

On the rediscovery and new additions of Skippers (Lepidoptera: Papilionoidea: HesperIIDae) from Jammu and Kashmir, India

Sobre el redescubrimiento y las nuevas adiciones de HesperIIDae (Lepidoptera: Papilionoidea) de Jammu y Cachemira, India

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Abstract. The present communication deals with eight species of HesperIIDae recorded for the first time from different localities in the Union Territory of Jammu and Kashmir during 2018 to 2020. These include *Burara oedipodea belesis*, *Matapa aria*, *Erionota torus*, *Udaspes folus*, *Coladenia indrani indrani*, *Tagiades cohaerens cynthia*, *Celaenorrhinus dhanada* and *Pseudocoladenia fatih*. The information on the current extant and their known distribution till now has been given along with the photographs. These records will be helpful in updating the range distribution of butterflies in north western Himalayas.

Key words: Flats, lepidopterans, new records, north western Himalayas, Shiwaliks.

Resumen. La presente comunicación trata de ocho especies de HesperIIDae registradas por primera vez en diferentes localidades del territorio de la Unión de Jammu y Cachemira durante los años 2018 a 2020. Entre ellas se encuentran *Burara oedipodea belesis*, *Matapa aria*, *Erionota torus*, *Udaspes folus*, *Coladenia indrani indrani*, *Tagiades cohaerens cynthia*, *Celaenorrhinus dhanada* y *Pseudocoladenia fatih*. Junto con las fotografías se entrega información sobre su estado actual y distribución conocida hasta el momento. Estos registros serán útiles para actualizar el rango de distribución de las mariposas en el noroeste del Himalaya.

Palabras clave: Lepidópteros, noroeste del Himalaya, nuevos registros, pisos, Shiwaliks.

The newly carved Union Territory (UT) of Jammu and Kashmir spread over an area of 42,241 km² lies at 32°15' to 35°05' N and 74°02' to 76°80' E (247-5425 m) and forms the northernmost extant of western Himalayas. Morphologically the UT comprises two regions, Jammu and Kashmir characterized by five distinct physiographic units. These include outer plains, the Shiwaliks, the middle Himalayas, the Valley of Kashmir and the Great Himalayas. Characterized by a diverse set of physical features and distinct climatic regimes, the region is home to rich biodiversity including moths and butterflies, the lepidopterans. Several isolated records and reports on butterflies are available for Jammu and Kashmir since mid-nineteenth century. No attempt, however, was made to

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consolidate this information until recently, Qureshi (2020), based on the comprehensive published literature presented the inventory of 408 species of butterflies belonging to 129 genera in five families from all the three biogeographic regions of (erstwhile) J&K state accounting ca. 27% of India's butterfly fauna. Of these, 38 species are legally protected under the Wildlife (Protection) Act of India (1972).

Jammu region of UT of J&K offers a diverse range of habitats ranging from the alluvial plains of Ravi and Chenab in the south to moderately elevated outer Himalayas through Pir-Panjal separating Kashmir. The Zaskar range of Great Himalayas separates Kishtwar from Ladakh in north-east. While a good account of butterfly fauna is available for Kashmir (Home 1938; Mani & Singh 1962; Das *et al.* 1964; Das & Verma 1965; Dar *et al.* 2002; Khan *et al.* 2011; Qureshi *et al.* 2014; Qureshi 2020), Jammu region is data deficient, except for a few recent reports by Sharma & Sharma (2017a, 2017b, 2018a, 2018b), Sharma *et al.* (2019) and Sheikh & Parray (2019).

In this communication, we present eight species of skippers (Figs. 2-9) with over a century old records and first ever sightings from the UT of Jammu and Kashmir (Fig. 1). Skippers, the swift fliers as the name suggests, belong to family HesperIIDae of the order Lepidoptera. Mostly diurnal, they are characterized with stout bodies, relatively small angular wings, and hook-like projections on their antenna tips (Kehimkar 2016). More than 3500 species are known to occur worldwide (Kehimkar 2016) with 277 species reported from India (Varshney & Smetacek 2015). A perusal of literature reveals that information on skippers, among other lepidopteran families, is scanty for this region.

