

Northernmost record of the endemic damselfly *Indosticta deccanensis* (Laidlaw, 1915) (Odonata, Zygoptera, Platystictidae) from Western Ghats, Karnataka, India

Tejas Mehendale*¹ and Ajith Padiyar²

¹601, Manisha CHS, VP Road, Pendse Nagar, Dombivli (E), Thane 421201, Maharashtra, India.

²84, 6th A Main, Tata Silk Farm, Basavanagudi, Bangalore 560004, Karnataka, India.

Email: tmehendale28@gmail.com; ajithnaturalist@gmail.com

ABSTRACT: *Indosticta deccanensis* (Laidlaw, 1915) (Odonata, Platystictidae) is an endemic damselfly found in the evergreen forests of Western Ghats of southern India. This species was observed and photographed at Madugundi, Chikkamagaluru district, Karnataka. This is the first photographic record for Karnataka and the northernmost in Western Ghats. © 2024 Association for Advancement of Entomology

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Odonata (Dragonflies and Damselflies) are predatory freshwater insects seen in various ecosystems, including wetlands, forest streams, marshes, rivers, and paddy fields where they help to maintain the population of smaller insects and control a variety of disease-carrying vectors such as mosquitos (Subramanian, 2018, Vatandoost, 2021). There are about 6322 species of odonates present worldwide and roughly 500 species are present in India of which 186 species are endemic to India (Sandall *et al.*, 2022; Subramanian, 2018); Kalkman *et al.* 2020). The damselflies that belong to the family Platystictidae have a unique morphology, slender reed-like abdomens, delicate bodies, and characteristic small wings. Platystictidae of India comprises three genera i.e. *Protosticta* Selys, 1885, *Drepanosticta* Laidlaw, 1917, and *Indosticta* Bedjanic, 2016 with twenty-two species distributed throughout India (Subramanian and Babu, 2024). The genus

Indosticta is monobasic with *I. deccanensis* (Laidlaw, 1915) and restricted to India, this taxon was formerly assigned to the genus *Platysticta* Selys, 1860, is currently restricted to Sri Lanka (Fraser, 1933; Bedjanic *et al.*, 2016). *Indosticta deccanensis* closely resembles *Platysticta* Selys, 1860 but does not resemble any other genus morphologically that belongs to the family Platystictidae in India. According to Bedjanic *et al.* (2016), the genus *Indosticta* differs from Genus *Platysticta* having a brown base colouration on the thorax rather than black, and the sides of the thorax in males are light blue or white with a lateral stripe. S10 in both males and females is of dark colour and not dorsally blue. *Indosticta deccanensis* was previously documented from the states of Kerala (Nair *et al.*, 2021, 2022) and Tamil Nadu (P. Vinod, personal communication, October 28, 2024). Thus, the currently known distribution of the species is from southern and the lower central Western Ghats.

* Author for correspondence

The authors came across *Indosticta deccanensis* while on a field visit to Madugundi, Chikkamagaluru district, Karnataka. Five individuals were observed and photographed from Madugundi (13°07'49.9" N;75°26'56.4"E) (764 m, Netravati River) in a small forest stream surrounded by dense vegetation. The habitat was tropical evergreen with dense canopy cover. Photographs were taken using Nikon DSLR cameras. Specimens were identified using Fraser (1933) and Bedjanic *et al.*, (2016). Quantum GIS (QGIS) version 3.3.2 was used to create a map of site records of the species.

According to Fraser (1933), the male has a yellowish labium, an azure labrum and anteclypeus, a dark reddish black prothorax, and a bright red thorax that changes to golden yellow down and below. Legs are reddish brown, whereas the coxae and trochanters are golden yellow. The abdomen is dark red with brown obscuring and golden yellow at the ends of each segment, while segments 8 and 9 are azure blue. Anal appendages are black.

Fraser (1933) described the females as differing significantly from males, far more than is typical in

the subfamily. The head looks identical to the male, and the prothorax is likewise the same colour. The thorax is brick red, and half of the mesepimeron is black. The legs and abdomen are similar to the male, but segment 1 is bright red on the sides. Abdominal segments 1–8 are identical to males, except segment 9 has a large circular yellow spot and segment 10 is very short, just like the male. Anal appendages are short, no longer than segment 10.

