

**RANGE EXTENSION OF CHINESE BURNT-SPOT HUMMINGBIRD HAWK
MOTH *MACROGLOSSUM PYRRHOSTICTA* BUTLER, 1875 (LEPIDOPTERA:
SPHINGIDAE) INSIDE THE INDIA**

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Abstract:

During the faunistic survey of Lepidoptera in Sasni (27.7063° N, 78.0823° E; 181 m), Uttar Pradesh, Chinese burnt-spot hummingbird hawk moth *Macroglossum pyrrhosticta* Butler, 1875, was collected and reported for the first time from the Gangetic Plains Biogeographic Zone of India as well as North-West India. The species is an addition to the list of moths of the current given areas. Additionally, known host plants, checklist of the Indian species of genus *Macroglossum* Scopoli, 1777 is also given.

Keywords: Checklist, female genitalia, Gangetic plains, India, *Macroglossum pyrrhosticta*, new record, rare species

Introduction:

The adult hawk moths fly by day, by night, or in the crepuscular period (Opler, 1983). They are highly specialized flower visitors equipped with a long, thin and very flexible proboscis (Meeuse & Morris 1984). Some hawk moths hover at flowers like humming birds and suck nectar.

Macroglossum is a genus of moths in the family Sphingidae. The genus was erected by Giovanni Antonio Scopoli in 1777. Genus name arrived from the Latin prefix ‘macro’

meaning big or large; and the Greek 'glossa' meaning tongue. It provides a unique, important and unmatched service to the environment by nesting in nature. It keeps the ecosystem healthy and balanced. Only five species were so far reported from Gangetic Plains Biogeographic Zone of India (Bihar, Uttar Pradesh, Uttarakhand, West Bengal), viz., *M. assimilis* Swainson, 1821, *M. belis* (Linnaeus, 1758), *M. corythus* Walker, 1856, *M. gyrans* (Walker, 1856), *M. nycteris* Kollar, 1844 (Farooqui and Parwez, 2021; Joshi *et al.*, 2021). The present paper provides information on the occurrence of *Macroglossum pyrrhosticta* Butler, 1875 based on morpho-taxonomy and genitalic study. Thus a total of 6 species of *Macroglossum* from this region are known.

Material and Methods:

The collections and observations were made at Sasni (27.7063° N, 78.0823° E; 181 m), in district Hathras, Uttar Pradesh in the Late- afternoon (5:10 p.m.) of 12th October 2018 (Map 1). The specimen was collected with the help of a specified insect net, killed by ethyl acetate. After killing, the specimen was transferred to the insect folder labeled with the name of locality, date, latitude, longitude, and altitude. Afterward, in the laboratory, the specimen was relaxed and stretched on the stretching board. Preserved into a fumigated insect storage box. The identified specimen has been deposited in the Zoology Department, Aligarh Muslim University (ZDAMU) at, Aligarh, Uttar Pradesh. The moth was initially identified as *Macroglossum* sp. but later the identification was confirmed by Dr Ian J. Kitching (Principal Researcher, Department of Life Sciences, Natural History Museum, Cromwell Road, London SW7 5BD, U.K.).

Results:

TAXONOMIC ACCOUNT

Class: Insecta Linnaeus, 1758

Order: Lepidoptera Linnaeus, 1758

Clade: Ditrysia Börner, 1925

Superfamily: Bombycoidea Latreille, 1802

Family: Sphingidae Latreille, [1802]

Subfamily: Macroglossinae Harris, 1839

Tribe: Macroglossini Harris, 1839

Subtribe: Macroglossina Harris, 1839

Genus: *Macroglossum* Scopoli, 1777

Range: Europe, Africa, Asia and Australian region (Hampson, 1892).

Note: The species are numerous, closely allied and difficult to discriminate.

***Macroglossum pyrrhosticta* Butler, 1875**

Macroglossa pyrrhosticta Butler, 1875; *Proc. zool. Soc. Lond.* 1875: 242.

TL: Shanghai.

HOLOTYPE: ♀ China [NHMUK].

