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Short Communication

Sighting of large three-ring, *Ypthima nareda* (Kollar, [1844]) (Lepidoptera: Nymphalidae: Satyrinae) in Arunachal Pradesh, India

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Abstract

Recently, while conducting faunistic survey of Lepidoptea in Itanagar Wildlife Sanctuary, Arunachal Pradesh, the butterfly species, *Ypthima nareda* (Kollar, [1844]) was collected and reported from the state of Arunachal Pradesh for the first time. The species is an addition to the list of butterflies of Arunachal Pradesh.

Keywords: Itanagar Wildlife Sanctuary, *Nareda*-Group, Satyrid Butterflies, The Rings

Introduction

The subfamily Satyrinae includes mostly inconspicuous, dull brown or blackish butterflies of moderate size. The wings are usually short and broad, and eye-like spots (called as ocelli) are present on the dorsal and ventral side of the fore and hindwings. Certain Satyrid genera i.e., *Ypthima* Hübner, 1818, *Mycalesis* Hübner 1818 and *Melanitis* Fabricius, 1807 have dry and wet-season forms. In Dry-Season Forms (DSF) markings on the underside become small or tend to disappear, wings more angulate, the cryptic pattern of the underside and the reduced submarginal ocelli. In Wet-Season Forms (WSF) the submarginal ocelli on the underside wings are prominent and well developed. The differences between the dry and wet-season forms of Satyrids are not genetical, but solely due to environmental factors of humidity and temperature, which affect the internal chemical physiology in their larval stages. Such non-genetic variations are termed polyphenism. Because of this, in monsoon areas, the DSF have more angulate wings, cryptic patterns on underside and reduced marginal ocelli, than WSF Satyrid butterflies.

The butterflies of the genus *Ypthima* are commonly known as 'The Rings'. These butterflies are small and brown. The Rings are with weak and bouncy flight. They are located in grassy habitats and fly very close to the ground. They have a prominent two pupilled ocellus below the apex of the forewing and at least an ocellus in interspace 2 on the upper hindwing. The undersides are finely marked with short brown lines on a pale ground, often having more or less prominent bands/ fasciae.

In the world, there are more than 100 species of the genus *Ypthima*, distributed in the Palaeotropical and East Palaearctic regions and approximately 40 species occur in India (Shirozu and Shima, 1979). The genus is represented by most of species known to occur from Western China and its adjacent areas, such as Myanmar, India, Nepal, Bhutan and Taiwan, some are distributed in Africa, including Madagascar, and some species range to Australia and the South Pacific Islands (Shirozu and Shima, 1979, Varshney, 2010). The identification of the species of the genus *Ypthima* and population complexes is, in fact, a difficult task. The general classification of this genus is still confused. Some authors have considered the species described by the early authors as subspecies of the other species, because this genus contains complex species and species groups. Different workers have made lot of attempts to clear the complex species and species groups of this genus (Elwes and Edwards, 1893; Shirozu and Shima, 1979; Rose and Sharma, 1999)

