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Cover Photo by Roshan Upadhaya of *Yamamotozephyrus kwangtungensis*.

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LESTES PATRICIA TAAMRPATTI SSP. NOVA (INSECTA: ODONATA: LESTIDAE) FROM MAHARASHTRA, INDIA

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Reviewer: Peter Smetacek

Key words: Odonata; Zygoptera; *Lestidae*; damselfly; new subspecies; Western Ghats

Introduction

Lestes Leach, 1815, consists of 8 known species in the Western Ghats of India. *Lestes patricia* Fraser, 1924 is endemic to the Western Ghats and so far known only from Virajpet, Coorg (Virrajendrapet, Kodagu, Karnataka). A single male specimen of *L. patricia* was collected on 24.vi.1923 and described the following year. The female is still unknown and no further male specimens were ever collected. It is immediately distinguished from other members of the genus by the broad black dorsal band on the synthorax. Kosterin (2019) amended the keys for *Lestes* comparing pterostigma, markings on synthorax, colour of the occiput and structure of the anal appendages.

Urmodi dam on the Urmodi River, which is a small tributary of the Krishna is in Satara District of Maharashtra, is situated in the foothills of the northern Western Ghats. The vegetation in the area is Western subtropical hill forest.

Observations

During the course of a photographic survey of insects by the authors at the above location, a colony of damselflies were observed in a grassy patch above a fallow field bordered with dense forest. The grassy patch was a few meters away from a small stream with a rocky bed. The colony was provisionally identified as *L. patricia* on the basis of the photographs. Further investigations were carried out by the authors in the same locality over the next few days. [Image 1]. Individuals were hanging vertically on dry sticks about 1 metre above the ground in sunlit patches [image 2, 3]. Mating pairs were observed on grass blades close to the ground [image 4]. No individuals were observed outside a radius of 200 meters of the grassy patch.

Discussion

The members of the colony discovered in Satara closely match the single known male of *L. patricia*. However, there are stable differences between the material examined in the present study and the description of *L. patricia*. The likelihood that the newly discovered population is, in fact, a distinct species cannot be ruled out, but cannot be confirmed until further, fresh specimens of *L. patricia* are made available from the type-locality in Kodagu. Since the stable features observed in the newly discovered population preclude it from being indisputably placed under *L. patricia*, yet given the lack of comparative material it is not possible to place it as a new species with certainty, so the newly discovered population from Maharashtra is tentatively placed as a subspecies of *L. patricia*, pending a comparison with fresh specimens of *L. patricia* from the type

locality. While it is normally inappropriate to propose a new taxon when there is little comparative material, but given the importance of this discovery, it is of conservation value to give a name to this newly discovered population. It cannot be treated under the nominotypical form, because the differences described below are consistent throughout the material examined, as well as in individuals photographed on the first day, which might be different individuals from the material collected. Given that of the eleven specimens known of *L. patricia*, ten specimens from Maharashtra are nearly identical to each other in all points that distinguish the ten from the single specimen known from Kodagu, and the fact that the Kodagu specimen and the Maharashtra specimens were collected within a week of each other nearly a century apart, any differences between the Kodagu and Maharashtra specimens cannot be attributed to seasonal morphs. The specimen described as *L. patrica* by Fraser was less than a year old at the time of it's description and therefore unlikely to have esperienced much colour change due to the passage of time. In the following account, we refrain from noting the exact location of the colony to help protect the colony from potential exploitation. Authorities will be alerted to the presence of this highly local taxon and appropriate measures put in place to ensure the conservation of the colony.

Lestes patricia taamrpatti **ssp. nova**

Material Examined

6 males, 4 females.18.vi.2020. 750 m. Backwaters of Urmodi Dam, Satara district, Maharashtra, India. Collectors: Shriram Dinkar Bhakare, Sunil Hanmant Bhoite and Pratima Ashok Pawar.

Depository: Holotype: male: BNHS 306. Reference collection of the Bombay Natural History Society (BNHS), Fort, Mumbai. Paratypes: 1 male BNHS 307; 2 females BNHS 308; BNHS 309. Reference collection of the Bombay Natural History Society (BNHS), Fort, Mumbai. Remainder will be deposited in other recognized type depositories in India.