Synonyms:

Macroglossa catapyrrha Butler, 1875

Macroglossum pyrrhosticta albifascia (Mell, 1922)

Macroglossum pyrrhosticta ferrea (Mell, 1922)

Macroglossum fukienensis Chu & Wang, 1980

Description:

Adult (Plate 1: 1 & 2): It is similar to *M. variegatum* but the upper side of the abdomen has dark lateral patches that are less black and the underside of the abdomen and the wings are

less reddish. Head, thorax, abdomen, and forewings are greyish without a rufous tinge. The upper side of fore wing is flushed whitish grey, ante medial band are wide at the inner margin and straighter. Underside of abdomen chestnut brown.

Female genitalia (Plate 1: 3): Papillae anales broad, strong. Apophyses anterior and posterior large and weak, blunt at tip. Ductus bursae thin, curved and spiral, long, anterior end gradually widening into corpus bursae. Corpus bursae globular duct, anteriorly egg shaped. Signum ball like and prominently long, covers ductus bursae as well as corpus bursae.

Distribution in India: Arunachal Pradesh (Changlang District); Assam (East Karbi Anglong District); West Bengal (Bankura District, South 24 Parganas District) (Sondhi *et al.*, 2021).

Elsewhere: Sri Lanka, eastern India, Nepal, Bhutan, Thailand, central and eastern China, South Korea, North Korea, Japan, the southern Russian Far East, Taiwan, Philippines (Luzon), Malaysia (Sarawak) and Indonesia (Pittaway and Kitching, 2013).

Larval Host Plants:

Larvae have been recorded on *Paederia scandens*, *Psychotria rubra*, *Paederia foetida* and *Paederia tomentosa* (Website 1); *Paederia foetida* and *Psychotria rubra* (Rubiaceae) in Hong Kong, *Paederia foetida* in India (Bell & Scott, 1937), and on *Paederia foetida* in mainland China and Taiwan. On the latter island it has also been recorded from *Paederia cavaleriei*, *Serissa japonica* [syn. *Serissa serissoides*] and *Sida rhombifolia* (Pittaway and Kitching, 2013); *Paederia foetida* (Rubiaceae), *Impatiens* sp. (Balsaminaceae) (Robinson et al. 2010).

Checklist of Indian species of the genus *Macroglossum* Scopoli, 1777.

1. *Macroglossum aquila* Boisduval 1875
2. *Macroglossum belis* (Linnaeus 1758)
3. *Macroglossum bombylans* Boisduval 1875
4. *Macroglossum corythus* Walker 1856
5. *Macroglossum faro* (Cramer 1780)
6. *Macroglossum heliophila* Boisduval (1875)
7. *Macroglossum insipida* Butler 1875
8. *Macroglossum saga* (Butler 1878)
9. *Macroglossum sitiene* Walker 1856
10. *Macroglossum sylvia* Boisduval (1875)
11. *Macroglossum mitchellii* Boisduval (1875) ssp. *imperator* Butler 1875
12. *Macroglossum passalus* (Drury 1773)
13. *Macroglossum pyrrhosticta* Butler, 1875
14. *Macroglossum variegatum* Rothschild & Jordan 1903

Discussion:

Adults are nectarivorous (Boggs, 1987). Nectar is usually rich in carbohydrates, amino acids, lipids, antioxidants, alkaloids, proteins, vitamins, etc. (Dafni, 1992). Hawk moth species are quite abundant in neotropical forests and pollinate 5-10% of the trees and shrubs (Janzen, 1983; Bawa *et al.*, 1985; Haber & Frankie, 1989). Hampson, 1892 in his book's vol. I, reported 23 species under the genus *Macroglossa*, among which 18 species were mentioned from India except *M. pyrrhosticta*. Later, Bell and Scott, 1937 in vol. V, reported 24 species from India out of 27 species along with *M. pyrrhosticta* (E. Himalaya). Kendrick, 2010, reported 15 species from the India. In most recent data as per Moths of India websites only 13 known species under this genus are found in the different parts of the country (Sondhi *et al.*,

2021). Before, *M. pyrrhosticta* was only known from the Eastern Indian regions like: Arunachal Pradesh, Assam and west Bengal (Bankura district and South 24 Parganas district). These two districts of the state West Bengal are did not cover the land of Gangetic plains. Thus, the present study reports the range extension of the *M. pyrrhosticta* from the state of Uttar Pradesh, Gangetic plains and North-West India in general.

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FIGURES CAPTION:

Plate 1: *M. pyrrhosticta* Butler, 1875. 1. Adult dorsal view, 2. Adult ventral view and 3. Female genitalia.

Map 1. Site of observation for *M. pyrrhosticta* Butler, 1875.