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NEW DATA ON THE DISTRIBUTION OF TWO COENAGRIONIDAE DAMSELFLIES *ISHNURA RUFOSTIGMA RUFOSTIGMA* SELYS, 1876 AND *ACIAGRION APPROXIMANS KRISHNA* FRASER, 1921 FROM CENTRAL INDIA

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Tiple, A., Deokar, A., Payra, A. & Koparde, P.: New data on the distribution of two Coenagrionidae damselflies *Ishnura rufostigma rufostigma* Selys, 1876 and *Aciagrion approximans krishna* Fraser, 1921 from Central India. Nat. Croat., Vol. 35, No. 1, 241-246, 2026, Zagreb.

Opportunistic surveys on odonates were conducted in the different parts of central India between January 2020 and December 2022. The survey revealed occurrence of two Coenagrionidae damselflies *Ishnura rufostigma rufostigma* Selys, 1876 and *Aciagrion approximans krishna* Fraser, 1921 for the first time from the central Indian landscape of Maharashtra and Madhya Pradesh, India, based on the photographic evidence. The present findings underscore the immediate need of further intensive surveys in central India, to strengthen the knowledge of diversity and distribution of odonate species of the region.

Key words: new spatial record, Maharashtra, Madhya Pradesh, Amarkantak, Gadchiroli

Tiple, A., Deokar, A., Payra, A. & Koparde, P.: Novi podaci o rasprostranjenju dviju vrsta Coenagrionidae *Ishnura rufostigma rufostigma* Selys, 1876 i *Aciagrion approximans krishna* Fraser, 1921 iz središnje Indije. Nat. Croat., Vol. 35, No. 1, 241-246, 2026, Zagreb.

U različitim dijelovima središnje Indije provedena su između siječnja 2020. i prosinca 2022. oportunistička istraživanja vretenaca. Istraživanje je na temelju fotografija po prvi puta za središnju Indiju, u saveznim državama Maharashtra i Madhya Pradesh, otkrilo pojavu dviju vrsta vodendjevojčica porodice Coenagrionidae, *Ishnura rufostigma rufostigma* Selys, 1876 i *Aciagrion approximans krishna* Fraser, 1921. Ti nalazi naglašavaju hitnu potrebu za daljnjim intenzivnim istraživanjima središnje Indije u svrhu obogaćivanja znanja o raznolikosti i rasprostranjenosti vretenaca te regije.

Ključne riječi: novi nalaz, Maharashtra, Madhya Pradesh, Amarkantak, Gadchiroli

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INTRODUCTION

The odonatological studies of central Indian landscape can be traced back to the early twentieth century (Laidlaw, 1917; Fraser, 1919, 1933, 1934, 1936) during British Raj. After the independence during mid and late twentieth century, notable contributions on odonatological studies were chiefly made by Bhasin (1953); Baijal & Agarwal (1955), Mitra (1986), Prasad (1996) and Srivastava & Babu (1997). In the early 21st century, studies of Mishra (2007); Andrew *et al*. (2009); Tiple & Chandra (2013); Das *et al*. (2013); Tiple *et al*., (2013; 2022); Tiple & Payra (2020); Dawn & Chandra, (2014, 2016) and Bharathi & Koparde (2022) have contributed significantly to the knowledge of central Indian Odonata. Despite this increase in research interest in Odonata, our knowledge is still far from complete and additional studies are expected to reveal new distribution data for many species.

In India, the genus *Aciagrion* Selys, 1891 is represented by seven species (Kalkman *et al*., 2020). With two subspecies, namely *A. a. approximans* (Selys, 1876) and *A. a. krishna* Fraser, 1921; *A. approximans* (Selys, 1876) is distributed in India, China and Cambodia (Joshi *et al*., 2020). While the distribution of subspecies *A. a. krishna* Fraser, 1921 is restricted in the Western Ghats states of Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu and in central Indian state of Chhattisgarh (Mitra, 1995; Joshi *et al*., 2016). Joshi *et al*. (2016) also pointed out that the record from Similipal Tiger Reserve of Odisha by Nair (2011) requires detailed additional examination to confirm which subspecies of *A. approximans* occurs in Odisha.

