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First record of *Myrmeleon trivialis* (Gerstaecker, 1885) (Neuroptera: Myrmeleontidae) from the J&K UT (Kashmir Valley, India)

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ABSTRACT

Myrmeleon trivialis was originally described by Gerstaecker in 1885 based on the description of one female specimen from Himalayas, India. However, this species is now widely spread in Pakistan, China, Nepal, Thailand and Vietnam. In India, it is known from Arunachal Pradesh, Darjeeling, Himachal Pradesh, Sikkim, and West Bengal. The present study communicates the new record of *Myrmeleon trivialis* from Kashmir Valley (Hirpora Wildlife Sanctuary, District Shopian), India. The study constitutes the first evidence of the occurrence of this species from the North-Western Himalayan Region of Kashmir Valley (Jammu and Kashmir, Union Territory) and extending the range of species into the Kashmir Himalayas. The addition of this species to the Jammu and Kashmir UT fauna makes a remarkable contribution to the Order Neuroptera, as the Neuropteran species from the Kashmir Himalayan region of India have been less explored compared to that of other Insect orders and families from the region.

INTRODUCTION

Kashmir valley is situated in the northmost part of India. The lush green forest ecosystems, snow-clad mountains, panoramic grasslands, rivers, lakes and streams have always aided the growth and expansion of its biodiversity (Riyaz *et al.*, 2021). In the southern escarpment of the Kashmir valley, the district Shopian lies at the foothills of inner Himalayan; Pir Panjal Range which is often tabbed as the “Apple town of Kashmir” due to the large-scale production of apples and other fruit crops (Riyaz *et al.*, 2018). Besides crops and fruit cultivation, the District Shopian is embracing only one wildlife sanctuary which is located in the forest division of the district. The Hirpora Wildlife Sanctuary (33°40'39"N, 74°44'41"E) lies at the foothills of Pir Panjal mountain range (Inner Himalayas) and also makes a gateway to the Jammu division of the state from southern Kashmir. The sanctuary is rich in both flora and fauna with a total area of around 341.25 km². The area receives annual precipitation of about 1800 mm and snowfall of around 125 cm in a season. The

maximum temperature falls between 20-25 C° and temperature during the winters drops from -1 to -15 C° (Riyaz & Sivasankaran, 2021).

MATERIALS AND METHODS

The single male adult specimen was photographed and then collected during an occasional field survey in the Hirpora Wildlife Sanctuary (33°40'39"N, 74°44'41"E) on 22.vii.2021 at an altitude of 2546 m (Fig. 1). The photographs of the live specimen (Figs. 2 & 3) were taken using Redmi Note 9 Pro Mobile Camera (Xiaomi Communications Co., Ltd. China) with an external 25 mm macro lens attached. The specimen is deposited in the Division of Taxonomy & Biodiversity, Entomology Research Institute, Loyola College, Chennai, India-34 with the voucher number ERIB-KMR-269.

