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## Journal of Threatened Taxa

The international journal of conservation and taxonomy

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

### SHORT COMMUNICATION

**RANGE EXTENSION OF *HELOGOMPHUS LYRATUS* FRASER, 1933 (ANISOPTERA: GOMPHIDAE) WITH NOTES ON ITS IDENTIFICATION, HABITS AND HABITAT**

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26 August 2016 | Vol. 8 | No. 9 | Pp. 9190–9194  
10.11609/jott.2411.8.9.9190-9194



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ISSN 0974-7907 (Online)  
ISSN 0974-7893 (Print)

Journal of Threatened Taxa | www.threatenedtaxa.org | 26 August 2016 | 8(9): 9190–9194

## RANGE EXTENSION OF *HELOGOMPHUS LYRATUS* FRASER, 1933 (ANISOPTERA: GOMPHIDAE) WITH NOTES ON ITS IDENTIFICATION, HABITS AND HABITAT

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**Abstract:** *Heliogomphus lyratus* is a Sri Lankan endemic dragonfly. It is one of the rarest Sri Lankan dragonflies with only three hitherto known localities. Apart from the faunistic records of the species, nothing much is known of its biology or ecology. We report five new distribution localities for *Heliogomphus lyratus* with seven different observations. All these new localities extend the previously known range of the species. We also provide some notes on its field identification, habits and habitat based on our field observations.

**Keywords:** Gomphidae, habits, habitat, *Heliogomphus lyratus*, identification, range extension, Sri Lanka.

The family Gomphidae is represented in Sri Lanka by 14 species known to science including 11 endemic species and two endemic subspecies (Bedjanič et al. 2014). The genus *Heliogomphus* Laidlaw, 1922 of the Gomphidae family is distributed over the oriental region (Fraser 1934) with 20 described species (Schorr & Paulsen 2015). In Sri Lanka three species of *Heliogomphus* (Grappletails) are currently known, namely: *Heliogomphus lyratus* (Fraser, 1933), *Heliogomphus nietneri* (Hagen, 1878) and *Heliogomphus walli* Fraser, 1925 (Bedjanič et al. 2014).

All three Sri Lankan Grappletails are endemic to the island.

*Heliogomphus lyratus* (Image 1) is one of the rarest gomphids in Sri Lanka. It was first collected in 1926 from Haldumulla (Ratnapura District, Sabaragamuwa Province) by G.M. Henry and the second record of the species was found only in 2009 by M. Bedjanič from Kitulgala (Kegalle District, Sabaragamuwa Province). Later it was observed at Diyadawa (Matara District, Southern Province) where an ovipositing female was sighted (Bedjanič et al. 2014). Apart from these locality records and very limited field observations, nothing else is known of the ecology and biology of this species. Due to its rarity, limited distribution records and limited area of occupancy *H. lyratus* has been assessed as a Critically Endangered species both at the national (MOE 2012) and global level (Bedjanič 2006).

### MATERIAL AND METHODS

Odonatological surveys were carried out as a part of an ongoing island-wide study to document the current

DOI: <http://dx.doi.org/10.11609/jott.2411.8.9.9190-9194> | ZooBank: urn:lsid:zoobank.org:pub:BA9F41D5-17B8-46CB-8A60-C84106F3B09F

Editor: K.A. Subramanian, Zoological Survey of India, Chennai, India.

Date of publication: 26 August 2016 (online & print)

Manuscript details: Ms # 2411 | Received 13 November 2015 | Final received 05 June 2016 | Finally accepted 18 July 2016

Citation: Sumanapala, A.P. & H.D. Jayasinghe (2016). Range extension of *Heliogomphus lyratus* Fraser, 1933 (Anisoptera: Gomphidae) with notes on its identification, habits and habitat. *Journal of Threatened Taxa* 8(9): 9190–9194; <http://dx.doi.org/10.11609/jott.2411.8.9.9190-9194>

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Funding: Self-funded.

Conflict of Interest: The authors declare no competing interests.

