NEW RECORDS OF THE GENUS TACHYS CASEY
(COLEOPTERA: CARABIDAE: TRECHINAE) FROM INDIA

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ABSTRACT

New records two Carabidae species [Tachys plagiatus Putzeys, 1875 and Tachys tropicus Nietner, 1858 (Coleoptera: Carabidae: Trechinae)] from India with detailed descriptions and notes on their geographical distribution are provided.

Key words: Carabidae, Bembidiini, new records Tachys plagiatus, Tachys tropicus, Paratachys, Polyderis, Merotachys, south India, Aralam Wildlife sanctuary, light trap, north Malabar

Subfamily Trechinae Bonelli, 1810 is composed of small ground beetles (1.5 to 5 mm) and they live in riparian zones, associated with edges of water bodies or swamps (May and Kermode, 2012). Their small size makes it hard to spot and sort specimens in the collections often leading to a higher chance of missing them. The subfamily Trechinae is less explored in India after Andrewes (1935) and with only 18 species within the genera, Elaphropus Motschulsky, 1857 and Tachys Casey 1918 were reported from south India (Andrewes, 1935). Tachys, a genus within the tribe Bembidiini, stands out as one of the smaller genera in its subfamily, boasting a size range of 1.5 to 3.5 mm and a global presence with 273 species (Lorenz, 2022). Within the genus Tachys there are four distinct subgenera- Tachys Dejean, 1821 (43 species); Polyderis Motschulsky, 1862 (38 species); Merotachys Basilewsky, 1965 (one species); and Paratachys Casey, 1918 (153 species) (Lorenz, 2022). Among these, the subgenera Paratachys and Polyderis are treated as distinct genus by Erwin. Genus Tachys is represented in India by 10 species belonging to the subgenera Paratachys and Polyderis, with eight species (seven species of subgenus Paratachys and one species of subgenus Polyderis) found in the northern region and two species (Tachys (polyderis) impressipennis Motschulsky, 1859 and Tachys (polyderis) brachys Andrewes, 1925) of subgenus Polyderis distributed throughout the country (Andrewes, 1935). The subgenus Polyderis with these two species is the only representatives of the genus in south India. Tachys (paratachys) plagiatus known with three subspecies- T. plagiatus plagiatus Putzeys, 1875 from Australian (Australia, Papua New Guinea), Oriental (Indonesia, Philippines) and Palearctic realms (Taiwan); T. plagiatus sexmaculatus Andrewes, 1925 from Oriental (Thailand, Vietnam) and Palearctic (Taiwan) realms and T. plagiatus shimosae Tanaka, 1956 from Palearctic (Japan) realm. Tachys (paratachys) tropicus Nietner, 1858 reported from only Sri Lanka. First reports of two species Tachys (paratachys) plagiatus Putzeys, 1875 and T. (paratachys) tropicus Nietner, 1858 from India with revised descriptions and distribution patterns is presented.

MATERIALS AND METHODS

The collections of beetles were done using light trap method from Aralam Wildlife Sanctuary (11.9220° N, 75.7904° E) from Kannur district in the north Malabar region of Kerala during 2019–2020 period. The classification pattern provided by Lorenz (2022) was followed in the present study. Species-level identification was done with the aid of taxonomic keys in Andrewes (1935) and verified by comparing with the syntype images of Tachys plagiatus deposited in Victoria Museum and T. tropicus deposited in the Museum für Naturkunde, Berlin. Images were taken using Leica M205C Stereo zoom microscope fitted with Leica MC 170 HD digital camera. Measurements are taken with Leica LAS V4.5 software. Verified specimens are deposited in the National Insect Collections of Zoological Survey of India Western Ghats Regional Centre, Kozhikode (ZSIK).

Abbreviations used: TLA: body length from apex of mandibles to pygidium; TLB: body length from apex of labrum to apex of elytra; PL: length of pronotum
RESULTS AND DISCUSSION

_Tachys plagiatus plagiatus_ Putzeys, 1875 (Fig. 1A)

Putzeys, 1875: 745; Andrewes 1925: 371; Miwa, 1931: 8; Jedlička, 1965: 170; Terada et al., 2103.


