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NOTE

RANGE EXTENSION OF *LESTES NODALIS* SELYS, 1891 (ODONATA: ZYGOPTERA: LESTIDAE) IN SOUTHERN INDIA

K.G. Emiliyamma & Muhamed Jafer Palot

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The family Lestidae (Odonata: Zygoptera) is represented by 152 species worldwide (Schorr & Paulson 2014). Of these, 20 species are known from India (Subramanian 2009). In Kerala, the family is represented by five species, viz.: *Indolestes davenporti* (Fraser, 1930), *Lestes elatus* Hagen in Selys, 1862, *L. malabaricus* Fraser, 1929,

L. paraemorsus Hagen in Selys, 1862, and *L. umbrinus*, Selys, 1891 (Emiliyamma et al. 2007; Kiran & Raju 2012, 2013). Except for *L. umbrinus* and *Indolestes gracilis*, all other species are widely distributed in the state. Although this genus is known from varying habitats, nothing much is known about their distribution and natural history.

During our faunal survey of Kozhikode District on 21 February 2011, we came across a male specimen of *Lestes nodalis* Selys from Narayankulam. Subsequently, on 25 February 2011, we collected a female specimen from the same area. Further, on 13 January 2013, a male specimen was also collected from Easthill, very close to the city limits of Kozhikode. The collection data and the detailed diagnosis of specimens are given below.

Material examined: WGRC/ZSI/IR-INV-4197, 1 male, 21.ii.2011, Narayankulam, Kozhikode District, coll. Md. Jafer Palot; WGRC/ZSI/IR-INV-4198, 1 female, 25.ii.2011, Narayankulam, Kozhikode District, coll. Dhanya Balan; WGRC/ZSI/IR-INV-4199, 1 male, 13.i.2012, Easthill, Kozhikode District, coll. K.G. Emiliyamma.

Collection sites: Narayankulam: Narayankulam (11°30'26.98"N & 75°0'48.241"E) is a small hill of about 200m and situated about 38km north-east of Kozhikode Town.

RANGE EXTENSION OF *LESTES NODALIS* SELYS, 1891 (ODONATA: ZYGOPTERA: LESTIDAE) IN SOUTHERN INDIA

K.G. Emiliyamma¹ & Muhamed Jafer Palot²

^{1,2}Western Ghats Regional Centre, Zoological Survey of India, Jafer Khan Colony, Kozhikode, Kerala 673006, India
¹kgemily@gmail.com (corresponding author), ²palot.zsi@gmail.com

The locality is very close to the western boundary of the Western Ghats in Kottur Grama Panchayat and encloses several isolated hillocks with an elevation range of 100–200 m. Due to the proximity to the Malabar Wildlife Sanctuary and the hills of Wyanad, many interesting fauna and flora are noted here. The habitat is varied with scrub forests, seasonal streams, marshes, rocky outcrops and plantations. The slopes of the hills are covered with plantations of Areca, Coconut, interspersed with Pepper and other vegetation. It is among these seasonal streams and bushes that *Lestes nodalis* was found and preliminary observations were made.

Easthill: Easthill (11°47'48"N & 75°6'948"E) is about 8km north of Kozhikode Town. It is a small hillock of about 30m high covered with large trees and bushes. The main National Highway, NH-17, criss-crosses these hills. The adult male specimen of *Lestes nodalis* was collected among vegetation near the busy road.

Diagnostic characters: The species was identified as *Lestes nodalis* based on its longitudinally bicoloured pterostigma, small black nodal point on the costa and the shape of the anal appendages. The fully adult male specimens have a blue colour on the abdomen, whereas the collected male specimen looks exactly like the female

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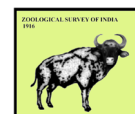




Image 1. The subadult male *Lestes nodalis* sighted at Narayankulam, Kozhikode District.

specimen in colour and markings, indicating that it may be a subadult male (Image 1). The subadult male differs from the adult in all respects.

Male: In live condition, the colour of the damselfly is pale lavender blush coloured with small brown spots or mosaic like from vertex to tip of abdomen, non-metallic. After preservation the colour became brownish-yellow (straw coloured) or pale brown.

Total length: 40mm; abdomen: 33mm (including anal appendages); forewing: 20mm; hindwing: 21mm.

Head: Labium pale brown; bases of mandibles yellowish-brown; labrum, ante and post clypeus and frons dark brown or brownish-yellow; vertex and occiput dull yellow, with a patch of brown and a few scattered brown spots at the central part; eyes brownish black at the upper side, grayish-white below, with a narrow horizontal black band encircling them; Prothorax: pale brown or yellowish-brown with scattered brown spots on the middle and posterior lobes. Thorax: pale brown or yellowish-brown with brown wart like spots dorsally and laterally; humeral area with a short, broad black stripe; under side of thorax pale yellowish with two black spots. Legs: pale yellow; undersurface of all coxae, distal ends of all femora and anterior trochanter black. Wings: transparent, petiolated as far as anal crossing; discoidal cells are the same in shape and size in fore and hindwings, narrow, elongate and acutely pointed at a distal angle; the intercalated cells at the tips of wings are very less or reduced; costa and subcosta of both wings



Image 2. Anal appendage of *Lestes nodalis*

are cream or white coloured; pterostigma bicoloured longitudinally, blackish-brown at the centre curved like a bow; creamy yellow at the costal, proximal and distal edges; covering $2\frac{1}{2}$ – 3 cells; node black, thickened and cross vein connecting costa to subcosta bright orange yellow; two antenodal nervures at subcosta bright yellow; 14–15 postnodal nervures to forewings and 11 in the hindwings. Abdomen: pale lavender blush coloured in live condition, brownish-yellow or pale brown after preservation with brown spots as in thorax; segments 1 and 2 with black spots on the border laterally; segments 3–5 with barbed arrow head black markings on baso lateral; segment 6 with a trace of this marking; segment 7 and 8 dark brown with a linear black marking on segment 8 dorsally; ventral side of segments 8 and 9 black; segments 9 and 10 pale yellow, with a small linear black marking on segment 9; laterally black.

Anal appendages (Image 2): pale yellow coloured, superiors longer than segment 10, broad, tips black, with white hairs, inner side widely dilated (scale like lamina broad), occupying half of the appendage, basal tooth absent, tips narrow and curved inwards, so that the tips usually meet, spined outwardly; inferiors short, conical, about one-sixth the length of superiors, covered with white hairs.

Female: Exactly similar to the male in colour and markings, but pale coloured; ventral side of abdomen with thin black stripe through out from segment 1–8; sides of ovipositor black.

As per Fraser (1933), the species is distributed to northeastern India, mainly in Assam. Further, Dow (2010) recorded from Odisha, Bihar and Manipur. Other than India, it is known from Myanmar, Thailand, Hong

Kong and southern China. Our present observations from Kozhikode District is the first report for Kerala and extends the range of distribution of the species to southern India, over hundreds of kilometers further south of its present distribution range in the northeastern or eastern India. Interestingly, in the last couple of years two of the northeastern species, viz., *Lyriothemis acigastra* (Selys) (Emiliyamma et al. 2012) and *L. tricolor* Ris (Das et al. 2013) were also reported from Kerala. These new records indicate that the region is rich in Odonata fauna and has to be further explored very seriously. With the addition of *Lestes nodalis*, a total of 155 species under 82 genera and 14 families are currently known to be present in Kerala State.

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