We conducted butterfly surveys in different landscapes across sub-tropics and temperate habitats, *viz.*, urban landscapes of Jammu and Raika environmental forest (district Jammu), Muradpur (Rajouri), Batote (Ramban) and Bhaderwah (Doda) in an elevation range of 320-2050 m (Fig. 1) from August 2018 to October 2020. A previous record of 2014 has also been included. The species were photographed in field and their identities were confirmed after consulting relevant literature, the keys (Evans 1927, 1932), catalogue (Varshney & Smetacek 2015), field guides and books (Varshney 1983, 1993; Kunte 2006; Pajni *et al.* 2006; Kehimkar 2008; Singh 2010; Keminkar 2016; Smetacek 2016; Sondhi & Kunte 2018), annotated checklist (van Gasse 2017), besides the expert-curated online portal, Butterflies of India website (<https://www.ifoundbutterflies.org/>). The systematic account of the species in this communication are based on Varshney & Smetacek (2015).

Subfamily Coeliadinae

Comprising awls, awlets and awklings, relatively large skippers are mostly the forest specialists. It includes 78 species (208 subspecies) in 9 genera, worldwide. Of these 25 species belonging to six genera are found in India (Varshney & Smetacek 2015).

Burara oedipodea belesis (Mabille, 1876) Branded Orange Awlet

Current known distribution until this study: India (Himachal Pradesh to Arunachal Pradesh), Pakistan (NW Punjab & NWFP), Nepal, Bhutan, Bangladesh, Myanmar, Sri Lanka (Bogtapa 2015; Varshney & Smetacek 2015; Kehimkar 2016; Neogi *et al.* 2016; Sondhi & Kunte 2016; Singh 2017; van Gasse 2017; Sondhi & Kunte 2018; Anonymous 2020).

Remarks. On a bright sunny morning of 02.ii.2014, we observed a relatively large colorful skipper nectaring on the flower heads of *Lantana camara* in Village Muradpur (32°20'27"N & 74°19'19"E, c. 880 m), district Rajouri. The species was photographed and later identified as *Burara oedipodea belesis*, the Branded Orange Awlet (Fig. 2) after consulting the keys

and field guides (Keminhar 2008; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; Singh 2017; Sondhi & Kunte 2018), and the online web resources (<https://www.ifoundbutterflies.org/sp/895/Burara-oedipodea>). Rare in India (Kehimkar 2016; Sondhi & Kunte 2018), the western distribution of the species is up to Himachal Pradesh (Sondhi & Kunte 2018; Anonymous 2020a). Our record of *Burara oedipodea belesis* is therefore the first record of this species from the UT of Jammu and Kashmir.

Subfamily Hesperinae

Characterized with brownish colour and pointed forewings, the grass or banded skippers of this largest subfamily comprise 2,000 described species, world over (Boggs *et al.* 2003). In India it is represented by 94 species distributed in 37 genera (Varshney & Smetacek 2015).

Matapa aria (Moore, 1866) Common Redeye

Current known distribution until this study: India (Uttarakhand to Arunachal Pradesh, Goa, Maharashtra, Kerala, Karnataka, Tamil Nadu, Andaman & Nicobar Islands), Nepal, Bhutan, Bangladesh, Myanmar, Sri Lanka (Keminhar 2008; Mukherjee *et al.* 2015; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; van Gasse 2017; Goswami *et al.* 2018; Sondhi & Kunte 2018; Saji *et al.* 2020a).

