

Rec. zool. Surv. India : 111(Part-1) : 79-83, 2011

## NEW SPECIES OF THE GENUS *YPTHIMA* HÜBNER (LEPIDOPTERA : PAPILIONOIDE : SATYRIDAE) FROM NORTH-WEST INDIA

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### INTRODUCTION

The genus *Ypthima* Hübner is represented by about 100 species distributed in the Palaetropical and East Palaearctic regions. Identification of certain species and population complexes is, in fact, an intricate problem. Consultation of relevant literature (vide Marshall & de Niveville, 1883; Moore, 1890, 1892; Elwes & Edwards, 1893; Evans, 1932; Talbot, 1947; Shirozu & Shima, 1979) has critically been made. Shirozu & Shima (*loc.cit.*) dealt with seventy three described species from Asia, South Pacific Islands and Australia. They have studied the male genitalia of as many as fifty-three species. In view of the presently collected material represented by fourteen examples are referable to *Hübneri* group of the genus *Ypthima* Hübner. Shirozu & Shima (*loc.cit.*) included three species under *Hübneri* group *i.e.*, *Ypthima hübneri* Kirby, *Y. ceylonica* Hewitson and *Y. kasmira* Moore. Evans (*loc.cit.*) distinguished four groups among the Indian species of this genus. His grouping was mainly based on the wing markings of the hindwing underside. In his book of the Indian butterflies Talbot (*loc.cit.*) followed mainly Evans in the grouping of the Indian *Ypthima* Hübner. This article deals with the description of a new species, *viz.*, *Ypthima rosei* sp. nov. from Terai region of Uttar Pradesh. Type specimens are deposited in the Lepidoptera Section, Zoological Survey of India, Kolkata.

### SYSTEMATIC ACCOUNT

Genus *Ypthima* Hübner

*Common name* : The Rings.

1818. *Ypthima* Hübner, *Zutr.z. samml.exot. Schmetz.*, **1** ; 17.

*Type-species* : *Ypthima hübneri* Kirby.

*Ypthima rosei* sp. nov.

*Adult (Male)* : Head with frontoclypeal area clothed with brown and white scales and hair; eyes light brown,

medium-sized and glabrous; labial palpi upwardly directed, three segmented, middle segment long, distal segment acuminate, closely appressed with black and white scales and hair; antenna 7.0 mm, club slender, brown, nudum extends from the base of the club to the base of the flagellum, the latter brown; thorax dressed with fuscous hair and scales dorsally and brown hair and scales ventrally; foreleg strongly reduced, femur longer than tibia, densely fringed with brown scales and hair, meso and meta legs white scaled, femur longer than tibia, tarsus five segmented and clawed; upperside dark brown; forewing upperside with subapical black, bipupilled, ringed with diffuse yellow, rounded or slightly oblique ocellus, discal and marginal fasciae indistinct, brand obscure, underside with grayish-white striations, not very densely covered with short brown striae, subapical ocellus as on upperside but the yellow ring more prominent and broader, a small black, yellow ringed ocellus contiguous with subapical ocellus may present below in Cu1a, marginal and discal fasciae form a loop under the subapical ocellus, another fascia extends between the dorsum and subapical ocellus; upperside hindwing with two black, single pupilled, weakly ring with diffuse yellow, ocelli in  $M_3$  and Cu 1a, yellow ring may absent, sometimes a small additional ocellus may present in Cu1b, fasciae obscure, underside striations as on forewing underside, fasciae indistinct, single pupilled, black, yellow ringed four ocelli in  $R_s$ ,  $M_3$ , Cu1a, Cu1b, ocellus in  $R_s$  may have one black dot above and one black dot below, ocelli in  $M_3$ , Cu1a, Cu1b may be contiguous or spaced.

Androconia broad and notched at base, sharply tapering beyond middle towards apex.

*Venation* (Figs. 9-10) : Forewing cell less than half the length of the wing,  $R_1$  arising beyond upper angle of cell,  $M_3$  arched, mdc slightly incurved; hindwing cell

more than half the length of the wing, Cu1a before lower angle of the cell, humeral vein (h) (precostal) vein T-shaped.