Acknowledgements: We wish to thank shachindrika wijesinghe, Tiran Abeywardana, Sanjaya Weerakkody all other colleagues for the support given in field work during the observations were made and Janaka Perera for the advice given in map making. The reviewers are thanked for the constructive comments made improving the article quality.



distribution of odonates in Sri Lanka and observations were made using the visual encounter survey method. All specimens were identified in the field using morphological characters. No specimens were collected. Photographs were taken to confirm the identification by comparing them with most updated literature (de Fonseka 2000; Bedjanič et al. 2014). Stream width, depth and canopy cover were visually estimated and stream substrates were also recorded at each observation site. The exact locality of the observations and elevation were recorded either by using hand held GPS receiver units or Google Earth software. Aerial distance between the sites was calculated using the ruler tool in Google Earth. Published distribution records were used to create the previously known distribution range of the species.

## RESULTS AND OBSERVATIONS

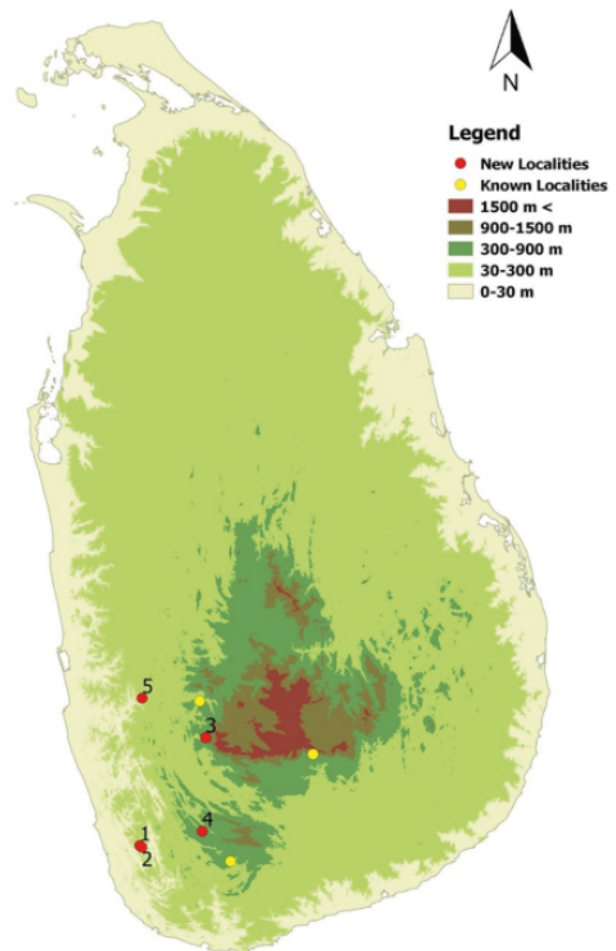
*Heliogomphus lyratus* was recorded from five localities outside the previous known distribution range of the species (Fig. 1, Table 1).

### Field identification of *H. lyratus*

*Heliogomphus lyratus* differs from the other two *Heliogomphus* species in Sri Lanka by several characteristics. The male of *H. lyratus* is easily distinguished by having a large lateral spine (Image 2) in the superior anal appendages (Fraser 1934; de Fonseka 2000) and having an isolated yellow spot on the thorax below the wing base (Image 3). This isolated spot is also present in females (Bedjanič et al. 2014) and helps to distinguish it from females of other Sri Lankan *Heliogomphus* species. Adults have clear wings with dark pterostigma whereas the pterostigma of teneral are pale grey. Teneral have reddish-brown eyes unlike the emerald green ones of adults (Image 4). Females differ from males by having a pair of short yellow stripes along the lateral surface of mid abdominal segments and a prominent and more continuous yellow stripe on the dorsum of the abdomen (Image 5).

