

REDESCRIPTION OF *ASOTA CARICAE* (F.) (LEPIDOPTERA : ARCTIIDAE) FROM NORTHERN AREAS OF PAKISTAN

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ABSTRACT

Asota caricae (F.), is recorded from Ghora-gali, Pakistan and described in detail with special reference to its head appendages, venation of fore and hind wings and female genitalia.

Key Words : *Asota caricae* (F.). Arctiidae, redescription, genitalia, Pakistan.

INTRODUCTION

Hubner (1816) listed *Asota caricae* as *Damalis caricae* and placed it under Noctodia group. Walker (1854) listed and illustrated *Asota caricae* as *Hypsa caricae*. Moore (1882) redescrbed genus *Asota* and its two species under the family Arctiidae. Cotes and Swinhoe (1888) listed genus *Asota* and its five species along with *A. caricae* under the family Arctiidae. Hampson (1892) redescrbed genus *Asota* along with three species including *A. caricae* under the family Arctiidae and explained only morphology and wing venations of said species recorded from Dharamshala and Nagas. Chaudhry *et. al.* (1966) listed two species of *Asota* recorded from Bangladesh, Peshawar and Azad Kashmir. Watson (1980) listed genus *Asota* with its type species *Phalaena javana* Cramer recorded from Australia and placed the same species under the subfamily Aganiinae of family Arctiidae. Helgard (1991) has been listed and illustrated *Asota caricae* recorded from Britain and Ireland. Hashmi and Tashfeen (1992) listed species *caricae* of genus *Asota* under the family Arctiidae. Young (1997) stated that the larva of *Asota caricae* feed in a tree trunk. Edward, *et. al.* (1999) redescrbed genus *Asota* under the family Arctiidae. Picker *et. al.* (2002) redescrbed genus *Asota* under family Arctiidae. Carter (2003) illustrated only one species *Asota caricae* under the family Arctiidae. Kamaluddin *et.al.* (2007) gave a check list of Heterocera of Pakistan and listed *Asota caricae* and kept this species in family Arctiidae.

MATERIALS AND METHODS

The adult specimens of *Asota caricae* (F.) were collected with the help of light trap from Donga Gali, Pakistan and were identified with the help of available literature as mentioned in references. For the study of sex 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. For dissection ocular grid leitz weitzler dissection microscope was used 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: *Asota* Hubner 1819

Asota Hubner, (1819) 1816, *Verz. Bekannter Schmett*: 164; Watson *et al.*, 1980, *Brit. Mus. Nat. Hist.* 2 : 19.

Damalis, Hubner, 1819, *Verz. Bek. Schmett*:172; Moore, 1882, *Lep. Ceylon.* 2:52: Cotes and Swinhoe, 1887 *Cat. Moths Ind. Bombyces* 1: 89.

Psephea Billberg, 1820, *Enumeraho Insect. Mus. G.I. Billberg*:86.

Diagnostic features:

Body stout and cylinder, eyes large, palpi very large, porect, hind wings large and broad, fore wings with an oval cell at base of radius veins, veins R3 and R4 largely stalked, M3 originates from lower angle of cell, hind wings

with vein M1 originates from upper angle of cell, M3 originates from lower angle of cell, three anal veins present in both wings.

Comparative note:

This genus is most closely related to *Agape* Felder in having third maxillary segment longer than 2nd segment, apophysis posteriors much longer than anteriors, but it can easily be separated from the same in having third maxillary palpi slightly longer than 2nd segment, fore wings with only one anal vein, ductus bursae very long, narrowed, corpus bursae short, balloon-shaped in *Agape* and by the other characters as noted in the key and description.

Type species: *Phalaena javana* (Cramer), 1780

Distribution: Oriental region.

Asota caricae (F.)

(Figs.1-5)

Asota caricae Biosduval, 1836, *sp. Gen. Lep.*

Savastopolo, 1938, *J. Bomb. Nat. Hist. Soc.* 11:402; Gardner, 1941, *Indian Forest Records.* 6: 225

Phalaena alciphron, Cramer, 1777, *Pap. Exot.* 2: pl. 133.

Noctua caricae F. 1775, *Syst. Ent:* 596; 1794, *Ent. Syst.*3: 63.

