changes. On the basis of the work of Radchenko and Elmes (2010), further research was conducted in the Himalayan region (Bharti 2012a, 2012b, Bharti and Sharma 2011a, 2011b, 2011c, 2013), resulting in the discovery of nine new species in total.

The first Chinese species of the genus *Myrmica*, i.e. *M. tibetana* Mayr, 1889, was described from Xizang. Ruzsky (1915) described eight species/subspecies and added *M. smythiesii* Forel, 1902 to the Xizang fauna. Further work was carried out on the *Myrmica* fauna of China by later authors (Viehmeyer 1922, Wheeler 1928, 1929, 1930a, Donisthorpe 1929, Santschi 1937, Eidmann 1941, Wu and Wang 1995, Tang et al. 1995, Xia and Zheng 1997, Elmes and Radchenko 1998, Wei et al. 1999, Collingwood and Heatwole 2000, Wei et al. 2001b, Chang and He 2001b, Zhou 2001, Zhou and Huang 2002, Xu 2002, Radchenko et al. 2001, Huang et al. 2004, Li et al. 2005, Tie and Xu 2004, Tie and Xu 2005, Wang et al. 2005, Zhou 2005,

Zhou 2006, Radchenko et al. 2008, Wang et al. 2009, Radchenko and Elmes 2009a, Radchenko and Elmes 2010, Zhou and Qian 2010, Xu et al. 2011, Zhang et al. 2011, Zhou 2013), and the sporadic results were summarized in several checklists (Wheeler 1930b, Wu 1941, Chou and Terayama 1991, Huang and Zhou 2007, Guenard and Dunn 2012). Meanwhile, nomenclatural changes were made in various revisionary works. In detail, *Myrmica kozlovi mekongi*, *M. kozlovi subbrevispinosa* and *M. kozlovi subalpina* were synonymized with *M. kozlovi*, *M. taediosa* with *M. transsibirica*, *M. tibetana furva* with *M. tibetana*, *M. chinensis* and *M. helleri* with *M. kurokii* (Radchenko and Elmes 2010), *M. everesti* with *M. rupestris*, *M. specularis* with *M. kozlovi* (Radchenko and Elmes, 2001), *M. kurokii tipuna* with *M. arisana* (Elmes and Radchenko 1998), *M. sinica* with *M. excelsa* (Radchenko et al. 2008), *M. limanica* with *M. gallienii* (Collingwood 1979), *M. smythiesii exigua* Ruzsky, 1915 was replaced with *M. ruzskyana* (Radchenko and Elmes 2010); the following four taxa were raised to species: *M. smythiesii bactriana*, *M. margaritae serica*, *M. margaritae pulchella* (Radchenko and Elmes 2010), *M. rugosa arisana* (Elmes & Radchenko, 1998); *M. rubra khamensis* (= *M. ruginodis khamensis*) was considered as *incertae sedis* in *Myrmica* (Radchenko and Elmes 2010); *M. margaritae inornata* Menozzi, 1941 was determined as *nomen nudum* (Bolton 1995); the records for China of *M. gallienii* (Wei et al. 2001b, Chang and He 2001b), *M. inezae* (Wei et al. 1999, Wei et al. 2001b), *M. jessensis* (Wu and Wang 1995, Wei et al. 2001b), *M. lobicornis* (Eidmann 1941, Wei et al. 2001b), *M. margaritae* (Eidmann 1941, Wu and Wang 1995, Zhou 2001, Wei et al. 2001b), *M. smythiesii cachmiriensis* (Eidmann 1941) and *M. wesmaeli* (Chang and He 2001b) were deemed misidentifications, so they were excluded from Chinese fauna (Radchenko and Elmes 2010). In terms of all taxonomic decisions above-mentioned, 46 *Myrmica* species are recognized from China so far and *M. ruginodis khamensis* was considered an unidentifiable taxon recently (Radchenko and Elmes 2010). However, there are at least 104 species found in the surrounding regions of China which may be recorded in China in the near future, indicating that the diversity of *Myrmica* in China is extremely high. The *Myrmica* fauna of China is still poorly known, and many more species certainly remain to be found.

In this paper, seven new and one newly recorded *Myrmica* species are described from China. *Myrmica zhengi* Ma & Xu, 2011 is considered as a junior synonym of *M. luteola* Kupyanskaya, 1990, leading to an increase of the known Chinese *Myrmica* species to 54.

## Materials and methods

This study is based on the specimens deposited in the Insect Collection of Guangxi Normal University, Guilin, China. Digital images of the specimens were taken with a Nikon AZ100 microscope. All measurements are in millimeters. Standard measurements and indices are mostly defined by Radchenko and Elmes (2010):

|                       |                                                                                                                                                         |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HL</b>             | length of the head in full face view, measured in a straight line from the middle of anterior clypeal margin to the middle of posterior margin.         |
| <b>HW</b>             | maximum width of the head in full face view behind the eyes.                                                                                            |
| <b>FW</b>             | minimum distance of frons between the frontal carinae.                                                                                                  |
| <b>FLW</b>            | maximum distance between the outer borders of the frontal lobes.                                                                                        |
| <b>SL</b>             | maximum straight length of the antennal scape in profile view.                                                                                          |
| <b>PW</b>             | maximum width of pronotum in dorsal view.                                                                                                               |
| <b>ML</b>             | length of mesosoma in profile, measured from the point at which the pronotum meets the cervical shield to the posterior basal angle of the metapleuron. |
| <b>PL</b>             | maximum length of petiole in dorsal view.                                                                                                               |
| <b>PH</b>             | maximum height of petiole in profile view.                                                                                                              |
| <b>ESL</b>            | straight length of propodeal spine in profile view, from its tip to the deepest point of the propodeal constriction at the base of the spine.           |
| <b>CI</b>             | HL/HW                                                                                                                                                   |
| <b>ESLI</b>           | ESL/HW                                                                                                                                                  |
| <b>FI</b>             | FW/HW                                                                                                                                                   |
| <b>FLI</b>            | FLW/FW                                                                                                                                                  |
| <b>SI<sub>1</sub></b> | SL/HL                                                                                                                                                   |
| <b>SI<sub>2</sub></b> | SL/HW                                                                                                                                                   |

### Taxonomic checklist of *Myrmica* species in China

A list of species of *Myrmica* ants currently known from China is presented, according to the literatures and our collections. For each species the distributed places of China and the citations are mentioned. The list is arranged alphabetically.

#### *M. angulata* Radchenko, Zhou & Elmes, 2001

**Distribution.** Guangxi (Radchenko et al. 2001, Chen and Zhou 2007) and Hubei (Lyu and Cho 2003).

#### *M. angulinodis* Ruzsky, 1905

**Distribution.** Gansu (Chang and He 2001a), Inner Mongolia (Collingwood and Heatwole 2002), Qinghai (Tie and Xu 2004), Xinjiang (Collingwood and Heatwole 2002).

#### *M. arisana* Wheeler, 1930

**Distribution.** Taiwan (Wheeler 1930, Huang and Zhou 2007).

#### *M. bactriana* Ruzsky, 1915

**Distribution.** Qinghai (Radchenko and Elmes 2010), Xinjiang (Huang and Zhou 2007), Xizang (Xu et al. 2011, Zhang et al. 2011).

***M. curiosa* Radchenko, Zhou & Elmes, 2008**

**Distribution.** Hunan (Radchenko et al. 2008), Sichuan (Radchenko et al. 2008) and Yunnan (Radchenko et al. 2008).

***M. deplanata* Emery, 1921**

**Distribution.** Ningxia (Tie and Xu 2004) and Qinghai (Chang and He 2001b, Huang and Zhou 2007).

***M. dongi* sp. n.**

**Distribution.** Xizang.

***M. draco* Radchenko, Zhou & Elmes, 2001**

**Distribution.** Guangdong (Huang and Zhou 2007), Guangxi (Radchenko et al. 2001), Henan (Li et al. 2005), Shaanxi (Radchenko and Elmes 2010) and Yunnan (Radchenko and Elmes 2010).

***M. eidmanni* Menozzi, 1930**

**Distribution.** Liaoning (Radchenko and Elmes 2010), Heilongjiang (Radchenko and Elmes 2010), Jilin (Radchenko and Elmes 2010).

***M. excelsa* Kupyanskaya, 1990**

= *M. sinica* Wu & Wang, 1995

**Distribution.** Gansu (Chen 2008), Henan (Huang and Zhou 2007), Hubei (Wang and Zhao 2009), Shaanxi (Tie and Xu 2004, Wei et al. 2001a), Shandong (Wei et al. 2001b).

***M. forcipata* Karavajev, 1931 (new record for China)**

**Distribution.** Ningxia.

***M. heterorhytida* Radchenko & Elmes, 2009**

**Distribution.** Yunnan (Radchenko and Elmes 2010).

***M. blavaci* Radchenko & Elmes, 2009**

**Distribution.** Sichuan (Radchenko and Elmes 2010).

***M. huaii* sp. n.**

**Distribution.** Shaanxi.

***M. koreana* Elmes, Radchenko & Kim, 2001**

**Distribution.** North east part of China (Radchenko and Elmes 2010).

***M. kotokui* Forel, 1911**

**Distribution.** North east part of China (Radchenko and Elmes 2010).

***M. kozlovi* Ruzsky, 1915**

= *M. kozlovi mekongi* Ruzsky, 1915

= *M. kozlovi subalpina* Ruzsky, 1915

= *M. kozlovi subbrevispinosa* Ruzsky, 1915

**Distribution.** Xizang (Huang and Zhou 2007).

***M. kurokii* Forel, 1907**

= *M. chinensis* Viehmeyer, 1922

= *M. helleri* Viehmeyer, 1922

**Distribution.** Sichuan (Huang and Zhou 2007, Radchenko and Elmes 2010).

***M. liui* sp. n.**

**Distribution.** Inner Mongolia.

***M. luteola* Kupyanskaya, 1990**

= *M. zhengi* Ma & Xu, 2011, **syn. n.**

**Distribution.** Shaanxi (Ma and Xu 2011).

***M. mifui* sp. n.**

**Distribution.** Shaanxi.

***M. mirabilis* Elmes & Radchenko, 1998**

**Distribution.** Taiwan (Huang and Zhou 2007).

***M. mixta* Radchenko & Elmes, 2008**

**Distribution.** Sichuan (Radchenko et al. 2008).

***M. multiplex* Radchenko & Elmes, 2009**

**Distribution.** Shaanxi (Radchenko and Elmes 2010).

***M. oui* sp. n.**

**Distribution.** Guizhou.

***M. pararitae* Radchenko & Elmes, 2008**

**Distribution.** Sichuan (Radchenko et al. 2008).

***M. phalacra* Radchenko & Elmes, 2009**

**Distribution.** Shaanxi (Radchenko and Elmes 2010).

***M. pleiorhytida* Radchenko & Elmes, 2009**

**Distribution.** Yunnan (Radchenko and Elmes 2010).

***M. poldii* Radchenko & Rigato, 2008**

**Distribution.** Sichuan (Radchenko et al. 2008).

***M. polyglypta* Radchenko & Rigato, 2008**

**Distribution.** Yunnan (Radchenko et al. 2008).

***M. pulchella* Santschi, 1937**

= *M. formosae* Wheeler W.M., 1929

**Distribution.** Taiwan (Hua 2006, Huang and Zhou 2007).

***M. ritae* Emery, 1889**

**Distribution.** Sichuan (Radchenko et al. 2008).

***M. rubra* (Linnaeus, 1758)**

**Distribution.** Gansu (Chen 2008), Ningxia (Tie and Xu 2004, Xin et al. 2011), Qinghai (Chang and He 2001b), Shaanxi (Tie and Xu 2004), Shaanxi (Wei et al. 2001b), Xinjiang (Wu et al. 2004), Xizang (Xu et al. 2011, Zhang et al. 2011).

***M. ruginodis* Nylander, 1846**

**Distribution.** Gansu (Collingwood 1962), Heilongjiang (Wei et al. 2001b; Yasumatsu 1941), Henan (Li et al. 2005), Hunan (Huang and Zhou 2007, Huang et al. 2005), Jilin (Wei et al. 2001b), Ningxia (Ma et al. 2008, Xin et al. 2011), Shaanxi (Liu et al. 1999).

***M. ruzskyana* Radchenko & Elmes, 2010**

**Distribution.** Xinjiang (Huang and Zhou 2007, Radchenko and Elmes 2010).

***M. saposhnikovii* Ruzsky, 1904**

**Distribution.** Xizang (Huang and Zhou 2007).

***M. scabrinodis* Nylander, 1846**

**Distribution.** Xinjiang (Xia and Zheng 1997).

***M. schencki* Viereck, 1903**

**Distribution.** Sichuan (Collingwood 1962), Xinjiang (Wu et al. 2004).

***M. schulzi* Radchenko & Elmes, 2009**

**Distribution.** Shaanxi (Radchenko and Elmes 2010).

***M. sculptiventris* Radchenko & Elmes, 2009**

**Distribution.** Sichuan (Radchenko and Elmes 2010).

***M. serica* Wheeler, 1928**

**Distribution.** Shaanxi (Radchenko et al. 2006), Shaanxi (Radchenko et al. 2001), Yunnan (Radchenko et al. 2001) and Taiwan (Huang and Zhou 2007, Radchenko et al. 2001).

***M. sinensis* Radchenko, Zhou & Elmes, 2001**

**Distribution.** Guangxi (Radchenko et al. 2001, Chen and Zhou 2007) and Henan (Li et al. 2005).

***M. sinoschencki* Radchenko & Elmes, 2008**

**Distribution.** Sichuan (Radchenko et al. 2008).

***M. stangeana* Ruzsky, 1902**

**Distribution.** Xinjiang (Xia and Zheng 1997).

***M. sulcinodis* Nylander, 1846**

**Distribution.** Gansu (Chang and He 2001b), Inner Mongolia (Wei et al. 2001b), Ningxia (Tie and Xu 2004, Xin et al. 2011), Qinghai (Tie and Xu 2004).

***M. taibaiensis* Wei, Zhou & Liu, 2001**

**Distribution.** Shaanxi (Wei et al. 2001b).

***M. tibetana* Mayr, 1889**

**Distribution.** Xizang (Huang and Zhou 2007).

***M. transsibirica* Radchenko, 1994**

**Distribution.** Heilongjiang (Radchenko and Elmes 2010), Jilin (Radchenko and Elmes 2010).

***M. urbanii* Radchenko & Elmes, 1998**

**Distribution.** Hubei (Wang et al. 2005).

***M. vandeli* Bondroit, 1920**

**Distribution.** Xinjiang (Xia and Zheng 1997).

***M. wangi* sp. n.**

**Distribution.** Shaanxi.

***M. weii* Radchenko & Zhou, 2008**

**Distribution.** Shaanxi (Radchenko et al. 2008).

***M. yani* sp. n.**

**Distribution.** Guizhou.

***M. yunnanensis* Radchenko & Elmes, 2009**

**Distribution.** Yunnan (Radchenko and Elmes 2010).

## Unidentifiable names and *incertae sedis*

### ***M. ruginodis* var. *khamensis* Ruzsky, 1915**

**Distribution.** China: Xizang (Huang and Zhou 2007).

**Doubtful species whose presence in China could not be verified.**

### ***M. aloba* Forel, 1909**

**Distribution.** Xizang (Tie and Xu 2004).

### ***M. inezae* Forel, 1902**

**Distribution.** Shaanxi (Tie and Xu 2004), Sichuan (Alonso et al. 2009), Yunnan (Radchenko 2004).

### ***M. gallienii* (Wei et al. 2001b; Chang and He 2001b)**

**Distribution.** Gansu (Chang and He 2001b), Ningxia (Chang and He 2001b, Tie and Xu 2004), Shaanxi (Tie and Xu 2004) and Xinjiang (Wu et al. 2004).

### ***M. jessensis* Forel, 1901**

**Distribution.** Gansu (Chen 2008), Hebei (Wei et al. 2001b), Heilongjiang (Wei et al. 2001b), Hubei (Hua 2006), Hunan (Huang and Zhou 2007, Huang et al. 2005), Inner Mongolia (Wei et al. 2001b), Jilin (Wei et al. 2001b), Ningxia (Wang 2009), Shaanxi (Tie and Xu 2004), Sichuan (Wei et al. 2001b), Xizang (Xu et al. 2011, Zhang et al. 2011).

### ***M. lobicornis* Nylander, 1846**

**Distribution.** Beijing (Wei et al. 2001b), Gansu (Chen 2008), Hebei (Hua 2006), Heilongjiang (Wei et al. 2001b), Henan (Li et al. 2005), Inner Mongolia (Wei et al. 2001b), Jilin (Wei et al. 2001b), Liaoning (Wei et al. 2001b), Ningxia (Tie and Xu 2004, Xin et al. 2011), Qinghai (Zhang and Zheng 2002), Shaanxi (Tie and Xu 2004), Shaanxi (Wei et al. 2001b), Sichuan (Zhang and Zheng 2002).

### ***M. margaritae* Emery, 1889**

**Distribution.** Anhui (Wei et al. 2001b), Guangxi (Huang and Zhou 2007), Hebei (Wei et al. 2001b), Henan (Li et al. 2005), Hubei (Huang and Zhou 2007), Hunan (Wei et al. 2001, Huang et al. 2005), Shaanxi (Tie and Xu 2004), Sichuan (Zhang et al. 2011, Liu et al. 2011), Yunnan (Yang et al. 2004, Xu 2002), Zhejiang (Wei et al. 2001b) and Taiwan (Huang and Zhou 2007).

### ***M. rugosa* Mayr, 1855**

**Distribution.** China: Fujian (Huang and Zhou 2007), Xizang (Huang and Zhou 2007), Taiwan (Huang and Zhou 2007).

***M. rupestris* Forel, 1902**

**Distribution.** Xizang (Donisthorpe 1929).

***M. smythiesii* Forel, 1902**

**Distribution.** Xizang (Xu et al. 2011, Zhang et al. 2011).

***M. tulinae* Elmes, Radchenko & Aktaş, 2002**

**Distribution.** Shaanxi (Tie and Xu 2005).

***M. wesmaeli* Bondroit, 1918**

**Distribution.** Ningxia (Chang and He 2001b, Tie and Xu 2004) and Qinghai (Chang and He 2001b, Huang and Zhou 2007).

**Taxonomy*****Myrmica luteola* Kupyanskaya, 1990**

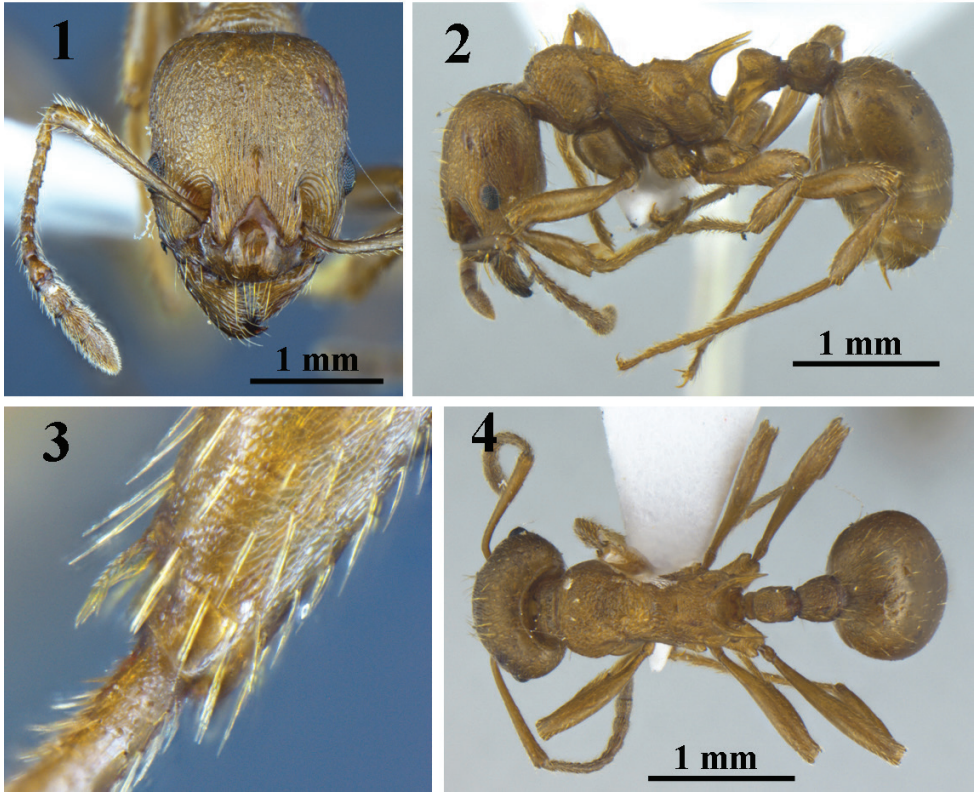
Figures 1–4

*M. luteola* Kupyanskaya, 1990: 103, Figs 16, 17 (w.q.) RUSSIA; 2003: 239; Radchenko and Elmes 2010: 197.

*M. zhengi* Ma & Xu, 2011: 795, figs 1–5 (w.m.) CHINA. **syn. n.**

**Material examined.** *M. zhengi*: paratypes, 4 workers: Foping Nature Reserve (33°42'N, 107°48'E), Shaanxi Province, China. 23.vii.2006, leg. Libin Ma, No. G060078; 3 workers: Qin Ling, Shaanxi Province, China. 27.vii.2006, leg. Zhao Tan, No. G060158; 1 worker, identification and presentation by Alexander G. Radchenko, but lack of collecting information.

**Differential diagnosis.** As Radchenko and Elmes (2010) noted, this species is very easy to distinguish from all other *Myrmica* species due to its unique features, i.e. strongly reduced and simple non-pectinate spurs on the middle and hind tibiae, and somewhat developed ventral petiolar and postpetiolar processes. Moreover, the workers show another feature that very rarely occurs in *Myrmica* species: the base of the first gastral tergite is distinctly longitudinally striated. Ma and Xu (2011) described *M. zhengi* from Shaanxi perhaps without reading the papers by Kupyanskaya (1990) and Radchenko et al. (2003a, 2010). These three important references are also not cited by Ma & Xu, so that they missed the key features. After a careful comparison of the five workers paratype and one queen paratype of *M. zhengi* with the original morphological descriptions and the identified specimens of *M. luteola* by Prof. Alexander G. Radchenko (Museum and Institute of Zoology Polish Academy of Sciences, Poland), we found no differences between them; therefore, we propose *M. zhengi* as a junior synonym of *M. luteola*.