Abdomen dorsally dark brown and fringed with fuscous scales; ventrally clad with brown scales.

*Adult (Female)* : Foreleg well developed; forewing upperside with subapical ocellus comparatively larger; otherwise as in male.

*Male genitalia* (Figs. 1-7) : Uncus shorter than tegumen, nearly straight, distal end pointed and weakly curved ventrally, sparsely setosed dorsally; tegumen in dorsal view notched anteriorly, broad basally and narrowed posteriorly; fenestrula oblong; appendices angulares small, blunt distally; vinculum smaller than tegumen, inwardly curved; saccus moderately long, tubular, narrower anteriorly; valva broad basally, strongly narrowed beyond basal half, pilose, costa with flap-like costal process, apex serrate latero-distally, juxta more or less V-shaped; aedeagus long, more or less straight, narrow at both the ends in lateral view; subzone smaller than suprazone; ductus entering dorsad.

*Female genitalia* (Fig. 8) : Copulatory cavity anteriorly broad and weakly sclerotized; lamella antevaginalis narrow, shorter, weakly bifurcated at apex, lateral lobes of lamella antevaginalis weakly developed, membranous, below on either side of the lamella antevaginalis present more or less oval, moderately sclerotized plates; lamella postvaginalis narrower anteriorly and broader distally, distal end more or less circular; apophysis anterioris wanting, apophysis posterioris reduced and membranous; Papilla analis elongated and pilose; ductus seminalis attaching ductus bursae near ostium bursae; ductus bursae moderately long, transparent; corpus bursae ellipsoidal, weakly sclerotized, signum wanting.

Length of forewing : Male : 15-18 mm. Female : 18.0 mm.

*Material Examined* : Holotype : ♂, India : Uttar Pradesh, Balrampur, Koyalawas, 8.x.2006 (Registration no. : 22899/H9), Coll. N. Sharma.

