

New distributional record of *Megalestes irma* Fraser, 1926 (Odonata: Zygoptera: Synlestidae), a damselfly from Arunachal Pradesh, Eastern Himalayas, India

Новая находка равнокрылой стрекозы *Megalestes irma* Fraser, 1926 (Odonata: Zygoptera: Synlestidae) в Аруначал-Прадеше, Восточные Гималаи, Индия

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Key words: *Megalestes irma*, damselfly, range extension, Eastern Himalayas, Arunachal Pradesh.

Ключевые слова: *Megalestes irma*, равнокрылые стрекозы, расширение ареала, Восточные Гималаи, Аруначал-Прадеш.

Abstract. *Megalestes irma* Fraser, 1926 is recorded for the first time from Arunachal Pradesh, Eastern Himalayas, India. A single specimen was collected from West Kameng District of Arunachal Pradesh. Information on its distribution, habitat and taxonomic characteristics, viz. male genitalia, wing venation and anal appendages, are described together with information on the distribution of the genera in the Indian sub-continent.

Резюме: *Megalestes irma* Fraser, 1926 впервые обнаружен в Аруначал-Прадеше (Восточные Гималаи, Индия). Один экземпляр был собран из района Западный Каменг. Приведены данные о его распространении, местообитаниях, а также таксономические характеристики (мужские гениталии, жилкование крыльев и анальные придатки). Показано распределение видов рода *Megalestes* на Индийском субконтиненте.

Introduction

Globally, 5952 species of odonates under 652 genera have been reported, of which 477 species under 142 genera and 18 families are known from India [Subramanian, 2014; Nair, Subramanian, 2014; Kiran et al., 2015; Emiliyamma, Palot, 2016]. The odonates of Genus *Megalestes* belonging to the family Synlestidae are damselflies of a relatively large in size and metallic green or greenish color. They are distributed throughout the wet subtropical regions of mainland Asia including Taiwan, China, and northern parts of Vietnam, Thailand, Myanmar, India, Bhutan and Nepal [Gyeltshen et al., 2017]. The genus *Megalestes* is represented by 18 species worldwide [Scor, Paulson 2016, Gyeltshen et al., 2017] of which six species are recorded from India [Asahina, 1985; Gyeltshen et al., 2017]. In Arunachal Pradesh, the genus is known to be represented by three species, viz: *Megalestes major* Selys, 1862, *Megalestes lieftinc-*

ki Lahiri, 1979, and *Megalestes micans* Needhan, 1930 [Asahina, 1985].

As part of the field investigation on faunal diversity of the Indian Himalayan Region under the National Mission on Himalayan Studies (NMHS), surveys were carried out in various parts of Arunachal Pradesh from September 2016 to November 2016. During the survey, odonate specimens were collected from different parts of Arunachal Pradesh including some least explored areas of the state. The specimen of *Megalestes irma* Fraser, 1926 reported in the present study is a part of this collection. The identification of the species was done following detailed morphological analysis. The present finding adds a new locality for the species in Northeastern India and adds a new species to Odonate fauna to the Arunachal Pradesh.

Materials and methods

The present study is based on a single male specimen from Nechiphu, West Kameng District of Arunachal Pradesh which was collected on 10th September 2016. The specimen was photographed in the field and then collected with the help of an entomological net. The coordinates of the collection locality was recorded using a Garmin (E-trex 30) GPS. Anal appendages and genitalia of the collected specimen was extracted and photographed using a Leica stereo zoom microscope. The specimen was identified with the help of the keys as illustrated by Fraser [1933] and Asahina [1985]. The specimen was deposited in the National Zoological Collection of the Zoological Survey of India, Kolkata.

The specimen was collected near a stream beside the road. It was perching on a twig at a height of three feet above the ground. The habitat was characterised

