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Status of *Neopithecops zalmora* (Butler) (Lepidoptera: Lycaenidae) from Indian Himalayas with Taxonomic Notes on its Female Genitalia

Charn Kumar**ABSTRACT**

The genus *Neopithecops* Felder and Felder is represented by four species from the world and one species *N. zalmora* (Butler) from India. As per earlier records, it has wide distribution and has been reported as common but during present surveys this species has been recorded only from Assam. In the present studies the female genitalia of *N. zalmora* is studied for the first time.

Keywords: Genitalia, Himalaya, Lycaenidae, *Neopithecops*.

1. Introduction

As per National Biodiversity Action Plan, the estimated insect diversity of India comprises 61151 species, representing 6.90% of the global insect diversity. It includes about 1438 species of butterflies from the British India and out of these, more than 438 species belong to the family Lycaenidae that makes about 30% of this total butterfly diversity^{1, 2, 3, 4}. In the earlier works, as many as, 264 species belonging to the family Lycaenidae have been reported from the Himalaya in India². Our knowledge about the present status, distribution and taxonomic account of the Himalayan Lycaenidae is far from complete. In order to fulfill both these twin goals to habitat exploration and taxonomic updating, during (1995-1998) an ICAR, New Delhi sponsored research project, an effort has been made to explore the Lycaenid diversity dwelling in different parts of the Himalaya. The present study gives an updated taxonomic account of *Neopithecops zalmora* (Butler) besides giving comments on its distribution.

2. Materials and Methods**2.1 Collection and Preservation**

In order to collect the necessary research material, a number of intensive and extensive survey cum collection tours were undertaken in various localities in different subdivisions viz., East or Assam Himalaya, West or Kumaon - Garhwal Himalaya and North-West or Punjab-Kashmir Himalaya of the Himalaya. As such, the surveys were undertaken between an altitude range of 180 m ASL to 4551 m ASL and a variety of habitats such as forest areas, open grasslands, meadows, vegetation along streams and river banks besides cultivated fields have been explored during faunistic surveys. The adults have been collected through random sampling by using butterfly sweeping net (ring circumference 37", pole length 35" and bag depth 31") and were killed using ethyl acetate. Subsequently, the specimen were pinned, stretched and preserved⁵.

2.2 Preparation of Wing Slides, Examination of External Genitalia and Photography

As in other Papilionoidea, the wing venation has been considered to be a viable taxonomic character in the family Lycaenidae too^{1, 2, 6, 7, 8, 9, 10, 11, 12}. For preparation of the slides, the wings on right half of the body were removed, descaled, stained in alcoholic Eosine, dehydrated and mounted on glass slides in Canada Balsam. For dissection and preparation of the genitalia, the method proposed for the microlepidoptera¹³ has been adopted in the present studies. The diagrams of female genitalia have been drawn by using a graph eyepiece fitted in a Zoom Stereo Binocular Microscope. The representative material has been photographed both from the dorsal and the ventral sides, using a Nikon (FM-2) SLR Camera fitted with an 80 mm Zoom Lens.

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3. Observations and Discussion

The genus *Neopithecops* Distant contains four species viz., *zalmora* Butler, *iolanthe* Eliot & Kawazoe, *sumbanus* Eliot & Kawazoe and *umbretta* Grose-Smith^[14] and out of these, the former is available in India^[1, 2, 9, 15, 16]. Though the range of this species has been mentioned to extend from Kumaon to Burma in the Himalaya^[1, 2, 9], yet it could not be collected from Kumaon Himalaya, in spite of intensive and extensive surveys undertaken in the said area. So much so, the males, which generally outnumber the females in distribution, could not be collected from anywhere. As such, the species seems to be rare and restricted in distribution. It could be reported only from Bashistha in Assam.

3.1 Genus *Neopithecops* Distant

Common name: The Quakers

Distant, 1884, Rhop. malayana: 197, 209; de Nicéville, 1890, Butts India Burmah Ceylon 3 : 51; Evans, 1932, Ident. Indian Butts (2nd ed.): 218; Cantlie, 1963, Lyc. Butts Revised: 36; Eliot & Kawazoe, 1983, Butts *Lycaenopsis* group: 40.

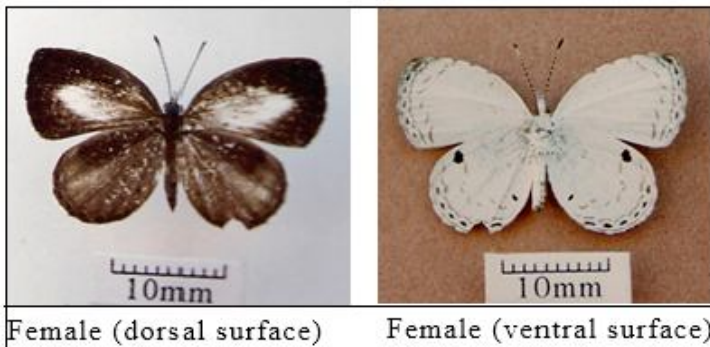
Parapithecops Moore, J. asiat. Soc. Bengal, Pt II 53 (1): 20.

Papua Röber, [1892], in Staudinger & Schaltz, Exot. Schmett. Bd 1 (Th.2) (6): 273.

3.2 Type-species: *Pithecops dharmia* Moore

Moore, [1881], Lep. Ceylon 1 (2): 72.

