



*Rec. zool. Surv. India* : 108(Part-3) : 81-84, 2008

**POPULATION STATUS AND MALE GENITALIA OF  
*PATALA YAMA* (MOORE)  
(INSECTA : LEPIDOPTERA : SATYRIDAE)**

NARENDER SHARMA

*Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053*

**INTRODUCTION**

On the basis of sex marks, Bingham (1905) divided the genus *Lethe* Hübner into three groups. Evans (1932) divided *Lethe* group of satyrid butterflies in the Indian region into three subgroups, namely *Minerva*, *Sura* and *Yama*. Talbot (1947) accept this grouping and included six species in the *yama* group i.e., *pulaha* Moore, *pulahina* Evans, *armandii* Oberthiir, *bhadra* Moore, *yama* Moore and *muirheadi* Felder. All these butterflies occur in the hilly habitats and reported from North-West Himalaya and North-East India. Some extend to Burma and beyond. Wynter-Blyth (1957) reported these as rare butterflies.

**OBSERVATIONS**

*Patala yama* (Moore)

Common name : **The Tailed Labyrinth**

1857. *Zophoessa yama* Moore, in *Horsfield & Moore, Cat. Lep. Ins. E. India Co.*, 1 : 221.

*Patala yama yama* (Moore)

1857. *Zophoessa yama yama* Moore, in *Horsfield & Moore, Cat. Lep. Ins. E. India Co.*, 1 : 221.

1911. *Neope yama yamoides* Fruhstorfer, In *Seitz, Gross-schmetterlinge der Erde, Fauna Indo-Austral.*, : 53.

1932. *Lethe yama yama* Evans, *The Identification of Indian Butterflies* : 110.

*Diagnosis* : Upperside velvety chocolate brown; forewing with a post-discal, more or less parallel to outer margin, row of four dark ocelli, bordered on outer side by lunular, ochraceous, faintly marked line, two subapical, white irregular spots, marginal area blackish, underside paler, cell

with a greyish-white band at base and crossed by three greyish-white, irregular bars, subapical white spots as on upperside, post-discal row of four black ocelli with white pupil, yellow iris, lying in the post-discal, ochraceous band, marginal and submarginal black and paler lines; hindwing outer margin dentate, upperside with a post-discal, slightly arched series of six black ocelli, obscurely ringed with brown, submarginal area blackish, underside with proximal area variegated by medially ochraceous bands bordered on both sides by paler lines, post discal row of seven black ocelli with white pupil, with inner ochraceous and outer black iris, the ocellus near the anal angle double, marginal and submarginal black and brown lines.

*Male genitalia* (Figs. 1-4) : Uncus longer than tegumen, almost straight, distal end narrower, proximal half broader; brachia long, slender, dorsally curved, strongly sclerotized; tegumen globular, narrow ventrally; appendices angulares somewhat hook-like, thin, well sclerotized; vinculum longer than tegumen, curved inwardly in the middle, strap-like; saccus moderately long, upwardly lifted; valva sword-like, proximal one-third broader, distal two-third narrow, produced distally into a curved, strongly sclerotized long spine; aedeagus broad, short, slightly curved at middle, subzone smaller than suprazone, coecum conical, ductus ejaculatorius entering dorsad.

*Wing expanse* : Half; Male : 32.0 mm.

*Material examined* : Uttarakhand : 2♂, 27.vi.1994, Bhimtal, Nainital.

