

Bugs & All

Newsletter of the
Invertebrate Conservation & Information Network of South-Asia (ICINSA)

New record of the dragonfly *Epophthalmia frontalis* from Palghar District, Maharashtra, India

In India, the family Macromiidae Needham, 1903 has 17 species represented by two genera namely, *Epophthalmia* Burmeister, 1839 and *Macromia* Rambur, 1842 (Kalkman et al. 2020). Genus *Epophthalmia* has three species in India—*E. frontalis* Selys, 1871, *E. vittata* Burmeister, 1839, and *E. vittigera* (Rambur, 1842) (Kalkman et al. 2020). *E. vittata*, being the commonest among the three species is reported from Andaman & Nicobar Islands, Andhra Pradesh, Goa, Jharkhand, Chhattisgarh, Kerala, Maharashtra, Odisha, Uttarakhand, Tamil Nadu, Tripura, Uttar Pradesh, and West Bengal (Tiple & Koparde 2015; Dawn & Chandra 2016; Subramanian et al. 2018). *E. vittigera* is reported from Assam and West Bengal (Mitra 2002). *E. frontalis* (Selys 1871) is known from the Western Ghats (Maharashtra, Kerala,

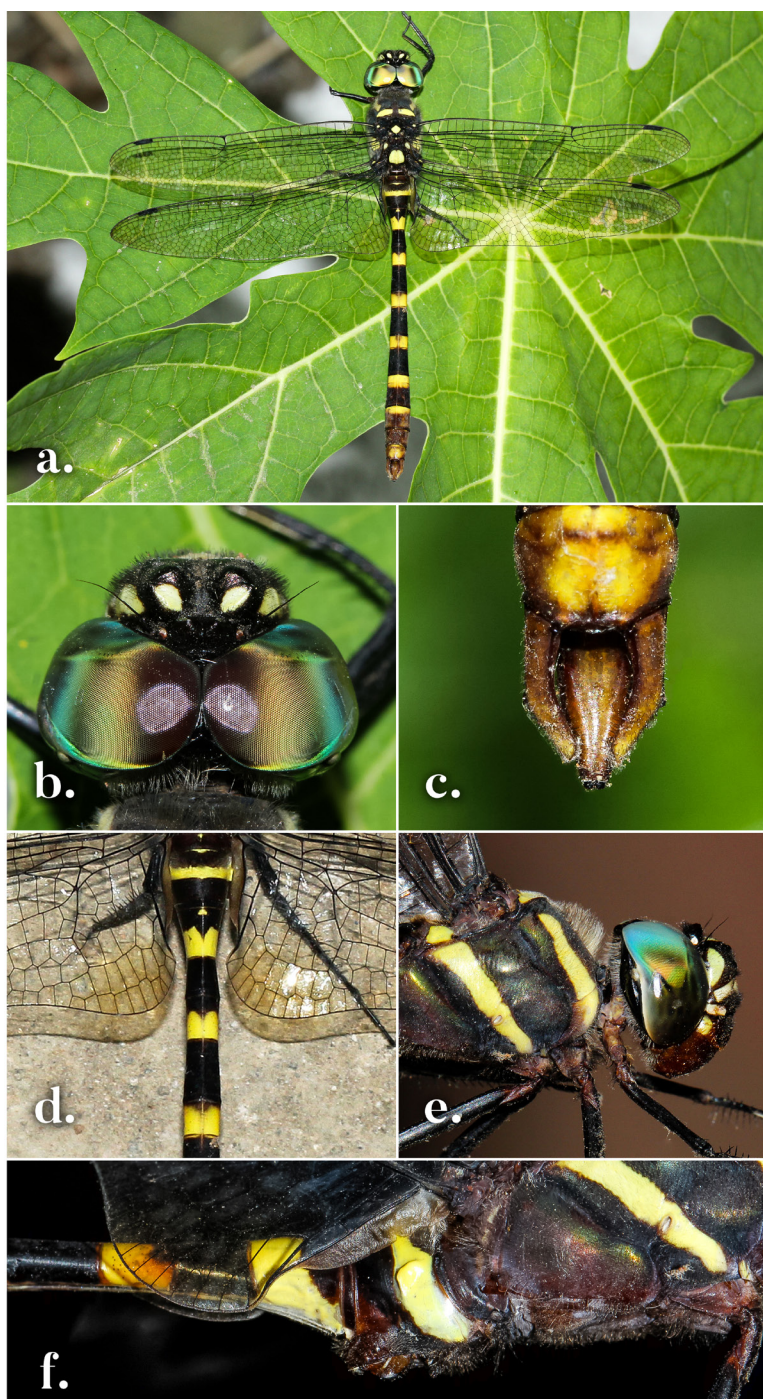


Image 1. *Epophthalmia frontalis*: a—male habitus, dorsal view | b—head, dorsal view | c—caudal appendages, dorsal view | d—base of HW | e—head and thorax, lateral view | f—thorax and S1-S4, lateral view. © Fahim Khan.



Figure 1. Satellite map of Palghar District showing Ambhai Village, Vada Taluka, locality of *Epophthalmia frontalis* (Map is created in QGIS 3.10.2, ©Dattaprasad Sawant).