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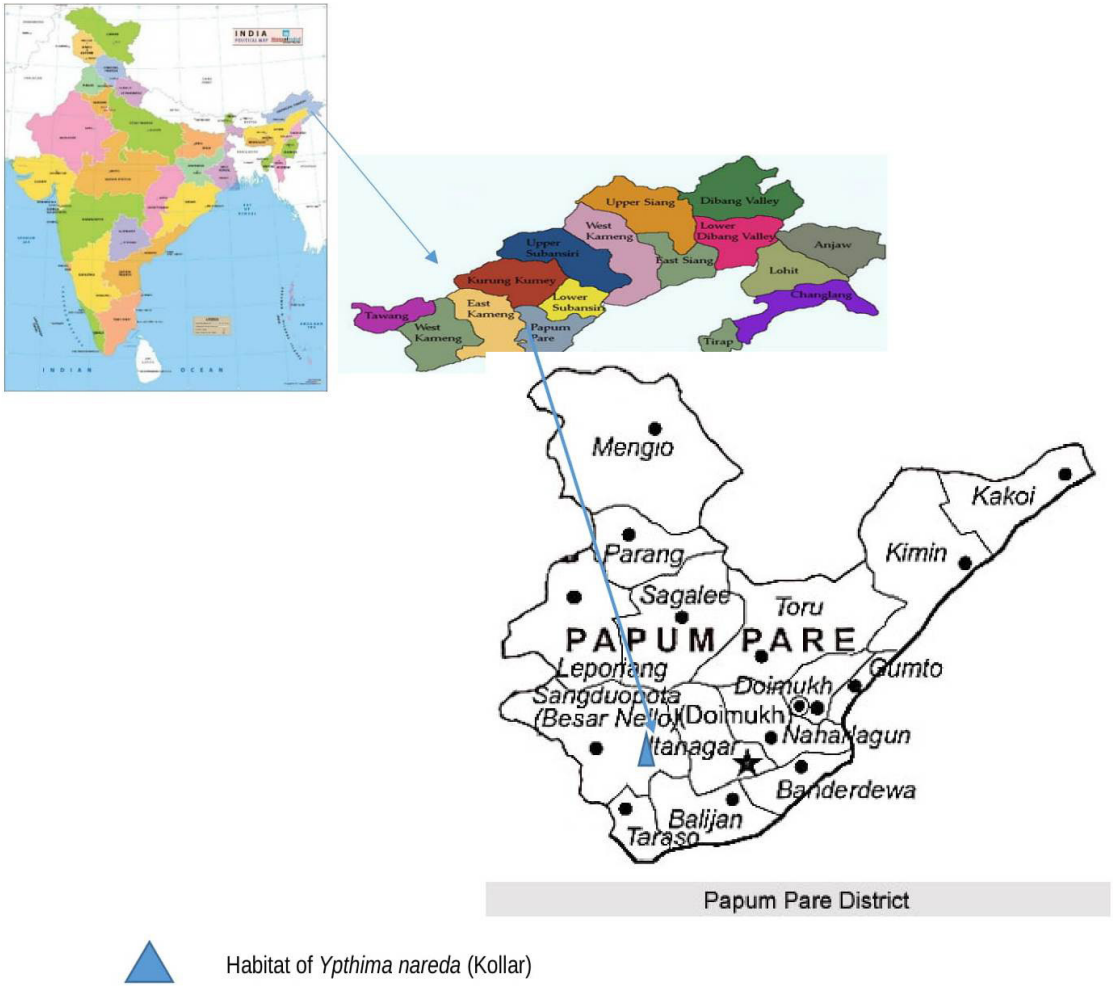
The species of the genus *Ypthima* were difficult to identify/separate due to a lot of variations, cryptic nature of species, dry and wet-season forms and thus, the genus remained for many years a stumbling block for the Lepidopterists. The male genitalia of *Ypthima* species play an important role in the authentic identification of species. The structures of male genitalia characters such as tegumen, uncus, valva, aedeagus, and genital plate, ductus bursae, the corpus bursae in the female genitalia, play an important role in the discrimination of different species of the genus *Ypthima*. Indian *Ypthima* is divided into six groups *i.e., philomela*-group, *sakra*-group, *huebneri*-group, *obscura*-group, *asterope*-group and *nareda*-group. The species *Ypthima nareda* belongs to *nareda*-group.

Material and Methods

The collections and observations were made at Poma River, Itanagar Wildlife Sanctuary (N 21.1155; E 93.4983; elevation 750 m asl), in district Papum Pare, Arunachal Pradesh in the forenoon of 12th September, 2019 (Map 1). The specimen was collected with the help of a specified butterfly net. Being soft, the species need a light pressure at thorax while killing. After killing, the specimen was transferred to the insect folder labelled with name of locality, date, latitude, longitude and altitude. Later in the laboratory, the specimen was relaxed in desiccator and stretched on the stretching board. After drying in the Drying Chamber for 3 days, the adult was shifted to



Map 1. Site of observation for *Ypthima nareda* (Kollar).

fumigated insect storage box. The identified specimen has been deposited in the National Zoological Collections (NZC) at, Arunachal Pradesh Regional Centre, Itanagar. The butterfly was determined as per the available literature (Shirozu and Shima, 1977; Rose and Sharma, 1999). The geographic coordinates and altitude were obtained by Orgon 550 Garmin GPS.