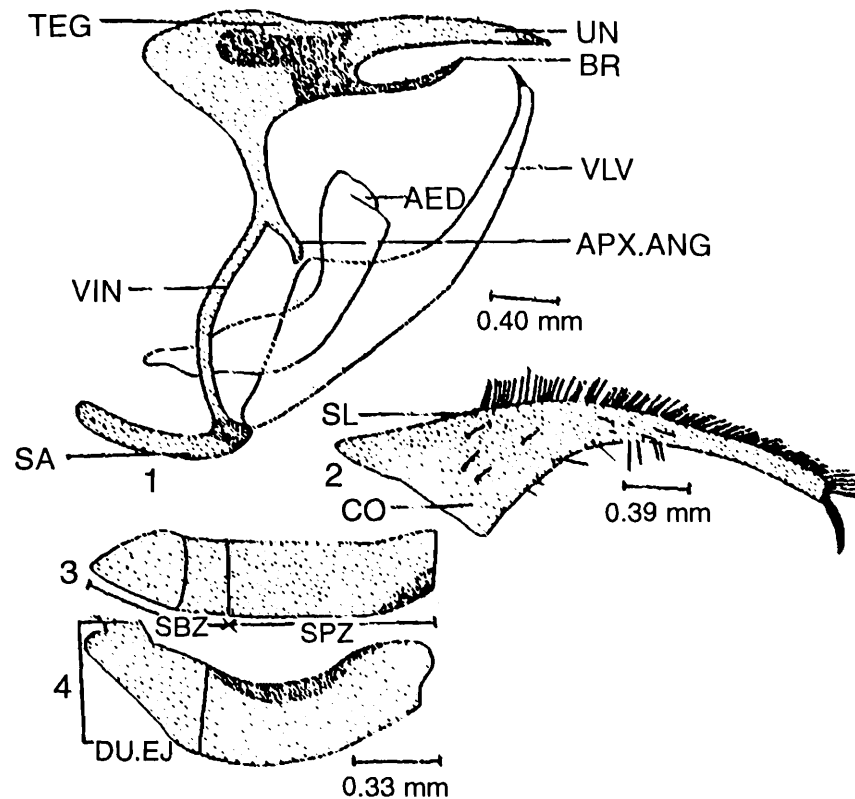
*Distribution* : According to D'Abrera (1985), the present range of *yama yama* is North-West India to Assam and Burma. Talbot (1947) given the distribution from Kullu to Nepal, Sikkim to Assam, Upper Burma (Chin Hills) to the Dawna Range.

Earlier it has been collected sporadically. Marshall & de Niceville (1883) reported it from Khasi hills and Sikkim. Mackinnon & de Niceville (1897) have studied its biology in Mussoorie (Uttarakhand). Hannyngton (1910) recorded the species from Nainital and Binsar at 7000 feet in May and June. Tytler (1911) reported the species from the Naga Hills. Peile (1937) reported the species from Mussoorie. Parsons & Cantille (1948) collected it from Shillong, Mawphlang and Laitlyngkot in the Khasi Hills.

The present author, on 27<sup>th</sup> June, 1994, collected it from Bhimtal, about 13 kms from Nainital in the Kumaon Himalaya.

*Remarks* : Moore (1857) reported *yama* under the genus *Zophoessa* Doubleday but subsequently proposed the generic name *Patala* on the type-species *Zophoessa yama* Moore (Moore, 1892). Somehow or the other, Moore in the same year reported a seasonal form of this species under a different name i.e., *yamoides* under *Patala* Moore which was subsequently synonymised by Bingham (1905) and Talbot (1947).

Further the scanning of the relevant literature reveals that the species, under reference, has been described under many generic names such as *Zophoessa* Doubleday (Marshall & de Niceville, 1883), *Patala* Moore (Watson, 1897), *Lethe* (Bingham, 1905; Evans, 1932; Talbot, 1947; Wynter-Blyth, 1957; Mani, 1986) and *Blanaida* Kirby (de Lesse, 1956) by respective workers. In view of



**Figs. 1-4.** : *Patala yama yama* (Moore) : 1. Male genitalia (lateral view), 2. Valva (inner view), 3. Aedeagus (dorsal view), 4. Aedeagus (Lateral view).

*Abbreviations used in figures are* : AED : Aedeagus, APX.ANG : Appendix angularis, BR : Brachium, CO : Costa, DU.EJ. : Ductus ejaculatorius, SA : Saccus, SBZ : Subzonal portion of aedeagus, SL : Sacculus, SPZ : Suprazonal portion of aedeagus, TEG : Tegumen, Un : Uncus, VIN : Vinculum, VLV : Valva.

the invalidity of the generic name *Blanaida* (Hemming, 1967), Smart (1985) has recognized the validity of the genus *Patala* Moore which was earlier synonymised under *Blanaida* by de Lesse (1956). Accordingly, Varshney (1989, 1994) listed the species under *Patala* Moore and the same arrangement is also currently followed. During the course of present studies, two males of this rare species have been examined and the male genitalia studied in detail. The aedeagus of this type-species has already been figured by de Lesse (1956). Talbot (1947) while giving the wing-venation of this type-species has not drawn the vein h in the hindwing and the needful is, accordingly done here.