**Figures 1–4.** *M. zhengi* Ma & Xu, 2011 = *M. luteola* Kupyanskaya, 1990. worker (paratype) (G060078). **1** head in full-face view **2** body in profile view **3** spurs of hind tibiae **4** body in dorsal view.

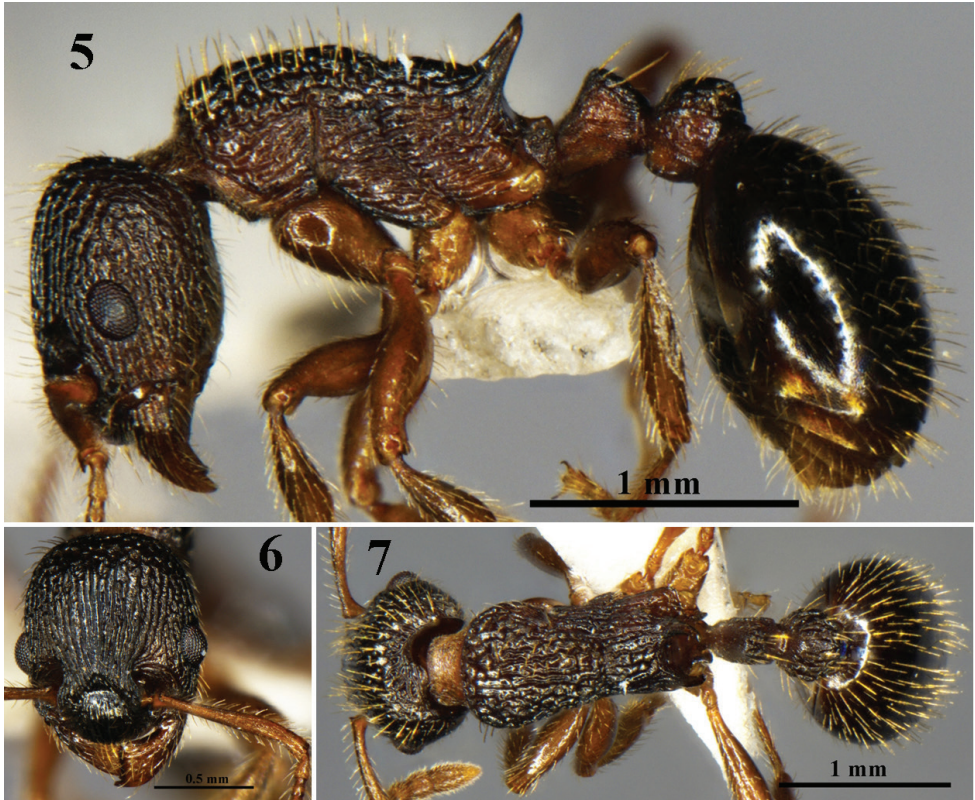
### *Myrmica forcipata* Karavajev, 1931

Figures 5–7

*Myrmica forcipata* Karavajev, 1931: 105, fig. 2 (w.) RUSSIA; Radchenko and Elmes 2010: 134.

**Material examined.** 5 workers, Xiaowutai Mountain, Hebei province, China, 39°00'25"N, 113°35'46"E, 1751m, 21.vi.2009, leg. Shanyi Zhou, No. G090211.

**Differential diagnosis.** This species is similar to *M. angulinodis*, but differs from the latter by the distinct, though not large, vertical lobe at the scape bend. This species was previously known only from south and east Siberia, Mongolia, but absent in the Russian far east. Herein this species is recorded from China for the first time.



**Figures 5–7.** *Myrmica forcipata* Karavajev, 1931. Worker (No. G090211). **5** body in profile view **6** head in full-face view **7** body in dorsal view.

***Myrmica dongi* sp. n.**

<http://zoobank.org/6B0F6901-D0FD-4CF4-8D7A-0DC06960C419>

Figures 8–13

**Type material. Holotype worker.** Sejila Mountain, Linzhi County, Xizang Autonomous Region, 29°40'00"N, 94°23'08"E, 4200m, 14.vi.2009, leg. Shuang Zhao, No. G090156. **Paratypes.** 1 worker, 11.vi.2009, No. G090156; 1 worker, 14.vi.2009, No. G090137; 1 worker, 15.vi.2009, No. G090141; 1 queen, 17.vi.2009, No. G090149; the locality and collector the same as holotype.

**Measurements and descriptions. Holotype worker** (Figs 8–10). HL 1.40, HW 1.25, FW 0.50, FLW 0.53, SL 1.15, PW 0.87, ML 1.75, PL 0.50, PH 0.45, ESL 0.40, CI 1.12, FI 0.40, FLI 1.06, SI<sub>1</sub> 0.82, SI<sub>2</sub> 0.92, ESLI 0.32. **Paratype workers** (n = 3). HL 1.30–1.41, HW 1.10–1.25, FW 0.48–0.50 FLW 0.50–0.53, SL 1.10–1.12, PW 0.82–0.90, ML 1.70–1.79, PL 0.42–0.51, PH 0.42–0.58, ESL 0.37–0.45, CI 1.13–1.17, FI 0.35–0.36, FLI 1.04–1.06, SI<sub>1</sub> 0.80–0.87, SI<sub>2</sub> 0.89–0.94, ESLI 0.27–0.34.

**Paratype queen** (Figs 11–13). HL 1.25, HW 1.18, FW 0.53, FLW 0.55, SL 1.17, PW 0.95, ML 1.88, PL 0.5, PH 0.20, ESL 0.20, CI 1.06, FI 0.45, FLI 1.04, SI<sub>1</sub> 0.93, SI<sub>2</sub> 0.99, ESLI 0.17.

**Holotype worker.** Head longer than broad, with very weakly convex sides, almost straight posterior margin and rounded posterior corners; anterior clypeal margin rounded, slightly prominent, not notched medially. Frontal carinae curved outwards to merge with the rugae that surround antennal sockets. Frons wide, frontal lobes not extended. Antennal scape relatively long (SI<sub>2</sub> = 0.92), slightly shorter than head width, gradually though distinctly curved at the base, without any trace of lobe or carina.

Mesosoma robust, promesonotum in profile view slightly convex, promesonotal suture in dorsal view indistinct. Metanotal groove distinct, wide, but shallow. Propodeal lobes rounded. Propodeal spines relatively short, straight, sharp, directly backwards at an angle of less than 45°. Petiole high, with very short peduncle; petiolar node in profile view cylindric, anterior surface concave, dorsum of node slightly convex, with a distinct broad dorsal plate, posterior surface steep. Postpetiole subglobular, with anterior and dorsal surfaces forming a regular arch. Spurs of middle and hind tibiae well-developed and pectinate. Frons with dense, fine, slightly sinuous, longitudinal rugae, number of rugae between frontal carinae level with the eyes *ca.* 20, posterior part of the head and its sides with fine reticulation, spaces between rugae sparsely superficially punctate, appearing more or less shiny and never dull. Clypeus with longitudinal rugae, spaces between them shiny. Frontal triangle smooth and shiny. Pronotal dorsum with reticulation, lateral sides longitudinally rugose-punctate. Mesonotal and propodeal dorsum with < 20 moderately coarse transverse sinuous rugae. Lower parts of mesopleura and lateral sides of propodeum with longitudinal rugae. Spaces between rugae on mesosoma with fine punctures, but appearing quite shiny. Petiole and postpetiole dull, densely punctate.

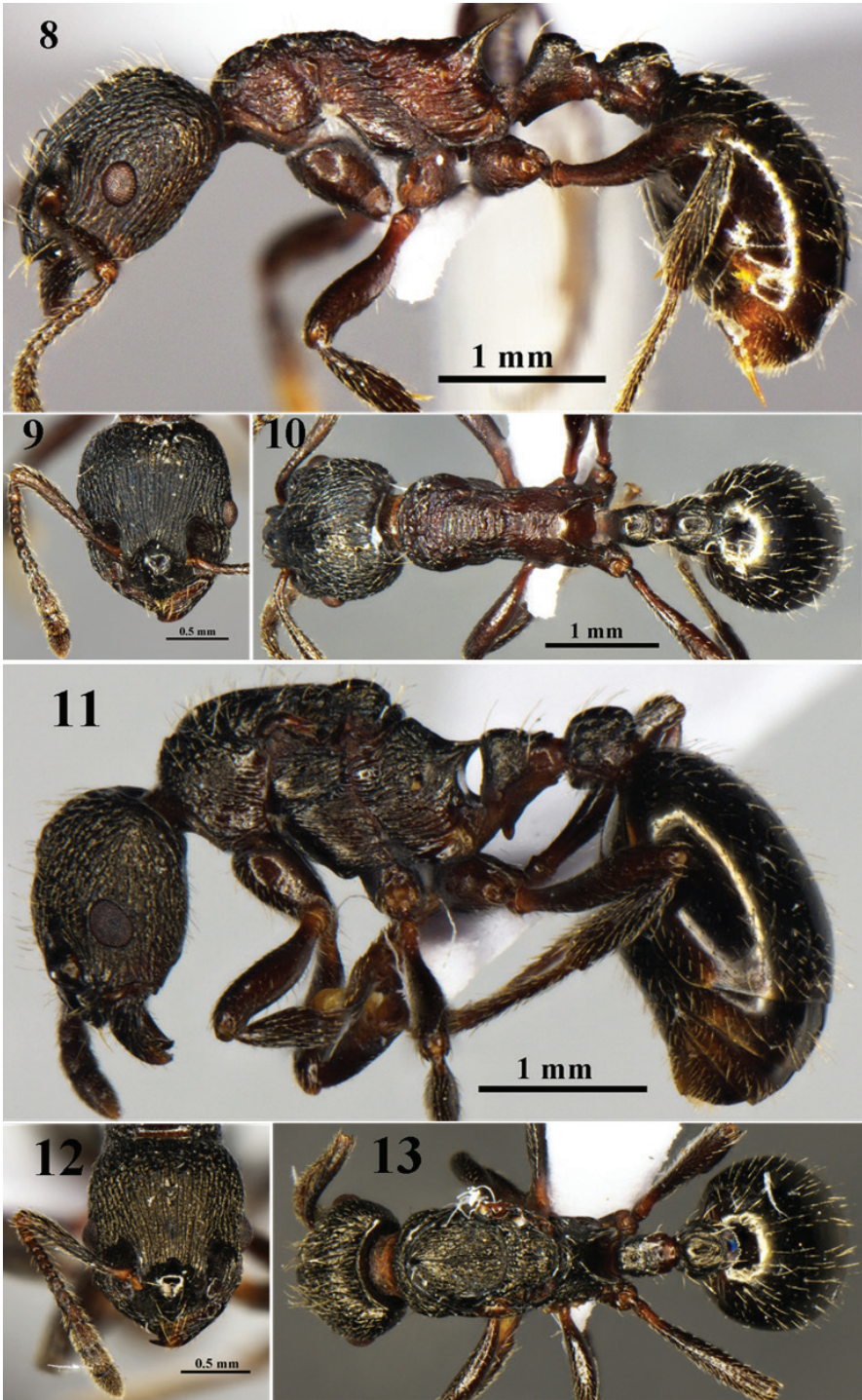
Head without subdecumbent pilosity at lateral margins, posterior margin with erect to suberect long hairs, genae with a few long hairs; dorsum of mesosoma with long hairs; petiole with 5–6 long hairs and a few short hairs. Antennal scapes and tibiae with subdecumbent hairs. Body colored blackish-brown, appendages somewhat lighter.

**Paratype workers.** With similar morphological characters as holotype, but in some individuals, color reddish-brown to yellowish-brown; petiole only with 3 long hairs.

**Paratype queen.** Queen generally similar to workers in the shape and sculpture of the head, frontal lobes, propodeal spines (which are more blunt at the apex), petiole and postpetiole. Mesosoma long and low, coarsely sculptured; anterior half of scutum with sinuous longitudinal rugae and reticulations; posterior half of scutum, scutellum and propodeal dorsum with coarse, slightly sinuous longitudinal rugae; pronotum with coarse irregular rugae and reticulations; mesopleura and lower part of propodeum with longitudinal rugose. Petiolar node and postpetiole dull, more coarsely rugose than in the worker, ground sculptures developed.

**Males.** Unknown.

**Habitat.** Found foraging on the ground of alpine meadow at the altitudes of 3437m. Nesting site unknown.



**Figures 8–13.** *Myrmica dongi* sp. n. **8–10:** worker (No. G090156); **11–13:** queen (No. G090149). **8, 11** body in profile view **9, 12** head in full-face view **10, 13** body in dorsal view.

**Etymology.** The specific epithet is the last name of a famous Chinese artist in the Ming Dynasty, Qichang Dong.

**Differential diagnosis.** This species belongs to the *pachei* group. The worker of this group is easily distinguished from other *Myrmica* species by a combination of the following characters: mesosoma dorsum at least partly with transverse rugosity; scape gradually though distinctly curved at the base, not angled, with no trace of lobe or carina. Anterior clypeal margin rounded or slightly prominent with no medial notch; petiole with a relatively short peduncle. Radchenko and Elmes (2001) once believed that this group was only found in Himalaya. However, following the recent examination of the *Myrmica* of China (Radchenko and Elmes 2009), they found out that the *pachei* group was much more diverse than previously expected. Before this study, this group contains 15 species. Radchenko and Elmes (2009) have made a good taxonomic revision and provided a key to the group based on workers. In this study, four new species of this group are described. Because the *pachei*-group is a sizeable species group and the sole function of a key is to allow taxa to be identified, a revised key is necessary for this group of species of the Old World. Accordingly, this key is given at the end of this paper, and distinguishing morphological characters between each species in the *pachei* group is obvious. It is easy to find that *Myrmica dongi* sp. n. is very similar to *M. pleiorhytida* Radchenko & Elmes, but differs from the latter by anterior surface of the petiole concave, dorsum of node with a distinct dorsal plate, slightly convex, posterior surface steep. Only the mesonotal dorsum with a fine transverse rugae, number of rugae on this area < 20, number of rugae between frontal carinae level the eyes  $\leq 20$ .

This species is also closely related to *M. dongi* sp. n., but differs from the latter by petiole with a stronger triangular ventral process; propleuron with rugose; mesonotal and propodeal dorsum with about 20 moderately coarse transverse sinuous rugae.

***Myrmica liui* sp. n.**

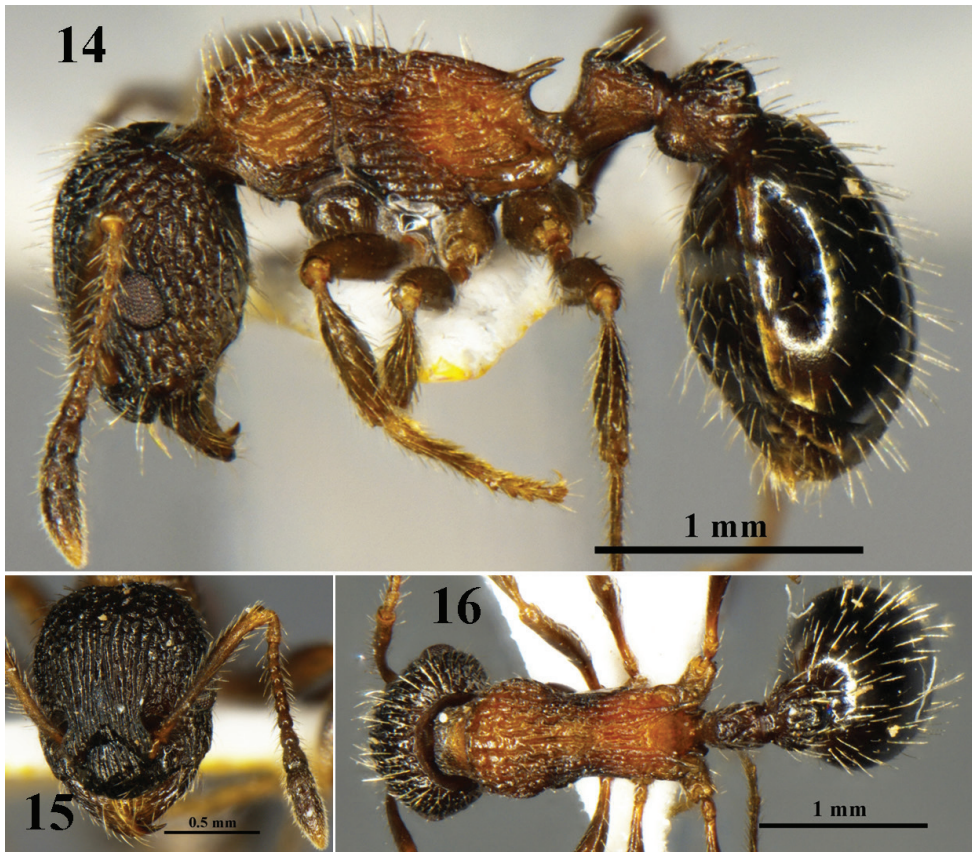
<http://zoobank.org/6AFDE2BC-646A-4E51-8AEB-FC39BEA32692>

Figures 14–16

**Type material. Holotype worker.** Helanshan, Inner Mongolia Autonomous Region, China, 38°52'29"N, 105°53'42"E, 2597m. 8.vii.2010, leg. Zhilin Chen, No. G100237. **Paratypes.** 5 workers, data as per holotype.

**Measurements and descriptions. Holotype worker.** HL 1.13, HW 0.93, FW 0.40, FLW 0.50, SL 0.88, PW 0.65, ML 1.38, PL 0.38, PH 0.38, ESL 0.18, CI 1.21, FI 0.43, FLI 1.25, SI<sub>1</sub> 0.78, SI<sub>2</sub> 0.94, ESLI 0.19. **Paratype workers** (n = 6). HL 1.10–1.15, HW 0.91–0.94, FW 0.35–0.41, FLW 0.45–0.50, SL 0.85–0.90, PW 0.60–0.71, ML 1.33–1.40, PL 0.32–0.42, PH 0.33–0.41, ESL 0.13–0.17, CI 1.18–1.22, FI 0.31–0.34, FLI 1.28–1.33, SI<sub>1</sub> 0.77–0.82, SI<sub>2</sub> 0.90–0.96, ESLI 0.18–0.21.

**Holotype worker.** Head longer than broad, with weakly convex sides and posterior margin, and broadly rounded posterior corners; anterior clypeal margin broadly rounded, shallowly notched medially. Frontal carinae very feebly curved, merging with



**Figures 14–16.** *Myrmica liui* sp. n. worker (No. G100237). **14** body in profile view **15** head in full-face view **16** body in dorsal view.

the rugae that extend to the margin of the head. Frons wide, frontal lobes much extended. Antennal scape long ( $SI_2$  0.94), slightly shorter than head width, gradually though distinctly curved at the base, with ridge on the inner margin.

Mesosoma in profile view weakly convex; promesonotal suture in dorsal view visible, metanotal groove very weak or absent. Propodeal lobes rounded. Propodeal spines short, blunt, directly backward and downward. Petiole with anterior surface concave, meeting the dorsal one to form a blunt angle, dorsum of node somewhat convex and steeply sloping backward, without dorsal plate. Postpetiole shorter than high, with convex dorsum. Spurs on middle and hind tibiae well-developed and pectinate.

Head with coarse longitudinal rugae on the whole dorsum, number of rugae between frontal carinae level with the eyes < 20. Posterior part and lateral sides of the head coarsely reticulated. Clypeus with coarse longitudinal rugae. Frontal triangle with a few longitudinal rugae, space between rugae shiny.

Dorsum and sides of mesosoma with less sinuous longitudinal rugae, space between rugae smooth and shiny. Petiole and postpetiole with short rugae, and densely punctate.

Head with abundant, long, suberect hairs at lateral margins; dorsum of mesosoma with longer hairs, petiole with 6–8 long and some shorter hairs. Antennal scape and tibiae with subdecumbent hairs. Head and gaster colored dark brown, mesosoma reddish-brown, appendages lighter.

**Paratype workers.** As holotype.

**Queens and males.** Unknown.

**Habitat.** This species nests in the soil in alpine meadow, at elevation 2573m.

**Etymology.** The specific epithet is the Chinese name Gongquan Liu, who was a famous Chinese calligrapher in the Tang Dynasty.

**Differential diagnosis.** This species belongs to the *lobicornis* species group, which is one of the three most diverse species group of the Old World, containing 22 species (Radchenko and Elmes 2010). Radchenko and Elmes (2010) divided this group into five species complex, based on worker characters. This species shares features of *kasczenkoi*-complex of this group by mesosoma with less coarse sinuous longitudinal rugosity, propodeal spines shorter ( $ESLI \leq 0.35$ ), petiole of various shape, but never with well developed flattened dorsal plate. The *kasczenkoi*-complex includes 5 species: *M. angulinodis*, *M. commarginata*, *M. displicentia*, *M. kamtschatica* and *M. kasczenkoi*. *M. liui* sp. n. is similar to *M. angulinodis*, but the latter propodeal spines that curved inward when viewed from above. *M. liui* sp. n. is very similar to *M. commarginata*, but differs from the latter by dorsum of petiole somewhat convex and steeply sloping backward, without dorsal plate; on the other hand, the latter possesses unique morphological feature: mesonotum and propodeum are strongly constricted laterally, so that dorsal surface of them is narrow and form a sharp fidges, merging with the outer bases of propodeal spines. *M. liui* sp. n. also resembles to *M. displicentia*, but differs from the latter by dorsum of petiole without dorsal plate. This species is also similar to *M. kasczenkoi* Ruzsky, but differs from the latter by antennal scape with ridge at the base of the inner margin; propodeal spines thin, short, only 1/2 times longer than the distance between them, somewhat narrow at the base, backward and curved downward; petiole without dorsal plate. This species resembles to *M. kamtschatica*, but well differs from the latter by frontal carinae merges with the rugae that extend to the margin of the head, petiole without dorsal plate.