Material examined: Arunachal Pradesh: Dist. Papum Pare: Itanagar WLS, Poma River (21.1155° N; 93.4983° E; 750 m asl), 1 ♂ (IV-2815), 12.ix.2019, Coll. N. Sharma & party.

Results and Discussion

Taxonomic Details

Order LEPIDOPTERA Linnaeus, 1758
Family NYMPHALIDAE
Subfamily SATYRINAE

Ypthima nareda (Kollar, [1844]) (Figure 1 & 2)

1844. *Satyrus nareda* Kollar, in Hügel, *Kaschmir und das Reich der Siek*, **4**: 451.

Moore (1874), while describing *Ypthima newara* Moore, 1874 as a new species from Nepal, has mentioned that it can be separated from its closely allied species, *Y. nareda* Kollar on the basis of larger size, with ocelli of both sexes much larger on underside and position of the ocellus on the forewing being less inwardly oblique. Marshall & de Niceville (1883) recorded *Y. newara* from Sikkim, Assam and Upper Burma and stated that it is not improbable that this may be merely a geographically variety of *Y. nareda* which it replaces in the Eastern Himalaya. Elwes & Edwards (1893) examined male genitalia but figured only the uncus and the valva of these species. Evans (1932), Talbot (1947) and D'Abrera (1985) did not give much importance to the male genitalic studies of Elwes & Edwards (1893) and considered *newara* as a subspecies of *nareda*.

Evans (1932) and Talbot (1957) have given three subspecies of *Y. nareda* (Kollar) *i.e., Y. nareda nareda* (Kollar, 1844) from Kashmir to Kumaon, *Y. nareda newara* Moore, 1874 from Sikkim to Assam and *Y. nareda sarcaposa* Fruhstorfer, 1911 from Assam to Shan States. However, Rose and Sharma (1999) mentioned that *nareda* and *newara* are nearly sibling species and studied the male and female genitalia of both the species and found that the species are completely different to each other. Rose and Sharma (1999) mentioned that *Y. nareda* is restricted only to North-Western Himalaya.

The distribution of *Ypthima nareda* Kollar is restricted only to North-Western Himalaya as mentioned by the earlier workers (Marshall and de Niceville, 1883; Elwes and Edwards, 1893; Bingham, 1905; D'Abrera, 1985; Mani, 1986). However, workers like Evans (1932) and Talbot (1947), considered *newara* as subspecies of *nareda* and mentioned the distribution of *newara* from Nepal to Sikkim and Assam. Gogoi (2012) did not considered *newara* as independent species as has been mentioned by Rose and Sharma (1999), followed Evans (1932) and Talbot (1947), and reported distribution of *nareda newara* from Arunachal Pradesh. The workers like Sondhi and Kunte (2016) and Singh (2017) did not mention the

Figure 1. *Ypthima nareda* (Kollar) (male, dorsal side).

Figure 2. *Ypthima nareda* (Kollar) (male, ventral side).

occurrence of *nareda* in Arunachal Pradesh. However, Kehimkar (2008) in his book on Indian Butterflies gave the distribution of *nareda* from Kashmir to Arunachal and did not include *newara* which is mentioned by the earlier workers from North-East (Evans, 1932; Talbot, 1947; Sondhi and Kunte, 2016; Singh, 2017). The earlier workers (Evans, 1932; Talbot, 1947; Gogoi, 2012) have mentioned *Y. nareda newara*, and Kehimkar (2008) perhaps followed them and did not include subspecies in his book. In fact, the species reported earlier from Arunachal Pradesh is *Ypthima newara* and not *Y. nareda*, because both have specific status now and the photo given by Kehimkar (2008) resembles more to *newara* species. Hence, this is first record not only from Arunachal Pradesh but also from North-East India.

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