Ischnura rufostigma (Selys, 1876) is one of the nine members of the genus *Ischnura* Charpentier, 1840 in India (Kalkman *et al*., 2020). The two subspecies of *I. rufostigma*, namely *I. r. annandalei* Laidlaw, 1919 and *I. r. rufostigma* Selys, 1876 occurs in India, Nepal, Myanmar, China, Thailand, Lao PDR and Vietnam (Mitra, 2010). Within India, *I. r. annandalei* is distributed in Rajasthan, Odisha, Manipur (Mitra & Babu, 2010), whereas *I. r. rufostigma* has been reported from Assam, Madhya Pradesh, Manipur, Bihar, Meghalaya, Nagaland, West Bengal and Uttarakhand (Mitra & Babu, 2010; Kumar *et al*., 2022).

Here we describe new distributional records of *I. r. rufostigma* and *A. a. krishna* for the first time for the state of Maharashtra and Madhya Pradesh, based on the photographic records.

MATERIALS AND METHODS

Opportunistic entomological surveys were carried out between January 2020 to December 2022 in different parts of Madya Pradesh and Maharashtra. In the field, specimens were photographed with the help of digital camera Canon EOS 600D and identification was done by using the keys of Fraser (1933) and Joshi *et al*. (2016). The map was created by using QGIS v3.34.1 Software. Systematic arrangements follow Kalkman *et al*. (2020).

RESULTS AND DISCUSSION

Family: Coenagrionidae Kirby, 1890

***Aciagrion approximans krishna* Fraser, 1921** (Fig. 2, male)

On 3.10.2022, several individuals of *A. approximans krishna* were observed at Dudh Dhara Falls (also known as Doodh Dhara) in Amarkantak of Madhya Pradesh (22.6720° N, 81.7555° E, elevation 1066 m a.s.l.) (Fig. 1). A total of 11 individuals were recorded during the survey, including nine males and two females, perching on grasses, aquatic plants, and low vegetation along the river's edge (Fig. 3). Individuals were seen resting on grass blades, aquatic plants, and low shrubs near the water margins. A few males were observed patrolling territories or basking in sunlit patches close to breeding sites, while females were seen in more shaded and densely vegetated areas (personal observation). Males of *A. a. krishna* can be distinguished from *A. a. approximans* by having much narrower and longer paraprocts. In addition, S8 of *A. a. krishna* male show lateral melanisation, whereas in *A. a. approximans* the S8 is completely blue (Joshi *et al*., 2016). The presented record of *A. a. krishna* Fraser, 1921 from Dudh Dhara Falls of Amarkantak, Madhya Pradesh is located about 380 km (aerial distance) north from its nearest known locality Bastar District of Chhattisgarh (Mitra, 1995), also representing a first record of *A. a. krishna* for the state Madhya Pradesh (Joshi *et al*., 2020).