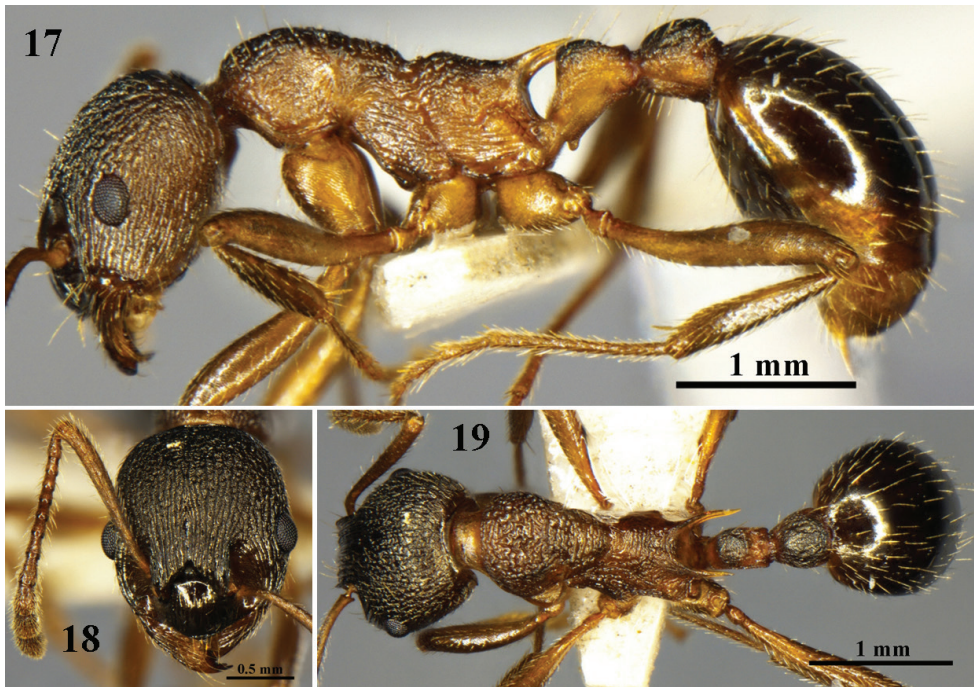
This species also is similar to *M. sulcinodis* Nylander of the *sulcinodis*-complex, but differs from the latter by sides of petiolar node with punctures and short rugae less coarse than those on the mesosoma. Metanotal groove very weak or absent. Anterior surface of petiole concave, meeting the dorsal one through a rounded angle, dorsum of node somewhat convex and steeply sloping backward.

***Myrmica huaii* sp. n.**

<http://zoobank.org/CA7198CA-28D5-451F-87B9-541A7024CF33>

Figures 17–19

**Type material. Holotype worker.** Huangbaiyuan, Shaanxi Prov., China, 33°59'48"N, 107°17'42"E, 1927m. 8. vi. 2012, No. G120347, leg. Chaotai Wei, **Paratypes.** 1



**Figures 17–19.** *Myrmica huatii* sp. n. worker (No. G120347). **17** body in profile view **18** head in full-face view **19** body in dorsal view.

worker, 2. vi. 2012, No. G1200339; 1 worker, 27. vi. 2012, No. G090467. Locality and collector the same as holotype.

**Measurements and descriptions. Holotype worker.** HL 1.50, HW 1.25, FW 0.55, FLW 0.58, SL 1.25, PW 0.85, ML 1.90, PL 0.55, PH 0.43, ESL 0.45, CI 1.20, FI 0.44, FLI 1.05,  $SI_1$  0.83,  $SI_2$  1.00, ESLI 0.36. **Paratype workers** ( $n = 3$ ). HL 1.48–1.55, HW 1.21–1.29, FI 0.50–0.55, FLW 0.50–0.57, SL 1.20–1.31, PW 0.80–0.83, ML 1.86–1.91, PL 0.50–1.57, PH 0.41–0.44, ESL 0.41–0.45, CI 1.20–1.23, FI 0.41–0.44, FLI 1.00–1.09,  $SI_1$  0.80–0.83,  $SI_2$  0.97–1.02, ESLI 0.35–0.37.

**Holotype worker.** Head longer than broad, with weakly convex sides and posterior margin, and narrowly rounded posterior corners; anterior clypeal margin relatively narrowly rounded, but not prominent and not notched medially. Frontal carinae very feebly curved, merging with the rugae that surround antennal sockets. Frons wide, frontal lobes not extended. Antennal scape relatively long ( $SI_2 = 1.00$ ), equal to head width, gradually curved at the base, without any trace of lobe or carina.

Mesosoma robust, promesonotum in profile view distinctly convex, promesonotal suture in dorsal view indistinct. Metanotal groove distinct, deep and abrupt. Propodeal lobes rounded. Propodeal spines straight, thin, acute, directly backward at an angle of approximately  $30^\circ$ . Petiole with distinct peduncle, anterior surface slightly concave, and dorsum of node broadly rounded, with a distinct dorsal plate. Postpetiole sub-

globular, with anterior and dorsal surfaces forming a regular arch. Spurs of middle and hind tibiae well-developed and pectinate. Frons with dense, fine, slightly sinuous longitudinal rugae, number of rugae between frontal carinae level with the eyes > 25, posterior part and lateral sides of the head with fine reticulation, space between rugae dull, densely and coarsely punctate. Clypeus with longitudinal rugae, spaces between them shiny, frontal triangle smooth and shiny.

Pronotal dorsum reticulate, lateral sides reticulate-punctate. Mesonotal and propodeal dorsum each with more than ten moderately coarse sinuous transverse rugae. Lower parts of mesopleura and sides of propodeum with longitudinal rugae. Space between rugae on mesosoma with fine punctures, though appearing quite shiny. Petiole and postpetiole dull, densely punctate and reticulated. Anterior third of first gastral tergite with fine superficial hexagonal sculpture, the rest of the tergite smooth and shiny.

Head with short subdecumbent hairs at lateral margins above the eyes, posterior part of the head without additional long hairs, genae with a few long hairs; dorsum of mesosoma with long hairs; petiole with 4–6 long and a few short hairs. Antennal scape and tibiae with decumbent hairs. Gaster with short suberect hairs. Head and gaster blackish-brown, mesosoma yellowish-brown, appendages somewhat lighter.

**Paratype workers.** As holotype, but gaster with less short suberect hairs; petiole and postpetiole middle densely punctate and the longitudinal rugae of frons more rough than holotype.

**Queens and males.** Unknown.

**Habitat.** Found foraging on the ground in coniferous forest at an altitude of 1927 m. Nesting site unknown.

**Etymology.** The specific epithet is the Chinese name Su Huai, who was a famous Chinese calligrapher in the Tang Dynasty.

**Differential diagnosis.** This species belongs to the *pachei* group. It is easy to find that this species is very similar to *M. schulzi* and *M. phalacra*, but differs from the latter two by basal third of first gastral tergite with fine superficial hexagonal sculpture; posterior margin without any erect to suberect long hairs; dorsum of petiolar node with a distinct broad dorsal plate. Main discriminative morphological characters with other species of the *pachei*-group is showed in the key of *pachei*-group species.

### *Myrmica mifui* sp. n.

<http://zoobank.org/B65D6044-B6A6-4049-95E1-9B7B65A5FFC5>

Figures 20–22

**Type materials. Holotype worker.** Taibai Mt., Shaanxi Prov., China, 33°59'57"N, 107°47'17"E, 3020m. 20.viii.1997, leg. Cong Wei, No. G970018; **Paratypes.** 3 workers, as holotype.

**Measurements and descriptions. Holotype worker.** HL 1.55, HW 1.38, FW 0.60, FLW 0.63, SL 1.28, PW 0.90, ML 1.95, PL 0.50, PH 0.48, ESL 0.48, CI 1.12, FI 0.43, FLI 1.05, SI<sub>1</sub> 0.82, SI<sub>2</sub> 0.92, ESLI 0.35. **Paratype workers** (n=2). HL 1.54–1.58,



**Figures 20–22.** *Myrmica mifui* sp. n. worker (No. G970018). **20** body in profile view **21** head in full-face view **22** body in dorsal view.

HW 1.37–1.40, FW 0.60–0.62, FLW 0.61–0.63, SL 1.25–1.26, PW 0.90–0.92, ML 1.91–1.94, PL 0.50–1.52, PH 0.50–0.51, ESL 0.46–0.49, CI 1.13–1.14, FI 0.42–0.44, FLI 1.04–1.05, SI<sub>1</sub> 0.80–0.81, SI<sub>2</sub> 0.90–0.93, ESLI 0.33–0.35.

**Holotype worker.** Head longer than broad, with very weakly convex sides and almost straight posterior margin, and rounded posterior corners; anterior clypeal margin rounded, slightly prominent, not notched medially. Frontal carinae very feebly curved, merging with the rugae that extend to the posterior third dorsum of head. Frons wide, frontal lobes not extended. Antennal scape relatively long, gradually though distinctly curved at the base, without any trace of lobe or carina.

Mesosoma relatively robust, promesonotum in profile view convex, promesonotal suture in dorsal view well-developed. Metanotal groove distinct, very deep. Propodeal lobes triangular apically. Propodeal spines moderately long, straight, sharp, directly backward at an angle of about 45°. Petiole high, with very short peduncle, its anterior surface slightly concave, dorsum of node with a distinct dorsal plate, slightly convex, posterior surface steep, so that petiolar node appears sharply cylindroid (seen in profile). Postpetiole subglobular, its anterior and dorsal surfaces forming a regular arch. Spurs of middle and hind tibiae well-developed and pectinate.

Head with very dense, fine, almost straight, slightly posteriorly diverging longitudinal rugae on the whole dorsum, number of rugae between frontal carinae level with

the eyes < 25. Posterior part and lateral sides of the head with reticulation, surface between reticulation densely superficially punctate, appearing more or less shiny and not dull. Clypeus with longitudinal rugae, surface between them shiny. Frontal triangle smooth and shiny.

Pronotal dorsum reticulated, lateral sides reticulate-punctate; mesonotal dorsum with 8–10 coarse sinuous transverse rugae; dorsum of propodeum with several finer transverse rugae; lower parts of mesopleura and sides of propodeum with fine longitudinal rugae. Space between rugae on mesosoma smooth and shiny. Petiole high, and with a strongly triangular ventral process. Petiole and postpetiole with short irregular rugae, densely though not coarsely punctate, appearing dull.

Margins of head with long suberect hairs; dorsum of mesosoma with longer hairs, petiole with 6–8 long hairs. Antennal scape and tibiae with subdecumbent hairs. Body colored blackish-brown, appendages somewhat lighter.

**Paratype workers.** as holotype.

**Queens and males.** Unknown.

**Habitat.** Found in mountain meadows at an altitude of 3020 m. Nesting site unknown.

**Etymology.** The specific epithet is the name of a famous calligrapher in the Northern Song Dynasty.

**Differential diagnosis.** This species belongs to the *pachei* group. It is easy to find that this species is very similar to *M. pleiorhytida*, but differs from the latter by number of rugae between frontal carinae level with the eyes  $\leq 25$ ; mesonotal and propodeal dorsum fine transverse rugae < 20. This species also very resembles to *M. dongi* sp. n., but differs from the latter by petiole with a finer triangular ventral process; propleuron only with densely punctuated; mesonotal and propodeal dorsum with 8–10 coarse sinuous transverse rugae. Main discriminative morphological characters with other species of the *pachei*-group is showed in the key of *pachei*-group species.

### *Myrmica oui* sp. n.

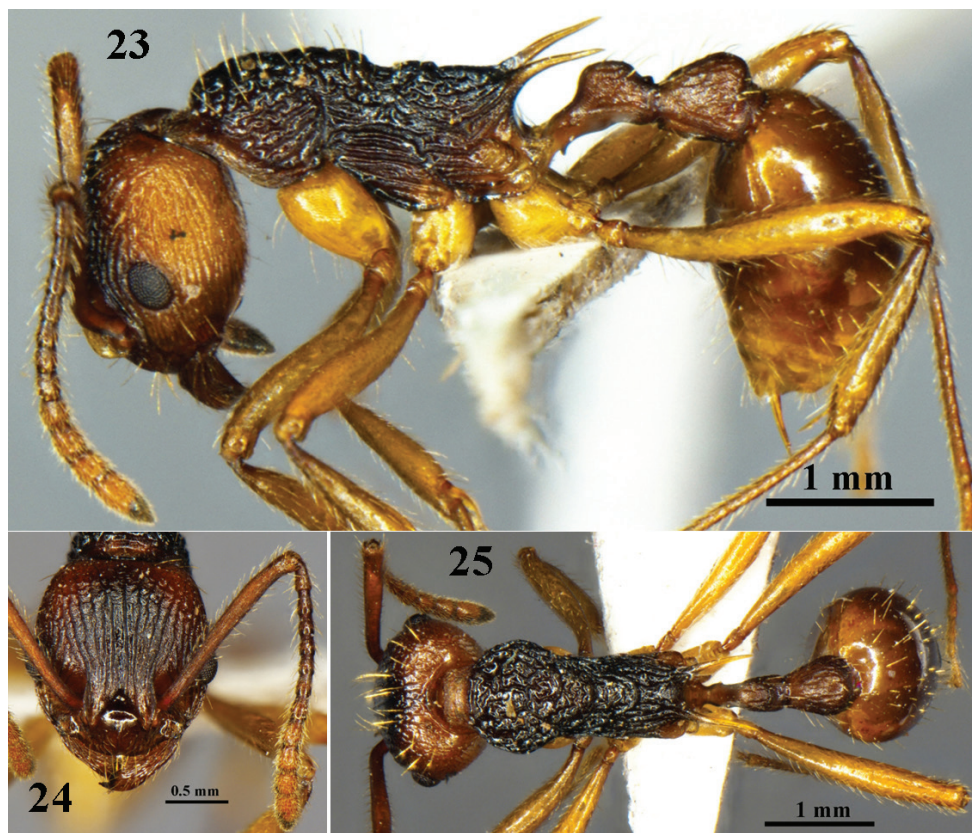
<http://zoobank.org/D6CD7B14-D6CF-4F48-A611-749B390D3E7E>

Figures 23–25

**Type material. Holotype worker.** Kuankuoshui, Guizhou Prov., China, 28°14'24"N, 107°12'00"E, 1202m. 16.viii.2010, leg. Duoduo Ye, No. G100231. **Paratypes.** 4 workers, data as holotype.

**Measurements and descriptions. Holotype worker.** HL 1.50, HW 1.32, FW 0.53, FLW 0.55, SL 1.60, PW 1.00, ML 2.25, PL 0.63, PH 0.40, ESL 0.68, CI 1.14, FI 0.40, FLI 1.04, SI<sub>1</sub> 1.07, SI<sub>2</sub> 1.21, ESLI 0.51. **Paratype workers** (n = 2). HL 1.44–1.50, HW 1.28–1.33, FI 0.40–0.43, FLI 1.04–1.06, SL 1.56–1.59, PW 1.00–1.08, ML 2.10–2.17, PL 0.63–0.67, PH 0.40–0.45, ESL 0.63–0.64, CI 1.10–1.18, FW 0.50–0.59, FLW 0.50–0.56, SI<sub>1</sub> 1.02–1.08, SI<sub>2</sub> 0.77–0.80, ESLI 0.50–0.55.

**Holotype worker.** Head longer than broad, with very feebly convex sides, nearly straight posterior margin and broadly rounded posterior corners. Anterior clypeal mar-



**Figures 23–25.** *Myrmica oui* sp. n. worker (No. G100231). **23** body in profile view **24** head in full-face view **25** body in dorsal view.

gin very feebly convex, notched medially. Frontal carinae curved, merging with the rugae that extend to the posterior third dorsum of head. Frons wide, frontal lobes not extended, but raised vertically (i.e. perpendicular to the surface of the head). Antennal scape relatively long ( $SI_2$  1.21), longer than head width, gradually though distinctly curved at the base, without any trace of lobe or carina.

Mesosoma relatively short (compared to related species), promesonotal dorsum in profile view finely convex, promesonotal suture in dorsal view indistinct; mesonotum abruptly curved down to propodeum to form distinct, deep and wide metanotal groove. Propodeal lobes projecting to form short and blunt triangle. Propodeal spines relatively long, widened at the base, directly backward and downward. Petiole relatively long and narrow, with strongly concave of anterior surface, dorsum of node feebly convex, with distinct dorsal plate; postpetiole as shown in figures, slightly shorter than high.

Head with fine, almost straight, posteriorly diverging longitudinal rugae on the whole dorsum, eight rugae between frontal carinae level with the eyes. Posterior part and sides of the head without reticulations, spaces between rugae densely punctate,

dull. Clypeus with longitudinal rugae, surface between rugae shiny. Frontal triangle smooth and shiny.

Dorsum of mesosoma with coarse reticulation, lateral sides with coarse sinuous longitudinal rugae. Lower part of mesopleuron and sides of propodeum with coarse longitudinal rugae. In dorsal view, dorsum of propodeal behind the metanotal groove with a distinct U-shaped coarse rugae (seen in Fig. 25). Petiole and postpetiole at most with very fine sculptures or short irregular rugae and dense, though not coarse, punctures and dull.

Head posterior margin with long suberect hairs; mesosoma dorsum with longer hairs, petiole with 6–8 long hairs. Antennal scape with suberect hairs. Tibiae with subdecumbent hairs. Head, gaster and petiole and postpetiole brownish-red, dorsum of head with some dark patches. Mesosoma black to blackish-brown.

**Paratype workers.** As holotype, but in one individual, petiole only with 4 long hairs.

**Queens and males.** Unknown.

**Habitat.** This species nests under litter layer and soil layer in the broadleaf forests, at elevation 1202m.

**Etymology.** The specific epithet is the last name of a famous Chinese artist in the Tang Dynasty, Yanxun Ou.

**Differential diagnosis.** This species belongs to the *draco*-complex of the *ritae* species group that includes *M. draco*, *M. plodii*, *M. schoedli*, *M. yamanei*. The workers of this species complex seems to be intermediate between the *ritae*-complex and boltoni-complex, but differs from the latter two by head dorsum and mesosoma rugose, petiole and postpetiole finely striated and punctuated, space of head dorsum between rugae punctuated. In terms of geography, *M. oui* sp. n. and *M. draco* may be occupying similar niches, but former differs from the latter by mesonotum abruptly curving down to the propodeum to form a distinct, deep and wide metanotal groove; in dorsal view, the dorsum of propodeum behind the metanotal groove bears a distinct U-shaped coarse ruga; first gastral tergite with clear superficial hexagonal microsculpture; body large (HW=1.38), dorsum of head with some dark patches. Given these obvious morphological differences, we are certain that *M. oui* sp. n. is not a variety of *M. draco* but an independent science species.

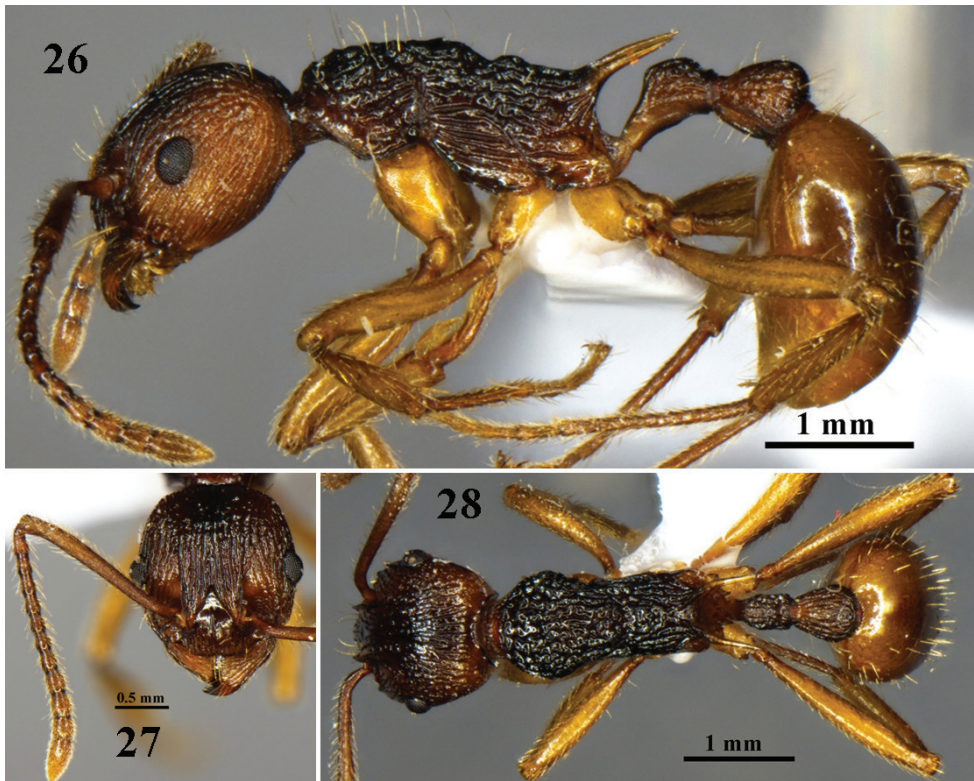
### *Myrmica wangi* sp. n.

<http://zoobank.org/256A0E94-3A7C-4528-B4AE-2DBA33986625>

Figures 26–28

**Type material. Holotype worker.** Huangbaiyuan, Shaanxi Prov., China, 34°10'36"N, 107°11'03"E, 1567m. 1.vi.2012, leg. Chaotai Wei, No. G120127. **Paratypes.** 5 workers, data as holotype.

**Measurements and descriptions. Holotype worker.** HL 1.62, HW 1.42, FW 0.55, FLW 0.58, SL 1.67, PW 1.05, ML 2.25, PL 0.63, PH 0.43, ESL 0.75, CI 1.14, FI 0.39, FLI 1.05, SI<sub>1</sub> 1.03, SI<sub>2</sub> 1.18, ESLI 0.53. **Paratype workers** (n = 5). HL 1.60–1.67, HW 1.33–1.41, FW 0.54–0.56, FLW 0.57–0.60, SL 1.56–1.64, PW 1.00–1.11,



**Figures 26–28.** *Myrmica wangi* sp. n. worker (No. G120127). **26** body in profile view **27** head in full-face view **28** body in dorsal view.

ML 2.19–2.23, PL 0.59–0.64, PH 0.40–0.44, ESL 0.70–0.77, CI 1.13–1.17, FI 0.38–0.41, FLI 1.02–1.08, SI<sub>1</sub> 1.00–1.04, SI<sub>2</sub> 1.17–1.20, ESLI 0.51–0.54.

