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## Sighting of a butterfly, two spot plum Judy, *Abisara bifasciata* (Moore, 1877), (Lepidoptera: Riodininae) in Punjab, India

**Narender Sharma**DOI: <https://doi.org/10.22271/j.ento.2022.v10.i6c.9120>**Abstract**

Recently, a butterfly, Two spot Plum Judy *Abisara bifasciata* (Moore, 1877), (Lepidoptera: Riodinidae: Riodininae) was sighted at Chamrour, Ranjit Sagar Conservation Reserve, Punjab at an altitude of 460 m ASL for the first time and the species is a new addition to the Butterflies of Punjab.

**Keywords:** Punjab, riodinidae, riodininae, *abisara bifasciata*, shivalik

**Introduction**

The state Punjab lies in Northern India. It shares its boundaries with Pakistan on the west, Jammu and Kashmir on the North, Himachal Pradesh on the Northeast and Haryana and Rajasthan on the South. The undulating hills extending along the Northeastern part of the state at the foot of the Himalayas forms Shivalik Hills. Its average elevation is 300 meters (980 ft) above sea level, with a range from 180 meters (590ft) in the Southwest to more than 500 metres (1,600 ft) around the Northeast border. The Southwest of the state is Semi-Arid, eventually merging into the Thar Desert. Only 5.7 percent of the total land of Punjab comes under forests. The deforestation, increased transportation network, urbanization, industrialization and modern agricultural practices leads to habitat deterioration. As a consequence, the present day Punjab has lost much of its forest and biodiversity. The remaining small populations are largely confined to the wildlife sanctuaries, wetland areas, Shivalik foothills and other forest strips in the state.

The area of the Ranjit Sagar Conservation Reserve is 4608.24 Acre The 80% of the area under water and about 20% area is forest situated in Shivalik foot hills. Some portion of forest is low lying where water gets accumulated during monsoon leading to water logging.

The butterfly diversity of the state Punjab is still not completely explored. Rose and Sidhu (2001) [7] published an inventory of 74 species of butterflies from Punjab; Arora *et al.* (2006) [1] provided a brief account and distribution of 74 species from Punjab Shivaliks; Sharma and Joshi (2009) [8] listed 41 species from Dholbaha dam (Hoshiarpur). Sharma *et al.* (2014) [13], Sharma (2015, 2017) [9, 11] recorded *Elymnias hypermnestra undularis* (Drury), *Euploea mulciber* (Cramer) and *Megisba Malaya* (Hors field) from Punjab for the first time. Sharma *et al.* (2015) [9] reported 40 species under 31 genera from Kathlaur- Kaushlian Wildlife Sanctuary Pathankot, Punjab. In the same year, Sharma (2015a) [10] reported 52 species belonging to 41 genera from Takhni Rehmanpur Wildlife Sanctuary, Hoshiarpur, Punjab for the first time. Kumar (2015) [4] reported 54 species under 37 genera of butterflies dwelling in forest strip along Sirhind Canal, Mainline in Punjab. Singh *et al.* (2016) [15] recorded 81 species under 60 genera of butterflies from district Hoshiarpur. Pathania *et al.* (2018) [6] reported 33 species of butterflies belonging to 24 genera referable to 5 families from Punjab Agricultural University campus, Ludhiana. Recently, Sharma & Goswami (2021) [12] compiled an account of 134 species from the state Punjab.

Riodinidae is currently treated as a separate family of the superfamily Papilionoidea (Varshney & Smetacek, 2015) [17], but in the past it was considered as the subfamily Riodinae of the family Erycinidae (Evans, 1932; Wynter-Blyth, 1957) [2, 18] and as subfamily Riodininae of the family Lycaenidae ((Kehimkar, 2008) [3].

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Like the lycaenids, the males of this family have reduced forelegs while the females have full-sized, fully functional forelegs. The foreleg of males is often reduced and has a uniquely shaped first segment (The coxa) which extends beyond its joint with the second segment, rather than meeting it flush. They have a unique venation on the hind wing: the costa of the hind wing is thickened out to the humeral angle and the humeral vein is short.

Out of the six butterfly families, the family Riodinidae is having least number of species and is represented by 19 species under 5 genera viz., *Zemeros* Boisduval, [1836]; *Dodona* Hewitson, 1861; *Abisara* C. & R. Felder, 1860; *Taxila* Doubleday, 1847; *Stiboges* Butler, 1876 from the Indian Region. Most of the species occurs in North and Northeast India and only one species i.e., *Abisara bifasciata* Moore, 1877<sup>[5]</sup> is known to occur in Peninsular India.