Remarks. On 21.x.2018, we observed a skipper with prominent red eyes perched over the leaf of *Achyranthus aspera* near entry gate of Jasrota Wildlife Sanctuary, Jasrota (32°27'50"N & 75°24'28"E, c. 405 m), district Kathua. The species was photographed and later identified as *Matapa aria*, Common Red-eye after consulting the published literature (Keminhar 2008; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; van Gasse 2017; Goswami *et al.* 2018; Sondhi & Kunte 2018; Saji *et al.* 2020a). Another individual was spotted (Fig. 3) in the botanical garden of Govt. Gandhi Memorial Science College, Jammu (32°43'30"N & 74°51'07" E, c. 305 m), district Jammu on 20.ix.2019. The species is distributed across the Himalayas, with its western extent reported up to Uttarakhand (Sondhi & Kunte 2018; Saji *et al.* 2020a) and is thus a new record for the UT of Jammu and Kashmir.

Erionota torus (Evans, 1941) Rounded Palm Eye

Current known distribution until this study: India (Uttarakhand to Eastern Himalayas, Kerala, Karnataka, Tamil Nadu), Nepal, Bhutan, Bangladesh, Myanmar, Sri Lanka (Keminhar 2008; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; van Gasse 2017; Sondhi & Kunte 2018; Raju *et al.* 2020).

Remarks. On a sunny morning of 11.x.2020, while examining the coiled banana leaves, we observed a white larva with powdery wax coating and dark brown head, characteristic of Red-eyes in Trikutanagar, Jammu (32°40'54"N & 74°52'58"E, c. 325 m), district Jammu. Further scanning the banana thicket, we spotted a large brown skipper with deep red eyes and large hyaline spots in the cell, later confirmed (Kunte 2006; Pajni *et al.* 2006; Keminhar 2008; Singh 2010; Varshney & Smetacek 2015; Keminhar 2016; Smetacek 2016; Bhakare & Ogale 2018; Kunte 2018) and identified as *Erionota torus*, Rounded palm eye (Fig. 4). The species, rare in the Himalayas, has its western known extant till Uttarakhand (Sondhi & Kunte 2018). This is the first sighting of the species and thus a new record for the UT of Jammu & Kashmir.

***Udaspes folus* (Cramer, 1775) Grass Demon**

Current known distribution until this study: India (Himachal to Arunachal Pradesh, Goa, Gujarat, Maharashtra, Madhya Pradesh, Chattisgarh, Kerala, Karnataka, Tamil Nadu, Andaman & Nicobar Islands), Nepal, Bhutan, Bangladesh, Myanmar, Sri Lanka (Keminhar 2008; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; van Gasse 2017; Goswami *et al.* 2018; Sondhi & Kunte 2018; Saji *et al.* 2020b).

Remarks. During a late morning butterfly survey on 13. vii.2020, a dark brown skipper with prominent white patches on hind wings was spotted basking on a *Curcuma longa* leaf in Jasrota Village (32°27'43" N & 75°24'25" E, c. 367 m), near Jasrota Wildlife Sanctuary, district Kathua. The species was photographed and identified as *Udaspes folus*, Grass Demon (Fig. 5) after due confirmation from authentic sources (Kunte 2006; Pajni *et al.* 2006; Keminhar 2008; Singh 2010; Varshney & Smetacek 2015; Keminhar 2016; Smetacek 2016). The species known western extant is Himachal Pradesh (Bogtapa 2015; Sondhi & Kunte 2018; Saji *et al.* 2020b) and this sighting therefore is the first record from UT of Jammu and Kashmir.

Subfamily Pyrginae

The spread-winged skippers or angles or more commonly known as flats belong to subfamily Pyrginae of family HesperIIDae. Found worldwide, it forms the second largest among the eight sub-families of skipper butterflies with over a thousand species recorded so far. A total of 76 species belonging to 23 genera in five tribes are found in India, including 16 species from the erstwhile J & K state (Varshney & Smetacek 2015; Qureshi 2020). The spread-winged skippers hold their wings flat and open except when they are at rest. Most of them are brown, and survive on the fluids from dung, carrion, and rotting fruit (Daniels 2003).