It may also be added that the revival of the genus by Smart (1985) is supported by the fact that the male genitalia of the type-species *yama* Moore and *europa* Fabricius of the genera *Patala* Moore and *Lethe* Hübner respectively differ from each other drastically in respect of structures such as the aedeagus, tegumen, uncus and the valvae. This could not be ascertained on the basis of female genitalia which are wanting in both the sexes. In view of the study of the male genitalia, the diagnosis of *Patala* is updated,

The species is represented as *Patala yama yama* (Moore) in the North-West India whose range extends to Assam to Burma (Varshney, 1989, 1994).

## ACKNOWLEDGEMENTS

The authors are grateful to Director, Zoological Survey of India, Kolkata and Dr. A.K. Hazra, Head, Division of Entomology A & B, Zoological Survey of India, Kolkata for providing facilities and encouragement.

## REFERENCES

- D'Abrera, B. 1985. *Butterflies of the Oriental Region*, II : 534 pp.
- Bingham, C.T. 1905. *The Fauna of British India including Ceylon and Burma, Butterflies*, 1. London : Tayler & Francis : 1-511, Pls. 1-10.
- De Lesse, H. 1956. Revision de 1 ancient genere Satyrus s.l.. *Annals Soc. Ent. Fr.*, **120** : 7-101.
- Evans, W.H. 1932. *The Identification of Indian Butterflies*, 2<sup>nd</sup> ed. Bombay Natural History Society, Bombay : x + 454 pp., 32 pls., 9 figs.
- Hannington, F. 1910. The Butterflies of Kumaon. *J. Bombay nat. Hist. Soc.*, **20**(1) : 130-142; (2) : 361-372.
- Hemming, A.F. 1967. The generic names of the Butterflies and their Type-species (Lepidoptera : Rhopalocera). *Bull. Br. Mus. Nat. Hist. (Ent.) Suppl.*, **9** : 509 pp.
- Smart, P. 1985. The illustrated encyclopedia of the Butterfly world. Salamander books Ltd., England : 275 pp.
- Mackinnon, P.W. and L. de Niceville, 1897. A list of butterflies of Mussoorie. *J. Bombay nat. Hist. Soc.*, **11** : 205-221.
- Mani, M.S. 1986. *Butterflies of the Himalaya*. Oxford & IBH Publ. Co. New Delhi : X + 181, 25 pls., 34 figs.
- Marshall, G.F.L. and L. De Niceville, 1883. *The butterflies of India, Burmah and Ceylon*, Vol. 1. Reprinted by A.J. Reprints Agency, New Delhi : 327 pp.
- Moore, F. 1857. In Horsfield & Moore, *Cat. Lep. Ins. E. India Co.*, **1** : 221
- Moore, F. 1892. Lepidoptera Indica. *L. Reeve London*, **2** : 1-96.
- Parsons, R.E. and Cantlie, K. 1948. The Butterflies of the Khasia and Jaintia hills, Assam. *J. Bombay nat. Hist. Soc.*, **47**(3) : 498-522.
- Peile, H.D. 1937. A guide to collecting Butterflies of India. Staples Press, London : 523 pp., 72 pls.
- Talbot, G. 1947. *The Fauna of British India including Ceylon and Burma. Butterflies volume-2*. Taylor and Francis, London : 506pp.
- Tytler, H.C. 1911. Notes on butterflies from the Naga hills-Part 1. *J. Bombay nat. Hist. Soc.*, **21** : 48-65.
- Varshney, R.K. 1989. On *Patala yama* (Moore), A rare butterfly (Lepidoptera : Satyridae). *Hexapoda*, **1** : 3-6.
- Varshney, R.K. 1994. Index Rhopalocera Indica. Part III. Genera of Butterflies from India and neighbouring countries [ Lepidoptera : (B) Satyridae, Nymphalidae, Libytheidae and riodinidae]. *Oriental insects*, **28** : 151-198.
- Watson, E.Y. 1897. Notes on a collection of butterflies from the North Chin Hills and Upper Chindwin District, Burma. *J. Bombay nat. Hist. Soc.*, **10** : 634-687.
- Wynter-Blyth, M.A. 1957. *Butterflies of the Indian region*. *Bombay nat. Hist. Soc.*, 1957 : xx+523, 72 pls.