## Materials and Methods

### Study Area

The habitat of the species is situated at Chamrour, which is located in the Ranjit Sagar Conservation Reserve, district Pathankot, Punjab with 075°46.956'E longitude and 32°26.080'N latitude having an altitude of 460 m ASL (Map 1). The flora of the Ranjit Sagar Conservation Reserve is dominated by the aquatic conditions. The forests of the area consist of scattered Khair (*Acacia catechu*), Tun (*Toona ciliata*), Kikar (*Acacia nilotica*), Phalahi (*Platanus orientalis*), Jamun (*Syzygium cumini*), Ber (*Zizyphus Jujuba*), Sheesham (*Dalbergia sissoo*), Simbal (*Salmalia malabarica*), Amb (*Mangifera indica*), Dhak/palash (*Butea monosperma*). The shrubs such as garuna (*Cassia spinarum*), Vilayti Mehdi

(*Dodonea viscosa*) Mallah (*Zizyphus nummularia*), Gandhala (*Murraya koenigii*), Besuti (*Adhatoda vasica*) Jhav (*Artemisia* sp.) Hins (*Capparis decidua*), Panwar (*Cassia tora*). Many forest are infested by Bhagiarihi booti (*Lantana camara*), Congress grass (*Parthenium hysterophorus*), and Bhang (*Cannabis sativa*). Bhabbar grass is most important constituent of open places. They are excellent soil binders. The rest of the grass species are mostly fed to cattle.

### Methodology

The author while conducting a 'General Faunistic Survey' of Ranjit Sagar Conservation Reserve, district Pathankot, Punjab under the mandates of the Zoological Survey of India one specimen of *Abisara bifasciata* Moore, 1877<sup>[5]</sup> was collected in the scrubby habitat at Chamrour, Punjab in the forenoon of 7<sup>th</sup> November, 2022. The specimen was collected with the help of a butterfly net and thorax was pinched to kill. The butterfly adult was preserved in the insect folder labelled with date, name of locality, latitude, longitude and altitude. Later on, in the laboratory at Zoological survey of India, Dehradun, the specimen was relaxed, pinned and stretched, then it was dried in the drying chamber for 2-3 days. The Photograph of the adult was taken dorsally and ventrally by using Digital Camera (DX-80 model of Nikon make). For identification of the species, (Evans, 1932, Sondhi & Kunte, 2018)<sup>[2, 16]</sup> were followed.

### Material examined

Punjab: District Pathankot: Ranjit Sagar Conservation Reserve, Chamrour, 1 example, 07.xi.2022, Coll. N. Sharma.



Map 1: Habitat of *Issoria mackinnoni* (de Niceville), Google Map

## Results and discussion

Recently, while conducting a 'General Faunistic Survey' of Ranjit Sagar Conservation Reserve, district Pathankot, Punjab under the mandates of the Zoological Survey of India one specimen of *Abisara bifasciata* Moore, 1877<sup>[5]</sup> was collected from the scrubby habitat at Chamrour, Punjab in the forenoon of 7<sup>th</sup> November, 2022. Being medium-sized, the species need a less pressure at thorax while killing. Observations were made in Ranjit Sagar Conservation Reserve with GPS reading

on Orgon 550 GPS of Garmin make E 075°46.956'E; 32°26.080'N; Elevation 460 m.

The genus *Abisara* C. & R. Felder, 1860 is reported by maximum number of nine species i.e., *A. abnormis* Moore, [1884]; *A. attenuata* Tytler, 1915; *A. bifasciata* Moore, 1877<sup>[5]</sup>; *A. burnii* (de Niceville, 1895)<sup>[19]</sup>; *A. chela* de Niceville, 1895<sup>[19]</sup>; *A. echerius* (Stoll, [1790]); *A. fylla* (Westwood, 1851); *A. neophron* (Hewitson, 1861); *A. saturata* (Moore, 1878)<sup>[20]</sup> in the family Riodinidae from India.

The species *Abisara bifasciata* Moore, 1877 was earlier treated as subspecies *Abisara echerius bifasciata* Moore by Evans (1932)<sup>[2]</sup>. The species *Abisara bifasciata* Moore, 1877<sup>[5]</sup> is represented by three subspecies in India: (i) *A. bifasciata angulata* Moore, [1879] (Manipur and Nagaland) (ii) *A. bifasciata* Moore, 1877<sup>[5]</sup> (Andaman & Nicobar Is. (Andamans) (iii) *A. bifasciata suffusa* Moore, 1882 (Gujarat southwards to Karnataka and Tamil Nadu and eastwards to West Bengal; Himachal Pradesh to N.E. India). Moore (1877)<sup>[5]</sup> described *Abisara bifasciata* as new species from South Andamans (Port Blair) and remarked that this species differs from the Malayan *Abisara kausambi* C & R Felder, 1860 in having discal transverse bands being sinuous and in the female these are prominent.

Out of the 19 species of the family Riodinidae, the species, *Abisara bifasciata* is the only species which is known to occur in Peninsular India while the other species occur in North and Northeast India.

The author while conducting General Faunistic Survey in Punjab from March 2011 to April, 2014 under the mandates of Zoological Survey of India could not record this species from the state Punjab.

No species of the family Riodinidae is reported by earlier workers from the state Punjab (Rose and Sidhu, 2001; Arora *et al.*, 2006; Sharma *et al.*, 2015; Sharma, 2015; Singh *et al.* 2016; Pathania *et al.* 2018; Sharma and Kumar, 2019)<sup>[7, 1, 9, 15, 6]</sup>. Hence the family Riodinidae and the species, *Abisara bifasciata* is recorded for the first time from the state Punjab.



Fig 1: *Abisara bifasciata* Moore, Dorsal side



Fig 2: *Abisara bifasciata* Moore, Ventral side

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