### Habits and Habitat

Adult *H. lyratus* usually perch on exposed twigs or leaves close to the ground (0.05–0.40 m) but it may fly upward upon disturbance and perch on higher vegetation. It was never observed to perch on rocks during the present observations but it is possible that they do so as *Heliogomphus* species normally do that. They are medium fast fliers. Males, once they left a perch, tend to return to the same perch sometime after leaving it. Even though it is not the case in all the observations, sometimes *H. lyratus* can occur sympatrically with other



**Figure 1.** Distribution of *Heliogomphus lyratus* with new locality records (1 = Yagirala Forest Reserve locality 1; 2 = Yagirala Forest Reserve locality 2; 3 = Peak Wilderness Sanctuary; 4 = Kudawa; 5 = Meethirigala Forest Reserve)

### *Heliogomphus* species.

The observations suggest that *H. lyratus* prefers well shaded or partially shaded small to medium-size streams inside or at the immediate vicinity of a rainforest. The average width of the streams where *H. lyratus* have been observed ranged between 0.3–3.0 m and the average depths of those varied between 0.01–0.20 m. These streams usually have a rocky substrate or a substrate covered with pebbles and cobbles with boulders emerging above the water surface (Image 6). In Meethirigala, the substrate of the stream where *H. lyratus* was sighted is predominantly sandy with pebbles, cobbles and some leaf litter. The streams inhabited by adult *H. lyratus* have rich riparian vegetation including a good canopy cover and a dense growth of *Ochlandra stridula*, which has been observed on the stream banks in localities at Yagirala Forest Reserve locality 1, Peak Wilderness Sanctuary and Meethirigala Forest reserve.



Table 1. A summary of the recent observations of *Heliogomphus lyratus*

Date and Time	Locality	Geocoordinates	Elevation	Habitat	Remarks
17.v.2014 08:50hr	Yagirala Forest Reserve (Locality 1)	6.3785°N & 80.1630°E	109m	A well shaded stream with an average width and depth at the point of observation about 3m and 0.05m respectively.	A single male was observed.  First record of the species in Kalutara District.
17.v.2014 13:05hr	Yagirala Forest Reserve (Locality 2)	6.3720°N & 80.1711°E	126m	A well shaded stream with an average width and depth at the point of observation about 3m and 0.05m respectively.	A single male was observed.  Two individuals of <i>H. lyratus</i> and <i>H. walli</i> were observed perching on the same twig.
17.iv.2015 13:30hr	Peak Wilderness Sanctuary	6.8316°N, 80.4388°E	612m	A small stream along a foot path. The width of the stream at the point of observation was about 1m and the depth of that was about 0.01m.	A single teneral male was observed.
04.vi.2015 11:25hr, 12:05hr and 12:30hr	Kudawa	6.4387°N, 80.4247°E	320m	A small water flow running along a gravel road with a partial canopy cover.	Three males were recorded within a stretch of about 200m.
21.v.2013 09:40hr	Meethirigala Forest Reserve	6.9969°N, 80.1751°E	62m	A shady stream with stream banks densely covered with <i>Ochlandra stridula</i> .	A single female was observed.  First record of the species from Western Province and Gampaha District.
16.v.2014 10:48hr	Meethirigala Forest Reserve	6.9969°N, 80.1751°E	62m	Same as above.	A single male was observed.
15.v.2015 10:50hr	Meethirigala Forest Reserve	6.9969°N & 80.1751°E	62m	Same as above.	A single male was observed.

Image 1. *Heliogomphus lyratus* - male

Vegetation such as Cyperaceae sp. was observed in association with the stream habitat in locality 2 at Yagirala Forest Reserve (Table 1).

A female *H. lyratus* has been observed ovipositing in a well shaded, small and shallow stream with a rocky substrate (Bedjanič et al. 2014).

Image 2. Dorsal view of anal appendages of male *Heliogomphus lyratus*

## DISCUSSION

The locality 1 (Table 1) in Yagirala FR (Fig. 1) is the most westward known locality of the distribution range of *H. lyratus* according to present knowledge. It is about 42.6km far from the closest hitherto known locality where the species has been recorded (Diyadawa). The aerial distance between the type locality of *H. lyratus* (Bedjanič et al. 2014) and locality 1 is about 90.7km. Meethirigala, where the species has been observed



