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REDESCRIPTION OF *AMERILA ASTREUS* (DRURY) (LEPIDOPTERA:ARCTIIDAE: ARCTIINAE) FROM PAKISTAN

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ABSTRACT

Amerila astreus (Drury) is recorded from Pakistan and described in detail with special reference to its head appendages, venation of fore and hind wings and male and female genitalia. The systematic position and life cycle are also briefly discussed.

Key Words: *Amerila astreus* (Drury). Arctiidae, Arctiinae, genitalia, Pakistan.

INTRODUCTION

Drury (1773) described *Amerila astreus* as *Sphinx astreus* under the family Bombycidae. Hubner (1818) redescribed *Amerila* as *Rhodogastria* under the family of Bombycidae. Moore (1882) redescribed genus *Amerila* as *Rhodogastria* and its two species under the family Arctiidae. Cotes and Swinhoe (1887) have listed genus *Amerila* under the family Arctiidae. Hampson (1894) has redescribed *Amerila astreus* as *Pelochyta.* Hubner recorded it from India. Watson *et al.* (1980) listed *Amerila* under the subfamily Arctiinae of family Arctiidae. Chaudhry *et al.* (1966) have listed *Ameriala astreus* recorded from Pakistan in the trunks of Walnut at Peshawar and Azad Kashmir. Skaife (1979) has identified *Amerila astreus* from South Africa. Helgard (1991) has listed and illustrated *Amerila astreus* recorded from Britain and Ireland. Hashmi and Tashfeen (1992) have listed genus *Amerila* under the family Arctiidae. Goodger and Watson (1995) redescribed *Amerila astreus* in detail under the subfamily Arctiinae of family Arctiidae recorded from India. Young (1997) stated that the larva of *A. astreus* feed in a tree trunk.

MATERIALS AND METHODS

The adult specimens of *Amerila astreus* (Drury) were collected with the help of light trap from Donga Gali and Ayubia, Pakistan and were identified with the help of available literature as mentioned in references. For the study of genital complex the abdomen was excised at the base and boiled in 10% KOH solution for about 5-minutes and then washed with tap water. The genitalia were removed from the abdomen for detail examination and later individual elements of the genitalia and the associated structures were removed as required and examined. Dissection were made using dissection microscope and drawings were made on graph paper, which were later transferred on drawing sheet and finalized with pelican ink. All the diagrams are to the given scale.

RESULT Genus : *Amerila* Walker

Amerila Walker, 1855, *Catal. Lep. Het. B. M. 3*: 725; Watson *et al.*, 1980, *Brit. Mus. (Nat. Hist.) 2*: 8; Goodger and Watson, 1995, *Nat. Hist. Mus.* : 4.
Pelochyta, Hubner 1818, *Verz.* : 171; Hampson, 1894, *Faun. Brit. Ind. 2* :38.
Rhodogastria, Hubner, 1818, Verz. Bek. Schmelt.: 172; Moore, 1882-83, Lep. Ceyl. 2: 76; Cotes and Swinhoe, 1887, Cat. Moths. Ind. Bombyces, 1:120; Watson et al., 1980, Brit. Mus. (Nat. Hist.) 2: 170; Goodger and Watson 1995, Nat. Hist. Mus. :16.

Diagnostic Features

Fore wings very large and hind wings about ½ the length of fore wings, in males antennae filliform, fore tibial spines absent, in male theccal appendage very large finger-like, in female ductus bursae highly convoluted.

Comparative Note

This genus is most closely related to *Utetheisa* Hubner in having fore wings with various coloured patches creating design, hind wings with veins Rs and M1 anastomosing and originate from upper angle of cell, but it can

easily be separated from the same in having fore wings very large and hind wings about ½ the length of fore wings, in females ductus bursae highly convoluted incontrast fore wings and moderate and hind wings more than ½ the length of fore wings in females ductus bursae twisted or straight in *Utetheisa* and by the other characters as noted in the key and description.

Type species : *Sphinx astreus* Drury, 1773.
Distribution : Ethiopean and Oriental regions.

***Amerila astreus* (Drury)**
(Figs. 01-08)

Amerila astreus, Watson *et al.* 1980, *Brit. Mus. (Nat. Hist.) 2*: 8; Goodger and Watson, 1995, *Nat. Hist. Mus.* : 4.
Sphinx astreus Drury, 1773, *Illust. Nat. Hist. Exot. Insects 2*: 49.

