

The first described male of the Asian jumping spider genus *Piranthus* Thorell, 1895 (Araneae: Salticidae: Baviini)

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Abstract. We give the first description of males of the jumping spider genus *Piranthus* Thorell, 1895, of the Indian species *Piranthus planolancis* Malamel, Nafin, Sudhikumar & Sebastian, 2019. Their palp is unusual in two aspects: the long embolus (longer than in most baviines) arises toward the proximal from its base before curling and proceeding distally, and the retrolateral tibial apophysis is an especially long blade. We present new illustrations of the female, and extend the range of the species from Kerala to Karnataka.

Key words. India, Salticinae, Salticoida.

Introduction

For more than a century after Thorell (1895) described the jumping spider genus *Piranthus*, it was known from only the single female and two juveniles of *P. decorus* he described from Myanmar, apart from a species misplaced in the genus (Caleb et al., 2019). Recently, *P. decorus* was discovered in Mumbai, India (Caleb & Sanap, 2017) and redescribed. Caleb & Sanap provided photographs of a living male, but did not have the specimen to describe. A second species of *Piranthus* was recently described from Kerala, *P. planolancis* Malamel, Nafin, Sudhikumar & Sebastian, 2019, likewise only from the female (Malamel et al., 2019). Here we provide the first description of a male *Piranthus*, that of *P. planolancis*, provide new images of female *P. planolancis*, and extend its range northeastward.

Material and methods

Preserved specimens were examined under both dissecting microscopes and a compound microscope with reflected light. Drawings were made by digitally tracing photographs taken using a Leica DMC4500 camera attached to Leica M205 C stereomicroscope (Kerala specimens), and a drawing tube on a Nikon ME600L compound microscope (Karnataka specimens).

Specimens from Kerala are currently deposited in the collection of Centre for Animal Taxonomy and Ecology (CATE), Christ College, Kerala, to be deposited eventually in the ZSI collection (Western Ghat Regional Centre at Calicut); specimens from Karnataka are deposited in the Research Collections at NCBS (National Centre for Biological Sciences, <http://collections.ncbs.res.in>), Bengaluru.

Terminology is standard for Araneae. All measurements are given in millimeters. Carapace length was measured from the base of the anterior median eyes not including the lenses to the rear margin of the carapace medially, abdomen length to the end of the anal tubercle. The following abbreviations are used: ALE, anterior lateral eyes; AME, anterior median eyes; PLE, posterior lateral eyes; PME, posterior median eyes (the "small eyes"); RTA, retromarginal tibial apophysis.

***Piranthus planolancis* Malamel, Nafin, Sudhikumar & Sebastian, 2019**

Figures 1–22

This species was originally described from the southwestern coast of India, in Kerala. Here we report specimens from east of the Western Ghats, near Mysuru, Karnataka. The figures illustrate a male from Kerala (Figures 1–7, 11–13), a male from Karnataka (Figures 8–10, 14–16), and a female from Karnataka (Figures 17–22).