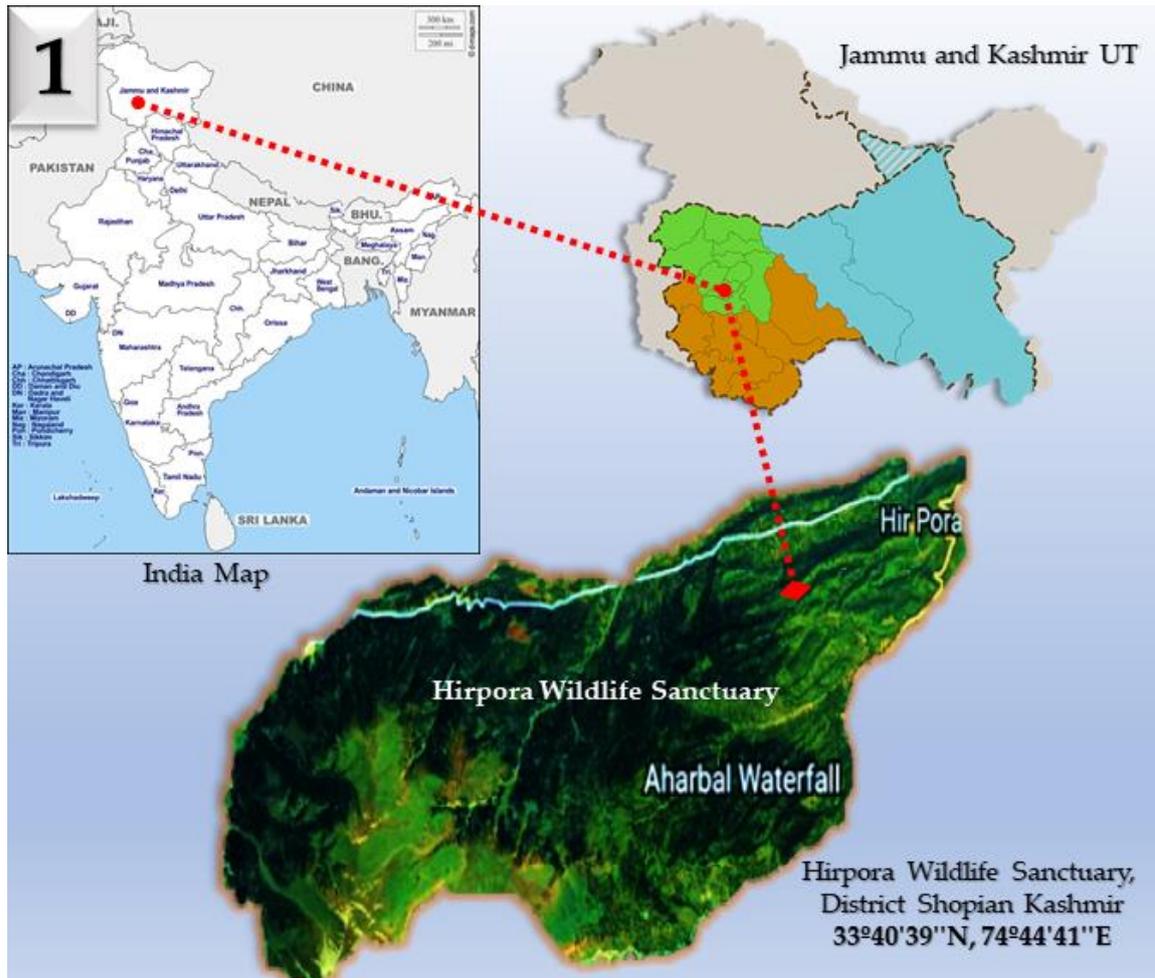


Fig. 1 Study area showing the location of collected specimen from the J&K UT (Hirpora Wildlife Sanctuary, Shopian Kashmir).



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Fig. 2 Live photograph of the specimen (Photo: Mudasir Ahmad Reshi)



Fig. 3 Live photograph showing the body details (Photo: Mudasir Ahmad Reshi)

RESULTS

Family: Myrmeleontidae (Latreille, 1802)

Subfamily: Myrmeleontinae (Latreille, 1802)

Tribe: Myrmeleontini (Banks, 1911)

Genus *Myrmeleon* Linnaeus, 1767

Myrmeleon trivialis (Gerstaecker, 1885)

Myrmeleon trivialis Gerstaecker, 1885 belongs to the family Myrmeleontidae commonly called antlions which are a group of insects with around 2100 species from 302

genera (Oswald, 2021). The antlions are often mistakenly identified as damselflies due to the resemblance of their body shape and structure but can be identified based on the relatively short, clubbed antennae and four narrow, delicate, densely net-veined wings that may be marked with brown or black (Tauber *et al.*, 2009). The adult species are very short-lived as compared to the larvae which are fierce predators of many ants and other insect species (Stange, 2004). The distribution is worldwide with most of the species diversity occurs in tropical parts of the world and a smaller number of the population of these species are found in cold-temperate conditions (Hollis, 2017).

The identification was done by using adult morphological characters; forewing length = 40 mm, hind wing = 38 mm; body length = 36 mm; head black, vertex inflated, completely dark brown; antennae short, dark brown; pronotum dark brown, laterally yellow; mesothorax and metathorax dark brown; forewing Rs arises beyond cubital fork, 7-8 presectoral cross-veins; hind wing with 5 presectoral cross-veins; abdomen black, shorter than hind wing (Fig. 4).