**Holotype worker.** Head longer than broad, with very feebly convex sides, nearly straight posterior margin and broadly rounded posterior corners. Anterior clypeal margin very feebly convex, notched medially. Frontal carinae very feebly curved, merging with the rugae that extend to the posterior third dorsum of head. Frons wide, frontal lobes not extended, but raised vertically (i.e. perpendicular to the surface of the head). Antennal scape relatively long (SI<sub>2</sub> = 1.18), longer than head width, gradually though distinctly curved at the base, without any trace of lobe or carina.

Promesonotal dorsum in profile view convex, promesonotal suture in dorsal view indistinct; mesonotum abruptly curved down to propodeum to form distinct, deep and wide metanotal groove. Propodeal lobes projecting to form short blunt triangle. Propodeal spines relatively long, widened at the base, directly backward and slightly downward. Petiole relatively short and wide, with anterior surface strongly concave, dorsum of node feebly convex; postpetiole somewhat shorter than high (Fig. 26).

Head with fine, almost straight, posteriorly diverging longitudinal rugae on the whole dorsum extending back to posterior margin, eight rugae between frontal carinae

level with the eyes. Posterior part of the head with reticulations, space between rugae finely superficially micro-punctate. Clypeus with longitudinal rugae, space between them shiny. Frontal triangle smooth and shiny.

Dorsum of mesosoma with coarse reticulation, lateral sides with coarse sinuous longitudinal rugae. Petiole with coarse, short, sinuous longitudinal rugae, postpetiole with less coarse longitudinal, slightly sinuous rugae. Space on body between rugae smooth and shiny.

Posterior margin of head with up to two long suberect hairs; mesosoma dorsum with longer hairs, petiole with 1–6 long hairs. Antennal scape with suberect hairs. Tibiae with subdecumbent hairs. Head, gaster and petiole and postpetiole brownish-red, mesosoma black to blackish-brown.

**Paratype workers.** As holotype.

**Queens and males.** Unknown.

**Habitat.** This species nests inside decayed wood in the broadleaf and coniferous forests, at elevation 1667m.

**Etymology.** The specific epithet is the last name of a famous Chinese artist in the Eastern Jin Dynasty, Xizhi Wang.

**Differential diagnosis.** *M. wangi* sp. n. belongs to the *draco*-complex of the *ritae* species group. This species group includes 5 species: *M. draco*, *M. oui* sp. n., *M. plodii*, *M. schoedli*, *M. yamanei*. So far, only two species (*M. draco* and *M. wangi* sp. n.) of the *ritae* species group were found from Shaanxi Province, which is the highest latitude distribution areas of this species group in the Old world. We investigated the two paratypes workers of *M. draco* Radchenko, Zhou & Elmes found that two species are very similar to each other, but *M. wangi* sp. n. differs from the *M. draco* by the nearly straight posterior margin and broadly rounded posterior corners, frontal carinae extend back to posterior margin, posterior part of the head without reticulation; only posterior margins with 0–2 long suberect hairs; propodeal lobes projecting to form short and blunt triangle; petiole with coarse, short, sinuous longitudinal rugae, petiole and postpetiole with fewer punctures, appears shiny. On the other hand, This species is also similar to *M. oui* sp. n., but differs from the latter by the surface between rugae on the head with fewer punctures and appearing shiny. In dorsal view, dorsum of propodeum behind the metanotal groove with irregular coarse rugae. Petiole and postpetiole with coarse, short, sinuous longitudinal rugae, with fewer punctures, appearing shiny. We considered that these morphological differences is very obvious, which could be easily aparted from the other species of the genus *Myrmica*.

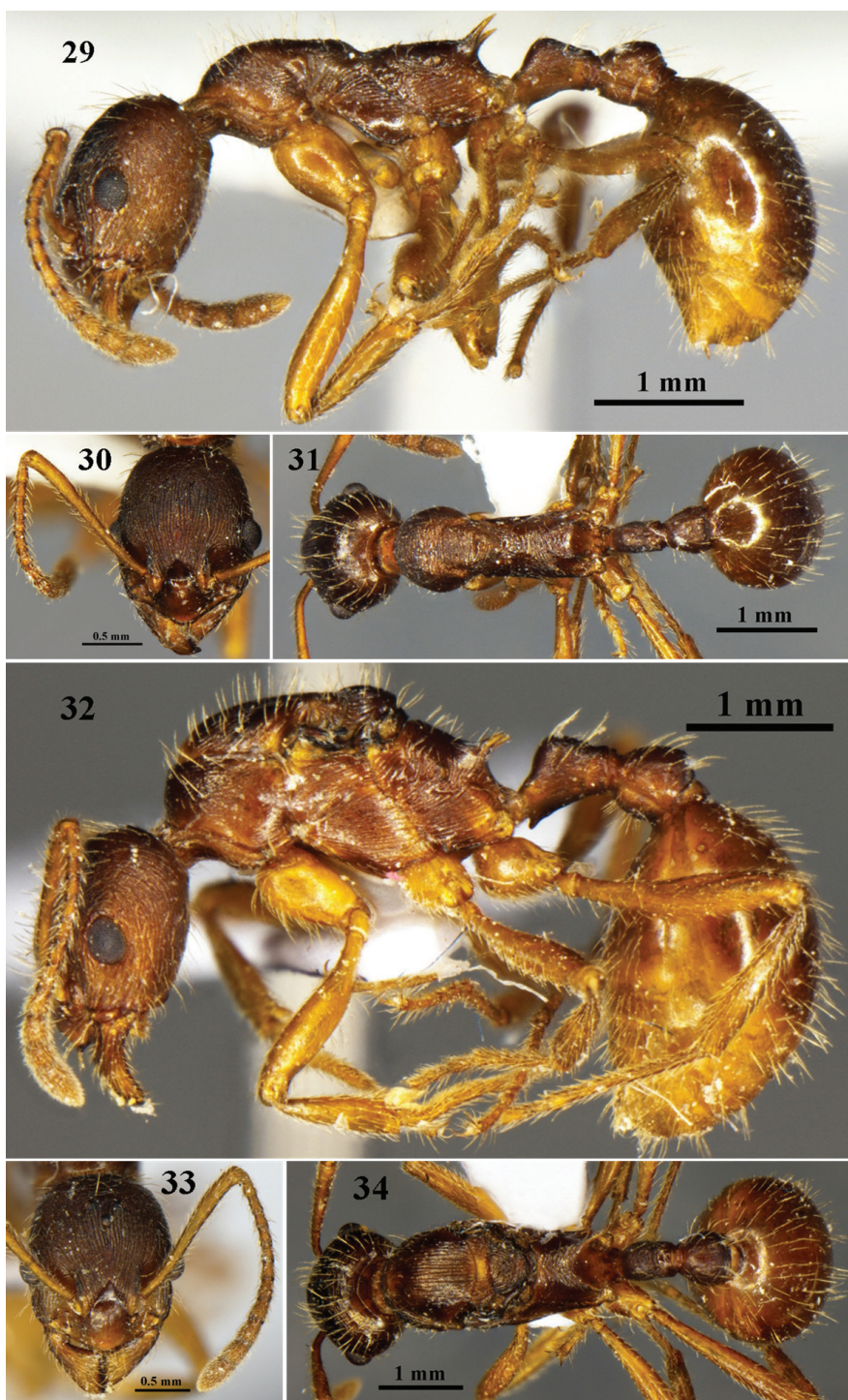
***Myrmica yani* sp. n.**

<http://zoobank.org/1B9C924D-1F59-43E5-8D4A-609E2A46481E>

Figures 29–34

**Type material. Holotype worker.** Fanjingshan Nature Reserve, Guizhou Prov., China, 27°54'26" N, 108°38'44"E, 1667m. 30.v.2002, leg. Shanyi Zhou, No. G020318.

**Paratypes.** 3 workers and 1 queen, data as holotype.



**Figures 29–34.** *Myrmica yani* sp. n. **29–31** Worker (G020318) **32–34** Queen (G020318). **29, 32** body in profile view **30, 33** head in full-face view **31, 34** body in dorsal view.

**Measurements and descriptions. Holotype worker** (Figs 29–31). HL 1.53, HW 1.18, FW 0.53, FLW 0.55, SL 1.50, PW 0.85, ML 2.08, PL 0.55, PH 0.25, ESL 0.33, CI 1.30, FI 0.45, FLI 1.04, SI<sub>1</sub> 0.98, SI<sub>2</sub> 1.27, ESLI 0.28. **Paratype workers** (n = 15). HL 1.48–1.52, HW 1.17–1.23, FW 0.52–0.54, FLW 0.53–0.57, SL 1.38–1.43, PW 0.81–1.86, ML 2.11–2.14, PL 0.53–0.59, PH 0.21–0.27, ESL 0.30–0.37, CI 1.28–1.31, FI 0.43–0.46, FLI 1.02–1.06, SI<sub>1</sub> 0.98–1.03, SI<sub>2</sub> 1.25–1.27, ESLI 0.27–0.29. **Paratype Queen** (Figs 32–34). HL 1.63, HW 1.33, FW 0.60, FLW 0.63, SL 1.50, PW 1.13, ML 2.50, PL 0.68, PH 0.53, ESL 0.25, CI 1.26, FI 0.45, FLI 1.05, SI<sub>1</sub> 0.92, SI<sub>2</sub> 1.27, ESLI 0.19.

**Holotype worker.** Head longer than broad, with weakly convex sides and posterior margin, and narrowly rounded posterior corners; anterior clypeal margin narrowly rounded, not notched medially. Frontal carinae very feebly curved, merging with the rugae that extend to the posterior half dorsum of head. Frons wide, frontal lobes not extended. Antennal scape relatively long (SI<sub>2</sub> 1.27), gradually curved at the base, without any trace of lobe or carina.

Promesonotum in profile view slightly convex, promesonotal suture in dorsal view indistinct. Metanotal groove distinct, deep and abrupt. Propodeal lobes rounded. Propodeal spines quite short, straight, thin, acute, directly backward at an angle of about 30°. Petiole with distinct, but short peduncle, anterior surface slightly convex, meeting the dorsal one to form a blunt, narrowly rounded angle, dorsal surface short, gradually sloping posteriorly, without dorsal plate. Postpetiole subglobular, anterior and dorsal surfaces forming a feeble arch. Spurs of middle and hind tibiae well-developed and pectinate. Frons with dense, fine, slightly sinuous longitudinal rugae, number of rugae between frontal carinae level with the eyes is >20; posterior third dorsum of head densely punctate; posterior part of the head densely micropunctate and dull. Clypeus almost smooth, at most with some fine longitudinal rugae, space between rugae shiny. Frontal triangle smooth and shiny.

Mesosoma with fine transverse rugae in the whole of dorsum, space between rugae with micropunctures and dull. Posterior of petiole with fine short rugae, the rest of petiole and postpetiole densely punctate, appearing dull.

Head with abundant long hairs at margins, genae with a few long hairs; dorsum of mesosoma with long hairs; petiole with 4–6 long hairs and a few short hairs. Antennal scape and tibiae with subdecumbent hairs. Body colored yellowish brown, appendages somewhat lighter.

**Paratype workers.** With similar morphological characters as holotype, but in one individual, dorsum of mesonotum and front part of pronotum of transverse rugae is obscure.

**Paratype queen.** Queen generally similar to workers by the shape and sculptures of head (except posterior dorsum of head with fine transverse rugae), frontal lobes, propodeal spines and petiole and postpetiole. Anterior half of scutum with sinuous longitudinal rugae and reticulation; scutum with coarse longitudinal rugae, scutellum concentrically rugulose, propodeal dorsum with transverse rugae; lateral of mesosoma

with slightly less coarse longitudinal rugae. Petiolar node and postpetiole with some irregular rugae, space between rugae densely punctate, appearing dull.

**Males.** Unknown.

**Habitat.** This species nests inside decayed wood in the broadleaf and coniferous forests, at elevation 1667m.

**Etymology.** The specific epithet is the last name of a famous Chinese artist in the Tang Dynasty, Zhenqing Yan.

**Differential diagnosis.** *Myrmica yani* sp. n. is a remarkable new species, belonging to the *pachei* group. So far, only three species (*M. pachei*, *M. inezae* and *M. villosa*) are recorded from the Himalayas which possess the key character of the whole mesosoma of dorsum bearing transverse rugae. *Myrmica yani* sp. n. differs from the *M. pachei* and *M. inezae* by having a distinctly elongated head, with narrowly rounded posterior corners; posterior third of head dorsally without longitudinal rugae and reticulation, but densely punctate; petiole with distinct, short peduncle, its anterior surface slightly convex, meeting the dorsal one to form a blunt, narrowly rounded angle; dorsal surface short, gradually sloping posteriorly; body colored yellowish brown. It differs from *M. villosa* by the distinctly elongated head, with narrowly rounded posterior corners; posterior third of head dorsally without longitudinal rugae, but densely punctate; propleuron with densely micropunctures and dull; dorsum of propodeum with fine transverse rugae; anterior surface of petiole slightly convex, meeting the dorsal one to form a blunt, narrowly rounded angle.

### Key to *Myrmica* species found in China based on the worker caste

\*The key is modified from Radchenko and Elmes (2010). Any doubtful species are excluded here; *M. mixta* is also excluded from the key because the worker caste is not well-known.

- 1 Lateral portion of clypeus raised into a sharp ridge in front of the antennal insertions, so that the antennal sockets are distinctly separated from the clypeal surface (similar to that of *Tetramorium*) (Radchenko and Elmes 2010: fig. 80, A) ..... **2**
- Lateral portion of clypeus not raised into a sharp ridge in front of the antennal insertions, so that the antennal sockets lay on the same level with the clypeal surface (Radchenko and Elmes 2010: fig. 134, A) ..... **3**
- 2 Antennal scape at the bend having the same width as at its mid-length; the base of the scape having a longitudinal groove and lateral ridges (Radchenko and Elmes 2010: figs 80, A–E) ..... ***M. excelsa* Kupyanskaya**
- Antennal scape at the bend distinctly narrower than at its mid-length; the base of the scape without longitudinal groove and lateral ridges (Radchenko and Elmes 2010: figs 290, A–E) ..... ***M. transsibirica* Radchenko**
- 3 Frontal carinae curved outward to merge with the rugae that surround the antennal socket (Radchenko and Elmes 2010: figs 161, A; 213, A). Antennal

- scape very smoothly curved at the base, not angled and without any trace of lobe or carina (Radchenko and Elmes 2010: figs 161, B; 213, B).....4
- Frontal carinae merging with the rugae that extend to the posterior margin, not curved outward to merge with the rugae that surround the antennal socket (Radchenko and Elmes 2010: fig. 134, A). Antennal scape strongly curved or gradually curved at the base, with or without a lobe, ridge or carina (Radchenko and Elmes 2010: fig. 5, B; 22, B; 66, B; 123, B; 128, B; 134, B–E; 195, B; 239, B–C; 273, B–C; 325, B–C).....18
- 4 First gastral tergite finely but distinctly longitudinally striated. Spurs on tibiae of the middle and the hind legs reduced, simple (Radchenko and Elmes 2010: figs 161, A–E)..... ***M. luteola* Kupyanskaya**
- First gastral tergite smooth and shiny. Spurs on tibiae of the middle and the hind legs well-developed and pectinate .....5
- 5 Mesonotal dorsum partly with transverse rugae (Radchenko and Elmes 2010: figs 250, C–D; 324, C–D).....6
- Mesonotal dorsum with various sculpture, but never with transverse rugae (Radchenko and Elmes 2010: figs 58, C–D; 211, C–D).....11
- 6 Lateral margins of head either without pilosity or with short ( $\leq 0.03$ mm) decumbent hairs; if any long erect to suberect hairs present, then restricted to the posterior margin and genae (Radchenko and Elmes 2010: figs 201, A; 250, A; 277, A).....7
- Lateral and posterior margins of head with numerous long ( $\geq 0.07$ mm) erect to suberect hairs (Radchenko and Elmes 2010: figs 198, A; 314, A; 324, A).....9
- 7 Propodeal spines long, ESLI  $> 0.45$ , sides of pronotum with longitudinal rugae (Radchenko and Elmes 2010: figs 277, A–E) .....  
..... ***M. taibaiensis* Wei, Zhou & Liu**
- Propodeal spines shorter, ESLI  $< 0.41$ , sides of pronotum finely and densely punctate.....8
- 8 Basal third of the first gastral tergite with superficial hexagonal fine sculpture. Posterior margin without any erect to suberect long hairs; dorsum of petiolar node with a distinct broad dorsal plate (figs 17–19)..... ***M. huaii* sp. n.**
- First gastral tergite smooth and shiny; posterior margin with abundant short erect to suberect long hairs; dorsum of node quite narrowly rounded (Radchenko and Elmes 2010: figs 290, A–E) .....  
..... ***M. schulzi* Radchenko & Elmes**
- 9 Head distinctly elongate, CI  $> 1.20$ , suboval, with barely marked posterior corners (Radchenko and Elmes 2010: figs 102, A–E).....  
..... ***M. heterorhytida* Radchenko & Elmes**
- Head slightly longer than broad, CI  $< 1.15$ , nearly square, with distinctly marked posterior corners (Radchenko and Elmes 2010: fig. 198, A).....10
- 10 Anterior surface of the petiole almost straight, dorsum of node broadly rounded. Mesonotal and propodeal dorsum with finer transverse rugae, number of rugae on this area  $> 25$ , number of rugae between frontal carinae level the eyes

- >30. Gaster with very fine superficial microsculpture (Radchenko and Elmes 2010: figs 198, A–E).....***M. pleiorhytida* Radchenko & Elmes**
- Anterior surface of the petiole concave, dorsum of node with a distinct dorsal plate, slightly convex, posterior surface steep. Only mesonotal dorsum with fine transverse rugae, number of rugae on this area < 20, number of rugae between frontal carinae level the eyes  $\leq$  20. Gaster smooth and shiny (Figs 8–13).....***Myrmica dongi* sp. n.**
- 11 One of the largest known *Myrmica* species, HW >1.60, AL >2.50. Very hairy, number of standing hairs on petiolar node > 20 (Radchenko and Elmes 2010: figs 167, A–E).....***M. mirabilis* Elmes & Radchenko**
- Smaller species, HW < 1.25, AL < 2.30 mm. Less hairy, number of standing hairs on petiolar node < 15 (Radchenko and Elmes 2010: figs 58, C–D). ....**12**
- 12 Masticatory margin of the mandible with 11–13 teeth (Radchenko and Elmes 2010: figs 58, A–E).....***M. curiosa* Radchenko & Elmes**
- Masticatory margin of the mandible with  $\leq$  9 teeth.....**13**
- 13 Petiolar node with rounded dorsum, completely without a dorsal plate, node of the petiole and the postpetiole smooth, at most very finely striated. Pronotal dorsum with sinuous longitudinal rugae, never with coarse reticulation (Radchenko and Elmes 2010: figs 213, C–D).....**14**
- Petiolar node with a dorsal plate developed to various extents (except for *M. arisana*), node of the petiole and the postpetiole with coarse sculpture and rugae; pronotal dorsum with coarse reticulation (Radchenko and Elmes 2010: figs 25, C–D; 137, C–D; 218, C–D).....**16**
- 14 Petiole and postpetiole almost smooth, with few punctures (Radchenko and Elmes 2010: figs 213, A–E) .....***M. rubra* (Linnaeus)**
- Petiole and postpetiole with rugae or dense punctures.....**15**
- 15 Antennal scape longer ( $SI_2 > 0.93$ ), with more abundant suberect hairs (Radchenko and Elmes 2010: figs 31, A–E) .....***M. bactriana* Ruzsky**
- Antennal scape shorter ( $SI_2 < 0.91$ ), with less abundant subdecumbent hairs (Radchenko and Elmes 2010: figs 229, A–E) .....***M. ruzskyana* Radchenko & Elmes**
- 16 Petiolar node with rounded dorsum, completely without a dorsal plate, node of petiole smooth, at most very finely striated (Radchenko and Elmes 2010: figs 25, A–E).....***M. arisana* Wheeler**
- Petiolar node with a dorsal plate, node of petiole with quite coarse striated ....**17**
- 17 Petiolar node with a distinct, sharply flattened dorsal plate, and having quite coarse, short sinuous longitudinal rugae on the lateral parts (Radchenko and Elmes 2010: figs 218, A–E) .....***M. ruginodis* Nylander**
- Dorsum of the petiolar node slightly convex, dorsal plate not sharply flattened, lateral surfaces with finer short longitudinal rugae (Radchenko and Elmes 2010: figs 137, A–E) .....***M. kotokui* Forel**
- 18 Dorsum of the mesosoma entirely or partially with transverse rugae (Radchenko and Elmes 2010: figs 186, C–D; 324, C–D) .....**19**

- Dorsum of the mesosoma with various sculptures, but never with transverse rugae (Radchenko and Elmes 2010: figs 270, C–D; 303, C–D) .....27
- 19 Dorsum of the mesosoma entirely with fine transverse rugae (figs 29–34).....  
..... *M. yani* sp. n.
- Dorsum of the mesosoma partially with transverse rugae .....20
- 20 Lateral and posterior margins of the head with numerous long erect to suberect hairs .....21
- Lateral margins of the head either without pilosity or with short decumbent hairs; if any long erect to suberect hairs present, then restricted to the posterior margin and genae .....24
- 21 Mesonotal and propodeal dorsum with finer transverse rugae, number of rugae on this area  $\geq 25$  (Radchenko and Elmes 2010: figs 324, A–E) .....  
..... *M. yunnanensis* Radchenko & Elmes
- Mesonotal and propodeal dorsum with relatively coarser transverse rugae, number of rugae on this area  $\leq 20$ .....22
- 22 Head slightly longer than broad, CI < 1.15, nearly square, with distinctly marked posterior corners. Petiole with a stronger triangular ventral process (figs 20–22) ..... *M. mifui* sp. n.
- Head distinctly elongate, CI > 1.20, suboval, with barely marked posterior corners. Petiole ventral process normal.....23
- 23 Petiole low,  $PI_1$  1.68, its node with elongate flattened dorsum. Body color reddish brown (Radchenko and Elmes 2010: figs 314, A–E).....  
..... *M. weii* Radchenko & Zhou
- Petiole higher,  $PI_1$  < 1.55, its node with a short, slightly convex, gradually sloping posteriorly dorsum. Body color blackish brown (Radchenko and Elmes 2010: figs 169, A–E) ..... *M. multiplex* Radchenko & Elmes
- 24 Basal third of first gastral tergite densely punctate and longitudinally ruguloso-striated; this Basal third of first gastral tergite densely punctate and longitudinally rugulose-striate; this sculpture gradually petering out posteriorly, the rest of the surface of first tergite with well visible superficial hexagonal microsculpture (Radchenko and Elmes 2010: figs 250, A–E).....  
..... *M. sculptiventris* Radchenko & Elmes
- Whole surface of first gastral tergite smooth.....25
- 25 Head dorsum posterior to the eyes with reticulation, rest of head dorsum with longitudinal rugosity (Radchenko and Elmes 2010: figs 201, A–E).....  
..... *M. polyglypta* Radchenko & Rigato
- Head dorsum posterior to the eyes with longitudinal rugosity; reticulation, if present, restricted to temples and/or posterior part of occiput.....26
- 26 Rugosity on the head dorsum partly reduced. Frons level with the eyes with < 15 fine, slightly sinuous longitudinal rugae, only some of them running unbroken to the posterior margin. Propodeal dorsum with transverse rugosity. Scape longer than head width (Radchenko and Elmes 2010: figs 193, A–E) .  
..... *M. phalacra* Radchenko & Elmes

