

THE BUXA TIGER RESERVE AS A 'HOT SPOT' OF ANT DIVERSITY IN
WEST BENGAL STATE (HYMENOPTERA: FORMICIDAE)

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Summary. Totally 126 species from 43 genera and 7 subfamilies of ants have been found in the Buxa Tiger Reserve. Of them *Tetramorium curtulum* Emery, 1895, *Calptomyrmex friederikae* Kutter, 1976 and *Dolichoderus brevis* Santschi, 1920 are recorded from India for the first time. Six rare species are also found here, viz. *Gesomyrmex spatulatus* Cole, 1949, *Rhopalomastix rothneyi* Forel, 1900, *Colobopsis cotesii* (Forel, 1893), *Colobopsis vitrea angustula* (Emery, 1925), and *Camponotus selene* (Emery, 1889). The diversity and distribution pattern of different species opens avenue for considering this protected area as a gene pool for ant diversity in West Bengal.

Key words: ants, biodiversity, protected area, new records, rare species, India.

С. Сародж, А. Манди, Н. Басак, П. Мандал. Тигриный заповедник «Букса» как «горячая точка» разнообразия муравьев в штате Западная Бенгалия (Hymenoptera: Formicidae) // Дальневосточный энтомолог. 2024. N 503. С. 16-22.

Резюме. Всего в тигрином заповеднике «Букса» обнаружено 126 видов из 43 родов и 7 подсемейств муравьев. Впервые из Индии приводятся три вида: *Tetramorium curtulum* Emery, 1895, *Calptomyrmex friederikae* Kutter, 1976 и *Dolichoderus brevis* Santschi, 1920. Здесь также встречаются шесть редких видов, а именно *Gesomyrmex spatulatus* Cole, 1949, *Rhopalomastix rothneyi* Forel, 1900, *Colobopsis cotesii* (Forel, 1893), *Colobopsis vitrea angustula* (Emery, 1925) и *Camponotus selene* (Emery, 1889). Разнообразие и характер распространения различных видов открывают возможность рассматривать эту охраняемую территорию как генофонд разнообразия муравьев в Западной Бенгалии.

INTRODUCTION

Buxa Tiger Reserve is situated in the Alipurduar sub division of Jalpaiguri district, West Bengal at 26°30' N to 26°55' N latitude and 89°20' E to 89°55' E longitude. It covers an area of 760.87 sq. km with a core area of 331 sq. km. Its northern boundary is Sinchula hill range and the eastern boundary is Assam State. The fragile "Terai Eco-System" constitutes a part of this protected area. Chilapata forest on the south west side is a corridor for elephants' movement to Jaladapara Sanctuary. These forests consist of moist, deciduous and evergreen

forests with Sal, Khair, Sissoo, and Simul trees as the main vegetation. The dominant vertebrate fauna of the reserve includes leopards, elephants, gaurs, jackals, and different species of deer and monkeys. Many rivers are running through the forest and human settlements inside forest are restricted to very limited area (Fig. 1). Rivers and other small water bodies, broad river beds, grasslands, high altitude hills, wetlands and thick evergreen forests all together make a flourishing ecosystem in Buxa. The Formicidae fauna of reserve is diverse (Ghosh & Sheela, 2008; Raychaudhuri & Saha, 2014). A list of rare for Buxa species of ants is given below and the fauna of reserve is also compared with the fauna of West Bengal state and whole India.

MATERIAL AND METHODS

The ants were handpicked using soft brush and also from soil using Tulgren's funnel. Collecting specimens was quite challenging with the movement of elephant herds throughout the forest (Fig. 2). Specimens were dried, pinned and examined using the Leica S8APO stereo-zoom microscope. All studied specimens are deposited in the National Zoological Collections of Zoological survey of India.



Figs 1, 2. Buxa Tiger Reserve. 1 – water bodies of reserve; 2 – elephant herd inside forest.

RESULTS

The diversity and distribution of species found very rich and the findings of many rare species shows forests of Buxa Tiger Reserve as a very healthy ecosystem hosting valuable components. New data on rare and new for reserve ants is given below.

