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ADDITIONS TO THE KNOWN BUTTERFLY FAUNA OF KEDARNATH MUSK DEER RESERVE, UTTARAKHAND, INDIA

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Abstract

Nine species of butterflies, i.e. *Papilio bootes janaka*; *Darpa hanria*; *Notocrypta curvifascia*; *Ochlodes brahma*; *Symbrenthia niphanda hysudra*; *Parantica aglea melanoides*; *Lethe nicetas* and *Euaspa milionia* are added to the known fauna of Kedarnath Musk Deer Reserve in the Garhwal Himalaya of Uttarakhand.

Introduction

A.P. Singh (2009) surveyed the butterflies of Kedarnath Musk Deer Reserve between 13 May, 2006 and 6 September, 2008. He

recorded a total of 3617 specimens of butterflies belonging to 147 species during 11 sampling surveys.

We surveyed the Reserve from 22 May, 2014 to 23 May, 2014. The motor road between Mandal (1528 m) and Kanchulakharak (2660 m) were opportunistically surveyed during the period. In addition to some of the species reported by Singh (2009) the following 9 species were also recorded.

1. Tailed Redbreast *Papilio bootes janaka* Moore, 1857: several individuals of this species were observed on flowering horse

chestnut trees in company of Troidini. We were unable to obtain either a photo or specimen but observed the distinctive character i.e. the red basal marking on the under forewing and hind wing clearly. Unlike the Troidini, they were not found within the forest. Mackinnon and de Nicéville (1899) reported the species from Tehri Garhwal but the exact locality was unknown.

2. Hairy Angle *Darpa hanria* Moore, [1866] (Hesperiidae): two individuals were observed, of which one settled at water for long enough to be photographed. This rare butterfly was earlier known from the Western Himalaya on the basis of two specimens reported by Mackinnon and de Nicéville from Mussoorie in May, 1899 (Peile, 1937). (Figure 1). It remained unreported for more than a century after that from this area.

3. Restricted Demon *Notocrypta curvifascia* (Felder & Felder, 1862), (Hesperiidae): a single individual was recorded near a stream five kilometers below Kanchulikharak. Singh (2009) recorded *Notocrypta feisthamelii alysos* (Moore, [1866]) as Fairly Common in that area.

4. Himalayan Darter *Ochlodes brahma* (Moore 1878) (Hesperiidae): a single male was photographed on a bird dropping between Kanchulakharak and Mandal. (Figure 2)

5. Pioneer *Beleinois aurota* (Fabricius, 1793) (Pieridae): several females of this species were seen in open sunny parts. They were probably flying, since the species is not known to breed at that elevation. (Figure 3)

6. Bluetail Jester *Symbrenthia niphanda hysudra* Moore, 1874 (Nymphalidae): several individuals of this species were observed along the motor road, of which two males

were attracted to water. Males often take up a beat in a shady ravine. (Figure 4)

7. Glassy Tiger *Parantica aglea melanoides* Moore, 1883 (Nymphalidae): this species was occasionally observed within this forest. The type locality of the subspecies is Mussoorie.

8. Yellow Woodbrown *Lethe nicetas* Hewitson, 1863 (Nymphalidae: Satyrinae): five individuals of this species were observed. All were in good condition suggesting that the brood had recently emerged. One individual was attracted to an overripe mango. The species was reported as very rare in Mussoorie by Peile (1937), who took two specimens there in 1909. Mackinnon and de Nicéville (1899) did not record the species from Garhwal.

(Figure 5)

9. Water Hairstreak *Eusaspa milionia* Hewitson, 1869 (Lycaenidae): this rather local species was common in shady ravines. They descend occasionally to water but spend much of their time perched on leaves of bushes and trees. (Figure 6)

Discussion

Singh (2009) noted that the sampling intensity of his study was low as the total sampling period was only 43 days within the study period. It is noteworthy that he reported the Bright-eye Bushbrown *Mycalesis nicotia* Westwood from the reserve on the basis of one female specimen. One of the present authors (Peter Smetacek) examined the specimen and designated it as the female lectotype of the new taxon *Mycalesis suaveolens ranotei* (Smetacek, 2012). Therefore *M. nicotia* should be deleted from the list and *M. suaveolens* inserted in its place. The subspecies was named after Arun Pratap Singh Ranote.

The second half of May is peak flying time for many species and 22nd May was sunny. May 23rd was partly overcast and not as many species of butterflies were observed as on the previous day. Other noteworthy species observed during the period were *Trioides aeacus* Felder and Felder, *Byasa latreillei* Donovan, *Lethe baladeva aisa* Fruhstorfer, *Polyura dolon* Westwood, *Argynnis childreni* Gray, *Spindasis nipalicus* Moore, *Rapala selira* Moore and *Heliophorus tamu* Kollar.

Conclusion

The present records increase the number of butterfly species known from this Reserve from 147 to 155. Doubtless many species are yet to be reported from this Reserve.

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Fig 1. *Darpa hanria*



Fig 2. *Ochlodes brahma*



Fig 3. *Belenois aurota*



Fig 4. *Symbrenthia niphanda*



Fig 5. *Lethe nicetas*



Fig 6. *Eusaspa miliona*

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A NOTE ON *ISCHNURA NURSEI* (MORTON, 1907): THE FIRST RECORD FROM NEPAL (ZYGOPTERA: COENAGRIONIDAE)

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Introduction

Morton (1907) described a damselfly species from Deera, India; since he was not certain about the generic placement, he published it as *Ischnura? nursei*. Laidlaw (1919), assigned this unusual species to genus *Rhodischnura* Laidlaw, 1919 because it differs in appearance from all known members of genus *Ischnura* Charpentier, 1840. Dumont (2013) demonstrated in a worldwide DNA analysis of 24 Odonata species that *I. nursei* belongs to the 'pumilio clade s.l.' and is a real *Ischnura*. Due to its bright red, yellow and black colours on the abdomen, and turquoise on the thorax, *I. nursei* is an enigmatic damselfly. Until 2011, the known distribution of *I. nursei* was limited to India and Pakistan (Nair 2011; Zia *et al.* 2011); Dumont *et al.* (2011) published the first record from Iran; Feulner & Judas (2013) published the first record for the United Arab Emirates; Bashir *et al.* (2014) published the first record for Bangladesh and Kunz (2015b) reported it from Oman. The record of *I. nursei* documented here is the first record for Nepal.

Observations

The Odonata survey was carried out in Jagadishpur lake and Baanganga river of Kapilvastu, Nepal, between January, 2019 and April, 2019. The Odonates were observed and photographed between 09:00 hr and 15:00 hr. during low wind, warm and sunny weather. *Ischnura nursei* was photographed on 24 February, 2019 at 14:04 hr and on same day at 14:37 hr along the shoreline of Jagadishpur Lake (27°37'19.41"N & 83° 5'41.54"E). Two male individuals of *I. nursei* were photographed. The first individual was observed basking on a blade of grass (Fig. 1) and the other was observed on the stem of a shrub (Fig 2). The species is an extremely small, low-flying damselfly, which rests frequently. The species was identified by consulting available literature, viz., keys (Fraser, 1933) and field guides and books (Nair, 2011; Subramanian, 2009) and also from the online resources (<http://indianodonata.org>) and then confirmed by experts.

In the field, the male of this extremely small species was identified at once by the characteristic zonation of the abdomen, which