- Rugosity on the head dorsum not reduced. The frons level with the eyes with > 20 longitudinal rugae that run unbroken to the posterior margin; surface between rugae very finely superficially punctate but appearing more or less shiny. Propodeal dorsum with short, slightly sinuous longitudinal rugae. Scape shorter than head width (Radchenko and Elmes 2010: figs 106, A–E) ..... ***M. blavaci* Radchenko & Elmes**
- 27 Antennal scape strongly angled at the base, with horizontal lobe, or a vertical lobe (that can be inclined anteriorly), or denticles ..... **28**
- Antennal scape gradually curved or angled at the base, never with a vertical, or inclined lobe, or denticles ..... **37**
- 28 Antennal scape strongly angled at the base, with horizontal lobe ..... **29**
- Antennal scape strongly angled at the base, with a vertical lobe (that can be inclined anteriorly), or with denticles ..... **31**
- 29 Hairy species, petiole with more than 10 (usually with 12–20) long, thin and often curved hairs. Dorsum of the mesosoma entirely with longitudinal, slightly sinuous rugae, without reticulation; dorsum of the postpetiole with partly reduced sculptures. Anterior clypeal margin shallowly but distinctly notched medially. Spurs on the middle and the hind tibiae at least partly reduced and usually not pectinate (Radchenko and Elmes 2010: figs 303, A–E) ..... ***M. vandeli* Bondroit**
- Less hairy species, petiole with less than 10 (usually not more than 8) long, straight, thick hairs. Dorsum of the mesosoma with strong sinuous longitudinal rugae and often with reticulation; dorsum of the postpetiole with coarse sculptures. Anterior clypeal margin not notched medially. Spurs on the middle and the hind tibiae as a rule well-developed and pectinate ..... **30**
- 30 Frontal lobes less expanded, mean FLI 1.31. Antennal scape at the base with narrow horizontal ridge or at most with very small carina. Propodeal spines short (mean ESLI 0.31), not widened at the base, thin, often needle-like; metanotal groove weak or completely absent; petiolar node without dorsal plate, usually rounded, with posterior surface gradually declines to the postpetiole; sides of mesosoma with relatively coarse, regular, almost straight longitudinal rugae. Body color rather dark, brownish-red. Tibiae and tarsi with short subdecumbent hairs (Radchenko and Elmes 2010: figs 270, A–E) ..... ***M. stangeana* Ruzsky**
- Frontal lobes more expanded, mean FLI > 1.40. Antennal scape at the base with more developed, but never massive, horizontal carina or lobe. Propodeal spines longer (means ESLI > 0.35), usually widened at the base (more thorn-like), never needle-like; metanotal groove well-developed, often deep; petiolar node with various shape; sides of mesosoma with less coarse sinuous longitudinal rugae. Body color lighter, usually ochreous or yellowish-red. Tibiae and tarsi with various hairs (Radchenko and Elmes 2010: figs 324, A–E) ..... ***M. scabrinodis* Nylander**

- 31 Propodeal spines thick and blunt, directed backward and upwards, and strongly curved inward; petiole with very short peduncle, anterior surface steep, meeting the dorsal one through an acute angle, so that the petiolar node appearing sharply angled in profile (Radchenko and Elmes 2010: figs 86, A–E) ..... ***M. forcipata* Karawajew (new Chinese record)**
- Propodeal spines thin and sharp apically, not curved inward; petiole with various shapes (seen in profile), but if sharply angled, then the minimum distance between the frontal carina narrower ( $FI < 0.32$  vs  $> 0.35$  in *M. forcipata*) ..... **32**
- 32 Lobe of the antennal scape forming shield-like dorsal plate along the basal surface of the scape ..... **33**
- Lobe of the antennal scape not forming shield-like dorsal plate along the basal surface of the scape ..... **36**
- 33 Dorsum of head with sinuous longitudinal rugae, never with reticulation. Petiolar node and postpetiole densely punctuated (Radchenko and Elmes 2010: figs 258, A–E) ..... ***M. sinoschencki* Radchenko & Elmes**
- Dorsum of head with reticulation at the posterior part. Petiolar node and postpetiole finely superficially punctate ..... **34**
- 34 Frontal carinae strongly curved, minimum distance between the frontal carinae narrower,  $FI < 0.26$ . Metanotal groove deep (Radchenko and Elmes 2010: figs 242, A–E) ..... ***M. schencki* Viereck**
- Frontal carinae less curved, minimum distance between the frontal carinae wider,  $FI > 0.29$ . Metanotal groove shallow ..... **35**
- 35 Mesosoma with almost straight longitudinal rugae. Frontal lobes less extended,  $FLI$  1.36–1.52, mean 1.41. Propodeal spines short,  $ESLI$  0.18–0.30, mean 0.24. Body color usually dark reddish brown (Radchenko and Elmes 2010: figs 60, A–E) ..... ***M. deplanata* Emery**
- Mesosoma with sinuous longitudinal rugae or reticulation. Frontal lobes more extended,  $FLI$  1.50–1.67, mean 1.60. Propodeal spines longer,  $ESLI$  0.27–0.34, mean 0.31. Mesosoma yellowish–brown, head reddish brown, gaster dark brown (Radchenko and Elmes 2010: figs 134, A–E) ..... ***M. koreana* Elmes, Radchenko & Kim**
- 36 Antennal scape with small denticles or an even ridge at the base. Petiole in profile with an almost straight, steep anterior face, node with a posteriorly-inclined dorsal plate, appearing subtriangular (Radchenko and Elmes 2010: figs 236, A–E) ..... ***M. saposchnikovi* Ruzsky**
- Antennal scape with small but distinct lobe at the base. Petiole in profile with concave anterior face, node with a flattened or somewhat convex dorsal plate (Radchenko and Elmes 2010: figs 75, A–E) ..... ***M. eidmanni* Menozzi**
- 37 Propodeal spines long,  $ESLI > 0.45$ . Propodeal lobes pointed or blunt apically, but never rounded ..... **38**
- Propodeal spines shorter,  $ESLI < 0.40$ . Propodeal lobes rounded apically ..... **48**
- 38 Surface between rugae on the head and the dorsal surface of the petiole and postpetiole shiny and smooth or at most very superficially micropunc-

- tate; head, mesosoma, petiole and postpetiole usually with similar coarse rugae.....39
- Surface between rugae on the petiole and postpetiole dull, always distinctly and often coarsely punctate; surface of head usually with similar punctures (except for *M. angulata*), rugae on dorsum of the head often noticeably finer than that on the mesosoma.....44
- 39 Dorsum of head entirely with almost straight, subparallel rugae, completely lacking reticulation, more than 6 rugae between frontal carinae level with the eyes.....40
- Dorsum of head with distinctly sinuous rugae and reticulation, if reticulation not developed, less than 6 rugae between frontal carinae level with the eyes. ....41
- 40 Seen at magnification  $\times 100$ , fine sculpture on surface of the head completely invisible. Pronotum with longitudinal rugae. Head yellow, strongly contrasting with the darker mesosoma (Radchenko and Elmes 2010: figs 211, A–E).  
***M. ritae* Emery**
- Seen at magnification  $\times 100$ , surface of head weakly micropunctate. Pronotum coarsely reticulate. Head brownish red, not strongly contrasting with mesosoma (Radchenko and Elmes 2010: figs 189, A–E) .....  
.....***M. pararitae* Radchenko & Elmes**
- 41 Posterior dorsal surface of the head (from above in the level of the eyes) with coarse reticulations.....42
- Posterior dorsal surface of the head with sinuous rugae; coarse reticulations, if present, then also restricted to the posterior part.....43
- 42 Frons between frontal carinae level with the eyes with only 4 coarse rugae. Petiolar node, postpetiole, and sides of mesosoma with coarse reticulation (Radchenko and Elmes 2010: figs 257, A–E) .....  
.....***M. sinensis* Radchenko, Zhou & Elmes**
- Frons between frontal carinae level with the eyes with  $\geq 6$  coarse rugae. Petiolar node, postpetiole and sides of mesosoma with coarse rugae (Radchenko and Elmes 2010: figs 301, A–E)..... ***M. urbanii* Radchenko & Elmes**
- 43 Frons between frontal carinae level with the eyes with 4 very coarse rugae (Radchenko and Elmes 2010: figs 202, A–E) ..... ***M. pulchella* Santschi**
- Frons between frontal carinae level with the eyes with  $\geq 6$  fine rugae (Radchenko and Elmes 2010: figs 251, A–E) ..... ***M. serica* Wheeler**
- 44 Petiole and postpetiole with fine sculptures, distinctly contrasting with much coarser sculptures on the mesosoma.....45
- Petiole and postpetiole with coarser sculptures, similar to those on the mesosoma ..... 46
- 45 Frontal carina extending back to behind the eyes, posterior part of the head with reticulation; posterior and lateral margins of head with long hairs; propodeal lobes projecting apically, forming long and pointed triangles; petiole and postpetiole dull, with dense punctures (Radchenko and Elmes 2010: figs 69, A–E) ..... ***M. draco* Radchenko, Zhou & Elmes**

- Frontal carina extending back to the posterior margin of the head, occiput without reticulation; only posterior margins of head with 0–2 long suberect hairs; propodeal lobes projecting apically, forming short and blunt triangles; petiole and postpetiole shiny, with fewer punctures (figs 26–28) ..... ***M. wangi* sp. n.**
- 46 Dorsum of propodeum behind the metanotal groove with a distinct U-shaped coarse rugae; first gastral tergite with clear superficial hexagonal microsculpture (figs 23–25) ..... ***M. oui* sp. n.**
- Dorsum of propodeum behind the metanotal groove without an U-shaped coarse rugae; Gaster smooth and shiny ..... 47
- 47 Dorsal surface of the head between rugae not punctate (Radchenko and Elmes 2010: figs 20, A–E). ..... ***M. angulata* Radchenko, Zhou & Elmes**
- Dorsal surface of the head between rugae dull and punctate (Radchenko and Elmes 2010: figs 200, A–E) ..... ***M. poldii* Radchenko & Rigato**
- 48 Antennal scape distinctly angled at the base. Propodeal spines directed backward and upwards, and distinctly curved inward. Anterior surface of petiole steep, meeting the dorsal one through a sharp acute angle, dorsal plate flat, well-developed, strongly inclined backward (Radchenko and Elmes 2010: figs 22, A–E) ..... ***M. angulinodis* Ruzsky**
- Antennal scape gradually curved at the base or at most very slightly angled. Propodeal spines not curved inward. Anterior surface of petiole meeting the dorsal one at most through a slightly rounded or obtuse angle, never sharp acute angle ..... 49
- 49 Antennal scape always with ridge on the inner margin at the base ..... 50
- Antennal scape at most very slightly angled at the base, usually without a ridge on the inner margin ..... 51
- 50 Sides of petiolar node with coarse rugae very similar to those on the mesosoma. Metanotal groove distinct, often deep. Petiole with short peduncle, anterior surface almost straight, meeting the dorsal one through a right or somewhat obtuse angle; dorsal plate well-developed, flattened, not inclined posteriorly (Radchenko and Elmes 2010: figs 273, A–E) ..... ***M. sulcinodis* Nylander**
- Sides of petiolar node with punctures and short rugae less coarse than those on the mesosoma. Metanotal groove very weak or absent. Anterior surface of petiole concave, meeting the dorsal one through a rounded angle, dorsum of node somewhat convex and steeply sloping backward (figs 14–16) ..... ***M. liui* sp. n.**
- 51 Smaller species: HW < 1.00, AL < 1.60. Frontal carinae strongly curved at their anterior third, frontal lobes strongly extended, wide and nearly square, FLI > 1.20 (Radchenko and Elmes 2010: figs 284, A–E) ..... ***M. tibetana* Mayr**
- Bigger species: HW > 1.15, AL > 1.90. Frontal carinae feebly curved along the whole length, frontal lobes not extended, relatively narrow, FLI < 1.15 ..... 52

- 52 Dorsum of head with very dense, but not coarse longitudinal rugae and reticulation, surface between rugae dull and densely punctate (Radchenko and Elmes 2010: figs 145, A–E) ..... ***M. kurokii* Forel**
- Dorsum of head with not so dense rugae, never with reticulation, surface between rugae somewhat shiny and more sparsely punctuated (Radchenko and Elmes 2010: figs 143, A–E). ..... ***M. kozlovi* Ruzsky**

### Key to *pachei*-group species of *Myrmica* from the Old World

- 1 Basal third of first gastral tergite densely punctated and longitudinally ruguloso-striated ..... ***M. sculptiventris* Radchenko & Elmes**
- Whole surface of first gastral tergite smooth..... **2**
- 2 Whole mesosoma dorsum with straight transversal rugae..... **3**
- Only part of mesosoma dorsum with straight transversal rugae..... **5**
- 3 Head distinctly elongate, suboval, with narrowly rounded posterior corners; posterior third of head dorsally without longitudinal rugae and reticulation, but densely punctate..... ***M. yani* sp. n.**
- Head slightly longer than broad, subsquare, with distinctly marked posterior corners; whole head dorsally with longitudinal rugae ..... **4**
- 4 Lateral and posterior margins of the head with long numerous suberect to erect hairs. Colour lighter, head dorsum dark reddish brown, mesosoma and gaster brownish red ..... ***M. villosa* Radchenko & Elmes**
- Lateral margins of head with short decumbent hairs, long suberect hairs present only on the posterior margin and genae. Colour darker, whole body dark reddish brown..... ***M. pachei* Forel**
- 5 Lateral and posterior margins of head with long numerous suberect to erect hairs..... **6**
- Lateral margins of head either glabrous or with short decumbent hairs; if long erect to suberect hairs occur, they are restricted to the posterior margin and genae ..... **12**
- 6 Head slightly longer than broad (CI < 1.15), subsquare, with distinctly marked posterior corners ..... **7**
- Head distinctly elongate (CI > 1.20), suboval, with barely marked posterior corners..... **9**
- 7 Number of rugae between frontal carinae level with the eyes >30; mesonotal and propodeal dorsum with > 35 fine transverse rugae.....
- ..... ***M. pleiorhytida* Radchenko & Elmes**
- Number of rugae between frontal carinae level with the eyes ≤ 25; mesonotal and propodeal dorsum fine transverse rugae < 20..... **8**
- 8 Petiole with a stronger triangular ventral process; propleuron with rugose; mesonotal and propodeal dorsum with about 20 moderately coarse transverse sinuous rugae..... ***Myrmica dongi* sp. n.**

- Petiole with a normal triangular ventral process; propleuron only with densely punctuated; mesonotal and propodeal dorsum with 8–10 coarse sinuous transverse rugae.....*Myrmica mifui* sp. n.
- 9 Mesonotal and propodeal dorsum with  $\leq 20$  coarser transverse rugae..... 10
- Mesonotal and propodeal dorsum with  $\geq 25$  finer transverse rugae ..... 11
- 10 Petiole low, PI1 1.68, its node with elongate flattened dorsum.....  
.....*M. weii* Radchenko & Zhou
- Petiole higher, PI1 < 1.55, its node with short, slightly convex, gradually sloping posteriorly dorsal surface..... *M. multiplex* Radchenko & Elmes
- 11 Frontal carinae merge with the rugae that extend back to the posterior head margin. Surface of head dorsum between rugae appears shiny.....  
.....*M. yunnanensis* Radchenko & Elmes
- Frontal curved outwards to merge with the rugae that surround antennal sockets. Surface of the head dorsum between rugae appears dull, coarsely and densely punctuated .....*M. heterorhytida* Radchenko & Elmes
- 12 Propodeal spines long (ESLI > 0.45), massive, widened at the base and often downcurved on their distal third.....*M. taibaiensis* Wei, Zhou & Liu
- Propodeal spine shorter (ESLI < 0.40), slender and straight ..... 13
- 13 Head dorsum densely punctate, dull ..... 14
- Head dorsum not punctate, shiny ..... 17
- 14 Head distinctly elongate (CI > 1.20), suboval, with barely marked posterior corners; dorsum of head posterior to eyes with reticulation, rest of head dorsum with longitudinal rugosity ..... *M. polyglypta* Radchenko & Rigato
- Head slightly longer than broad (CI < 1.15), subsquare, with distinctly marked posterior corners; only occiput and temples with fine reticulation ....  
..... 15
- 15 Basal third of first gastral tergite with fine superficial hexagonal sculpture; posterior margin without any erect to suberect long hairs; dorsum of petiolar node with a distinct broad dorsal plate.....*Myrmica huaii* sp. n.
- Whole gastral tergite smooth and shiny; posterior margin with erect to suberect long hairs; dorsum of petiolar node without a distinct broad dorsal plate..... 16
- 16 Lateral margins of head posterior to eyes with abundant short decumbent hairs; Mesonotal and propodeal dorsum with > 25 moderately thin (not coarse) transverse sinuous rugae; Petiole with relatively short but distinct peduncle, its anterior surface concave, dorsum of node quite narrowly rounded .....  
.....*M. schulzi* Radchenko & Elmes
- Lateral margins of head posterior to the eyes without short decumbent hairs; Mesonotal and propodeal dorsum with < 20 quite coarse transverse sinuous rugae; petiole low, with distinct peduncle, its anterior surface concave, dorsum of node widely rounded.....*M. phalacra* Radchenko & Elmes
- 17 Propodeal dorsum with fine longitudinal striations .....  
..... *M. elmesi* Bharti & Sharma

- Propodeal dorsum with transverse rugae. .... **18**
- 18 Propodeal dorsum with transverse rugosity, mesonotal dorsum with short, broken irregular rugae and reticulation ..... ***M. varisculpta* Radchenko & Rigato**
- Propodeal dorsum with sinuous longitudinal rugae, mesonotal dorsum with transverse rugosity. .... ***M. blavaci* Radchenko & Elmes**

## Acknowledgements

We thank Libin Ma (College of Life Science, Shaanxi Normal University) for providing us the paratype specimens of *M. zhengi* Ma and Xu. Thanks are also due to Duoduo Ye, Chaotai Wei (Guangxi Normal University) and Shuang Zhao (College of Life Science, Sun Yat-sen University) for collecting specimens. This study was supported by the National Natural Science Foundation of China (Project Nos. 31372248), Guangxi Key Laboratory of Rare and Endangered Animal Ecology, Guangxi Normal University (Project Nos. GKN. 14-B-03) and Key Laboratory of Ecology of Rare and Endangered Species and Environmental Protection (Guangxi Normal University), Ministry of Education, China (Project Nos. ERESEP2015Z05).

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# ***Leptanilla hypodracos* sp. n., a new species of the cryptic ant genus *Leptanilla* (Hymenoptera, Formicidae) from Singapore, with new distribution data and an updated key to Oriental *Leptanilla* species**

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Academic editor: B. Fisher | Received 26 September 2015 | Accepted 18 November 2015 | Published 11 January 2016

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<http://zoobank.org/46820EBB-5030-4B90-96C9-236A38DFDC64>

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**Citation:** Wong MKL, Guénard B (2016) *Leptanilla hypodracos* sp. n., a new species of the cryptic ant genus *Leptanilla* (Hymenoptera, Formicidae) from Singapore, with new distribution data and an updated key to Oriental *Leptanilla* species. ZooKeys 551: 129–144. doi: 10.3897/zookeys.551.6686

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## **Abstract**

A new species of the cryptic and rarely collected ant genus *Leptanilla* is described. *Leptanilla hypodracos* **sp. n.** is the first *Leptanilla* recorded from Singapore in over a century since *L. havilandi* Forel, 1901 and represents the fourth species of *Leptanilla* known from the Malay Peninsula. An updated key to the *Leptanilla* of the Oriental region is presented. Taxonomic comparisons between *L. hypodracos* **sp. n.** and four morphologically similar species are provided with particular attention given to *L. chypeata* Yamane & Ito, 2001, for which new measurements and indices are presented. The first report is presented for the Leptanillinae subfamily from the southeastern part of China with a worker of the genus *Leptanilla* collected in Hong Kong. Finally, the potential of subterranean bait to collect *Leptanilla* species is discussed.

## **Keywords**

*Leptanilla*, Leptanillinae, Singapore, Hong Kong, Asia, hypogaecic

## Introduction

Leptanillines are among the most rarely collected of ant subfamilies due to their minute size and hypogaecic life habits. Although Leptanillinae are widely distributed throughout the Old World and Australian regions, records of the various taxa are remarkably patchy (Antmaps 2015). This is most likely an artefact of a shortage of sampling efforts specifically targeting hypogaecic ants in many regions.

The genus *Leptanilla* Emery, 1870 includes 45 valid species (Bolton 2015). Little information is available about the biology of *Leptanilla* species, although they are believed to be specialist predators of geophilomorph centipedes based on observations of captive colonies of *L. japonica* Baroni Urbani, 1977 (Masuko 1990) as well as field observations of *L. taiwanensis* Ogata, Terayama & Masuko, 1995 (Ogata et al. 1995). Masuko (2007) also suggests that the unusually minute cranium or ‘stenocephaly’ in *Leptanilla* larva is a morphological adaptation to facilitate simultaneous group feeding of many individuals on the bodies of their specialized prey. Based on current global distribution records, the Mediterranean region supports the highest diversity of *Leptanilla* species with a total of 17 species and also contains by far the most species-rich countries, Tunisia (seven native species) and Spain (six native species) (Antmaps 2015). The Oriental region follows with a total of 16 described species (Bharti and Kumar 2012; Antmaps 2015) and six more species have been described in the East Palearctic region, all from Japan. However, it is possible that the known diversity of *Leptanilla* species can yet be increased significantly, since these ants have likely been undersampled owing to methodological limitations for effectively collecting small subterranean ants. For example, many *Leptanilla* species have only been described from unassociated males collected in sweep nets and malaise traps (Ogata et al. 1995), while the method proposed for effective collection of subterranean individuals – a combination of the *lavage de terre* and Burlese-Tullgren extraction with large amounts (40kg) of soil (Lopez et al. 1994) – is relatively tedious and time-consuming.