Description

Holotype: male: abdomen: 35 mm; hindwing: 23 mm

Head: [image 5] Eyes bright blue above and pale blue beneath. Vertex, occiput, postclypeus and frons black. Anteclypeus black with some bright blue patches. Labrum bright blue. Antennae black with two blue bands at the base and upper half reddish.

Prothorax: [Image 6] bluish on the sides, matt black above.

Synthorax: [images 6, 7, 8] Bluish green above and on sides. A distinctive middorsal coppery red brown uniform band bordered with black, extending on each side to about half way to the humeral suture. Humeral stripe darker near prothorax. A dark spot at mesepimeron-metepisternum junction. Ventrum pale greenish with large white areas and 2 pairs of black spots.

Legs: Pale brown and outwardly bluish. Spines on femora short and tibiae long. 11 black spines on femora of hindlegs.

Wings: [image 9, 10] hyaline. Discoidal cells equal on both wings. Pterostigma reddish brown in life, nearly 4 times as long as broad. 10 postnodal crossveins on forewings, 9 on the hindwing. 2 antenodals. Anal Crossing (Ac) midway between the antenodals.

Abdomen: [images 11, 12, 13] Segments 1 to 7 bluish green with a broad black dorsal stripe. Single prominent elongate black mark on the lower lateral aspect of segment one. Single black dot on lateral aspect of segment two above secondary genitalia. A brown patch at the lower end of segments 3,4,5,6 laterally. Lower 25% of segment 7 and entire segment 8 black. Segment 9 white with triangular central black area on dorsal and ventral aspect.

Segment 10 ventrally black, laterally and dorsally white.

Anal appendages: [images 14, 15, 16] Black with powdery white mottling dorsally. Cerci in lateral view longer than broad and deeply bifid. Inner dilatation of cerci has a robust tooth at base. Apical ends turned in at nearly a right angle, with some small obscure spines on the outer border. Apices black, naked and rounded. Paraprocts short, broad. Paraprocts not extending to the end of expanded part of cerci.

Paratypes

Males: 5 exs.: same data as holotype.

Abdomen: 34-36 mm; hindwing: 22-24 mm.

Variation from holotype: the white suffusion on segment 10 of the abdomen is variable. Individuals have 9 to 12 postnodal crossveins on forewings, and a similar variation in postnodal crossveins on the hindwings. The brown patch at the lower end of segments 3,4,5,6 laterally is variable in size.

Females: Abdomen: 31-34 mm Hindwing: 22-24 mm

Head: [Image 17] Eyes upper half greenish blue with lower half much paler. Occiput, vertex and frons reddish brown. Postclypeus, anteclypeus and labrum pale greenish blue.

Prothorax: pale yellow on the sides, reddish brown above.

Synthorax: [Images 18, 19, 20] pale yellow above and on sides. A distinctive middorsal coppery red-brown uniform band bordered with black, extending on each side to about half way to the black humeral suture. Ventrum pale yellow with white areas and dark brown spots.

Legs bluish outwardly, dark brown on flexor and extensor surfaces. Spines on femora short, on tibia long [14 spines on hindleg femora].

Wings: [images 21, 22] Hyaline. Pterostigma dark brown, nearly four times as long as broad; 10-12 postnodal crossveins on forewing, 10-12 on the hindwing. Discoidal cells of both wings equal, Anal Crossing (Ac) midway between the antenodals.

Abdomen: [images 23, 24, 25] bluish green. All segments with a broad dorsal dark brown stripe. Segment 7 distal end dark brown. Segment 8 dark brown with small greenish white ventral spot. Segment 9 dark brown with dorsal pale white patch on lower half. Segment 10 white. Stylus outer surface pale brown. Inner surface dark black. Ovipositor and basal plate brown. Ovipositor reaching as far as anal appendages.

Anal appendages: [images 26, 27] Cerci pale grey, deeply bifid with both arms bluntly protruding to about the same length. Cerci protruding beyond paraprocts. Paraprocts short, dark brown.