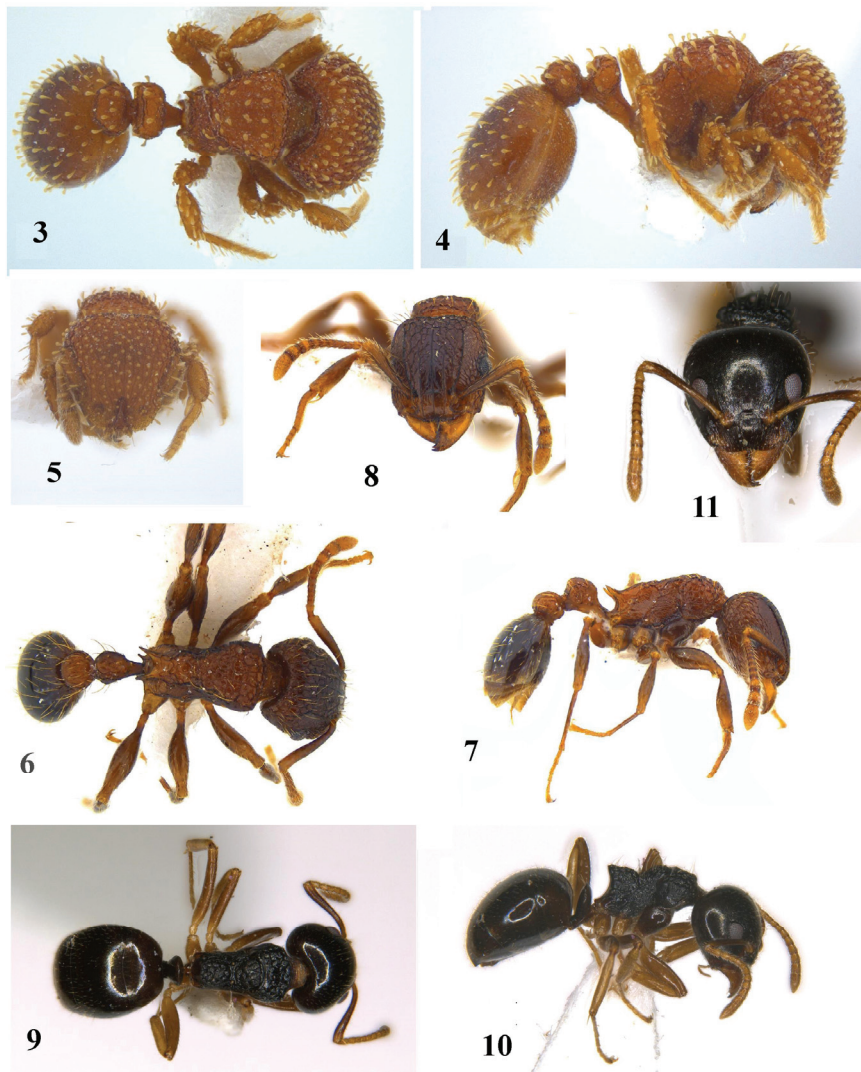
List of rare and new for the Buxa Tiger Reserve ants

Calyptomyrmex friederikae Kutter 1976

Figs 3–5

MATERIAL EXAMINED. **India:** West Bengal, District Alipurduar, Buxa Tiger Reserve, East Damanpur Range Watch Tower, 26° 47' 42.72"N, 89° 46' 24.96" E, 232.4 ft, 27.III 2019, 4 workers, leg. Arnab Mandi (Reg. No. 32548/H3).

DISTRIBUTION. India (new record), Bhutan.



Figs 3–11. Ants from Buxa Tiger Reserve. 3–5 – *Calyptomyrmex friederikae* Kutter, 1976; 6–8 – *Dolichoderus brevis* Santschi, 1920; 9–11 – *Tetramorium curtulum* Emery, 1895. (3, 6, 9 – body, dorsal view; 4, 7, 10 – body, lateral view; 5, 8, 11 – head, frontal view).

***Dolichoderus brevis* Santschi, 1920**

Figs 6–8

MATERIAL EXAMINED. **India:** West Bengal, South Jayanti Beat, 26°39'528" N, 089°35'799" E, 383.4ft, 03.XII 2018, 2 workers, leg. S. Sheela (Reg. No. 24693/H3).

DISTRIBUTION. India (new record), Laos.

***Tetramorium curtulum* Emery, 1895**

Figs 9-11

MATERIAL EXAMINED. **India:** West Bengal, District Alipurduar, Buxa Tiger Reserve, Rajabhatkhawa range (West), 26°49'33.96" N, 89°36'31.68" E, 358.3 ft; same locality, 358.3 ft, 25.III 2019, 5 workers, A. Mandi (Reg. No. 25123/H3).

