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NEW RECORDS OF DAMSELFLY *LESTES THORACICUS* LAIDLAW, 1920 (ODONATA: ZYGOPTERA: LESTIDAE) FROM MAHARASHTRA AND MADHYA PRADESH STATES, CENTRAL INDIA

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Members of the order Odonata (damselflies and dragonflies), spend the major part of their life cycle in fresh water ecosystems such as rivers, streams, marshes, lakes, small pools and rice fields. Both adults and larvae are voracious predators. The larval stages pass their life in an aquatic environment. Odonates are also good indicators of environmental change as they are sensitive to and directly affected by changes in the aquatic and bordering terrestrial habitats, atmospheric temperature and weather conditions.

There are about 463 species of odonates occurring in India (Subramanian 2009). Madhya Pradesh harbours 76 species (Tiple et al. 2012) and Kulkarni et al. (2012) recorded 101 species of Odonata from Maharashtra.

A number of workers have studied odonates, especially damselflies, from the central Indian region of Maharashtra (Vidarbha region). Since Fraser (1933), these include: Andrew & Tembhare (1997) who reported 43 species from the local water bodies of Nagpur City; Kulkarni & Prasad (2005; Melghat Tiger Reserve, Amravati); Talmale & Kulkarni (2003; Bhandara); Kulkarni et al. (2004; Pench National Park, Nagpur); Kulkarni et

al. (2006; Tadoba-Andhari Tiger Reserve, Chandrapur); Kulkarni & Talmale (2008; Lonar Wildlife Sanctuary, Buldana); Tiple et al. (2008) who recorded a total of 62 species of odonates with 18 new records from Nagpur City; Babu et al. (2009; Nagpur) and also a comprehensive account of Maharashtra fauna by Kulkarni et al. (2012). Mishra (2007) studied the odonates of Madhya Pradesh and reported a total of 70 species belonging to 40 genera and nine families distributed in different localities. Further, odonates from Madhya Pradesh are documented from Pench National Park and Satpura National Park (Ramakrishna et al. 2006), Kanha National Park (Raju & Narayanan 2008), Bandhavgarh Tiger Reserve (Mishra 2009), Pachmarhi Biosphere Reserve (Prasad & Mishra 2009), Singhori Wildlife Sanctuary (Talmale 2011), as well as 49 species of odonates with six new records for Madhya Pradesh from the Tropical Forest Research Institute Campus, Jabalpur (Tiple et al. 2012). Tiple (2012) recorded 70 species of odonates Achanakmar-Amarkantak Biosphere Reserve, Madhya Pradesh and Chhattisgarh, India.

Lestes thoracicus Laidlaw was reported from Bihar, Chattisgarh, Gujarat, Odisha, Uttarakhand, Uttar Pradesh and West Bengal (Sharma 2010). The present report of *Lestes thoracicus* Laidlaw, 1920 (Images 1a,b) adds an additional records from Madhya Pradesh and Maharashtra.

Materials and Methods

Material examined: 05.xii.2010, two males and one female from Sukad River, Singhori Wildlife Sanctuary,

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Image 1a. *Lestes thoracicus* Laidlaw (male)

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Image 1b: *Lestes thoracicus* Laidlaw (female)

District Raisen, Madhya Pradesh (23°14.68'N & 78°11.01'E) (ZSI,CZRC A/16755); 09.xii.2010, one male and one female from Bhagdehi, Singhori Wildlife Sanctuary, District Raisen, Madhya Pradesh (23°06.59'N & 78°15.22'E) (ZSI,CZRC A/16756); 20.vii.2011, one male from Danital Lake, Rani Durgavati Wildlife Sanctuary, District Damoh, Madhya Pradesh (23°32.86'N & 79°43.70'E) (ZSI,CZRC, A/16757); 03.vii.2010, one male and one female were collected from Futala Lake Nagpur, Maharashtra (20°9'N & 79°9'E) (ZSI, CZRC, A/16987).

Materials studied were collected from Madhya Pradesh and Maharashtra (Singhori Wildlife Sanctuary, District Raisen and Rani Durgavati Wildlife Sanctuary, District Damoh, Vidarbha region). The surveys were undertaken from 2010 to 2011 during the monsoon and post monsoon periods (July 2010, December 2010, July 2011). GPS (Garmin) was used for locality records. The specimens were identified with the help of identification keys provided by Laidlaw (1920) and Fraser (1933). The photographs were taken with Digital cameras (Canon

450D, Nikon-D70) using a Leica M205A Stereozoom Microscope (for male anal appendages).