Indosticta deccanensis Laidlaw, 1915, is a moderately-sized damselfly with a saffron body and turquoise blue end segments of the abdomen. It is an uncommon damselfly found in the Western Ghats inhabiting streams surrounded by thick riverside vegetation with a distinctive blue marking on its tail standing out against the darker background, setting it apart from other species (Subramanian, 2009). This is a Western Ghats endemic species, designated as vulnerable on the IUCN Red List. The genus *Indosticta* comprises a single species, *I. deccanensis*, which is distributed in the Western Ghats, Kerala, and Tamil Nadu. This infrequently encountered species occurs

Table 1. Details of previous site records of *Indosticta deccanensis* (Laidlaw, 1915) in Western Ghats

Site records	Landscape (State)	Reference
Aralam	Coorg-Kannur (Kerala State)	(Palot and Kiran, 2016)
Wayanad	Wayanad landscape (Kerala State)	Gnanakumar <i>et al.</i> (2012)
Chimmony	Nelliampathies–Anamalais landscape (Kerala State)	Gnanakumar <i>et al.</i> (2012)
Athirapally	Nelliampathies–Anamalais landscape (Kerala State)	Varghese <i>et al.</i> (2014)
Thattaekkad	Nelliampathies–Anamalais landscape (Kerala State)	Varghese <i>et al.</i> (2014)
Pooyamkutty	Lower Periyar landscape, Anamalais (Kerala State)	Pradeepkumar <i>et al.</i> (2014)
Idduki and Kattappana	Cardamom Hills landscape Anamalais (Kerala State)	Pradeepkumar <i>et al.</i> (2014)
Achankovil	Pandalam Hills Landscape (Kerala)	Sadasivan <i>et al.</i> (2022)
Rockwood	Shendurney Landscape (Kerala state)	Nair <i>et al.</i> (2021)
Ponmudi–Kallar valley	Agasthyamalai (Kerala State)	Nair <i>et al.</i> (2021)
Peppara and Neyyar WLS	Agasthyamalai (Kerala State)	Nair <i>et al.</i> (2021)
Mundanthurai TR	Agasthyamalai (Tamil Nadu State)	(P. Vinod, personal communication, October 28, 2024).

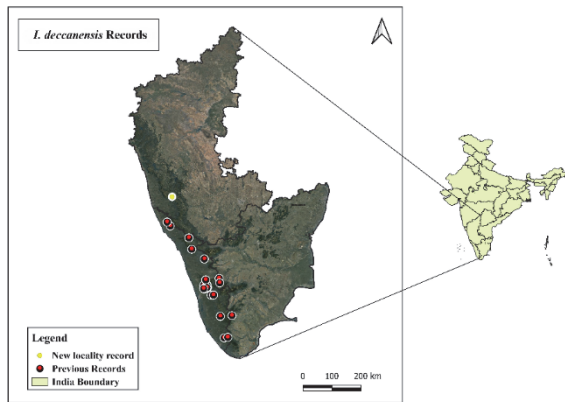


Fig. 1 Known distribution of *Indosticta deccanensis* Laidlaw, 1915 throughout the Western Ghats

in diverse habitats across Kerala and Tamil Nadu at elevations below 900 meters. In these regions, *Indosticta* Bedjanic, 2016, is represented by a single species. The site records are Aaralam of Coorg–Kannur landscape (Palot and Kiran, 2016), Wayanad (KS) of Wayanad landscape, Silent Valley (KS) of Nilgiri–Silent Valley landscape, Chimmony (Gnanakumar *et al.*, 2012), Athirapally and Peechi (KS) of Nelliampathies–Anamalais landscape, Thattaekkad (Varghese *et al.*, 2014) and Pooyamkutty (KS) of Lower Periyar landscape, Periyar Tiger Reserve (KS), Idukki (KS) and Kattappana (KS) of Cardamom Hills landscape, Konni (Pradeepkumar *et al.*, 2014) and Achankovil (KS) of Pandalam Hills landscape, Rockwood in Shendurney WLS, Ponmudi–Kallar Valley (KS), Peppara and Neyyar (KS) of Agasthyamalais landscape (Nair *et al.*, 2021) and Kalakad, Mundanthurai Tiger Reserve (TN) (Paulmathi Vinod, personal communication, October 28, 2024).

The discovery of *Indosticta deccanensis* in Madugundi, Chikkamagaluru, Karnataka extends the known distribution of this strikingly coloured damselfly by approximately 133 kilometres northward from its previously documented range in Kerala. This new record suggests the presence of *I. deccanensis* in suitable habitats within the Western Ghats. Given its restricted habitat preference for evergreen forests and riparian regions, further studies are crucial for understanding its ecology which is essential for developing



Fig 2. *Indosticta deccanensis* (Laidlaw 1915): A- Lateral view of male; B- Lateral view of female

effective conservation strategies.

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