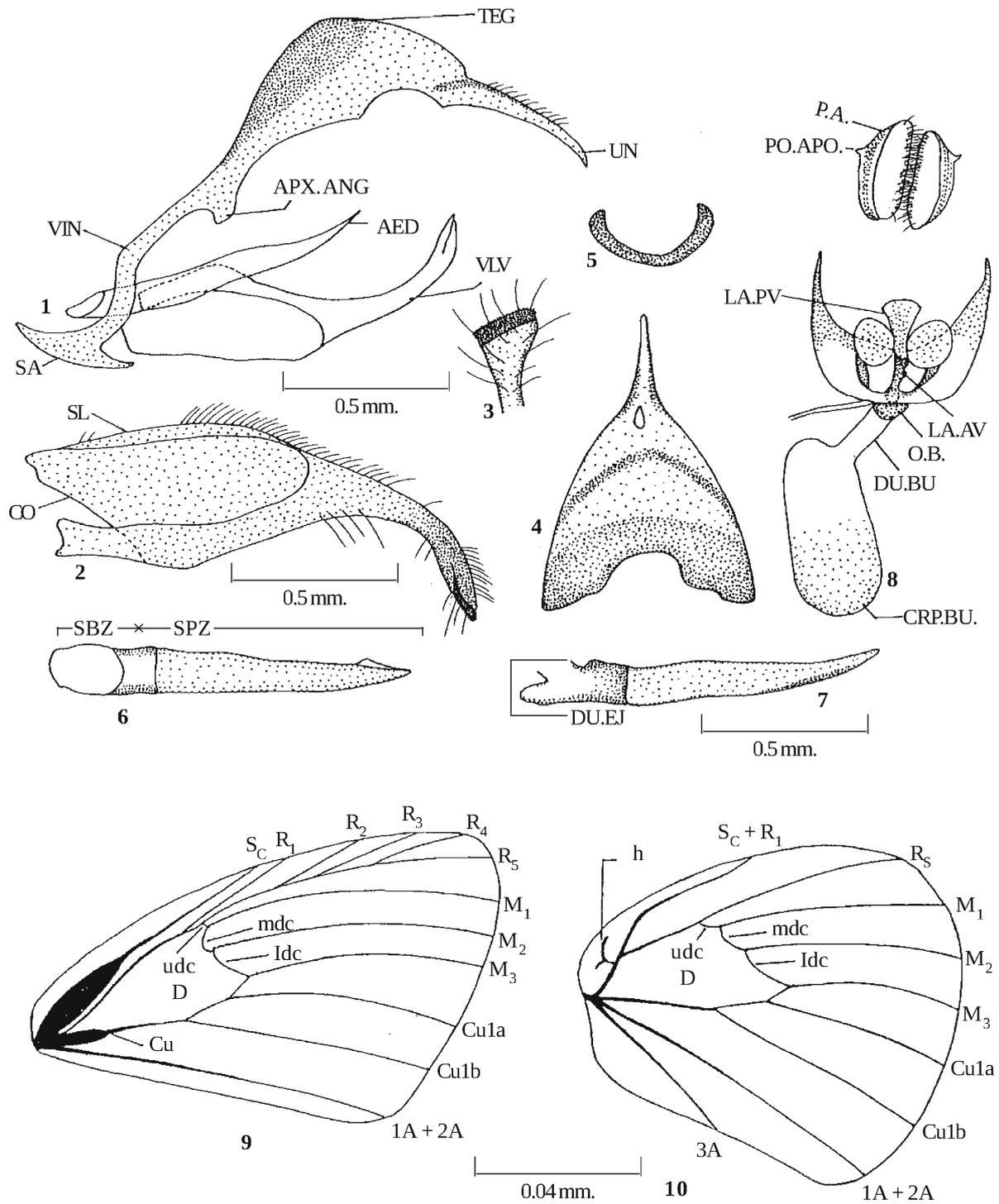
Paratypes : Uttar Pradesh, Balrampur, Koyalawas, 2 ♂, 1 ♀, 8.x.2006 (Registration no. : 22900/H9 to 22902/H9), Coll. N. Sharma ; Uttar Pradesh, Balrampur, Jarva, 2 ♂, 7.x.2006 (Registration no. : 22903/H9, 22904/H9), Coll. N. Sharma; Uttar Pradesh, Pilibhit, Mahof Forest, 3 ♂, 26.ix.2006 (Registration no. : 22905/H9 to 22907/H9), Coll. N. Sharma; Uttar Pradesh, Dudhwa, Railway Station Dudhwa National Park, 5 ♂, 2.x.2006 (Registration no. : 22908/H9, 22912/H9), Coll. N. Sharma.

*Etymology* : The species is named in honour of Dr. H.S. Rose, Ex. Prof & Head, Department of Zoology, Punjabi University, Patiala, Punjab, India, for his contributions in the field of Systematics of Lepidoptera.

*Remarks* : Elwes & Edwards (1893) pointed out that owing to a lot of variations, different species of the genus *Ypthima* Hübner were difficult to identify/separate and the genus, as such, having been remained for many years a stumbling block to the Lepidopterists. Eliot (1992) has also recommended that the males admit of ready identification from the characteristic forms of their genitalia. During the course of present studies, fourteen examples have been identified to belong to *Hübneri* group (Shirozu & Shima, 1979). In respect of characters such as, the uncus, tegumen, aedeagus and the valva in the male genitalia and the corpus bursae, ductus bursae and genital plate in the female genitalia, the present species differ from the other species of the group (Shirozu & Shima, 1977, 1979).