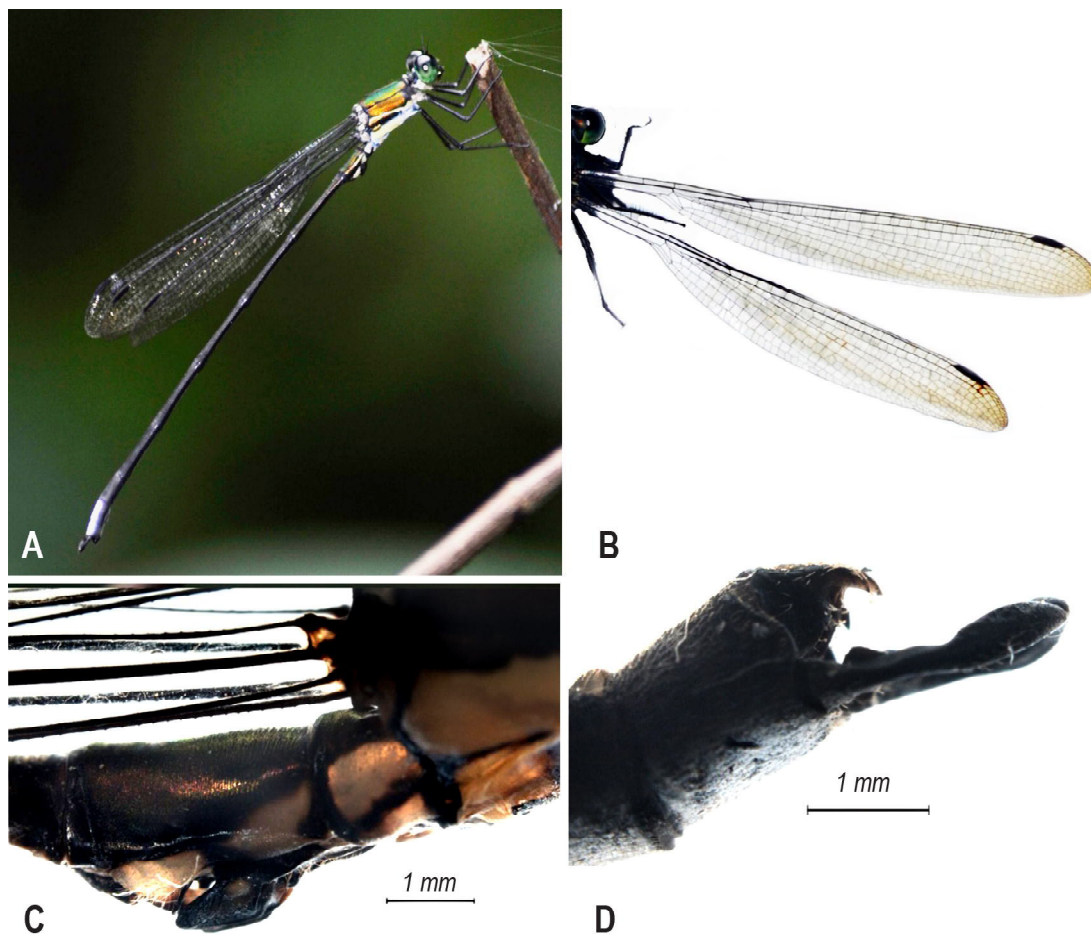


Fig. 1. *Megalestes irma*. A — habitus, B — fore and hind wing, C — lateral view of secondary genitalia, D — male anal appendages in lateral view (Studied in Zoological Survey of India, 2017).

Рис. 1. *Megalestes irma*. А — внешний вид, В — переднее и заднее крылья, С — вторичный копулятивный аппарат самца, вид сбоку, D — анальные придатки самца, вид сбоку.

by dense forest with good canopy cover. Vegetation type of the area is mainly subtropical forests.

Results

Megalestes irma Fraser, 1926

Figs 1, 2.

Material. 1♂ — Nechiphu, West Kameng District, Arunachal Pradesh, India (27°9.919' N, 92°34.652' E, elevation: 1735 m a.s.l.), 10.IX.2016, Coll: J. Saini & Party, ZSI.

Diagnostic characters: Measurements: Abdomen + anal appendages — 54.6 mm, hind wing — 36.3 mm

Head: Labium bright yellow; labrum metallic green; basal region of mandibles bright yellow. Anteclypeus and postclypeus metallic green. Antennae black, ocelli pale yellow, posterior part of ocelli matt greenish black.

Thorax: Anterior and posterior lobe of prothorax yellow, the rest part blackish to metallic green. Thorax bright emerald green on dorsal side. A narrow bright yellow stripe present on each side of mesepimeron and an irregular metallic green to black stripe on each side of anterior border of metepimeron, entire poststernum black and covered with pruinescence. Legs black in colour but coxae and trochanters of first two

pairs largely yellow and that of third pair yellowish with black patch.

Wings: hyaline with enfumed apical part, Pterostigma — dark brown to black and covering 3.5–4 cells. Postnodal nervures 22 in fore wing and 18 in hind wing.

Abdomen: Abdomen long and slender, S1 and S2 bright metallic green on dorsum and yellowish laterally and ventrally. Dorsal side of S9 and S10 pruinose. Anal appendages black, inferior anal appendages bear two apical and subapical spines.