Results and Discussion

Lestes thoracicus Laidlaw (Image 1) morphologically resembles *Lestes umbrinus* Selys from which, according to Fraser (1933), it may be distinguished by the matt black vertex of the head (Image 3) (pale brown in *umbrinus*) and superior anal appendages finely denticulate along their inner border (Image 4) (smooth in *umbrinus*). Other diagnostic characters of *L. thoracicus* are: Male: Thorax pale olive-green, mid-dorsal carina finely black. Legs yellow, striped in their length with black on the outer side; tarsi black. Wings hyaline; 10 to 11 postnodal nervures to both fore- and hind-wings (9–12 in males, present collection). Pterostigma pale brown, framed in blackish nervures and with outer distal end pale; braced, covering 1 to 2 cells (Mostly covering two cells in present collection) (Image 2).

The abdomen is black on the dorsum, pale azure blue



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Image 2. Fore and Hind wings (left side) of *Lestes thoracicus* Laidlaw (male and female)



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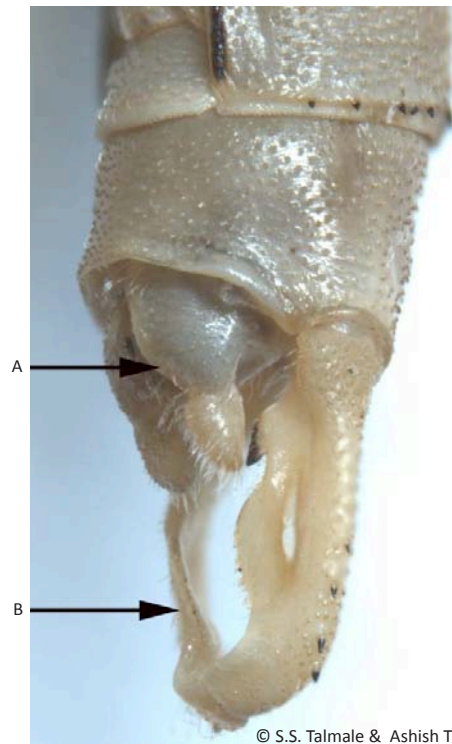
Image 3. *Lestes thoracicus* Laidlaw. Head and thorax region (wet collection)

at the sides, the dorsal black is expanded subapically on segments 2–7, completely ringing the latter segment; anal appendages (Image 4) creamy white tipped with black; superiors one and a half times the length of segment 10, forcipate, apices rounded at the ends, curling in to meet each other, coarsely spined along the outer border, furnished at the junction of basal and middle thirds with a robust inner spine which is followed by the usual scale like expansion, which occupies rather more than the middle third of the appendage and is fine



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Image 4. *Lestes thoracicus* Laidlaw. Male anal appendages (dorsal view). Superiors showing finely denticulate inner margin (wet collection)



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Image 5. *Lestes thoracicus* Laidlaw. Male anal appendages (lateral view) showing A. inferior appendages and B. superior appendages (wet collection)

denticulate along its inner border. Inferior appendages not quite half the length of superiors, thick at base, unguulate thereafter, rounded and bearing coarse hairs at apex (Image 5). Abdomen 30–32 mm (31–33 mm in present collection) and hind-wing 20mm (20–21.5 mm in present collection).

Females are similar to the male, head marked with black, prothorax and thorax olivaceous green on dorsum, paler laterally and beneath, without any markings (Image 1). Wings: 10 to 12 postnodal nervures to forewings and 9–10 in the hind (10–11 in both the wings of present collection). Pterostigma bordered outwardly (Image 2). Abdomen pale olivaceous, greenish-yellow at the sides. Anal appendages very short, conical, pointed, creamy white. Other characters mostly matches with Fraser's (1933) description. Abdomen: 28–31 mm (30–32 mm in present coll.) and hind-wing: 20–22 mm (20.5–22 mm in present collection).

The present study revealed that morphologically the taxa, *Lestes umbrinus* and *Lestes thoracicus* are not very distinct, with similarities in the colour of vertex and thorax in majority of specimens. They could be differentiated only on the basis of anal appendages. This indicates a need for further detailed comparative studies of species within genus *Lestes* and for a revision of key given by Fraser (1933).

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