The taxon represented by the nominal species *Pithecops dharmia* Moore is currently treated subjectively on taxonomic grounds as being the same as that represented by the older established, *Pithecops zalmora* Butler.



Neopithecops zalmora zalmora (Butler)

3.3 Generic diagnosis

Eyes smooth; antenna with a patch of white scales near tip of the club; labial palpi with second segment long, clothed below with white scales; upper surface of wings with no trace of blue scaling, undersurface of forewing without any costal spot near base, undersurface of hindwing with outer spot in space Sc+R1 larger than inner spot, the former prominent, without a spot in cell; forewing with 11 veins, vein Sc and vein R1 free, widely separated; female genitalia with both lamella antevaginalis and postvaginalis triangular, ductus seminalis tubular, attached dorsad near caudal end of ductus bursae, the latter with a well-developed bacillus, inception at corpus bursae not well marked, corpus bursae oblong, a pair of signa present, apophyses anterioris weak, elongated rod-shaped.

3.4 *Neopithecops zalmora* (Butler)

Common name: The Common Quaker

Butler, [1870], cat. diurn. Lep. Fabricius Br. Mus.: 161 (*Pithecops*); Moore, 1882, Proc. zool. Soc. Lond. : 244 (*Pithecops*); de

Nicéville, 1885, J. asiat. Soc. Bengal, 14 Pt. II : 46 (*Neopithecops*); Bingham, 1907, Fauna Brit. Ind., Butts 2 : 309 (*Neopithecops*); Eliot & Kawazoe, 1983, Butts *Lycaenopsis* group : 43 (*Neopithecops*).

3.5 *Neopithecops zalmora zalmora* (Butler)

Butler, [1870], Cat. diurn. Lep. Fabricius Br. Mus.: 161 (*Pithecops*).

nihana Moore, 1878, Proc. zool. Soc. Lond. (3) : 702 (*Pithecops*).

dolona Fruhstorfer, [1919], Arch. Naturgesch. (A) 83 (1): 83 (*Pithecops*).

fedora Fruhstorfer, [1919], Arch. Naturgesch. (A) 83 (1): 83 (*Pithecops*).

colutha Fruhstorfer, [1919], Arch. Naturgesch. (A) 83 (1): 84 (*Pithecops*).

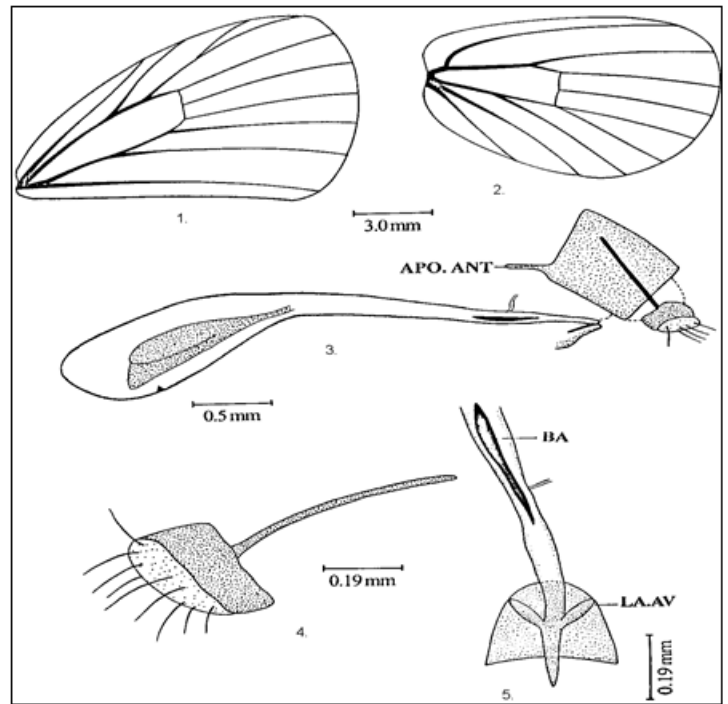


Fig 1: Venation of forewing, 2. Venation of hindwing, 3. Female genitalia (lateral view), 4. Papilla analis, 5. Genital plate

3.6 Female Genitalia

Lodix not developed; genital plate with lamella antevaginalis triangular, moderately sclerotized, lamella postvaginalis membranous; ductus seminalis tubular, attached on dorsal side of ductus bursae in basal region well before ostium bursae; ductus bursae long, slender, membranous, with well-developed bacillus in basal portion, gradually broadens in proximal portion, imperceptibly enters into corpus bursae; corpus bursae oblong, membranous, a pair of small signa present, mated female with single cucumiform spermatophore; apophysis anteriores weakly sclerotized, rod-like, with broader ends; apophyses posteriores thin, long, moderately sclerotized curved rods; papilla analis ovate, proximal portion markedly sclerotized, pilose.

Forewing length; Female: 14 mm.

3.7 Material Examined: Assam: 1 ♀, 15.X.1996, 1 ♀, 16.X.1996, Bashistha, 250 m ASL, Kamrup.

Range: 250m ASL.

3.8 Old Distribution

Kumaon-Burma, Assam, Bengal, Malda, Calcutta, Orissa, South-

Western India, Ceylon (upto 1500 m ASL), Malay Peninsula.

[Lepidoptera: (C) Lycaenidae]. Oriental Insects 1997; 31:83-138.

3.9 Larval food plant

Glycosmis pentaphylla Correa (Rutaceae) (Seitz, 1912-1927).

4. Acknowledgements

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