**Description:** Measurements: TLA = 3.65 mm, TLB = 3.1 mm, PL = 0.60 mm, PW = 0.85 mm, EL = 1.80 mm, EW = 1.16 mm. Colour: Upper surface black and iridescent; underside piceous; joints one and two of antennae, legs, margin of prothorax, margin and apex of elytra testaceous; two yellowish spots on each elytron, front spot elongate and hind one rounded and transverse. Head: Wide with moderately deep furrows extending on to clypeus and diverging behind; eyes prominent; mentum with two pores; antennae filiform; isodiametric microsculpture present on the surface. Pronotum: Convex, wide, anterior angle rounded with a trace of sinuation behind; base wider than apex; hind angle obtuse without carina; basal sulcus not deep, finely crenulate and interrupted without pore at middle; transverse meshes of microsculpture on prothorax distinctly visible. Elytra: Convex, longer than wide; border slightly dentate and setulose, rounded at shoulder, reaching stria four; three impressed crenulate dorsal striae, not reaching base, four faint, five to seven invisible, eight interrupted at middle; apical striae on middle of elytron, long, curved and hooked in front to cover hind dorsal pore; front dorsal pore on stria three; transverse meshes of microsculpture on elytra. Hind wings: well developed. Legs: Protibiae truncate at apex; femur glabrous; tarsus finely setose; claws simple. Venter: Prosternum sulcate; metasternal process bordered; last three ventral segments punctate and setulose. Aedeagus (Fig. 1C): Aedeagus with a long left paramere with two long setae and a short right paramere; tip of the apical lobe curved. Sexual dimorphism: First two pro tarsomeres of male with dilated joints and also last abdominal ventrite with four setiferous pores.

**Distribution:** India: Kerala: Kannur: Aralam Wildlife Sanctuary. Elsewhere: Australia, Indonesia, Melanesia (Papua New Guinea), Philippines, Taiwan.

_Tachys tropicus_ Nietner, 1858 (Fig. 1B)


**Description:** Measurements: TLA = 3.65 mm, TLB = 3.1 mm, PL = 0.60 mm, PW = 0.85 mm, EL = 1.80 mm, EW = 1.16 mm. Colour: Vertex of head, pronotum and eyes black; elytra, metasternum and mentum brownish colour; disk of elytra with large dark patch; frons of head dark; ventrites, palpi and legs light yellowish. Head: Moderate size; smooth, with deep wide frontal furrows diverging behind; eyes shallow; antennae long, filiform, pubescent from antennomere two onwards; labrum truncate and six setose; clypeus truncate and bisetose; neck constriction indistinct; mentum without tooth and with two large circular pores; fine transverse meshes of microsculpture present between the eyes. Pronotum: Convex, wider than long, bisetose; anterior angle of prothorax rounded, basal angles rectangular or little obtuse without carina, base evidently sinuate, basal sulcus uninterrupted, crenulate without pore; median line of pronotum deep and anterior transverse line distinct and crenulate; fine transverse meshes of microsculpture on pronotal surface. Elytra: Longer than wide; shoulder rounded and reaching stria four; striae...
crenulate; four inner striae moderately impressed and reaching base; stria one and two reaching at apex, stria two is deep and diverges outwards; stria five to seven visible but very faint; apical striae on middle of elytron, curved and hooked in front to cover apical pore; front dorsal pore on interval six. fine transverse meshes of microsculpture on elytral surface. Hind wings: well developed. Legs: Protibiae truncate at apex; femur glabrous; tarsus finely setose; claws simple. Venter: Prosternal sulcus not bordered; pro and metasternum smooth; ventrite three to five smooth without setae; last ventrite with two apical setae. Aedeagus (Fig. 1D): Aedeagus with a long left paramere with three long setae and a short right paramere; tip of the apical lobe rounded. Sexual dimorphism: First two pro tarsomeres of male with dilated joints and also last abdominal ventrite with four setiferous pores.

**Distribution:** India: Kerala: Kannur: Aralam Wildlife Sanctuary; Chambad. Elsewhere: Sri Lanka.

Ten species were recorded under the genus *Tachys* from India, with eight species from the northern part of India and one species (*Tachys brachys* Andrewes, 1925) from both south and north India and another species (*Tachys impressipennis* Motschulsky, 1859) from whole south east Asia, Australia and Japan. Among these ten species, one species (*Tachys vilis* Andrewes, 1925) is endemic to the Himalaya hotspot of biodiversity with distribution only in Jammu & Kashmir. *Tachys plagiatus plagiatus* and *T. tropicus* are previously recorded from Sri Lanka. *Tachys plagiatus plagiatus* previously recorded from Australia, Papua New Guinea, Indonesia, Philippines and Taiwan. *Tachys plagiatus plagiatus* is diagnosed by the smaller spot-on elytral apex (larger spot-on elytral apex in both *T. plagiatus sexmaculatus* and *T. plagiatus shimosae*); dull reddish colour of elytra (black colour elytra in both *T. plagiatus sexmaculatus* and *T. plagiatus shimosae*) and also the pronotum with yellowish marginal border (pronotum without yellowish marginal border in *T. plagiatus sexmaculatus* and *T. plagiatus shimosae*).

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**AUTHOR CONTRIBUTION STATEMENT**

Shigina K and Sabu K Thomas analyzed the specimens, verified the review and drafted the manuscript.

**CONFLICT OF INTEREST**

No conflict of interest.

**REFERENCES**


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