In the Malay Peninsula, three species of *Leptanilla* have been described, and all from the worker caste. *Leptanilla havilandi* Forel, 1901 was described from Singapore, while *L. butteli* Forel, 1913 was described from Selangor (Malaysia), and *L. thai* Baroni Urbani, 1977 was described from Khao Chong in southern Thailand. In this paper we describe the worker caste of a new species, *Leptanilla hypodracos* sp. n. from Singapore, which is the fourth *Leptanilla* species from the Malay Peninsula. We also report on a *Leptanilla* worker collected from Hong Kong, which represents the first record of the Leptanillinae subfamily in southeastern China. An updated key to the *Leptanilla* species of the Oriental region (Bharti and Kumar 2012) is presented. Finally, the potential of baited subterranean pitfall traps as a method for collecting cryptic hypogaecic ant taxa such as *Leptanilla* is discussed.

## Methods

Photographs of specimens were obtained with an incorporated digital camera mounted on a Leica M205C dissecting microscope through the Leica Application Suite V4 software. A total of 24 to 86 images were taken and stacked together. Measurements of specimens were taken in mm (accurate to 0.001mm and rounded to the nearest 0.01mm for presentation) with the *Measure Tools* function of the Leica Application Suite V4 software on imaged specimens after proper placement for each body part measured.

The abbreviations used for the measurements and indices are as follows:

|            |                                                                                                                                                                                                                                                                                                             |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>HW</b>  | Head Width. Maximum width of head in full-face view excluding the eyes.                                                                                                                                                                                                                                     |
| <b>HL</b>  | Head Length. Maximum length of head from the anterior median clypeal margin to the median posterior margin of the cephalic capsule measured along the midline as a straight line.                                                                                                                           |
| <b>MaL</b> | Mandible Length. Maximum length of mandible from the anterolateral margin of clypeus at outer side of mandibular insertion to mandibular apex.                                                                                                                                                              |
| <b>SL</b>  | Scape Length. Maximum measurable length of scape, from the proximal point of scape shaft, not including the condyle, to the distal end of scape.                                                                                                                                                            |
| <b>EL</b>  | Eye Length. Maximum diameter of eye measured in lateral view.                                                                                                                                                                                                                                               |
| <b>TL</b>  | Total Length. Maximum length of specimen measured from the tip of the mandibles to the tip of the last abdominal segment, not including sting. Due to the position of the specimen, total length was measured as the sum of head length, mesosoma length, petiole and postpetiole length and gaster length. |
| <b>WL</b>  | Weber's Length of Mesosoma. Maximum diagonal distance in lateral view, from base of anterior slope of pronotum to metapleural lobe.                                                                                                                                                                         |
| <b>PNW</b> | Pronotal Width. Maximum width of pronotum measured in dorsal view.                                                                                                                                                                                                                                          |
| <b>PNH</b> | Pronotal Height. Maximum height of pronotum measured in dorsal view.                                                                                                                                                                                                                                        |
| <b>MW</b>  | Mesonotal Width. Maximum width of the mesonotum measured in dorsal view.                                                                                                                                                                                                                                    |
| <b>PTL</b> | Petiole Length. In dorsal view, maximum length of petiole, along the sagittal plane, and excluding the peduncle (after Baroni Urbani 1977).                                                                                                                                                                 |
| <b>PTH</b> | Petiole Height. Maximum height of petiole, measured in lateral view from the highest (median) point of the node, orthogonally to the ventral outline of the node (after Baroni Urbani 1977).                                                                                                                |
| <b>PTW</b> | Petiole Width. Maximum width of the petiole in dorsal view.                                                                                                                                                                                                                                                 |
| <b>PPL</b> | Postpetiole Length. Maximum length of postpetiole, measured in dorsal view and not excluding the peduncle (after Baroni Urbani 1977).                                                                                                                                                                       |
| <b>PPH</b> | Postpetiole Height. Maximum height of postpetiole, measured in lateral view from the highest point of the node.                                                                                                                                                                                             |
| <b>PPW</b> | Postpetiole Width. Maximum width of the postpetiole in dorsal view.                                                                                                                                                                                                                                         |
| <b>CI</b>  | Cephalic Index. Calculated as: $HW / HL \times 100$ .                                                                                                                                                                                                                                                       |
| <b>SI</b>  | Scape Index. Calculated as: $SL / HW \times 100$ .                                                                                                                                                                                                                                                          |
| <b>MaI</b> | Mandibular Index. Calculated as: $MaL / HW \times 100$ .                                                                                                                                                                                                                                                    |

- PI** Petiolar Index. Calculated as:  $PTW / PTL \times 100$  (after Baroni Urbani 1977).  
**PPI** Postpetiolar Index. Calculated as:  $PPW / PPL \times 100$  (after Baroni Urbani 1977).  
**PPHI** Postpetiolar Height Index. Calculated as:  $PPW / PPH \times 100$  (modified after Bharti and Kumar 2012).

Abbreviations of the type depositories and others are as follows:

- LKCNHM** Lee Kong Chian Natural History Museum, Singapore.  
**SBSHKU** Insect Biodiversity and Biogeography Laboratory, School of Biological Sciences, The University of Hong Kong, Hong Kong SAR.

## Results

### Description of new species

#### *Leptanilla hypodracos* Wong & Guénard, sp. n.

<http://zoobank.org/66F9C713-04C1-40F9-B746-30BD1949AC80>

Figs 1–7

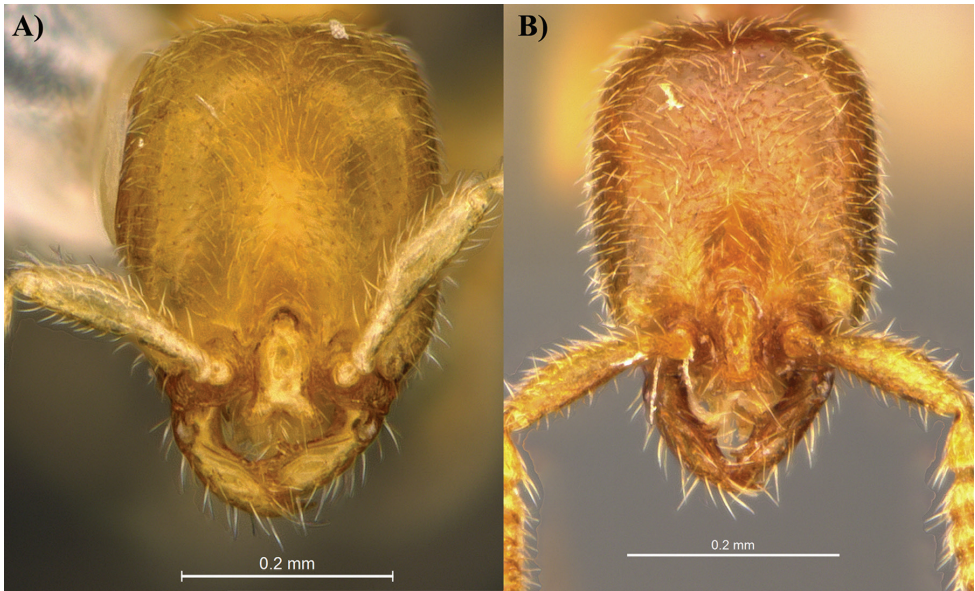
**Holotype.** Worker from SINGAPORE, Central Catchment Nature Reserve, 1°21.3'N; 103°48.9'E, ca. 55m asl, 15.VI.2015, via subterranean pitfall trap, leg. Mark K. L. Wong, label “MW150615-1.1” deposited in LKCNHM.

**Paratypes.** Two workers in total, all with the same data as holotype (deposited at SBSHKU), labelled “MW150615-1.2” and “MW150615-1.3”. Unfortunately these specimens were incomplete when collected, with only a head present for one specimen and the second specimen missing part of its antennae and legs. Both specimens were probably damaged by other ants present in the subterranean pitfall trap during collection. The second specimen was very fragile and was damaged during specimen manipulation (breakage at the propodeum/petiole junction). The broken parts were kept in ethanol while the head and mesosoma were mounted for measurements.

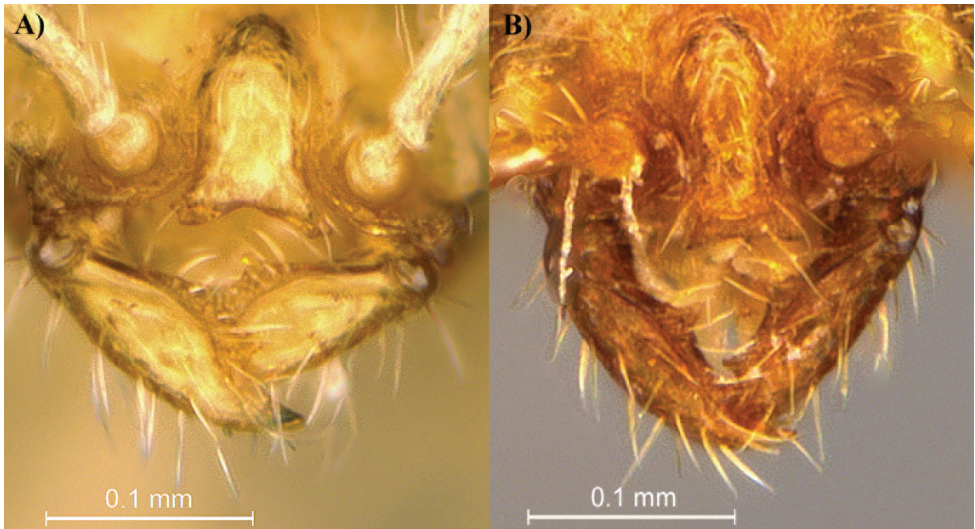
**Measurements and indices. Holotype.** HL 0.35 mm; HW 0.27 mm; MaL 0.16 mm; SL 0.19 mm; EL 0 mm (eye absent); WL 0.44 mm; PNW 0.18 mm; PNH 0.12 mm; MW 0.11 mm; PTL 0.10 mm; PTW 0.06 mm; PTH 0.10 mm; TL 1.73 mm (stinger not included); PPL 0.09 mm; PPW 0.08 mm; PPH 0.12 mm; CI 78, SI 69, MaI 57, PI 60, PPI 90, PPHI 70.

**Paratype** (n = 1). HL 0.35 mm; HW 0.27 mm; MaL 0.15 mm; SL 0.19 mm; WL 0.44 mm; PNW 0.18 mm; PNH 0.12 mm; MW 0.11 mm; CI 76, SI 69, MaI 54.

**Worker description. Head.** Head longer than wide (CI = 76–78). In full-face view, posterior margin of head straight to slightly concave. Lateral margins of head slightly convex with posterior margins rounded. Eyes absent. Anterior clypeal margin extending forward with two rounded lobes anterolaterally and slightly concave on its anteromedian portion (Fig. 1B). Median portion of clypeus raised. Mandibles short relative to head



**Figure 1.** Head view of *Leptanilla clypeata* from Java (A) and *L. hypodracos* from Singapore (Holotype) (B). Photographs are on the same scale.



**Figure 2.** Head view focusing on the mandibles of *Leptanilla clypeata* from Java (A) and *L. hypodracos* from Singapore (Holotype) (B). Photographs are on the same scale.

(Mal = 54–57) armed with three teeth. Mandibles with a distinct ridge on their basal margin (Fig. 2B). Apical tooth large and acute followed by two smaller teeth; with the basal tooth significantly smaller, blunt and pointing inward. Antennal insertion exposed. Antennae with 12 segments. Scape inflated in its median portion, dorsally concave, and

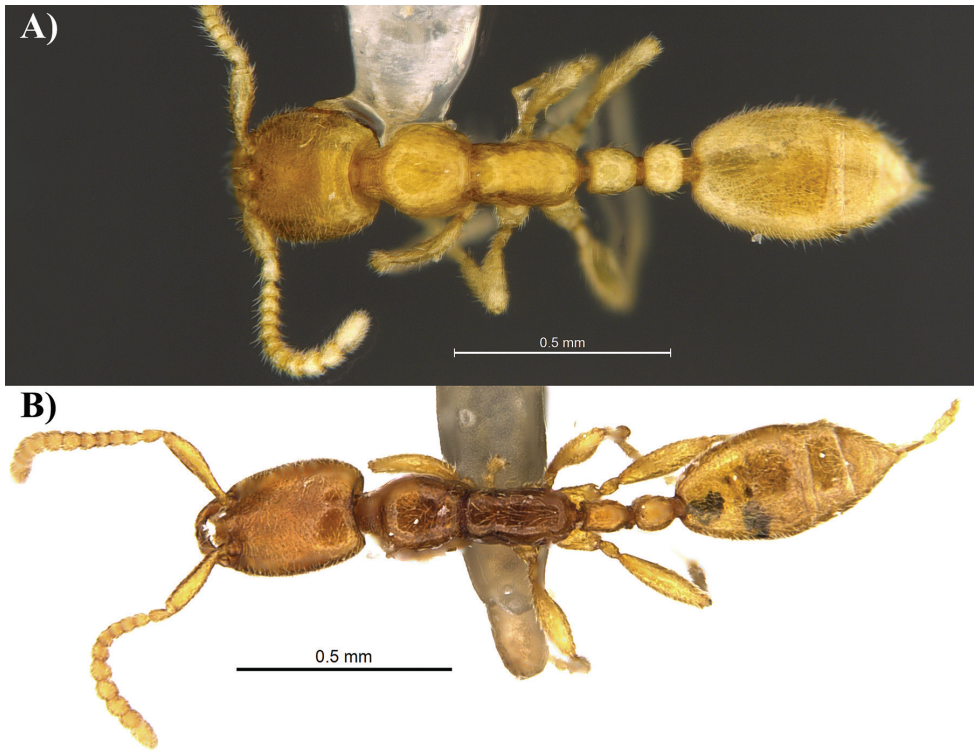


**Figure 3.** Profile view of *Leptanilla clypeata* from Java (**A**) and *L. hypodracos* from Singapore (Holotype (**B**)). Photographs are on the same scale.

extending over the mid-point of head. Pedicel distinct from the scape and flagellum by marked constrictions. Flagellum incrassate with the last antennal segment distinctly longer than the previous flagellomeres, about the size of the previous two segments.

**Mesosoma.** In lateral view, mesosoma with a continuous straight appearance with the exception of a well-marked interruption of the promesonotal suture (Fig. 3B). In dorsal view, pronotum wider than posterior portions of mesosoma, especially on its anterior half (Fig. 4B). In profile view, a distinct sulcus of fine striae separates the pronotum from the propleuron extending from the dorsal portion of the neck and reaching the inferior part of the promesonotal suture just above the coxal junction (Fig. 5B). In profile view, both anterodorsal and anteroventral parts of pronotum rounded with the latter droplet-shaped. Mesonotum and propodeum with similar width and without obvious inflated portion. Promesonotal suture deeply impressed and clearly visible in both dorsal and profile view. Metapleural gland bulla large and elongate, nearly as large as the maximum width of hind coxa (Fig. 6B). Posterior part of propodeum forming the propodeal declivity nearly at right angle with rounded edges.

**Metasoma.** In profile view, dorsal and ventral portion of petiolar node markedly convex, rounded without acute portion nor subpetiolar process. Dorsal margin of postpetiole convex and rounded. Dorsal margin of the postpetiolar node lower than the maximal height of the dorsal margin of the petiolar node. Sternopostpetiolar process well



**Figure 4.** Dorsal view of *Leptanilla clypeata* from Java (**A**) and *L. hypodracos* from Singapore (Holotype) (**B**). Photographs are on the same scale.

developed and rounded. In dorsal view, petiolar node longer than wide (PTL = 0.10 mm, PTW = 0.06 mm) while postpetiole more rounded (PPL = 0.09 mm, PPW = 0.08 mm).

**Sculpture.** Sculpture absent on most of the body. Most of the body with a slick and shiny appearance with the exception of the neck with clear transversal striae (Fig. 7B). Hair insertion on head giving an impression of the presence of small punctuations.

**Pubescence.** Pubescence present on most of the body, especially on dorsal parts. Antennae and mandibles with numerous erect to suberect long hairs.

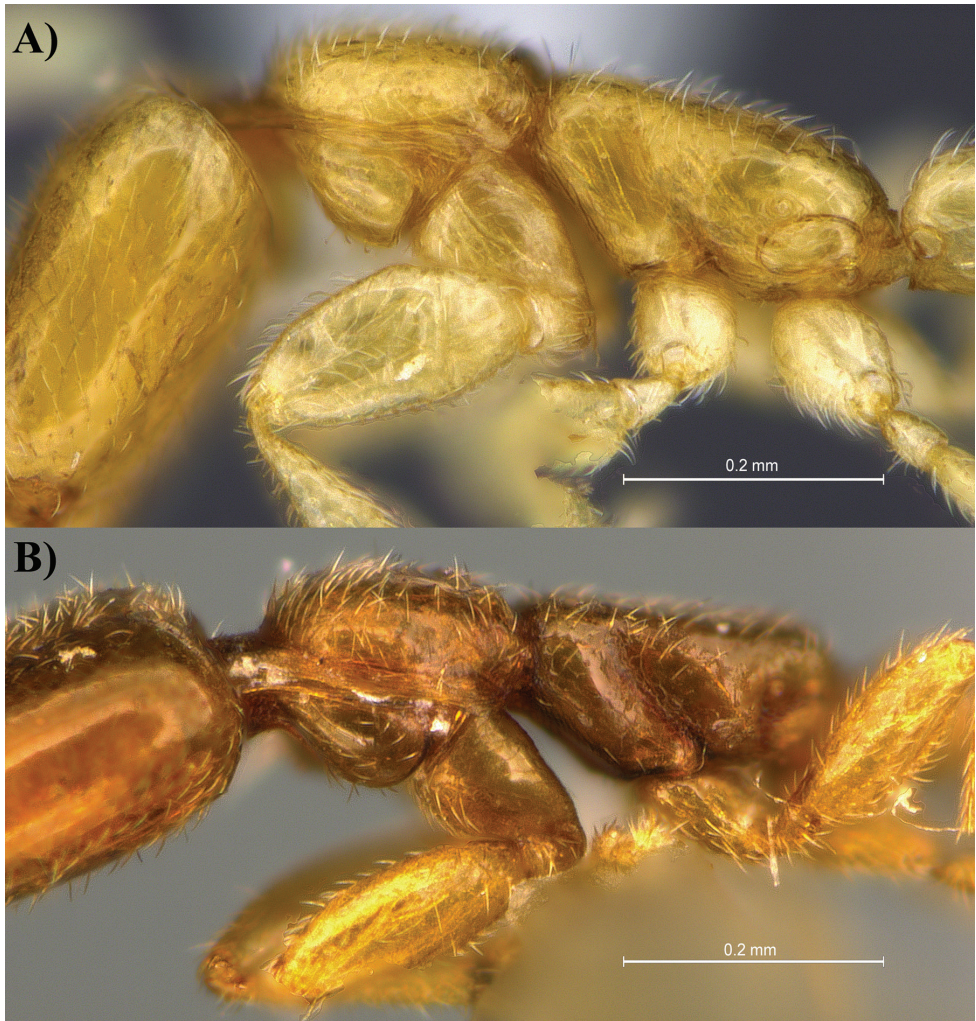
**Coloration.** Head, thorax and fore coxa with a dark amber colour, while petiole, postpetiole and most of the gaster slightly lighter. Antennae, legs (with the exception of the fore coxa) and tip of the gaster with a much lighter yellow coloration.

**Castes.** Male and female unknown.

**Etymology.** The species epithet is derived from a combination of the Latin terms for ‘under’ and ‘dragon’, in reference to the slender, dragon-like appearance of this subterranean predator. The species epithet is a noun, and thus invariant.

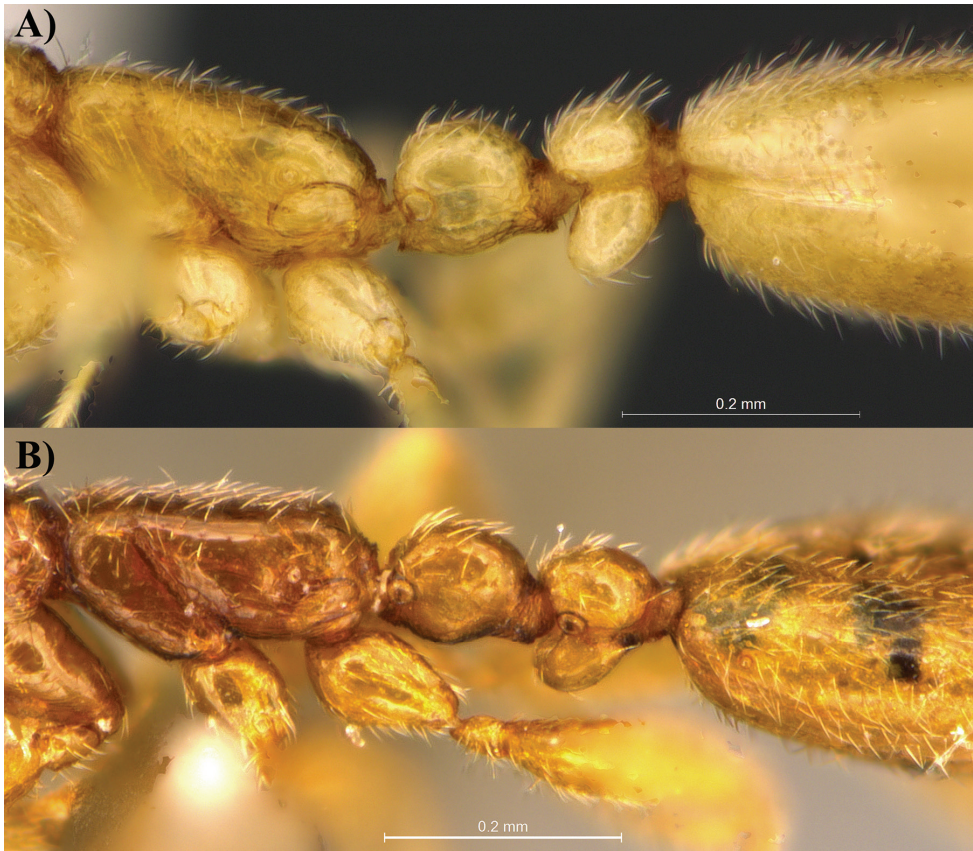
**Distribution.** Southeast Asia. Only known from Singapore.