Hipocrita caricae Hubner, 1816, *Samml. Exot.Schmett.* 1;

Damalis caricae Hubner, 1816, *Verz. Bek. Schmett.* :172;

Hypsa caricae Walker 1854, *Cat. Lep. Net. B. M.* 2 : 454, 1856; *loc. cit.* 7: 1675; Snellen, 1877, *Tijd. Ent.* 20: 6.

Hypsa alciphron, Moore, 1859, *Cat. Lep. Mus. E. I. C. Z:* 292.

Damalis alciphron, Moore, 1877, *Proc. Zool. Soc. Lond.* :598; 1878, :847; 1882, *Lep Ceyl.* 2: 52; Swinhoe, 1885, *Proc. Zool. Soc. Lond.* : 292; Cotes and Swinhoe, 1887, *Cat. Moths. Ind. Bombyces* 1: 89.

Colouration:

Body yellow, palpi except apical margin of basal and 2nd segment and entire 3rd segment with abdomen with a series of median distal black patches on basal margin of each segments.

Head:

Eyes (Fig.2) large, frons roundly convex, proboscis moderate sized and coiled, maxillary palpi very large, basal segment short, less than ½ the length of 2nd, 3rd segment very large about 2X the length of 2nd segment.

Fore wings:

Fore wings (Fig.3) broad, apical angle sub-rounded, buffy brown except three basal small black spots and a median white patch, vein Sc parallel to R1, R2 and R3 largely stalked and originate from upper angle of cell, M3 originates from lower angle of cell, Cu1 and Cu2 parallel to each other, three anal veins (1A and 3A) are present, at the base of radius veins an oblong cell is present.

Hind wings:

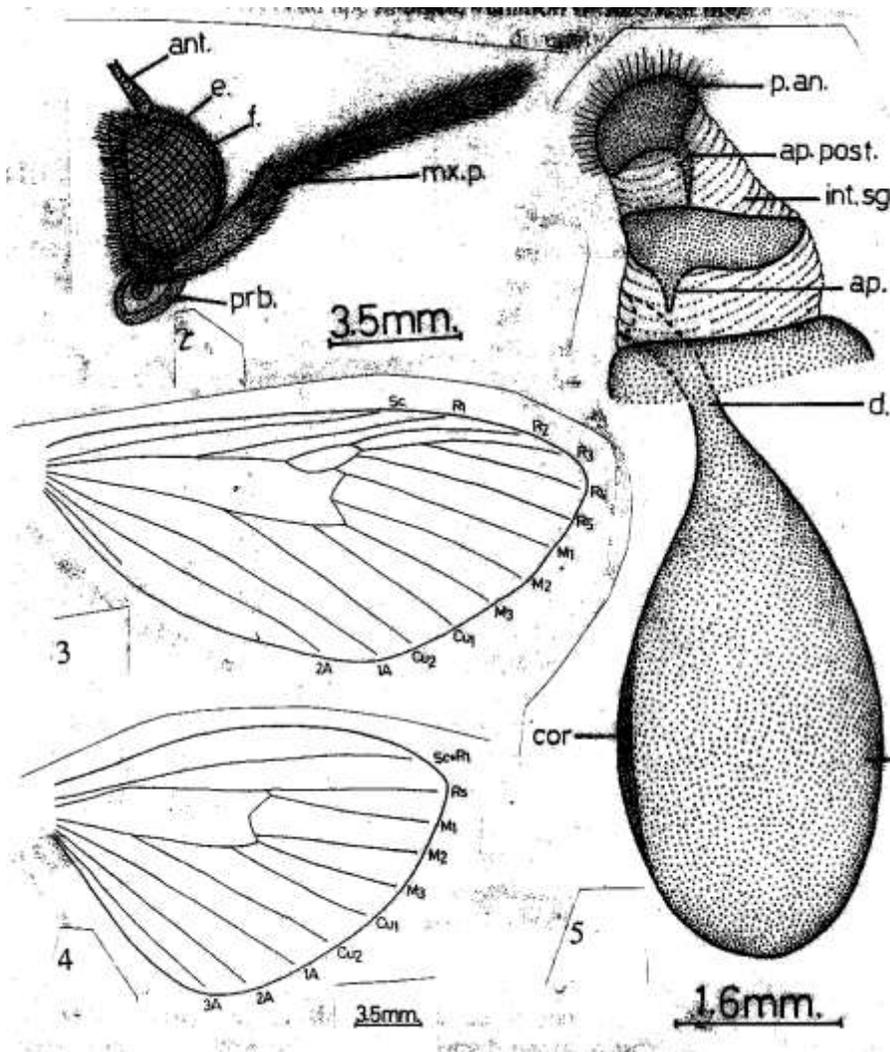
Hind wings (Fig.4) Broad, apical angle sub-acute, buffy brown with three median large and series of sub-marginal black patch, vein Sc+R1 separated, Rs originates just below apical angle of cell, M1 originates from upper angle of cell, Cu1 and Cu2 parallel to each other, three anal veins (1A and 3A) are present.