Tamil Nadu) and eastern India (Assam, Meghalaya, Odisha) (Lieftinck 1931; Mitra 2002; Subramanian et al. 2018). According to Fraser (1936), *E. frontalis* of eastern India is *E. frontalis frontalis* and that from the Western Ghats is *E. frontalis binocellata*. *E. frontalis* could be easily overlooked by many researchers due to its close resemblance with the congeneric and more widespread species, *E. vittata*. In this paper, we report the northernmost distributional record of *E. frontalis* from Ambhai Village, Vada Taluka,

Palghar District, Maharashtra. We provide the diagnostic characters along with the first photographic evidence of the species from Maharashtra.

Fahim Khan photographed a male individual of *Epophthalmia* genus on 28.xi.2020 at Ambhai Farmhouse (19.696°N, 72.992°E; 102m), Ambhai Village, Vada Taluka of Palghar District (Figure 1), which is a private holiday destination and situated in the close vicinity of Kohoj Fort forest area. Photographs were taken with the help of

Canon 1300D and 100mm macro lens (Canon Inc. Tokyo, Japan). The individual was handled gently for close photographs and set free after necessary documentation. We identified the species with the help of standard reference field guides (Fraser 1936; Subramanian et al. 2018) and referred the website of the IUCN Red List for the conservation status of it. Abbreviations in the text: FW= fore wing, HW= hind wing, S1–S10= abdominal segments 1–10. Map used in Figure 1 is created using QGIS v3.10.2 by Dattaprasad Sawant.

The individual showed following characteristics which led to the diagnosis of *Epophthalmia frontalis*. The large-sized dragonfly has metallic frons, thorax, and dark abdomen with yellow spots & annules (Image 1a). According to Fraser (1936), *E. frontalis* can be distinguished from the closely resembling species *E. vittata* by the presence of two widely separated triangular yellow spots on superior surface of the frons



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and extreme melanism (except *E. vittata cyanocephala*) and longer paraprocts, while the latter has a single medial yellow spot of roughly heart shaped in the floor of the notch of superior frons and nearly equal cerci and paraprocts. *E. frontalis* can be distinguished by *E. vittigera* by almost straight cerci, while the latter has angulated cerci and blackish-brown rays at the wing base. We observed the following characteristics to determine the identity of our specimen as *E. frontalis*.

1. The superior surface of frons has a yellow spot on each side of its margin separated by metallic black area (Image 1b,e).
2. The abdomen (Image 1a,f) is black till S7, and ferruginous brown S8–S10. S1 is brownish-black. S2 has a narrow yellow annular mark in the midway. S3–S5 have basal interrupted yellow annular marking resembling two spots on dorsum. S6–S8 have basal broader yellow annular rings. S8–S10 are ferruginous brown with a broad yellow spot on the dorsum of S10.
3. Caudal appendages are rusty brown (Image 1c). Cerci are almost straight. Paraprocts are longer than cerci.
4. Wings are hyaline except the tornus of HW, which is tinted with pale amber (Image 1d). Apices of both wings are clear. Traversed discoidal cells are seen in both the wings (Image 1a,d).

In contrast to above characteristics, *E. vittata* has a medial roughly heart shaped yellow spot on superior surface of frons, nearly equal cerci and paraprocts, yellow annular

markings on the base of abdominal segments and clear HW tornus with tinted wing apices. Traversed discoidal cells of *E. frontalis* distinguishes it from *Macromia* spp.

Epophthalmia frontalis was originally described by Selys in 1871. Later, subspecies *E. frontalis binocellata* was described by Fraser in 1924. Fraser distinguished these two subspecies by the presence of yellow basal rings on the abdomen of *E. frontalis frontalis* and spot like basal yellow markings on abdomen of *E. frontalis binocellata*. However, Kalkman et al. (2020) has not mentioned any subspecies of *E. frontalis* in the recent checklist of southern Asia. We follow the same nomenclature and limit our diagnosis up to the species level. It is listed as Least Concern (LC) under the IUCN conservation status.

Prasad (1996) and Subramanian et al. (2018) have mentioned the presence of *E. frontalis* from Maharashtra State. However, no photographic evidence or specimen description of the studied material was given by any of the authors. Apart from Maharashtra, *E. frontalis* has been recorded from Madhya Pradesh, Kerala, Tamil Nadu, Odisha, and Assam (Lieftinck 1931; Mitra 2002; Subramanian et al. 2018; Tiple & Payra 2020). Outside India, it was recorded from Nepal, Myanmar, Thailand, and Lao PDR (Sharma & Dow 2010; Subramanian et al. 2018). However, the description given by Asahina (1987) has some taxonomic ambiguities with the original description.



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Further molecular studies are needed to resolve the taxonomic discrepancies with respect to the species.

The increasing anthropogenic disturbance such as urbanization and industrialization have become a serious threat to the poorly known fauna in Palghar District. Current record of this uncommon species highlights the rich fauna of this area. More systematic surveys should be conducted to document its biodiversity. Effective conservation strategies and management policies are required to conserve such remarkable species.

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