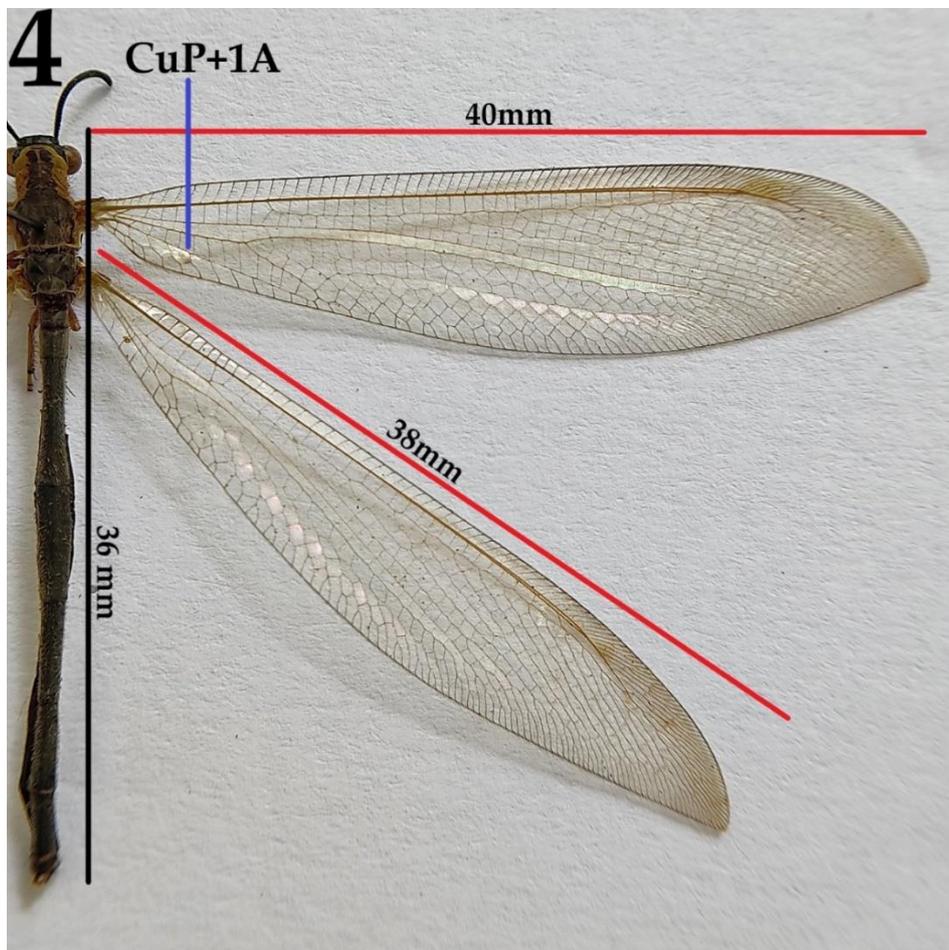


Fig. 4 Mounted specimen with body length and wing venation (CuP+1A)
(Mounted by: Muzafar Riyaz)

Distribution

The species has been reported from China, Nepal, Thailand, Vietnam (Hassan *et al.*, 2019; Zhan *et al.*, 2011; Akhter *et al.*, 2018) and in India from West Bengal, Himachal Pradesh, Arunachal Pradesh (Ghosh, 1991). Since the species has not been reported from the Jammu and Kashmir, therefore it constitutes first record of its occurrence from the Union Territory of Jammu and Kashmir, India.

DISCUSSION

Neuropterans are quite unique insects with the predatory habitats of their larvae life forms. The species of neuropterans has not been well examined and analysed other than few works reported from the recent past from the Inner Himalayan region of Jammu and Kashmir UT, India (Bhagat, 2013). Since the area is under-explored, many new species are awaiting discovery. The present study will be helpful for the young researchers and scientists for further explorations to the under-explored areas of the vast Himalayan belts of the Kashmir Valley.

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