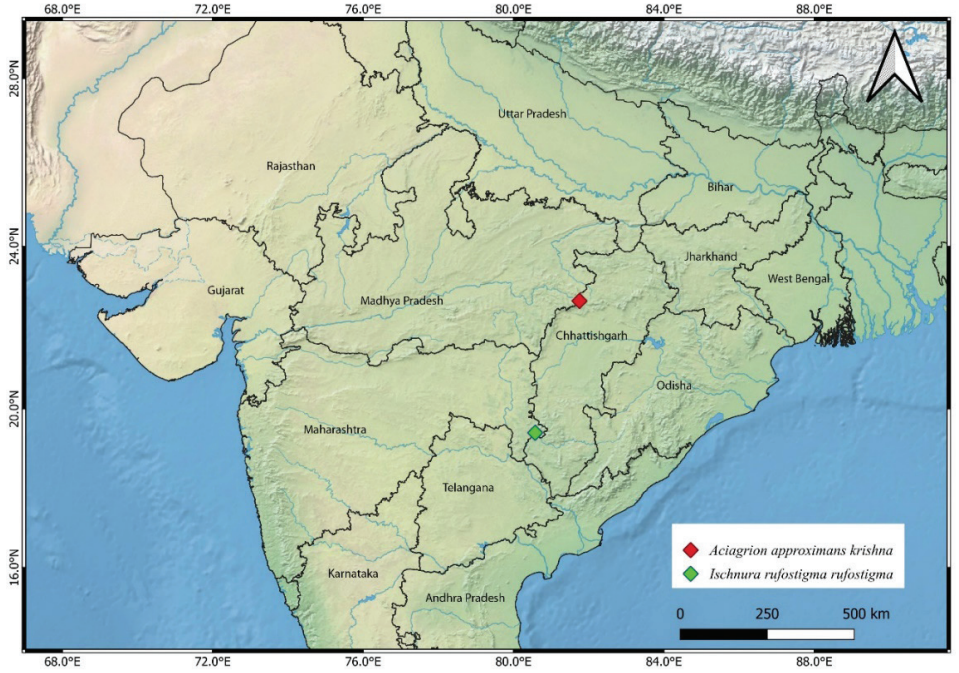


Fig. 1. Map showing the new locality records of *Ischnura rufostigma rufostigma* and *Aciagrion approximans krishna* from the state Maharashtra and Madhya Pradesh, India.



Fig. 2. Male of *Aciagrion approximans krishna* from Dudh Dhara Falls, Amarkantak, Madhya Pradesh (Photo: A. Deolkar).



Fig. 3. Female of *Ischnura rufostigma rufostigma* from Hemalkasa, Bhamragad, Gadchiroli, Maharashtra, India (Photo: A. Tiple).

Ischnura rufostigma rufostigma Selys, 1876 (Fig. 3, female)

On 11.12.2020, observations of *I. r. rufostigma* were made along the edges of Indravati River near Hemalkasa, Bhamragad, Gadchiroli, Maharashtra, India (19.4075° N, 80.5758° E, elevation 248 m a.s.l.) (Fig. 1). The area supports a variety of freshwater habitats including river, ponds, marshes, rice fields with abundant submerged and emergent vegetation. During the survey, a total of five individuals (three males and two females) of this species (Fig. 2) were observed perching on grasses, aquatic plants, and low vegetation along the water's edge. Males were actively patrolling along small sections of vegetation, displaying typical territorial behaviour through hovering and repeated flights, while females remained more elusive, staying close to shaded or densely vegetated zones. *Ischnura r. rufostigma* can be separated from *I. r. annandalei* by the absence of black markings on the dorsum of S2 and S7, as well as by the brick-red pterostigma of forewing (Asahina, 1991; Mitra & Babu, 2010; Kumar *et al*., 2022). The present record of *I. r. rufostigma* from Hemalkasa, Bhamragad, Gadchiroli, Maharashtra constitutes first record of *I. r. rufostigma* for the state Maharashtra and

it lies approximately 500 km south from its nearest known locality Sagar of Madhya Pradesh (Srivastava & Babu, 1997).

CONCLUSIONS

Central Indian landscape encompassing Madhya Pradesh, Chhattisgarh and Vidarbha region of Maharashtra is characterized by unique geographical features, climate and varied ecological settings such as National Parks, Tiger reserves, Sanctuaries and urban areas, which supports rich diversity of odonates (Mishra, 2007; Andrew *et al*., 2009; Tiple *et al*., 2013; Tiple & Chandra, 2013). Our present record of *I. r. rufostigma* and *A. a. krishna* from Gadchiroli of Maharashtra and Amarkantak of Madhya Pradesh expanded the known spatial distribution of these species in India and added valuable data to the literature of central Indian Odonata. We speculate that, these newly recorded species were previously unreported in the area, possibly due to a lack of expert sampling and the remoteness of the landscape. The findings also accentuate the crucial need for further extensive survey in different less explore areas of central Indian landscape to uncover and enrich its faunal diversity.

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