Wing expansion:

Body size 67 – 69 mm with wing expansion (Fig.1).

Female genitalia:

Papillae anales semi-lunar shaped, apophysis posteriors large thorn-like longer than apophysis anteriors, later short thorn-like, lobus vaginalis short, ductus bursae short tube-like, corpus bursae large ballon-shaped with sclerotized cornuti (Fig.5).



Figs.1-7. *Zeuzera multistrigata* Moore., 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, .

Key to the laterings

ant. (antenna), e. (eye), fr. (frons), gn. (gnathos), jxt. (juxta), mcl.(membranous conjunctival appendage), mx.p. (maxillary palpi), pr.(paramere), sac.(saccus), tg. (tegumen), th. (theca), th.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 vein), Sc.(sub-costal vein), Sc+R1(sub-costal and radius vein 1).

Material examined:

Five females, Pakistan: Ghora gali, 7.8.2007, Aliza Ali, on light, lodged at Federal Urdu University of Arts, Science and Technology, Gulshan-e-Iqbal Campus, Karachi and National Insect Meseum, Rawalpindi.

DISCUSSION

This species was first time recorded from Ghora gali, Pakistan by Kamaluddin *et.al.*2007 and has distinct apomorphic characters which isolates it from other species in having maxillary palpi very large, 3rd segment very large about 2X the length of 2nd segment, in fore wings an oblong cell is present at base of radius vein, in females papillae anales are semi-lunar shaped and apophysis posteriors very large, thorn-like. This species is recorded from Ghora gali, in between the range of 2350 m above sea level. The population is very high during July and August and very less recorded in December and January. The temperature varies during summer 18°C and in winter 3°C, while average annual temperature is 13°C. Amount of Precipitation is between 1250-1350 mm or sometimes to about 1400mm. Average relative humidity (mean) at 1200 UTC 59%. There are six larval instars, and the total larval period usually lasts 15-22 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 laying starts about four days after emergence and may continue for a further ten days.

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Key Words Arctiidae, Genus, *Paraplastis* Hampson, *hampsoni* Swinhoe, Redescription. Introduction. Genus *Paraplastis* Hampson, 1901 was erected as a monotypic genus for species *hampsoni* Swinhoe. The book covers the first consolidated work on the taxonomy of family Arctiidae from the independent India. It deals with 181 Indian species under 76 genera of two sub-families. This book is an outcome of extensive and intensive surveys cum collection tours conducted in the North-West Himalayas, North-East India and Western Ghats. Kellner, AWA, Costa, FR, Wang, X and Cheng, X (2016) Redescription of the first pterosaur remains from Japan: the largest flying reptile from Asia. *Historical Biology* 28, 304-9. CrossRef Google Scholar. Kellner, AWA and Tomida, Y (2000) Description of a New Species of Anhangueridae (Pterodactyloidea): With Comments on the Pterosaur Fauna from the Santana Formation (Aptian-Albian), Northeastern Brazil. Tokyo: National Sciences Museum Monograph no. 17, 135 pp. Google Scholar. Lawson, DA (1975) A pterosaur from the latest Cretaceous of West Texas: discovery of the largest flying creature. *Taxonomy, keys, families, annotated catalogue, replacement names, Lepidoptera*. Abstract. This annotated synonymic catalogue represents an attempt to verify and define nomenclaturally the species of Lepidoptera recorded from New Zealand since 1769. It is based on a thorough re-examination of type material and recorded data. Types of nearly all nominal species held by overseas institutions were examined during 1980-81.