Diagnosis: Morphologically *M. irma* resembles *M. liefnicki*, but the presence of blackish poststernum covered with pruinescence (versus yellowish poststernum in *M. liefnicki*), 18 postnodal nervures in hindwings (versus 22–24 in *M. liefnicki*), and the rounded shape of the ventrobasal expansion of the cerci differentiates the two species from each other [Lahiri, 1979; Asahina, 1985].

Discussion

In India, species of *Megalestes* genus are known to be distributed mainly in the Himalayan region and parts of Northeastern India (see Table 1 for distribution

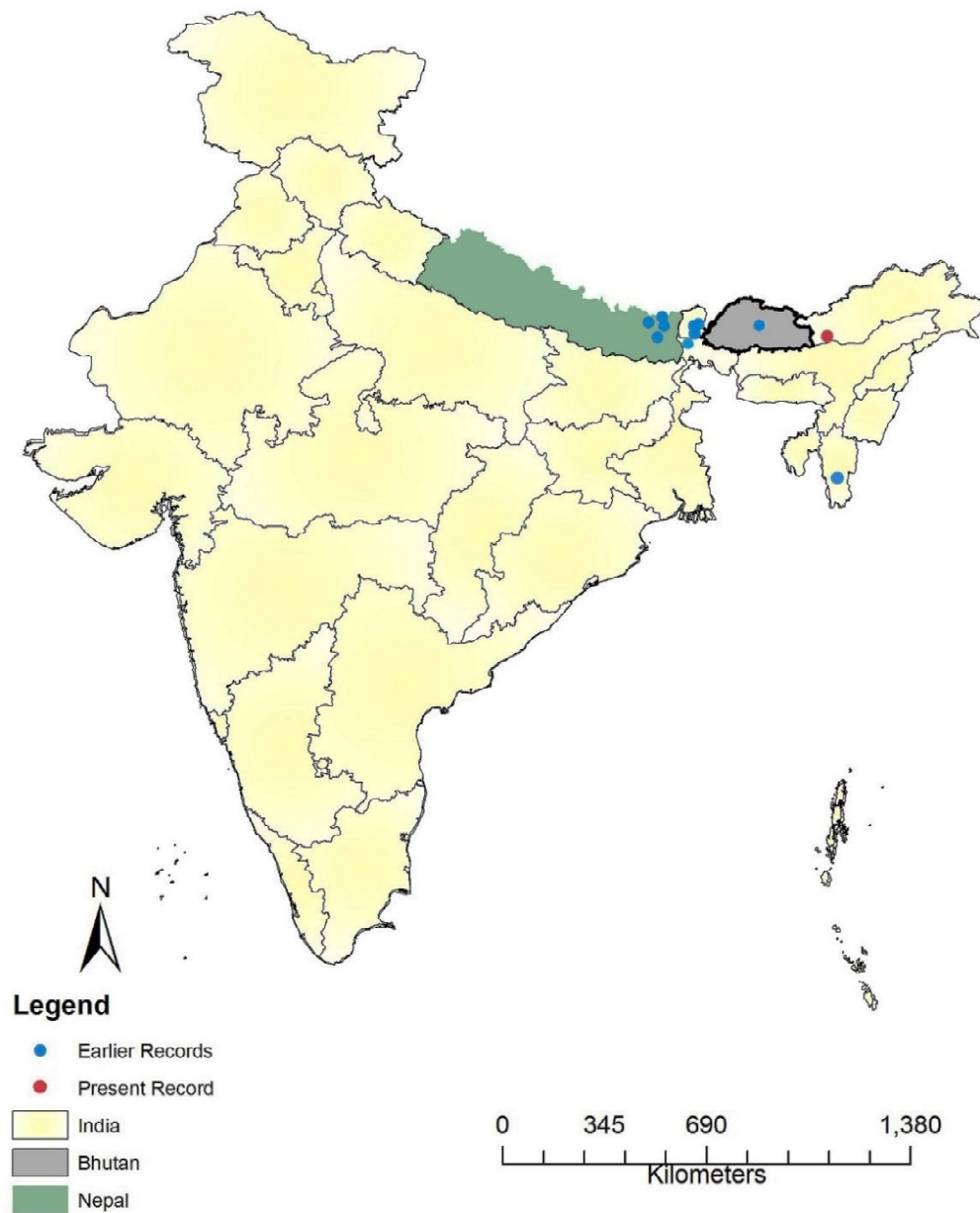


Fig. 2. Distribution record of *Megalestes irma*.