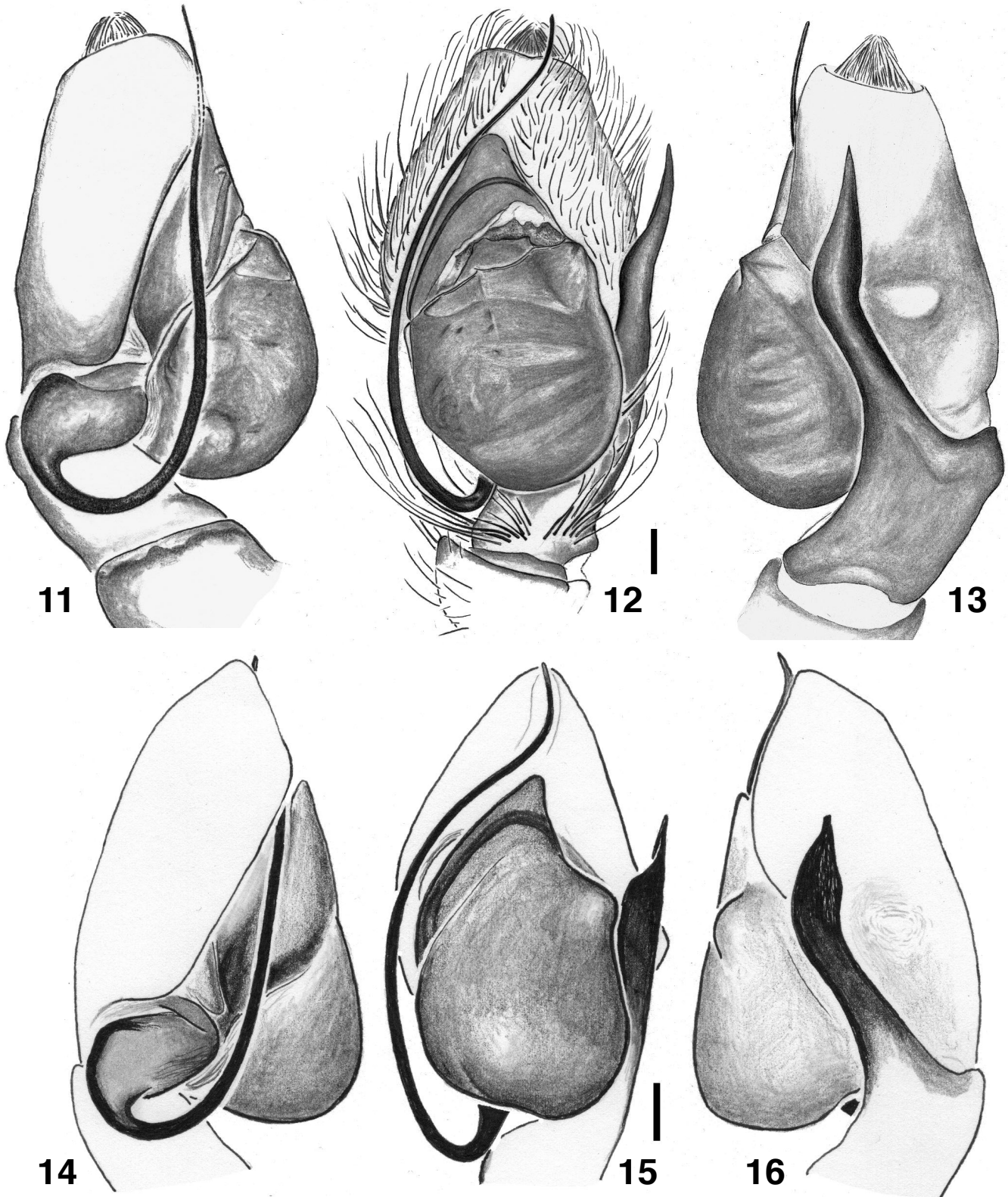
Diagnosis: The male palp is unlike others described in the Baviini (Maddison, 2015) in two aspects: the long embolus (longer than in most baviines) arises on the prolateral proximal corner of the bulb, proceeding proximally from its base before curling and turning distally, and the retrolateral tibial apophysis is an especially long blade.

Comparison of the male with that of *P. decorus* is made difficult by the fact that the latter is known only from photographs of a living specimen (Caleb & Sanap, 2017). One distinguishing feature may be in the **colours of the first leg** — the first leg is nearly solid black in *P. planolancis* males (Figure 10), but has pale areas on the patella, metatarsus and tarsus in *P. decorus* (Caleb & Sanap, 2017 Figures 5b, c). The females also differ in the first leg, with the first tibia much darker than the patella in *P. decorus* (Caleb & Sanap, 2017 fig. 4c), but both pale in *P. planolancis* (Figure 21). Females of the two species are quite similar in overall appearance, but their epigynes are distinct (Malamel et al., 2019) in what we interpret to be the **RTA coupling pockets**: small and medial in *P. decorus*, large and lateral in *P. planolancis*, giving the appearance of a broad "smile" (Figure 17). The **copulatory openings** are narrow curved slits covered by raised flaps in the epigyne in *P. planolancis* (arrow in Figure 17), but in *P. decorus* the openings are broader, not covered by flaps, at the bottom of deep atria (Caleb & Sanap, 2017 fig. 2e). The flaps in *P. planolancis* were not obvious in the published illustrations of the holotype because they are depigmented, but reexamination of a female paratype shows flaps similar to those shown in Figure 17. In *P. planolancis* the atria, which are depressed compared to the raised medial septum, are deepest medially, near the septum, not at the openings.