Image 3. Thoracic pattern with the isolated yellow spot near forewing base



Image 4. A teneral male *Heliogomphus lyratus*

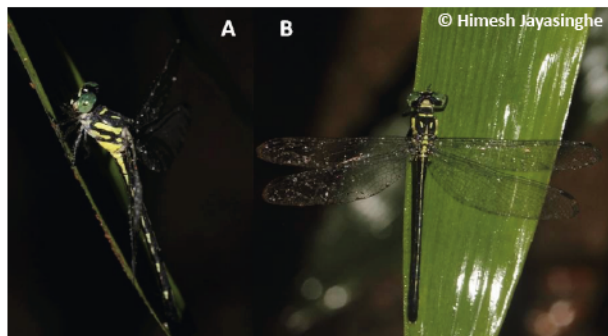


Image 5. A female *Heliogomphus lyratus* (A = lateral view, B = dorsal view)

three times is located approximately 26.5km westward from Kithulgala, the closest locality to Meethirigala where the species has been recorded hitherto and it is about 83.2km away from the type locality of the species. The localities where *H. lyratus* was observed at Peak Wilderness Sanctuary and Kudawa are also located outside the previously known distribution range of the species (Bedjanič et al. 2014). Therefore the observations done at Yagirala FR and Meethirigala FR considerably extend the known distribution range of *H. lyratus* westward and towards the coast of the island while records from Peak Wilderness Sanctuary and Kudawa partially fills the gap between these localities and the previously known distribution range. The observation at Meethirigala widens the elevation range of the species decreasing the lowest elevation level where the species occur at 62m.

The observations made at Yagirala, Kudawa and Meethirigala were done during the same months

where previous records of the species had been made (Bedjanič et al. 2014). Subsequent explorations carried out in July and August of 2014 and 2015 in Yagirala, July and August of 2015 in Kudawa, Sinharaja did not result in any positive observations of the species in any of the localities. As the observation of the teneral male made at Peak Wilderness Sanctuary was done in April, these observations shows that the flight season of *H. lyratus* starts in April, peaks in May and adult *H. lyratus* become less abundant or entirely absent after June. Therefore any targeted surveys of adults or further studies on its ecology will have a better chance of observing this rare dragonfly on the wings if they focus mostly on the months of April, May and June.

In light of the new discoveries and observations on the distribution range of the species, the conservation status of *H. lyratus* might be degraded in future conservation assessments due to its increased extent of occurrence and area of occupancy. However, it should be noted that the localities where the species has been recorded so far are isolated from each other thus further habitat loss and fragmentation could lead to a point where *H. lyratus* faces a higher risk of extinction. Therefore further studies in the potential habitats are recommended to provide a better understanding on its distribution, ecology and conservation while implementation of proper conservation measures is necessary to ensure the survival of the species.

## REFERENCES

- Bedjanič, M. (2006). *Heliogomphus lyratus*. The IUCN Red List of Threatened Species. Version 2014.3. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 24 October 2015; <http://www.iucnredlist.org/details/59730/0>
- Bedjanič, M., N. van der Poorten, K. Coniff & A. Šalamun (2014).



Image 6. Habitats of *Heliogomphus lyratus* in Yagirala Forest Reserve (A = Locality 2; B = Locality 1)

*Dragonfly Fauna of Sri Lanka: Distribution and Biology with Threat Status of its Endemics*. Pensoft, Sofia, 321pp.

**de Fonseka, T. (2000)**. *Dragonflies of Sri Lanka*. Wildlife Heritage Trust. Colombo, Sri Lanka, 303pp.

**Fraser, F. C. (1934)**. *Fauna of British India including Ceylon and Burma: Odonata Vol. 2*. Taylor and Francis, London. <https://archive.org/details/FraserOdonata2>

**MOE (2012)**. *The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora*. Ministry of Environment, Colombo, Sri Lanka, viii+476pp.

**Schorr, M. & D. Paulsen (2015)**. World Odonata List. University of Puget Sound, Downloaded on 24 October 2015. <<http://www.pugetsound.edu/academics/academic-resources/slater-museum/biodiversity-resources/dragonflies/world-odonata-list2/>>









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ISSN 0974-7907 (Online); ISSN 0974-7893 (Print)

August 2016 | Vol. 8 | No. 9 | Pages: 9125–9220  
Date of Publication: 26 August 2016 (Online & Print)

DOI: 10.11609/jott.2016.8.9.9125-9220

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