Рис. 2. Распространение *Megalestes irma*.

records in India). *Megalestes irma* Fraser, 1926 is known from India [Dow, Sharma, 2010], Nepal [Asahina, 1985] and Bhutan [Gyeltshen, et al., 2017]. In India, *M. irma* is confined to Northeastern India and was previously known from Sikkim: Gangtok, Teng and Manu [Fraser, 1933; Asahina, 1985]; West Bengal: Darjeeling [Dow, Sharma, 2010]; Mizoram: Pukpui of Lunglei [Prasad, 1997]. Hence, the present record of *M. irma* in Nechipu of West Kameng District is a new locality record for the species and range extension up to Arunachal Pradesh.

Moreover, Nechipu of West Kameng District lies approximately 200 km away (areal distance) from Trongsa dzong of Bhutan, which is the nearest previously known locality for the species and significant in terms of its distribution up to Arunachal Pradesh. In India, this species was last recorded by Prasad [1997] based on the specimen collected in 1994, and therefore, the present investigation also define its reporting after two decades.

Till now, the odonata fauna of Arunachal Pradesh comprises of 93 species under 50 genera and 11 families

Table 1. Species checklist of genus *Megalestes* Selys, 1862 (Odonata: Zygoptera: Synlestidae) from India
 Таблица 1. Список видов рода *Megalestes* Selys, 1862 (Odonata: Zygoptera: Synlestidae) Индии

Sl. No.	<i>Megalestes</i> Species	Distribution in India	IUCN Red-list status (2010)
1	<i>M. major</i> Selys, 1862	Arunachal Pradesh: Kalaktang, Chug, Nyukmadong of West kameng [Asahina, 1985], Rupa and Jameri of West kameng [Mitra, 2006]; Assam [Fraser, 1933]; Himachal Pradesh: Solan, Mandi, Kangra, Kullu, Bilaspur and Sirmour District [Babu, 2014]; Manipur: Ningthi [Asahina, 1985]; Meghalaya: Shillong and Mawphlong [Fraser, 1933, Asahina, 1985]; Mizoram: Champhai [Mitra, 2002]; Punjab [Prasad, Mondal, 2010]; Sikkim: Tumin [Mitra, 2003]; Uttarakhand: Ranikhet [Asahina, 1985], Bhim Tal and Binsar [Laidlaw, 1920], Dehradun and Mukteshwar [Fraser, 1933], Sahastradhara and River Rispana at Tapovan [Hamalainen, 1989, Kumar, Mitra 1998]; West Bengal: Samaboeng [Asahina, 1985], Pashok and Gopaldhara [Laidlaw, 1920], Mangpu [Fraser, 1933] of Darjeeling district	Least Concern (LC)
2	<i>M. irma</i> Fraser, 1926	Arunachal Pradesh: Nechipu of West Kameng (Present study); Mizoram: Pukpui of Lunglei [Prasad, 1997]; Sikkim: Gangtok, Teng and Manu [Fraser, 1933; Asahina, 1985], West Bengal: Darjeeling [Dow, Sharma 2010]	Data Deficient (DD)
3	<i>M. kurahashii</i> Asahina, 1985	Manipur: Huiahu [Asahina, 1985]	Least Concern (LC)
4	<i>M. lieftincki</i> Lahiri, 1979	Arunachal Pradesh: Tahila of Subansiri [Lahiri, 1979]; Salari of West kameng [Asahina, 1985]	Data Deficient (DD)
5	<i>M. micans</i> Needham, 1930	Arunachal Pradesh: Talung Dzong, Nafra, Nizong, Salari and Chung of West Kameng [Asahina, 1985]	Least Concern (LC)
6	<i>M. raychoudhuri</i> Lahiri, 1987	Meghalaya: Mawphlong and Shillong [Lahiri, 1987]	Data Deficient (DD)

[Asahina, 1985; Mitra, 2006]. The present record of *Megalestes irma* Fraser, 1926 is an addition on the number of odonates now known from Arunachal Pradesh. Further studies on the distribution, abundance and ecology of *M. irma* will reveal its population status and threats. Therefore, the present study highlights the necessity of intensive sampling for Odonate fauna conservation in less explored regions of North east India and especially Arunachal Pradesh.

Acknowledgements

The authors are thankful to the Director of the Zoological Survey of India, Kolkata for providing necessary facilities and encouragements. Authors are thankful to Dr. Jagdish Saini for his support during the field study. The study is part of NMHS program funded by MoEF&CC, Government of India. The authors are also thankful to Arunachal Pradesh Forest Department for the necessary permissions for field work and faunal collections. The authors are also grateful to Dr. Phan Quoc Toan (Duy Tan University) and Dr. Vincent Kalkman (Naturalis Biodiversity Center) for providing us valuable literatures. The authors are also thankful to Mr. S.K. Sajan for the preparation of map.

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Поступила в редакцию 5.06.2017