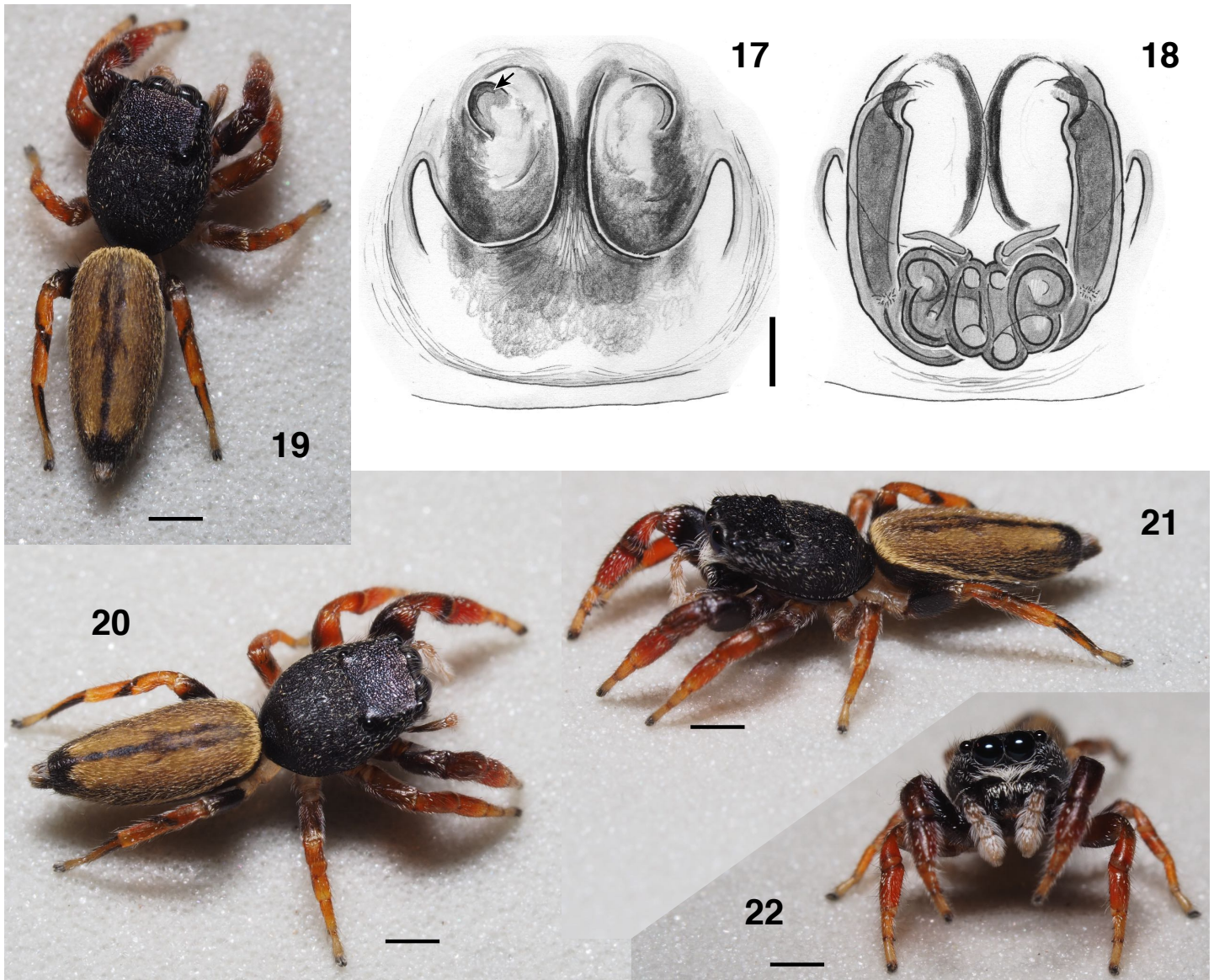
While the male palp of *P. decorus* remains undescribed, a prediction can be made as to its likely features. The RTA would be expected to be smaller than that of *P. planolancis*, given the small size and medial location of the coupling pocket of *P. decorus*. The embolus might be about as long as that of *P. planolancis*, given the similar copulatory ducts.



Figures 1-10. Males of *Piranthus planolancis*. **1-7**, Preserved male CATE 8705B from Vellangallur, Kerala. **1**, Dorsal view. **2**, Lateral view. **3**, Ventral view. **4**, First leg, prolatateral view. **5**, First leg, retrolateral view. **6**, Carapace. **7**, Face. **8-10**, Living male NCBS-BN246 from near Mysuru, Karnataka. Scale bars 1 mm.



Figures 11–16. Left palps of *Piranthus planolancis*. **11–13**, Male CATE 8705B from Vellangallur, Kerala. **11**, Prolateral view. **12**, Ventral view. **13**, Retrolateral view. **14–16**, Male NCBS-BN246 from near Mysuru, Karnataka. **14**, Prolateral view. **15**, Ventral view. **16**, Retrolateral view. Scale bars 0.1 mm.