DISTRIBUTION. India (new record), Myanmar, China, Malaysia, Indonesia, Singapore.

***Gesomyrmex spatulatus* Cole, 1949**

MATERIAL EXAMINED. **India:** West Bengal, District Alipurduar, Buxa Tiger Reserve, Poro Eco Park, 26°32'57.1" N, 89°27'30.0"E, 144 ft, 05.XII 2018, 3 workers, leg. S. Sheela; same locality, 30.III 2017, 7 workers, leg. Jayanti & S. Sheela (Reg. No. 19738/H3,19739/H3,19741/H3-19748/H3).

DISTRIBUTION. India: Assam, West Bengal (new record), Singapore.

***Rhopalomastix rothneyi* Forel, 1900**

MATERIAL EXAMINED. **India:** West Bengal, District Alipurduar, Buxa Tiger Reserve, East Damanpur Range, 26°37'067" N, 89°33'633" E, 27.III 2019, 5 workers, leg. Arnab Mandi (Reg. No. 23389/H3)

DISTRIBUTION. India (Karnataka, Sikkim, West Bengal), Sri Lanka, New Guinea, Australia.

REMARKS. This species was described based on queen from Barrackpore, West Bengal. Our specimens are collected from the nest under the bark of Sal tree.

***Colobopsis cotesii* Forel 1893**

MATERIAL EXAMINED. **India:** West Bengal, District Alipurduar, Buxa Tiger Reserve, North point, 26°43'597" N, 089°45'039" E, 03.XII 2018, 1 worker, leg. S. Sheela (Reg. No. 22247/H3).

DISTRIBUTION. India, China.

REMARKS. This species was originally described from Mussoori Hills in India. It was later reported from Assam (Bingham 1903). After that it was recorded from Arunachal Pradesh, Assam, Meghalaya, Uttarakhand (Bharti *et al.*, 2016) Here *C. cotesii* is found from an unknown tree trunk in the core area of Buxa reserve (new record for West Bengal).

***Colobopsis vitrea angustula* (Emery, 1925)**

MATERIAL EXAMINED. **India:** West Bengal, District Alipurduar, Buxa Tiger Reserve, East Damanpur Range, 26°37'067" N, 089°33'633" E, 27.III 2019, 1 worker, leg. S. Sheela (Reg. No. 32547/H3).

DISTRIBUTION. India, Bangladesh, Singapore.

REMARKS. This taxon was described from Singapore as distinct species and later recorded from from Barrackpore (West Bengal) (Bingham, 1903) and Bangladesh (Hannan 2003). We also found this subspecies in West Bengal after a gap of 120 years from its first registration in India.

***Plagiolepis pissina* Roger, 1863**

MATERIAL EXAMINED. **India:** West Bengal, Buxa Tiger Reserve, North Jayanthi beat, 26°40'914" N, 89°36'165" E, 504.6 ft, 03.XII 2018, 4 workers, leg S. Sheela (Reg No. 24684/H3).

DISTRIBUTION. India, Sri Lanka.

REMARKS. This species was reported from India (West Bengal) for the first time by Das & Sheela (2022). Here this species is also found in the Buxa reserve.

***Camponotus selene* Emery 1889**

MATERIAL EXAMINED. **India:** West Bengal, Buxa Tiger Reserve, 26th Mile, Rajabhatkhava range (West), 25.III 2019, 2 workers, leg. A. Mandi (Reg. No. 25117/H3).

DISTRIBUTION. India (Arunachal Pradesh, Assam, Meghalaya, Maharashtra, West Bengal), Myanmar, China.

REMARKS. New for the Buxa Tiger Reserve species.

DISCUSSION

Nineteen species of ants were reported from the Buxa Tiger Reserve based on a small collection (Ghosh & Sheela, 2008). Later 36 species are added to the fauna of this reserve (Raychaudhuri & Saha, 2014). Nowadays the fauna of reserve consists of 126 species from 43 genera and 7 subfamilies (Figs 12, 13). In addition to this rich diversity, this protected area hosts a number of rare species which has only limited distribution over the world. Moreover, the presence of different small genera with many of its species in one place is intriguing; it may shed light to the evolutionary establishment of different species.

