

First report of odonates (Insecta: Odonata) from a tourist spot at polo forest (Abhapur, Sabarkantha, Gujarat)

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Abstract

Current research is a preliminary study conducted at a tourist site at Polo forest of Gujarat. In this study, three species (*Trithemis kirbyi*, *Disparoneura quadrimaculata* and *Pseudagrion rubriceps*) from three different genera and three different families viz. Libellulidae, Platycnemididae and Coenagrionidae are reported for the first time in Polo forest. One species (*Disparoneura quadrimaculata*) is endemic to India. One species is found dragonfly (Anisoptera) and two species are found damselflies (Zygoptera).

Keywords: Anisoptera, zygoptera, polo forest, endemic, odonata

Introduction

First odonate fossil dated back to carboniferous period [1]. Odonates are generally called dragonflies (Anisoptera) and damselflies (Zygoptera). They play an important role in aquatic food webs as both predators and preys [2]. Odonates are diurnal predatory and have biting mouthparts with toothed mandibles. Odonates prey on other insects like black flies, stoneflies, mayflies, aphids, mosquitoes etc. They are also good food source for insectivorous fishes, amphibians, water birds, bigger insects etc [3]. Dragonflies are robust and strong fliers while damselflies are slender and weak fliers [4]. They also serve as bioindicators for aquatic bodies [5]. Body of an odonate is divided into head, thorax and abdomen. Head has well developed compound eyes with 360° vision. Wings attached to mesothorax and metathorax [6]. Males are more colourful and female are comparatively dull in color. In males gonopore opens at 9th segment of abdomen and 10th segment has cerci. Secondary genitalia present at ventral side of 2nd and 3rd abdominal segment in male. Odonates form a heart shaped wheel position during mating [7].

Study Area: Polo forest also called Vijaynagar forest is a dry deciduous forest located in Aravalli range near Abhapur village at Vijaynagar Tehsil in Sabarkantha district of Gujarat. Current study site (23.9986111111°N; 73.2808333333°E) is a famous tourist attraction and weekend destination supported by Gujarat Tourism Department and maintained by Gujarat Forest Department. Study site is situated at the bank of Harnav river which is flows through out the forest.

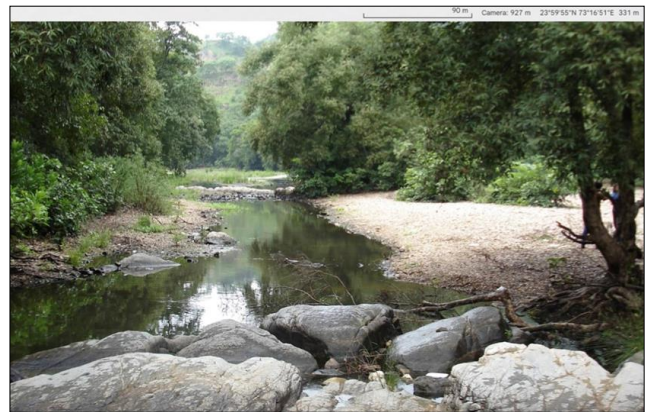
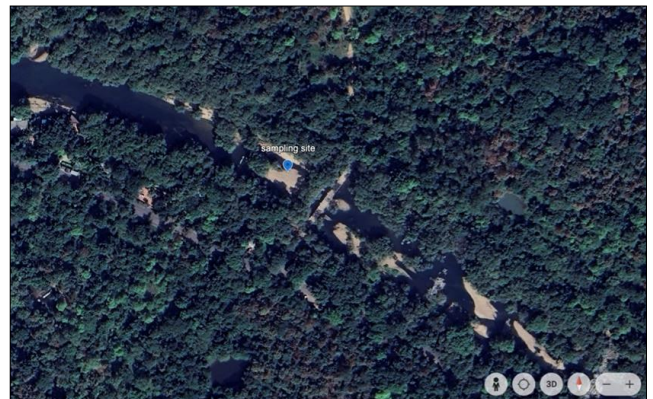


Fig 1: Map location and photo of studysite

Materials and Methods: Study was inspired by curiosity raised during visiting this tourist place during summer vacation. Study was done in May, 2025. Specimens were photographed on site with Nikon Coolpix p1100 digital camera. Photographs of odonates were examined in the laboratory for its taxonomic identification. Taxonomic identification and confirmation was done using field guide and taxonomic keys [8].