Colouration

Head, thorax and abdomen (Fig. 01) crimson except one black spot on frons, one on posterior margin, two spots on anterior margin, two lunar-shaped spot on middle, four spots on posterior margin of pronotum, one spot on colar, abdomen with five median patches on dorsum, venter fuscous with median and lateral black spots.

Head:

Eyes (Fig. 2) moderate sized, frons broadly convex, maxillary palpi very long, passing much beyond frons, second segment about 2X the length of third, proboscis short and coiled.

Fore wings:

Fore wings (Fig. 3) elongated, apex sub-acutely produced, anterior margin convex, outer margin oblique, slightly sinuated, white except brown narrow costal, and anal margin, apical area and vertical band at apex of cell, veins R_3 and R_4 largely stalked originate from upper angle of cell, R_5 originates just below and near upper angle of cell, R1 and R2 moderately stalked originate from radius vein, M1 and M2 anastomosing and originate from lower angle of cell, only one anal vein (1A) is present.

Hind wings:

Hind wings (Fig. 4) broad, somewhat oblongate, anterior margin convex, apex narrowly rounded, outer margins obliquely sinuated, white except light brown costal, apical and anal margins, veins Rs and M1 anastomosing and originate from upper angle of cell, M2 originates above lower angle of cell, M3 and Cu1 anastomosing and originate from lower angle of cell, three anal veins (1A to 3A) are present.

Body size: Body size is 70-72 mm with wings expansion (Fig.1).

Male genitalia:

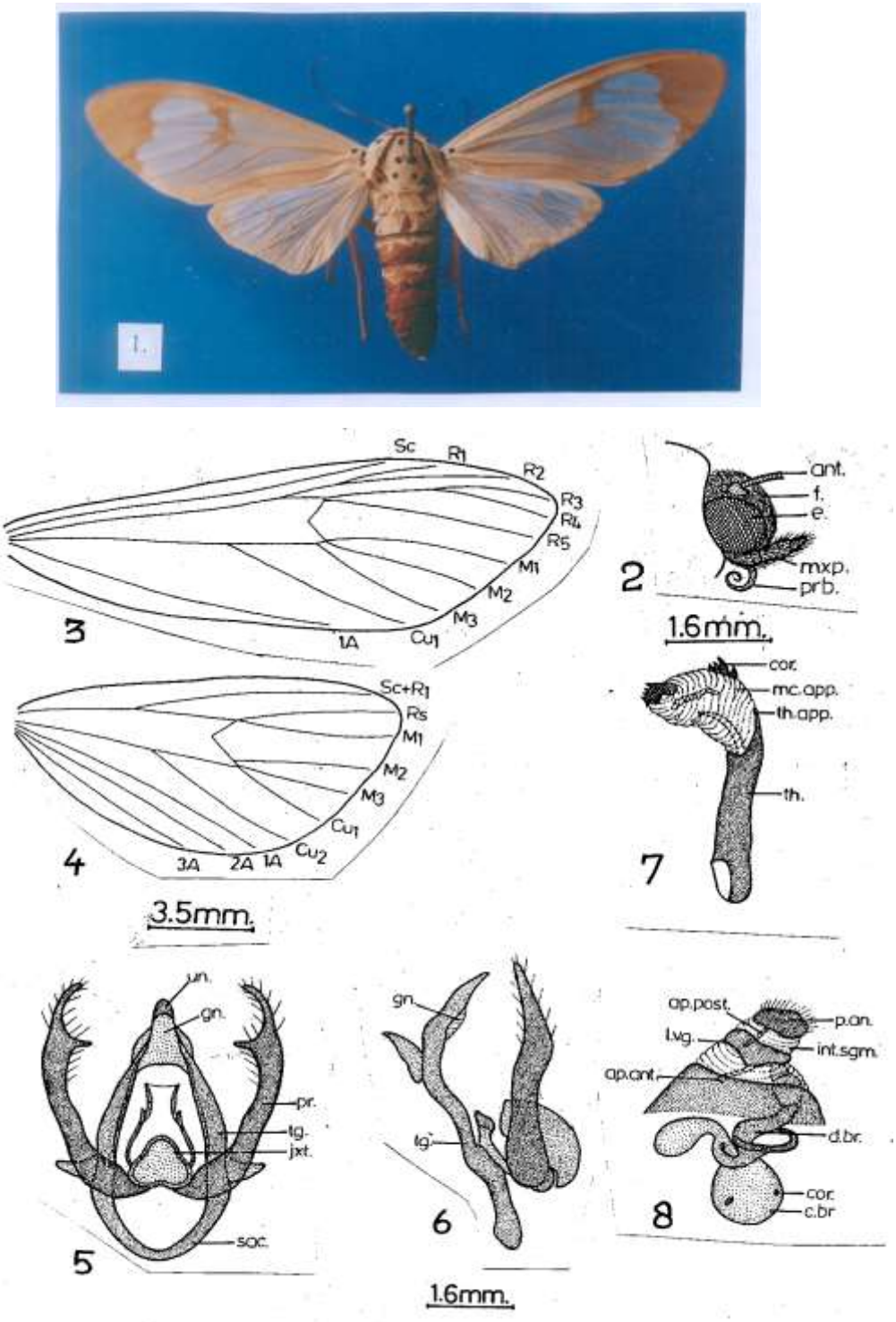
Tegumen (Figs. 05 and 06) broad, somewhat oblongate sclerotized, saccus semicircular with sub-rounded base without process, uncus large, dorsal and inner margin distinctly sinuated, dorsal lobe at base of uncus acutely produced, gnathos reduced, juxta large bilobed, basal lobe somewhat triangular, proximal lobe truncated, paramere large, hand-shaped, lobe at base, aedeagus (Fig. 07) with theca moderate, tubular, with finger-like thecal appendage, membranous conjunctiva large, one-lobed, with three large dentated cornuti, median cornuti large dentations arrange in serial manner.