Etymology: Taamrpatti (Taamr = copper; band = patti) refers to the distinctive middorsal coppery red-brown band on synthorax of both sexes.

Comparison with other *Lestes* species

The differences observed in all the male individuals of *Lestes* examined in the present study versus the original description of *L. patrica* by Fraser (1924) as well as the revised key of *Lestes* by Kosterin (2019) are as follows - Frons black (azure blue *vide* Fraser (1924)). A distinctive middorsal coppery red-brown uniform band bordered with black (matt black stripe *vide* Fraser (1924)). Both wings postnodal crossvein count is variable (Forewing 14, Hindwing 10 *vide* Fraser (1924)). Variable brown patch at the lower end of abdominal segments 3,4,5,6 laterally (not mentioned by Fraser (1924)). Abdominal segment 9 is white with triangular central black area on dorsal and ventral aspect. Segment 10 black ventrally but white on the dorsum and lateral aspect (segments 8 to 10 entirely black, segments 9 and 10 pruinosed white on the dorsum *vide* Fraser (1924)). Paraprocts very short, not extending to the end

of expanded part of cerci (extending nearly to the end of expanded part *vide* Fraser (1924)).

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Kosterin, O. 2019. Amendments and updates to F.C. Fraser's key to Indian *Lestes* spp. (Odonata: Lestidae) to resolve confusion of *L. patricia* Fraser, 1924 and *L. nigriceps* Fraser, 1924, with notes on *L. nodalis* Selys 1891 and *L. garoensis* Lahiri, 1987. *Zootaxa* 4671: 297-300. 10.11646/zootaxa.4671.2.12.

Fig.1: Habitat of *Lestes patricia taamrpatti*

Fig.2: Male of *Lestes patricia taamrpatti* in habitat

Fig.3: Female of *Lestes patricia taamrpatti* in habitat

Fig.4: Mating

Fig.5: Male Head

Fig.6: Male Prothorax & Synthorax dorsal view

Fig.7: Male Synthorax lateral view

Fig.8: Male Synthorax ventral view

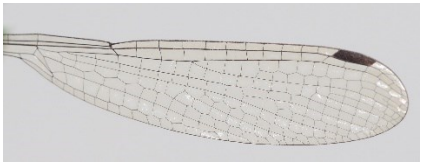

Fig.9: Male Forewing

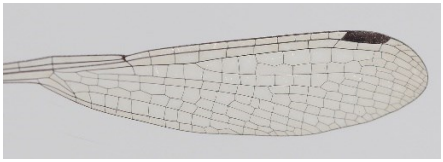

Fig.10: Male Hindwing

Fig.11: Male Abdomen dorsal view

Fig.12: Male Abdomen lateral view

Fig.13: Male Abdomen ventral view

Fig.14: Male Appendage ventral view

Fig.15: Male Appendage lateral view

Fig.16: Male Appendage dorsal view

Fig.17: Female Head

Fig.18: Female Synthorax dorsal view

Fig.19: Female Synthorax lateral view

Fig.20: Female Synthorax ventral view

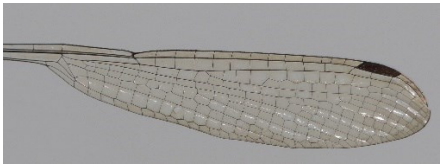

Fig.21: Female forewing

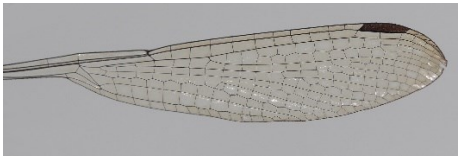

Fig.22: Female hindwing

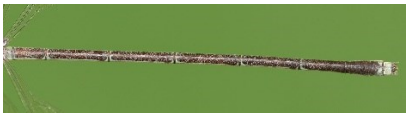

Fig.23: Female abdomen dorsal view

Fig.24: Female abdomen lateral view

Fig.25: Female abdomen ventral view

Fig.26: Female appendages lateral view

Fig.27: Female appendages