**Ecology.** *Leptanilla hypodracos* was collected from a well-shaded patch of tropical low-lying old secondary forest with a high density of leaf litter and woody debris on



**Figure 5.** Profile view focusing on the pronotum, mesonotum and anterior part of propodeum of *Leptanilla chypeata* from Java (**A**) and *L. hypodracos* from Singapore (Holotype) (**B**). Note that the right side of *L. hypodracos* is presented here. Photographs are on the same scale.

the forest floor. As with other Leptanillinae, *L. hypodracos* presents a hypogaecic lifestyle and was collected in a baited subterranean pitfall trap at a depth between 10–15 cm. Colony size and structure is unknown. Although the specimens were collected in a trap containing tuna bait, it is presently unclear as to whether *L. hypodracos* were recruited to the bait, since other *Leptanilla* species have previously been suggested to be specialist predators of geophilomorph centipedes (Masuko 1990) and have yet to demonstrate any scavenging habits. In contrast, other species present at the same bait were collected in high densities (>100 individuals each), and these belonged to mass-raiding species of *Dorylus* Fabricius, 1973 and generalized foraging species of *Carebara* Westwood, 1840.



**Figure 6.** Profile view focusing on the propodeum, petiole and subpetiole of *Leptanilla chypeata* from Java (A) and *L. hypodracos* from Singapore (Holotype) (B). Photographs are on the same scale.

**Remarks.** Based on a morphological examination, *L. hypodracos* is close to several other *Leptanilla* from the Oriental region, namely *L. escheri* Kutter, 1948, *L. butteli* Forel, 1913, and *L. thai*, but is most similar to *L. chypeata*.

*Leptanilla hypodracos* differs from *L. escheri* in the anterior margin of the petiole in profile view, which is rounded in *L. hypodracos* but more angular in *L. escheri* while in dorsal view, *L. hypodracos* displays a long and narrow petiole (PI = 47, PPI = 83) that contrasts with the rounded petiole which is as wide as it is long in *L. escheri* (PI = 87–120, PPI = 117–145). In dorsal view *L. hypodracos* also has a narrower mesosoma than *L. escheri*. Furthermore, as records of *L. escheri* are restricted to southern Indian highlands where the elevation ranges from 1250 to 1775m asl, and *L. hypodracos* was collected in a tropical lowland forest of Singapore at an elevation of 55m asl, it is conceivable that the two species occupy differing ecological niches.

Similar species reported from the Malay Peninsula include *L. butteli* from West Malaysia and *L. thai* from Southern Thailand. However, *L. hypodracos* is distinguished from these species in having a more rounded petiolar node and a less inflated petiole.



**Figure 7.** Dorsal view focusing on the pronotum and neck of *Leptanilla clypeata* from Java (**A**) and *L. hypodracos* from Singapore (Holotype) (**B**). Photographs are on the same scale.

In comparison, both *L. butteli* and *L. thai* possess square-shaped petiolar nodes with rounded angles and more inflated petioles (Baroni Urbani 1977). In full-face view, the extension of the anterior clypeal margin is present in *L. hypodracos* but absent in *L. butteli*. In terms of overall size, *L. hypodracos* (TL = 1.73 mm) is larger than both *L. butteli* (TL = 1.40–1.50 mm) and *L. thai* (TL = 1.40–1.50 mm), although the head size of *L. thai* (HL = 0.36 mm, HW = 0.27 mm) (Baroni Urbani 1977) is comparable to that of *L. hypodracos* (HL = 0.35 mm, HW = 0.27 mm).

*Leptanilla hypodracos* presents the most similarities with *L. clypeata* from Java, Indonesia, but can be distinguished from the latter by a suite of distinct characteristics. We also provide a new set of complete measurements for *L. clypeata* (see below). The primary difference is observed in dorsal view and pertains to the shape and size of the petiolar node and postpetiole. In *L. hypodracos*, the petiolar node is nearly twice longer than wide (PI = 60, PTL = 0.10 mm, PTW = 0.06 mm) and the postpetiole is longer than wide, and also more rounded (PPI = 90, PPL = 0.9 mm, PPW = 0.08 mm). However in *L. clypeata*, the petiolar node is almost as wide as long (PI = 82, PTL = 0.11 mm, PTW = 0.09 mm in Ito et al. 2001; new measurements PI = 100, PTL = 0.10 mm,

PTW = 0.10 mm), while the postpetiole is distinctly wider than long (PPI = 137, PPW = 0.11 mm, PPL = 0.08 mm in Ito et al. 2001; new measurements PPI = 133, PPW = 0.12 mm, PPL = 0.09 mm) contrary to *L. hypodracos*. Hairs on the posterodorsal subpetiolar process of *L. hypodracos* are sparser and shorter than in *L. clypeata*. The posterodorsal corner of the prodeum also more angular in *L. hypodracos* while being more rounded in *L. clypeata*. In full-face view, the mandibles of *L. hypodracos* display a long and well-defined basal tooth, however this character is neither visible in the observed specimen of *L. clypeata* nor on the figures of Ito et al. (2001, Figures 7A, C).

In addition to the characteristics above, there are several other differences between *L. hypodracos* and *L. clypeata*, which should be confirmed with future collection of both species. The head of *L. hypodracos* (CI = 76–78) is slightly narrower than that of *L. clypeata* (CI = 82 in Ito et al. 2001, and CI = 84 with our measurements below) (Fig. 1). In profile view, the metanotal groove appears more deeply impressed in *L. hypodracos* than it does in *L. clypeata*. In full-face view, the anterior part of the clypeal projection is slightly concave to straight in *L. hypodracos* but deeply concave in *L. clypeata*. Lastly, in dorsal view the pronotum of *L. hypodracos* (PNW = 0.18 mm) is narrower than that of *L. clypeata* (PNW = 0.20 mm).

### Measurements and indices for *L. clypeata*

The specimen (Figs 1–7) used below for measurement was collected by Fumitori Ito in Kebun Raya Bogor, Java (Indonesia) on December 16<sup>th</sup> 2000, in the same general area of the holotype and paratypes of *L. clypeata*, and subsequently lent to the authors for measurements.

**Measurements.** HL 0.37 mm; HW 0.31 mm; MaL 0.16 mm; SL 0.20 mm; WL 0.48 mm; PNW 0.20 mm; PNH 0.14 mm; MW 0.12 mm; PTL 0.10 mm; PTW 0.10 mm; PTH 0.11 mm; TL 1.79 mm (stinger not included), PPL 0.09 mm; PPW 0.12 mm; PPH 0.15 mm; CI 84; SI 65, MaI 53; PI 100; PPI 133, PPHI 80.

### New record of *Leptanilla* from Hong Kong and southeastern China

A single worker of a *Leptanilla* species identified as *Leptanilla* sp. cf. *japonica* is reported from Hong Kong. The specimen was collected in leaf litter using the Winkler extractor method in Lung Fu Shan Park (22°16.823'N, 114°8.270'E, 116m), located on Hong Kong Island on November 25<sup>th</sup> 2014. The specimen is deposited at the California Academy of Sciences, San Francisco, California, U.S.A. under the specimen code CASENT0914941. Photographs of the specimen are available on Antweb.org. While the specimen appears to match the description and characteristics of *L. japonica*, we are hesitant to formerly identify it as such due to the important disjunction observed in the distribution of this species. To the best of our knowledge this species has been reported only from Honshu Island in Japan (Antmaps 2015) and it is thus surprising

to find it so far south ( $\geq 2500\text{km}$ ) in the absence of other intermediate records. Future surveys in Asia should reveal if this record represents a valid record of *L. japonica* or a new cryptic species morphologically similar to the latter.

### Synoptic species list of Oriental *Leptanilla* species

- Leptanilla astylina* Petersen, 1968 (Philippines) – described from male only  
*Leptanilla besucheti* Baroni Urbani, 1977 (Sri Lanka)  
*Leptanilla buddhista* Baroni Urbani, 1977 (Nepal)  
*Leptanilla butteli* Forel, 1913 (West Malaysia)  
*Leptanilla clypeata* Yamane & Ito, 2001 (Java, Indonesia)  
*Leptanilla escheri* Kutter, 1948 (South India)  
*Leptanilla havilandi* Forel, 1901 (Singapore)  
*Leptanilla hunanensis* Tang, Li & Chen, 1992 (Hubei, Hunan & Yunnan, China)  
*Leptanilla hypodracos* sp. n. (Singapore)  
*Leptanilla* sp. cf. *japonica* (Hong Kong)  
*Leptanilla kebunraya* Yamane & Ito, 2001 (Java, Indonesia)  
*Leptanilla kunmingensis* Xu & Zhang, 2002 (China)  
*Leptanilla lamellata* Bharti & Kumar, 2012 (North India)  
*Leptanilla santschii* Wheeler & Wheeler, 1930 (Java, Indonesia) – described from male only  
*Leptanilla taiwanensis* Ogata, Terayama & Masuko, 1995 (Taiwan)  
*Leptanilla thai* Baroni Urbani, 1977 (Thailand)  
*Leptanilla yunnanensis* Xu, 2002 (China)

### Updated key to Oriental *Leptanilla* species

The key to Oriental *Leptanilla* species (Bharti and Kumar 2012) is updated with the modifications of sections 3 and 14 and the inclusion of *L. hypodracos* in a new section (below) and *Leptanilla* sp. cf. *japonica*.

Modified after Bharti and Kumar (2012):

- |   |                                                                                                                                                                         |                                |
|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 1 | Mandible with 2 teeth .....                                                                                                                                             | 2                              |
| – | Mandible with 3 teeth or more .....                                                                                                                                     | 3                              |
| 2 | Anterolateral lobes of clypeus present, 3rd antennal segment with a distinct basal peduncle, postpetiole large, promesonotal suture narrow (Java) .....                 |                                |
|   | ..... <b><i>L. kebunraya</i> Yamane &amp; Ito</b>                                                                                                                       |                                |
| – | Anterolateral lobes of clypeus absent, 3rd antennal segment without distinct basal peduncle, postpetiole relatively small, promesonotal suture wide (W. Malaysia) ..... | <b><i>L. butteli</i> Forel</b> |
| 3 | Mandible with 3 teeth .....                                                                                                                                             | 4                              |

- Mandible with 4 irregular and with the fourth tooth (preapical) very small and difficult to distinguish (Hong Kong) ..... ***Leptanilla* sp. cf. *japonica***
- 4 Metanotal groove present ..... **5**
- Metanotal groove absent ..... **6**
- 5 In full-face view head approximately rectangular. Clypeus not protruding, anterior margin roundly convex. In profile view dorsum of petiole almost straight. In dorsal view postpetiolar node much wider than petiolar node (S. China) ..... ***L. hunanensis* Tang, Li & Chen**
- In full-face view head distinctly narrowed anteriorly. Clypeus protruding, anterior margin concave. In lateral view dorsum of petiole roundly convex. In dorsal view postpetiolar node as wide as petiolar node (S. China) ..... ***L. kunmingensis* Xu & Zhang**
- 6 Anterior margin of clypeus more or less straight or weakly to strongly convex... **7**
- Anterior margin of clypeus medially incised, bilobed ..... **9**
- 7 Petiole longer  $\geq 0.13$  mm (Sri Lanka) ..... ***L. besucheti* Baroni Urbani**
- Petiole shorter  $\leq 0.10$  mm ..... **8**
- 8 Clypeus slightly protruding anteriorly and with distinctly convex anterior margin, PPI = 122–138, CI  $\geq 82$ , PI = 111–125 (Nepal) ..... ***L. buddhista* Baroni Urbani**
- Clypeus not protruding anteriorly and with straight or weakly convex anterior margin, PPI = 163–171, CI  $\leq 81$ , PI = 138–158 (S. China) ..... ***L. yunnanensis* Xu**
- 9 Petiole, postpetiole and gaster covered with short and long hairs ..... **10**
- Petiole, postpetiole and gaster covered with either short or long hairs ..... **11**
- 10 Petiole with an anteroventral lamellate subpetiolar process, ventral face of lamellate process weakly rounded; subpetiolar process with anteroventral and posteroventral corner obtusely angled and posterior face of subpetiolar process weakly concave; petiolar and postpetiolar spiracle almost equal in diameter, PPHI = 74–76; posterior head margin concave (N. India) ..... ***L. lamellata* Bharti & Kumar**
- Petiole with a weak subpetiolar process without lamella; petiolar process convex and anteriorly and posteriorly oblique; petiolar spiracle large with a diameter of almost 2 times the diameter of postpetiolar spiracle, PPHI = 85–86, posterior head margin almost straight or weakly concave (S. India) ..... ***L. escheri* Kutter**
- 11 Anterior margin of clypeus almost straight with a low median notch (Taiwan) ..... ***L. taiwanensis* Ogata, Terayama & Masuko**
- Anterior margin of clypeus medially prominent with deep incision or anteriorly strongly produced and apically distinctly bilobed ..... **12**
- 12 Anterior margin of clypeus medially prominent with a deep incision at its apical margin, SI  $\geq 74$  (Singapore) ..... ***L. havilandi* Forel**
- Anterior margin of clypeus with a broad median notch that makes it seem almost bilobed in dorsal view, SI  $\leq 68$  ..... **13**

- 13 Clypeus strongly produced anteriorly and having a distinctly raised platform which is defined posteriorly; anterior portion of head lacking a pair of whitish markings..... **14**
- Clypeus not strongly produced anteriorly and lacking a distinctly raised platform which is defined posteriorly; anterior portion of head with a pair of whitish markings (Thailand) ..... ***L. thai* Baroni Urbani**
- 14 In dorsal view petiolar node almost twice as long as wide and postpetiolar node almost as wide as long, PI = 60, PPI = 90 (Fig. 4B); in profile view propodeal declivity is more angular (Fig. 3B). In full-face view, mandibles with a long and well-defined basal tooth (Singapore)..... ***L. hypodracos* sp. n.**
- In dorsal view petiolar node almost as wide as long and postpetiolar node distinctly wider than long, PI = 82–100, PPI = 133–137 (Fig. 4A); in profile view propodeal declivity is more rounded (Fig. 3A). In full-face view, mandibles lacking a long and well-defined basal tooth (Java)..... ***L. chlypeata* Yamane & Ito**

## Discussion

The discovery of *L. hypodracos* represents a second *Leptanilla* species from Singapore and a fourth species from the Malay Peninsula. Notably, this is the first known record of a *Leptanilla* species from Singapore in over a century, since Forel's discovery of *L. havilandi* in 1901. *Leptanilla* species are often considered to be rare ants as they are infrequently collected owing to a minute body size, hypogaecic life history and potentially small colony size (Masuko 1990 reports 100–200 workers in *L. japonica* colonies). Nevertheless, several methods of collection have been suggested to be particularly effective at targeting *Leptanilla* species. Lopez et al. (1994) report that by using the *lavage de terre* method with large amounts (ca. 40kg) of soil followed by a Burlese-Tullgren extraction, they were able to collect numerous individuals of *L. charaonea* Barandica, López, Martínez & Ortuno, 1994 (48 specimens) and *L. zaballosi* Barandica, López, Martínez & Ortuno, 1994 (388 specimens) from single samples, although they also attribute these results to the specific biotope sampled. Other methods of soil extraction have also proven successful in collecting *Leptanilla*. For example, Belshaw and Bolton (1994) collected 30 workers of *L. boltoni* Baroni Urbani, 1977 by a Winkler extraction of soil samples from 25 × 25 cm quadrats excavated to a depth of 5 cm. Most recently, we collected a single *Leptanilla* worker via a similar method in Hong Kong, which represents the first record of Leptanillinae in this territory and for southeastern mainland China as previous records of *Leptanilla* species for this country are reported only from Hubei, Hunan, and Yunnan (Antmaps 2015). This new record expands the known distribution of the Leptanillinae subfamily in mainland China by nearly 700 km south east. Although the abovementioned collection methods are certainly likely to be effective for collecting *Leptanilla* and other cryptic hypogaecic ants, such broad-scale approaches employing the passive extraction of individuals from large amounts of debris may be limited in their potential for obtaining further biological and ecological information about the species.

To this end, we suggest that the usage of baited subterranean pitfall traps (e.g. Schmidt and Solar 2010) may prove an interesting alternative collection method at the fine scale. For example, from our collection of *L. hypodracos* using small (50 ml) baited subterranean pitfall traps, we were able to confirm the presence of this species at soil depths between 10–15 cm based on the position of entrances to the traps and also identify sympatric ant species within the same microhabitat (i.e. *Dorylus* and *Carebara* species). While there is insufficient evidence at present to suggest any recruitment of *L. hypodracos* to tuna pieces, increased sampling with subterranean pitfall traps using a variety of bait types (e.g. dead vs. live bait) may contribute to our knowledge on the trophic biology of *Leptanilla* species. Considering the relatively small body size of *Leptanilla* ants, future exclusion studies may also be possible by making adjustments to the size of trap entrances such that they prevent larger species from entering. In light of the current shortage of information surrounding cryptic hypogaeic ants such as *Leptanilla* species, the usage of fine-scale collection methods such as baited subterranean pitfall traps can complement other broad-scale approaches so as to obtain the specific biological and ecological information required to achieve a fuller understanding of their life history.

## Acknowledgments

The authors would like to warmly thank Fuminori Ito for providing a specimen of *Leptanilla clypeata* collected in Java. We also wish to express our gratitude to Theodore Evans for his logistical support for this project, and staff from the National Biodiversity Centre Singapore for their assistance with research permits. We are also grateful to Eli Sarnat, Seiki Yamane and an anonymous reviewer for their useful comments on a previous version of the manuscript. Finally, we would like to thank Lily Ng for her help with the pictures.

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# New species of the genus *Mahinda* Krombein, 1983 (Hymenoptera, Chrysididae, Amiseginae)

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Academic editor: M. Engel | Received 6 August 2015 | Accepted 8 October 2015 | Published 11 January 2016

<http://zoobank.org/82929974-594E-41EC-9BF8-AEFD68CC7610>

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**Citation:** Kimsey LS, Mita T, Pham HT (2016) New species of the genus *Mahinda* Krombein, 1983 (Hymenoptera, Chrysididae, Amiseginae). ZooKeys 551: 145–154. doi: 10.3897/zookeys.551.6168

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## Abstract

Three new species of *Mahinda* are described, *bo* from Vietnam, *borneensis* from Malaysian Borneo and *sulawesiensis* from northern Sulawesi. A key to the three known species is provided including the previously described species, *saltator* Krombein, 1983.

## Keywords

*Atoposega*, *Exopapua*, Aculeata, Oriental Region

## Introduction

The genus *Mahinda* Krombein, 1983 includes some of the largest bodied species in the chrysidid subfamily Amiseginae. Females are distinctive, with small pad-like forewings and large, conical or tooth-like propodeal angles. The males associated with *Mahinda saltator* Krombein, 1983, from Sri Lanka are structurally conservative and resemble those of other Asian amisegines, such as male *Myrmecomimesis* Dalla Torre, 1897.

Krombein (1983) associated the male and female of *Mahinda saltator* by shared date and place of collection, for several localities. He made the assumption that they

were conspecific since this was the only male amisegine other than males of *Cladobethylus ceylonicus* Krombein, 1980 that was found concurrently with the wingless females. Female *Cladobethylus* are winged. However, the male of *Ma. saltator* differs substantially from the female in a number of features that are typically shared by both sexes in other genera where sex associations have been made, these differences in *Ma. saltator* include the presence (female) or absence (male) of an omaulus, the mesopleuron ventromedially simple (females) or grooved and carinate (males), and the presence and number of dorsolongitudinal carinae on the hindcoxa (one in males) or the absence of carinae (females).

The biology of *Mahinda* is unknown but as with other members of the subfamily they are probably parasites of walking stick (Phasmatodea) eggs (Kimsey and Bohart 1991). A female *Mahinda bo* Kimsey, Mita & Pham, sp. n. was observed in the leaf litter in Vietnam by authors Mita and Pham (Fig. 1).

## Materials and methods

Terms used in the descriptions follow those of Kimsey and Bohart (1991). Specimens were studied from the following institutions and/or these are the type repositories:

- BMNH** The Natural History Museum, London, England (Max Barclay);  
**ROM** Royal Ontario Museum, Edmonton, Ontario, Canada (Chris Darling);  
**USNM** U. S. National Museum of Natural History, Washington, D. C., USA (Brian Harris);  
**VNMN** Vietnam National Museum of Nature, Hanoi, Vietnam.

Specimens were imaged using a Leica video camera mounted on a Leica stereomicroscope (Davis) and Olympus E5 digital camera mounted on an Olympus stereomicroscope (Japan). Images were assembled using the CombineZP software. Line drawings were prepared using a Wild 5 stereomicroscope with drawing tube. The field photo was taken with a digital Panasonic Lumix FZ150 camera, with macro conversion lens (Reynox DCR-250).

## Results

### Genus *Mahinda* Krombein

*Mahinda* Krombein, 1983:28. Type: *Mahinda saltator* Krombein, 1983:29. Monobasic and original designation

**Diagnosis.** Female *Mahinda* are brachypterous with the wings reduced to small pads, unlike female *Atoposega*, which are fully winged. They have the lateral propodeal angles

sharp and conical, or spine-like and resemble females of *Atoposega* and *Exopapua*. They differ from female *Exopapua* in having a strongly convex pronotum, short metanotum, lack an omaulus and have a gradually sloping propodeum. *Mahinda* females differ from those of *Atoposega* in the hindcoxa with one or no dorsal longitudinal carinae (two in *Atoposega*), mesopleuron with a narrow, parallel-sided ventromedial longitudinal groove (anteriorly carinate and U-shaped in *Atoposega*). In addition *Mahinda* females have two sharp submedial angles above the posterior propodeal declivity, which do not occur in *Atoposega*. Male *Mahinda* have the wings are fully developed and the lateral propodeal angles are not spine-like, but short and conical. Other diagnostic features include the lack of an occipital carina, no omaulus or scrobal sulcus on the mesopleuron, and a long slender stigma + R1. Both sexes have a well-developed malar sulcus.