Female genitalia:

Papillae anales (Fig. 08) large, somewhat rectangular shaped, with posterior margin distinctly sinuated, apophysis posteriors moderate, apically blunt, shorter than apophysis anteriors, later with truncated apex, lobus vaginalis somewhat rectangular shaped, ductus bursae moderate, twisted, corpus bursae bilobed, anterior lobe large with two small oval shaped cornuti.

Material examined:

Four males and seven females, Pakistan: Ghora gali, Murree, 2.8.2002 and 6.7.2003, Syed Viqar Ali and Aliza Ali, on light trap, lodged at National Insect Museum, Rawalpindi and authors collection.



Figs.1-8. *Amerila astreus* (Drury)., 1. Adult, entire dorsal view; 2. head, lateral view; 3. fore wing, dorsal view; 4. hind wing, dorsal view; 5. tegumen, ventral view, 6.same, lateral view, 7.aedeagus, lateral view, 8.female genitalia.

Key to the letterings

ant. (antenna), e. (eye), fr. (frons), gn. (gnathos), jxt. (juxta), mcl.(membranous conjuctival appendage), mx.p. (maxillary palpi), pr.(paramere), sac.(saccus), tg. (tegumen), th. (theca), th vein), Sc.(sub-costal vein), Sc+R1(sub-costal and radius vein 1)..app. (thecal appendage), un.(uncus), 1A - 3A. (anal vein 1, 2 and 3), Cu1 & Cu2 (cubital vein 1 and 2), M1-M3 (median vein 1 to 3), R1-R5 (radius vein 1 to 5), Rs.(radio-suctorial

Life cycle:

There are six larval instars, and the total larval period usually lasts 16-21 days, but as long as forty-six days at 17°C. Moulting normally takes place on the upper surface of leaves during daylight hours. Egg lays starts about four days after emergence and may continue for a further ten days.

DISCUSSION

The representatives of the genus *Amerila* Walker are distributed in Ethiopian and Oriental regions and closely related to *Utetheisa* Hubner in having fore wings with various coloured patches creating design, hind wings with veins Rs and M1 anastomosing and originate from upper angle of cell, but it can easily be separated from the same in having fore wings very large and hind wings about ½ the length of fore wings, in females ductus bursae highly convoluted in contrast fore wings are moderate and hind wings more than ½ the length of fore wings, in females ductus bursae twisted or straight in *Utetheisa* and by the other characters as noted in the key and description. This species is the only species recorded from Pakistan and have its apomorphies like, maxillary palpi very long passing much beyond frons, second segment about 2X the length of 3rd, fore wings with veins R3 and R4 largely stalked, uncus with dorsal and inner margin distinctly sinuated, and corpus bursae bilobed, anterior lobe large with two small oval shaped cornuti.

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