***Coladenia indrani indrani* (Moore, 1866) Tricolour Pied Flat**

Current known distribution until this study: India (Himachal Pradesh to northeast, including Sikkim, Assam and Arunachal Pradesh), Nepal, Bhutan, Bangladesh, Myanmar and Sri Lanka (Keminhar 2008; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; Sondhi & Kunte 2018; Saji *et al.* 2020c).

Remarks. Three individuals were observed feeding on fresh bird droppings on a trail in Jasrota Wildlife Sanctuary (32°27'50"N & 75°24'28"E, c. 405 m), district Kathua on 25.vi.2020. The species was photographed and identified as *Coladenia indrani indrani*, Tricolour Pied Flat (Fig. 6) after due verification from relevant literature (Kunte 2006; Pajni *et al.* 2006; Kehimkar 2008; Singh 2010; Keminhar 2016; Smetacek 2016; Sondhi & Kunte 2018). The sub-species is uncommon in the Himalayas with its westward distribution restricted till Himachal Pradesh (Chandra *et al.* 2014; Sondhi & Kunte 2018) and is therefore the first sighting of species from the UT of Jammu & Kashmir.

***Tagiades cohaerens cynthia* (Mabille, 1814) Striped Snow Flat**

Current known distribution until this study: India (Himachal Pradesh to northeast, including Sikkim, Assam and Arunachal Pradesh), Pakistan (NW Punjab & NWFP), Nepal, Bhutan and Myanmar (Keminhar 2008; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; van Gasse 2017; Sondhi & Kunte 2018; Anonymous 2020b).

Remarks. An individual was observed hovering over a bunch of Pteridophyte, *Woodwardia unigemmata* until it settled on a moist boulder along the perennial channel near Nalthi, Bhaderwah (32°56'13" & 75°42'39"E, c. 2048 m), Doda District, on 17.viii.2018. The butterfly was photographed and identified as *Tagiades cohaerens cynthia*, Striped Snow Flat (Fig. 7) after verifying its morphological characters (Kunte 2006; Pajni *et al.* 2006; Keminhar 2008; Singh 2010; Varshney & Smetacek 2015; Keminhar 2016; Smetacek 2016; Sondhi & Kunte 2018) and online expert-curated portal, Butterflies of India (<https://www.ifoundbutterflies.org/sp/2869/Tagiades-cohaerens>). The species is scarce in India (Sondhi & Kunte 2016) and across the Himalaya (van Gasse 2017) with its known western distribution up to Uttarakhand (Varshney & Smetacek 2015; Sondhi & Kunte 2018; Anonymous 2020b). There are no recent records from Himachal Pradesh, though Evans (1934) describes its distribution from north western Himalayas. In absence of the precise geo-coordinates for its western limits in north-India, this sighting is presumed to be a new record of the species for UT of Jammu and Kashmir.

***Celaenorrhinus dhanada* (Moore, 1866) Himalayan Yellow-banded Flat**

Current known distribution until this study: India (Himalayas: Himachal Pradesh to Sikkim, Arunachal Pradesh), Nepal, Myanmar (Keminhar 2008; Varshney & Smetacek 2015; Keminhar 2016; van Gasse 2017; Sondhi & Kunte 2018; Anonymous 2010c).

Remarks. An individual was spotted nectaring on an unidentified marshy herb near a perennial stream at Batote (33°06'36" & 75°19'33", c. 1460 m), Ramban on a sunny morning of 08.ix.2019. The individual was photographed in the field and identified as *Celaenorrhinus dhanada*, Himalayan Yellow-banded Flat (Fig. 8) after consulting Kehimkar (2008, 2016), Varshney & Smetacek (2015), Sondhi & Kunte (2018) and online web resources (<https://www.ifoundbutterflies.org/sp/989/Celaenorrhinus-dhanada>). The known western distribution of this species is from Mcleodganj in district Kangra of Himachal Pradesh (Anonymous 2020c), though Moore (1866) shows its distribution in north western Himalayas, but with no precise records from this part of Jammu and Kashmir.