**Description.** Head: without occipital carina; eyes covered with short setulae (males) or setulae minute (females); vertical malar sulcus present; propleuron with angulate lateral ridge; scapal basin densely cross-ridged; male flagellum elongate, filiform and cylindrical; female flagellum short and fusiform, flattened on one surface. Mesosoma: pronotum subequal in length to scutum, with short posteromedial groove and pit before lateral lobe; scutum with faint parapsides and well-developed notauli; mesopleuron with (females) or without omaulus (males), without scrobal sulcus, ventromedially flattened with groove and associated U-shaped, carina edged pit (males), convex with simple sulcus or line (females); male fully winged, forewing Rs extended by dark streak in abrupt angle, medial vein arising before cu-a, R1 not clearly indicated, stigma greatly elongate and slender; female strongly brachypterous, forewing pad with several visible veins; metanotum subequal in length to scutellum along midline, with punctate medial enclosure; propodeum with long acute lateral angles in females or short, obtuse angles in males, and abruptly declivous posterior surface; hindcoxa with one (male) or without dorsobasal carina (female); tarsal claw with large medial and small subbasal teeth. Metasoma: integument dull, and densely shagreened, or highly polished and impunctate, vestiture short and decumbent. Sternum I produced into large basal keel.

**Distribution** (Fig. 2). *Mahinda* occurs in Sri Lanka, Vietnam and on the islands of Borneo and Sulawesi. Specimens are rare in collections.

### Key to females of the species of *Mahinda*

- 1 Metasomal terga densely, finely shagreened; Sri Lanka.....***Mahinda saltator* Krombein**
- Metasomal terga polished, impunctate or sparsely punctate ..... **2**
- 2 Pronotum less than 0.5× as long as broad in dorsal view; propodeal angle long, spike-like, twice or more as long as broad; Vietnam .....***Mahinda bo* Kimsey, Mita & Pham, sp. n.**
- Pronotum more than 0.7× as long as broad in dorsal view; propodeal angle about as broad as long, subtriangular ..... **3**

- 3 Mesosoma red (Figs 7, 8); propodeum laterally coarsely cross-ridged; hindocellus separated from nearest eye margin by 1 hindocellar diameter in dorsal view (Fig. 13); Sulawesi.....***Mahinda sulawesiensis* Kimsey, Mita & Pham, sp. n.**
- Mesosoma black (Figs 5, 6); propodeum laterally polished without cross-ridging; hindocellus separated from nearest eye margin by less than 1 hindocellar diameter in dorsal view (Fig. 10); Borneo .....  
.....***Mahinda borneensis* Kimsey, Mita & Pham, sp. n.**

***Mahinda bo* Kimsey, Mita & Pham, sp. n.**

<http://zoobank.org/64DC013F-5758-4671-8AB8-7612DB30E26E>

Figs 1, 3, 4, 9, 12

**Diagnosis.** This species can be distinguished from all other species of *Mahinda* by the short, wide, anteromedially indented pronotum and long, spine-like lateral propodeal angles.

**Female description.** Body length 5.8 mm. Head: face (Fig. 9); scapal basin densely transversely ridged, zone of ridging separated from midocellus by about one midocellar diameter; malar space two midocellar diameters long; subantennal distance 0.5 midocellar diameter long; least interocular distance 0.5× as broad as facial length between midocellus and clypeal apex; eyes slightly converging above in front view; midocellar to ocular margin distance two midocellar diameters; hindocellus one diameter from ocular margin; vertex least interocular distance 0.9× ocular width in dorsal view (Fig. 12); flagellomere I 2.8× as long as broad; flagellomere II 0.7× as long as broad; flagellomere III 0.6× as long as broad; flagellomere XI 0.6× as long as broad; Mesosoma: dorsum and mesopleural punctures separated by 0.5 puncture diameters, polished between; pronotum anteromedially indented, twice as wide as long, 0.7× as long as scutum plus scutellum; metanotum 1.9× as long as broad, with small apicomedial angle on either side of midline; propodeum with lateral tooth long, spike-like, posterior surface coarsely, transversely ridged. Metasoma: terga polished and impunctate. Color (Figs 3, 4): head black, clypeus pale brown medially, mandible dark brown; antenna black except pedicel, flagellomere I and dorsal surface of II whitish; mesosoma black, with pale brown tegula and reddish black lateral propodeal spine; forecoxa whitish, anteriorly black; foretrochanter whitish, ventrally blackish; fore and midfemora black with anterior whitish stripe; tibiae brown, becoming darker laterally; tarsi brown; midcoxa and inner surface of hindfemur entirely whitish; metasoma dark brown becoming blackish dorsally.

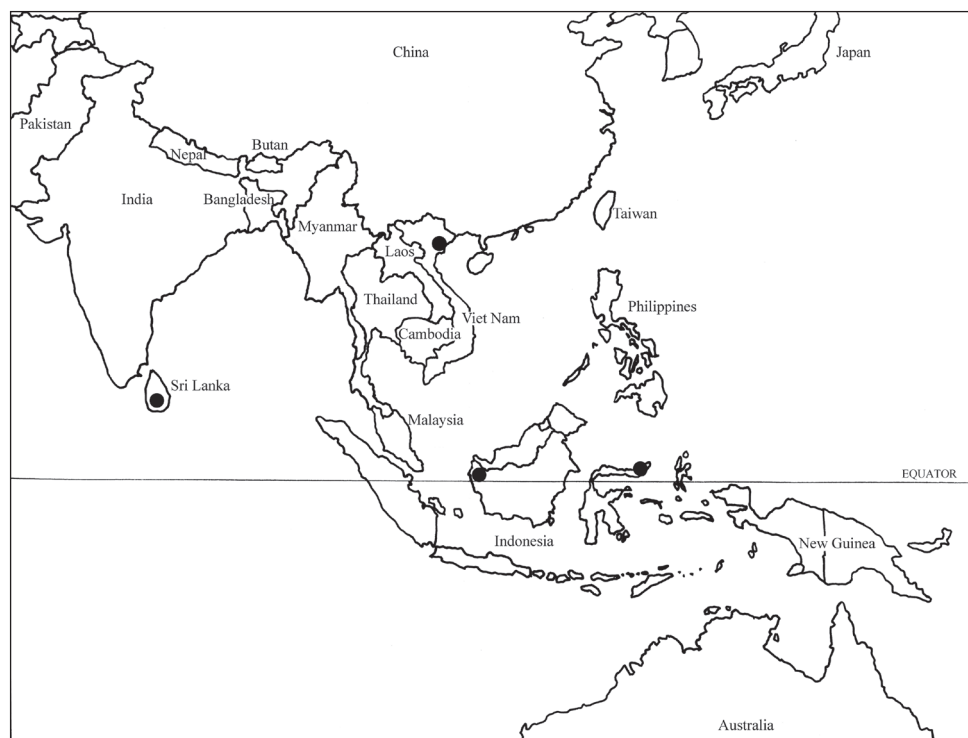
**Male.** Unknown.

**Type material.** Holotype female: VIETNAM, Bac Giang Province, Tay Yen Tu National park, 21°10'52.33"N 106°43'24.30"E, 176 m, 8/VII/2014, T. Mita leg. (VNMN).

**Etymology.** The name is derived from the Vietnamese word “bò” for cow, referring to the stout horn-like spines on the propodeum.



**Figure 1.** *Mahinda bo* sp. n. live habitus.



**Figure 2.** Distribution map of *Mahinda* species.

***Mahinda borneensis* Kimsey, Mita & Pham, sp. n.**

<http://zoobank.org/9AA9B1E3-5303-47D0-AD37-AF3418A4D673>

Figs 5, 6, 10, 14

**Diagnosis.** The blackish coloration of the mesosoma and flagellar proportions of *borneensis* most closely resemble those of *saltator*, but the highly polished and impunctate metasoma is most similar to that of *sulawesiensis*. Additionally the posterior and lateral surfaces of the propodeum are smooth without cross-ridging unlike the other species.

**Female description.** Body length 4.5 mm. Head: face (Fig. 10); scapal basin finely, densely transversely ridged, zone of ridging separated from midocellus by nearly impunctate band more than 1 midocellar diameter wide; malar space 3.4 midocellar diameters long; subantennal distance 0.8 midocellar diameter long; least interocular distance 0.4× as broad as facial length between midocellus and clypeal apex; eyes slightly converging above in front view; midocellar to ocular margin distance 1.8 midocellar diameters; hindocellus 0.5 diameters from ocular margin; vertex least interocular distance 0.8× ocular width in dorsal view (Fig. 14); flagellomere I 2.7× as long as broad; flagellomere II 0.8× as long as broad; flagellomere III 0.7× as long as broad; flagellomere XI 1.4× as long as broad; Mesosoma: dorsum and mesopleural punctures separated by 0.5–1.0 puncture diameters, polished between; pronotum subequal in length to scutum plus scutellum; metanotum 0.6× as long as broad, with small apico-medial angle on either side of midline; propodeum with two posteromedial angles, lateral tooth large, conical, posterior surface polished, with minute punctures near dorsal margin, without medial longitudinal or transverse ridges. Metasoma: terga polished and impunctate. Color (Figs 5, 6): head, mesosoma and metasoma blackish, becoming reddish on mesopleuron and metasomal segments II (apex)-IV and base of tergum I; antenna with scape, pedicel, flagellomere I and parts of II and III whitish, rest of flagellum dark brown; legs pale brown, with darker spot medially on femora.

**Male.** Unknown.

**Type material.** Holotype female: Indonesia, Kalimantan, Barat Sungai, Sibau, 21-27/VI/1996, 1°03'N. 113°01'E, 70–90 m, C. Reid, IIS967004 (ROM).

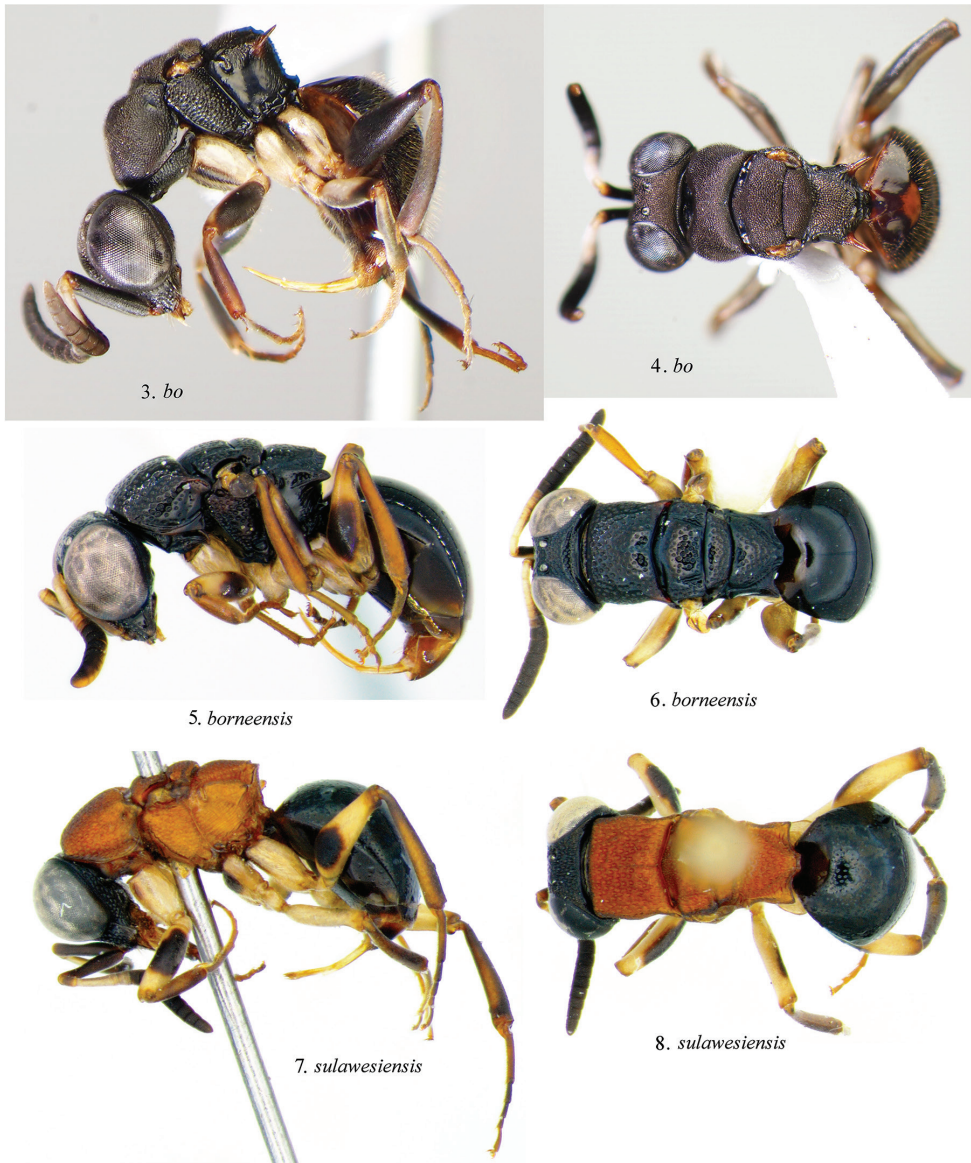
**Etymology.** The name is derived from Borneo, the island site of collection.

***Mahinda saltator* Krombein**

Figs 11, 15

*Mahinda saltator* Krombein 1983a: 29. Holotype female; Sri Lanka: Sabaragamuwa Prov., Kegalla Dist., Kitulgala, Bandarakele Jungle (USNM).

**Diagnosis.** The finely shagreened metasomal terga are most distinctive feature of this species. The dark mesosomal coloration and flagellomere I 3× or more as long as broad most closely resembles those of *Ma. borneensis*. Additional diagnostic features include the midocellus 1.3 midocellar diameters from the nearest eye margin, malar space less



**Figures 3–8.** *Mahinda* habitus. **3, 5, 7** Lateral view **4, 6, 8** Dorsal view.

than 3 midocellus diameters long, thorax with metallic highlights, and face ventrally converging below ocular margins in front view.

**Female description.** Body length 4.0–4.5 mm. Head: face (Figs 11); scapal basin finely, densely transversely ridged, zone of ridging separated from midocellus by punctate band more than 1 midocellar diameter wide; malar space 2.8 midocellar diameters; subantennal distance 0.9 midocellar diameter long; least interocular distance 0.3× as broad as facial length between midocellus and clypeal apex; eyes convergent above;

midocellar to ocular margin distance 1.3 midocellar diameter; hindocellus 0.3–0.4 diameters from ocular margin; vertex least interocular distance  $0.7\times$  ocular width in dorsal view (Fig. 15); flagellomere I  $2.8\times$  as long as broad; flagellomere II  $0.9\times$  as long as broad; flagellomere III  $0.7\times$  as long as broad; flagellomere XI  $1.5\times$  as long as broad; vertex with dense, contiguous punctures. Mesosoma: dorsum with dense, contiguous punctures, transversely striatiform on pronotum and metanotum, longitudinally striatiform on scutum and scutellum; mesopleural punctures separated by 0.2–0.5 puncture diameters; metanotum  $0.6\times$  as long as broad, with small apicomedial angle on either side of midline; propodeum laterally polished, impunctate, posterior surface transversely ridged without medial longitudinal ridge. Metasoma: densely, finely shagreened. Color: head, mesosoma and metasoma black, dorsum of head and mesosoma with faint metallic green to coppery tints; scape red dorsally, brown ventrally; pedicel and flagellomere I yellow, with brown ventroapically; flagellomeres II–III pale brown dorsally, dark brown ventrally; remaining flagellomeres dark brown; coxae yellow, with dark brown patch on anterior surface; femora yellow dorsally, dark brown ventrally; tibiae reddish brown becoming paler basally; tarsi red.

**Distribution.** This species is only known from the type series of 26 males and 8 females.

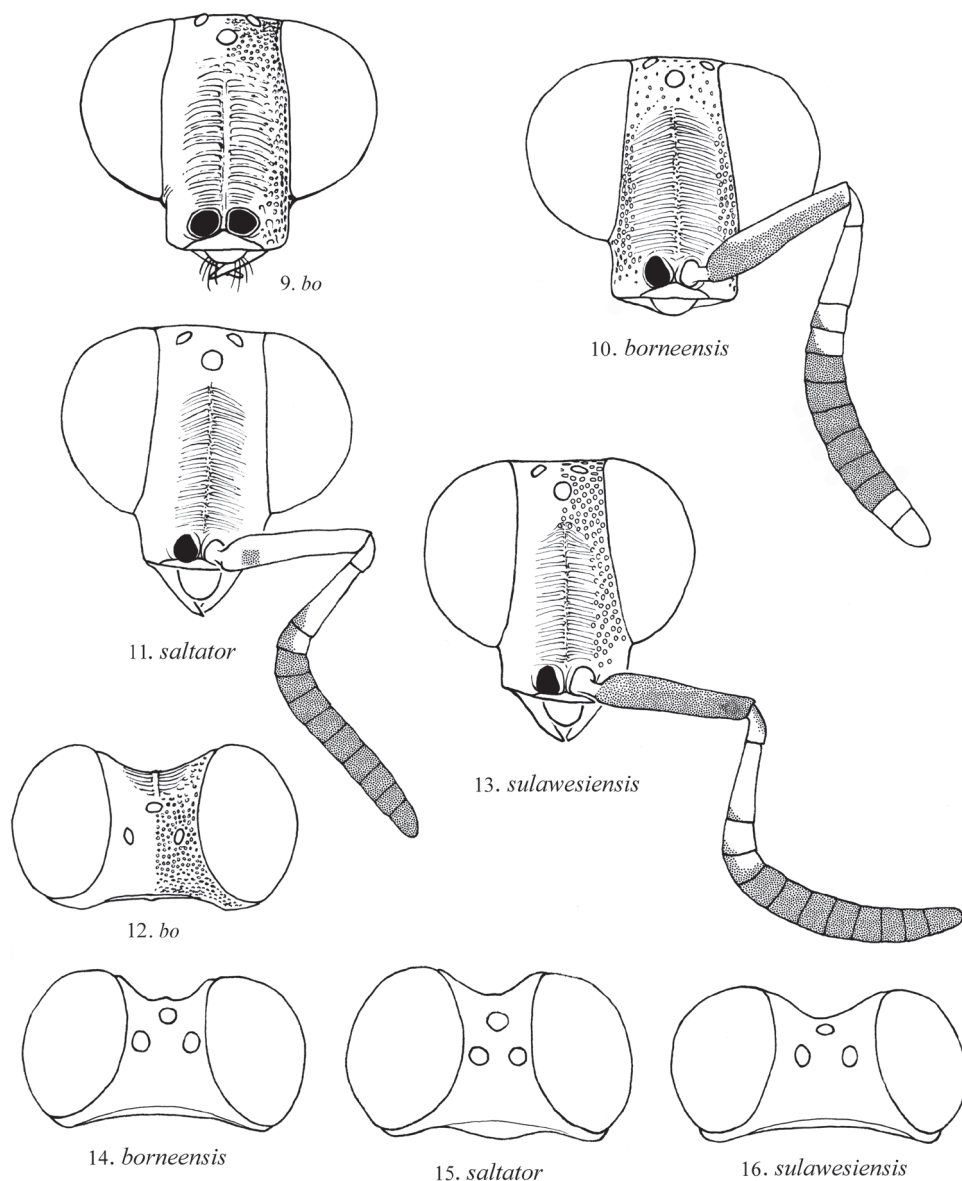
***Mahinda sulawesiensis* Kimsey, Mita & Pham, sp. n.**

<http://zoobank.org/7642030F-F7AC-4A06-9E77-432B58353AF1>

Figs 7, 8, 13, 16

**Diagnosis.** This species most closely resembles *Ma. borneensis* based on the highly polished metasomal terga and flagellar proportions. *Mahinda sulawesiensis* can be distinguished from *Ma. borneensis* by the red mesosoma, shorter malar space and broader distance between the hindocellus to the nearest eye margin.

**Female description.** Body length 5 mm. Head: face (Fig. 13); scapal basin finely, densely transversely ridged, zone of ridging separated from midocellus by punctate band by about 1 midocellar diameter wide; malar space 2.8 midocellar diameters long; subantennal distance 0.6 midocellar diameter long; least interocular distance  $0.5\times$  as broad as facial length between midocellus and clypeal apex; midocellar to ocular margin distance 2.5 midocellar diameters in front view; hindocellus 1.4 diameters from ocular margin in dorsal view; vertex least interocular distance equal to ocular width in dorsal view (Fig. 16), punctures coarse, contiguous, striatiform; flagellomere I  $3.2\times$  as long as broad; flagellomere II  $0.8\times$  as long as broad; flagellomere III  $0.7\times$  as long as broad; flagellomere XI  $0.6\times$  as long as broad. Mesosoma: dorsum with fine, dense longitudinal scratches among and across punctures; mesopleural punctures large, contiguous; metanotum subtriangular,  $0.8\times$  as broad as long, posteromedially bidentate; propodeum laterally with dense longitudinal cross-ridges, posterior surface without medial longitudinal ridge, with medial and sublateral transverse ridging, lateral tooth conical. Metasoma: polished and impunctate. Color (Figs 7, 8): head black, mesosoma



**Figures 9–16.** *Mahinda*. **9–11, 13** Front view of face **12, 14–16** Dorsal view of head.

red, metasoma black, without metallic highlights; antenna with scape, pedicel, flagellomeres I and part of II and III whitish, rest of flagellum dark brown; legs pale brown with darker medial spot on femora; tarsi brownish.

**Male.** Unknown.

**Type material.** Holotype female: Indonesia: Sulawesi, Utara, G. Mogogenipa, 1000 m, VI/1985, A. D. Austin (BMNH).

**Etymology.** The name is derived from the island of collection.

## **Acknowledgements**

This project was made possible by the curators and collections holding the few known specimens, with particular thanks to Chris Darling, and to S. Okajima, H. Kojima and T. Ishikawa for arrangement of the field trip to Vietnam. This study was supported in part by grant KAKENHI 24405028 (head investigator: Okajima) and by the Grant-in-Aid for JSPS Fellows (26-3756) for Mita.

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