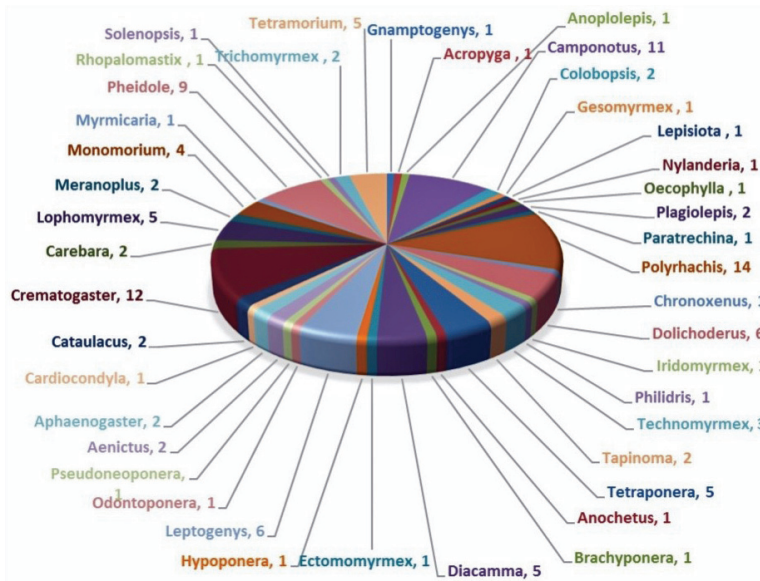


Fig. 12. Number of species in genera of ants known from Buxa Tiger Reserve.

The Formicidae fauna of India stands at 864 species and 110 genera (antwiki.org/ accessed on 27.04.2023) and the number in the state of West Bengal is 382 species from 65 genera (Bharti *et al.*, 2016). Buxa Tiger Reserve holds 32 percentage of state's ant diversity or 15 percentage of Indian diversity (Fig. 14). Not only the reserve is rich in diversity, but the populations of each ant species is also numerous. The reserve forest is well conserved with its fauna and flora. Fertile soil, suitable temperature conditions, thick canopy and a pollution free environment with no disturbance can be the contributing factors for large diversity. The diversity and distribution pattern of different species opens avenue for considering this protected area as a gene pool for ant diversity.

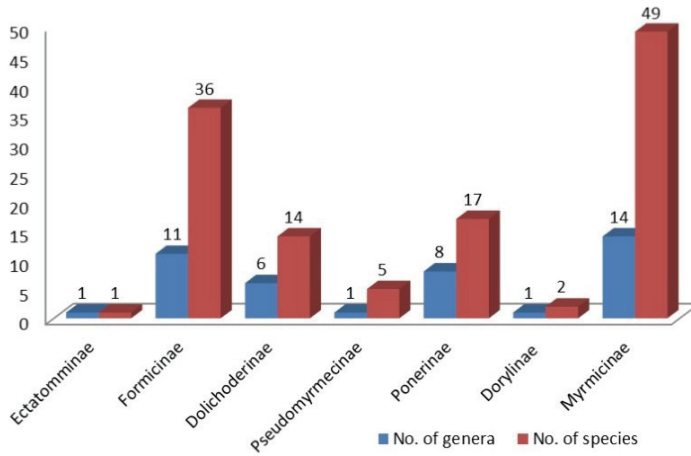


Fig. 13. Number of genera and species in each subfamily of Formicidae found in Buxa Tiger Reserve.

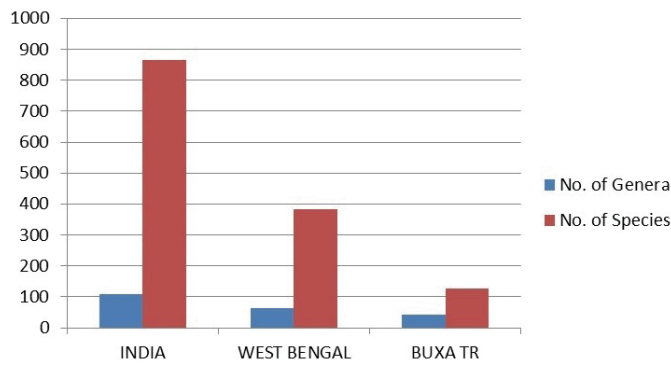


Fig. 14. Number of genera and species of ants known from India, West Bengal and Buxa Tiger Reserve.

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