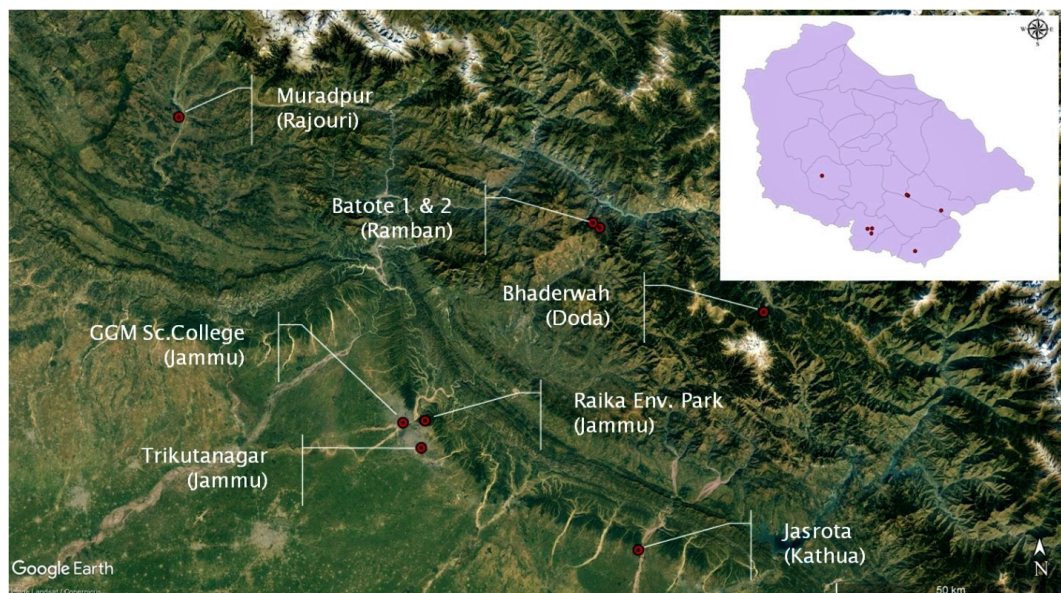


Figure 1. Study area showing locations of new butterfly records (Inset is the map of Union Territory of Jammu and Kashmir).



Figures 2-9. New Hesperiiidae records from Jammu and Kashmir, India. 2. *Burara oedipodea belesis*, 3. *Matapa aria*, 4. *Erionota torus*, 5. *Udaspes folus*, 6. *Coladenia indrani indrani*, 7. *Tagiades cohaerens cynthia*, 8. *Celaenorrhinus dhanada*, 9. *Pseudocoladenia faithi*.

***Pseudocoladenia fatih* (Kollar, 1844) Fulvous Pied Flat**

Current known distribution until this study: India (Himachal Pradesh, Haryana, Central Himalaya to Sikkim, Arunachal Pradesh and northeast), Bhutan, Myanmar (Kehimkar 2008; Varshney & Smetacek 2015; Keminhar 2016; Sondhi & Kunte 2016; van Gasse 2017;

Sondhi & Kunte 2018; Kunte, 2020).

Remarks. A yellow coloured flat was spotted basking over a *Ficus palmata* leaf on a late morning of 23.ix.2019 along a damp perennial channel near Batote (33°07'12"N & 75°18'36"E, c. 1510 m), district Ramban. Species was photographed and later identified as *Pseudocoladenia fatih*, Fulvous Pied Flat (Fig. 9) upon the consultation of relevant published material (Kehimkar 2008; Varshney & Smetacek 2015; Kehimkar 2016; Sondhi & Kunte 2018; Kunte 2020) and expert-curated platforms (<https://www.ifoundbutterflies.org/sp/1090/Pseudocoladenia-fatih>). Kollar (1844) however reports its distribution from *Kashmir* (Kashmir) and hence the confirmation about its presence in this part of the region.

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