Two male specimens (one collected from Dudhwa Railway Station, Dudhwa National Park and other from Mahof Forest, Pilibhit) have an additional ocellus on upperside of hindwing in Cu1b. Similarly, a minute, black, yellow ringed ocellus present below and contiguous with subapical ocellus on the underside of the forewing in specimen collected from Koyalawas. One male specimen collected from Dudhwa Railway Station, Dudhwa National Park have on the underside hindwing an additional black dot below ocellus in Rs, while the other male specimen collected from the same locality, on the same date have two additional black dots, one above and one below of the ocellus present in Rs. However, all these individuals found to be conspecific on the basis of genital structures. In fact, these individuals hitherto represent an undescribed species which is accordingly named as *Ypthima rosei* sp. nov. The new species is closely allied to *Ypthima kasmira* Moore from which it differs in respect of following characters :

(i) Fasciae on the underside of the forewing are prominent in *Ypthima rosei*, whereas, in *Y. kasmira* fasciae are indistinct (ii) Uncus in male genitalia weakly curved ventrally in *Ypthima rosei*, while, in *Y. kasmira* uncus is more or less straight (iii) Appendix angularis in male genitalia blunt at distal end in *Ypthima rosei*, whereas, in *Y. kasmira* it is rounded (iv) Apex of valva in male genitalia densely sclerotized in *Ypthima rosei*, while, in *Y. kasmira* it is less sclerotized (v) In male genitalia, aedeagus in lateral view weakly curved dorsally in the posterior half in *Ypthima rosei*, whereas,



**Figs. 1-10.** *Ypthima rosei* sp.nov. : 1. Male genitalia (lateral view) 2. Valva (Inner view) 3. Apex of valva 4. Dorsum 5. Juxta (Dorsal view) 6. Aedeagus (Lateral view) 7. Aedeagus (dorsal view) 8. Female genitalia (ventral view) 9. Venation of forewing 10. Venation of hindwing.

**PLATE 1**  
*Ypthima rosei* sp.nov.



1. Holotype ♂ (Dorsal side)



2. Holotype ♂ (Ventral side)



3. Paratype ♂ (Dorsal side)



4. Paratype ♀ (Ventral side)

in *Y. kasmira* it is more or less straight (vi) Lamella antevaginalis of female genitalia short, weakly bifurcated posteriorly in *Ypthima rosei*, while, in *Y. kasmira* it is long, narrow and bifurcated posteriorly.

#### ABBREVIATIONS USED

1A + 2A : Fused first and second anal veins, 3A : Third anal vein, AED : Aedeagus, APX.ANG. : Appendix angularis, CO : Costa, CRP.BU. : Corpus bursae, Cu1a : Upper branch of first cubital, Cu 1b : Lower branch of first cubital, D : Discal cell, DU.BU. : Ductus bursae, DU.EJ. : Ductus Ejaculatorius, DU.SEM. : Ductus seminalis, h : Humeral vein, LA.AV. : Lamella antevaginalis, LA.PV. : Lamella postvaginalis, ldc : Lower discocellular, M<sub>1</sub> : First medial vein, M<sub>2</sub> : Second medial vein, M<sub>3</sub> : Third medial vein, mdc : Middle discocellular, O.B. : Ostium bursae, P.A. : Papilla analis, PO.APO : Apophysis posterioris, R<sub>1</sub> : First radial vein, R<sub>2</sub> : Second radial vein, R<sub>3</sub> : Third radial vein, R<sub>4</sub> : Fourth radial vein, R<sub>5</sub> : Fifth radial vein, Rs : Radial sector, SA : Saccus,

SBZ : Subzonal portion of aedeagus, Sc : Subcosta, Sc+ R<sub>1</sub> : Stalk of veins Sc and R<sub>1</sub>, SL : Sacculus, SPZ : Suprazonal portion of aedeagus, TEG : Tegumen, udc : Upper discocellular, UN : Uncus, VIN : Vinculum, VLV : valva.

#### SUMMARY

A new species of the genus *Ypthima* Hübner (Lepidoptera : Papilionoidea : Satyridae) from North-West India is described and illustrated in this paper.

#### ACKNOWLEDGEMENTS

Author is thankful to Dr. Ramakrishna, Director, Zoological Survey of India, Kolkata and Dr. T.K. Pal, Officer Incharge, Entomology Division 'A' and Field Survey Division, ZSI for all sorts of facilities in connection with this survey. My sincere thanks are also to different government officials of Forest Department of Uttar Pradesh for helping me during survey.

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