Results and Discussion

following species were identified with male specimens:

1. *Trithemis kirbyi* Selys, 1891

Suborder: Anisoptera Selys, 1854 (Dragonfly)



Family: Libellulidae Leach, 1815

Common name: Kirby's dropwing, orange-winged dropwing, scarlet rock glider

Conservation status: Least Concern (LC)

Identification mark: bright orange color with large orange splashes on wings (male)

Size: abdomen-24mm; hind wing-34 mm

Pterostigma: dark brown

2. *Disparoneura quadrimaculata* Rambur, 1842

Suborder: Zygoptera Selys, 1854 (Damsselfly)

Family: Platycnemididae Jakobson & Bainchi, 1905

Common name: black-winged bamboo tail

Conservation status: Least Concern (LC)

Identification mark: blackish brown band in middle part of wings (male)

Size: abdomen-32mm; hind wing-22 mm

Pterostigma: rusty brown

3. *Pseudagrion rubriceps* Selys, 1876

Suborder: Zygoptera Selys, 1854 (Damsselfly)

Family: Coenagrionidae Kirby, 1890

Common name: saffron-faced blue dart

Conservation status: Least Concern (LC)

Identification mark: blue thorax and abdomen with orange head (male)

Size: abdomen-29mm; hind wing-19 mm

Pterostigma: reddish brown

Globally 6453 species are reported [9]. In India total 504 species of odonates are reported while in Gujarat 63 species of odonates which includes 2 endemic species are reported [10]. Presence of 3 species (4.67%) of odonate diversity at a single site indicates rich biodiversity of Polo forest. Presence of 1 endemic species out of total 2 in Gujarat indicates exclusive ecosystem of Polo forest in Aravalli region [11]. All three species are listed Least Concern (LC) under IUCN red list category [12,13,14].

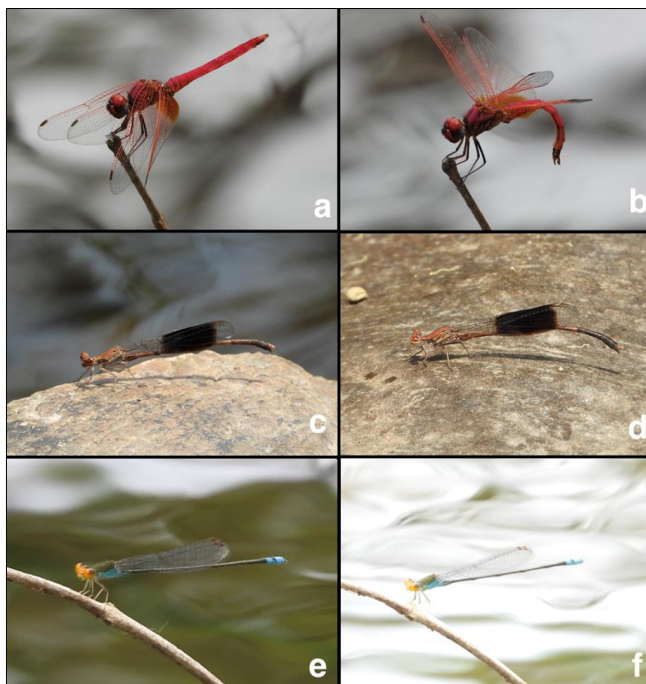


Fig 2: Photographs of Odonates- a,b: *Trithemis kirbyi* (male); c,d: *Disparoneura quadrimaculata* (male); e,f: *Pseudagrion rubriceps* (male)

Conclusion

Three species of odonates were reported for the first time in Polo forest. One species (*Trithemis kirbyi*) belong to Anisoptera (Dragonflies) while two species (*Disparoneura quadrimaculata* and *Pseudagrion rubriceps*) belong to Zygoptera (Damsselflies). *Disparoneura quadrimaculata* is endemic to India. All three species viz. *Trithemis kirbyi*, *Disparoneura quadrimaculata* and *Pseudagrion rubriceps* belong to three different families viz. Libellulidae, Platycnemididae and Coenagrionidae respectively. Presence of these odonata indicate rich biodiversity potential of Polo forest. Further comprehensive study is required to assess rich diversity of odonates in whole forest.

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