Figures 17–22. Female NCBS-BN247 of *Piranthus planolancis* from near Mysuru, Karnataka. **17**, Epigyne, ventral view. **18**, Vulva, dorsal view. **19–22**, Living female. Scale bars 0.1 mm on Figures 17–18, 1 mm on Figures 19–22.

Description of male (specimen NCBS-BN246 from Mysuru and CATE 8705B from Kerala). Carapace (Figures 6, 7): flat and broad, widest not along ventral margin but at height of AMEs (Figure 7). Ocular area and anteriormost two-thirds of thorax on the same plane, with thorax falling abruptly in last third (Figure 2). Carapace surface with coarse reticulate sculpturing except around eyes (Figure 6). Colour black to dark brown, with scattered white to cream coloured setae, which are more concentrated on sides and densely packed on lower margin of clypeus (Figures 7, 10). Chelicerae: small, dark brown to black, with cream-coloured setae basally. Plurident, with at least 5 small closely adjacent retromarginal teeth, and at least 2 promarginal teeth. Palp (Figures 11–16): black to dark brown with a few scattered white setae. Embolus long, beginning as a small bulb at the proximal prolateral corner of bulb, narrowing abruptly as it proceeds proximally then loops toward the ventral and then distally, running along the prolateral side of the bulb. RTA a long slightly curved blade that reaches approximately as far distally as the tegulum. Legs: most segments black to dark brown, posterior legs slightly paler with dark orange patches. First leg somewhat thicker than others, with ventral macrosetae of tibia and metatarsus very short, just nubbins. Ventral macrosetae 6 on first tibia (3 pro-, 3 retro-lateral) and 4 on first metatarsus

(2 pro-, 2 retro-lateral). Abdomen (Figures 1, 8, 9): medium brown, dusted with cream to orange scales especially basally and laterally, darkest just in front of anal tubercle and along midline. Measurements for male CATE 8705B from Kerala: body length 5.49, carapace length 2.67, width (at the middle) 1.94, height at middle 1.16. Abdomen length 2.79, width (at the middle) 1.30. Eye diameters: AME 0.44, ALE 0.18, PME 0.06, PLE 0.17. Eye interdistances: AME-AME 0.05, AME-ALE 0.07, PME-PME 1.12, ALE-ALE 0.93, PME-PLE 0.53, PLE-PLE 1.17, ALE-PME 0.12. Clypeus height 0.08. Length of chelicera 0.58. Measurement of palp and legs: palp 1.72 [0.71, 0.27, 0.21, 0.53], I 5.03 [1.63, 0.85, 1.22, 0.76, 0.57], II 3.72 [1.21, 0.69, 0.78, 0.54, 0.50], III 2.92 [0.98, 0.49, 0.39, 0.63, 0.43], IV 4.10 [1.24, 0.60, 0.88, 0.87, 0.51]. Leg formula: 1423. Male NCBS-BN246 from Karnataka: carapace length 3.05; abdomen length 2.9.

Geographic variation. The Karnataka specimens are slightly different from the typical Kerala specimens in several respects, but the differences are minor, and we tentatively place them together as conspecific. The most notable difference in the palp is the longer RTA in Kerala males, whose tip extends as far distally as the tegulum. Other differences, such as the orientation of the distal tip of the tegulum, and the extent of the proximal loop of the embolus, might be explained by differences in how the bulb is settled into the cymbium. The area around the copulatory openings is more heavily sclerotized in the Karnataka females. Nonetheless, these differences are minor compared to the differences with *P. decorus*, and compared to differences with other undescribed species of *Piranthus* from Southeast Asia studied by the second author. Continued collecting of more specimens over a larger geographic range may indicate whether the Kerala and Karnataka populations merit recognition as separate species.

Material examined. INDIA: KERALA: Thrissur, Vellangallur, 10.306°N 76.204°E, 10 m elev., one male (specimen CATE 8705B) and paratype female (specimen CATE 8705A), collected December 2017 by K.S. Nafin and Varundas Manakkatt. KARNATAKA: south of Mysuru, farm, 12.223°N 76.627°E, 710 m elev., one male (specimen NCBS-BN246 = AS19.5970) and one female (specimen NCBS-BN247 = AS19.5940) collected 4 July 2019 by Marathe/Maddison/Abhijith/Sumukha, collecting code WPM#19-107; one female (specimen NCBS-BN248) collected 4 July 2019 by Abhijith A.P.C.

Natural history. The holotype female was found in foliage (Malamel et al., 2019). Specimens in Kerala were hand collected from understory branches of trees in an agricultural plot. Specimens in Karnataka were found in trees near a farmhouse, one male in a large suspended dried leaf, one female collected by shaking understory branches.

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