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New records of *Glossosoma atitto* MALICKY & CHANTARAMONGKOL, 1992 and *Ecnomus areion* Malicky, 1999 from India

Manpreet Singh PANDHER, Simarjit KAUR & Deepti GARIMA

Abstract. In this paper two new records *Glossosoma atitto* MALICKY & CHANTARAMONGKOL, 1992 of family Glossosomatidae and *Ecnomus areion* MALICKY, 1999 of family Ecnomidae are reported for the first time from India. 17 species of *Glossosoma* and 11 species of *Ecnomus* have been reported from India till date.

Keywords: Caddisfly, New record, species.

Introduction

The genus *Glossosoma* of family Glossosomatidae was first described by CURTIS, 1834. It includes four sub genera i.e. *Glossosoma* CURTIS, 1834; *Lipoglossa* MARTYNOV, 1930; *Protoglossa*, ROSS 1956 and *Muroglossa* ROSS, 1956. At present, 143 species of *Glossosoma* has been reported from all over the world most of them being restricted to Oriental region (70 species) (MORSE 2020). From India, 17 species of *Glossosoma* has been reported, most of which belong to the subgenus *Lipoglossa* MARTYNOV, 1930. Major contributions to these species are given by MARTYNOV 1935; KIMMINS 1953; SCHMID 1971, 1959; MALICKY & CHANTARAMONGKOL 1992 and SAINI *et al.* 2013.

MCLACHLAN 1864 first described the genus *Ecnomus* of family Ecnomidae. Presently, 336 species of *Ecnomus* have been reported from all over the world. Most of these species are confined to the Oriental region (169 species) (MORSE 2020). From India, only 11 species of *Ecnomus* have been described till date. These species have been described by MARTYNOV 1935; MOSELY 1932; MALICKY 1979; MORSE 2013 and PANDHER & SAINI 2013.

In this paper two species, *Glossosoma atitto* MALICKY & CHANTARAMONGKOL, 1992 and *Ecnomus areion* MALICKY, 1999 are reported for the first time from India from the states of Arunachal Pradesh, Himachal Pradesh and West Bengal.

Materials and Methods

The adult caddisflies were mainly collected under various faunal surveys to the Indian Himalayan Region. The specimens were killed and preserved directly in 90% ethyl alcohol. Pertinent locality and field data were recorded and appended to the collection bottles.

To accomplish the species identification, morphological characters like labial palps, antennae, setal warts, tibial spurs, wing maculation and venation, and genitalic structures were examined microscopically. The male genitalia were removed from the specimens and put in 10% KOH solution overnight. After this treatment, the genitalia were put in 80% ethyl alcohol with a drop of glycerol. The drawings of various aspects were done with the help of a zoom stereoscopic binocular microscope (with maximum magnification of 160X) eyepiece. The final drawings were rendered in black ink. The illustrations were scanned at 600 dpi grayscale, and mounted onto plates in Adobe© Photoshop© 7.0.

The specimens are deposited in NZC (National Zoological Collection), Zoological Survey of India, Kolkata.

Glossosoma atitto MALICKY & CHANTARAMONGKOL, 1992 (Figs.1-3)

Systematic Account: *Glossosoma* CURTIS, 1834, Subgenus *Muroglossa* ROSS, 1956

Diagnosis: This species is very similar to *Glossosoma kamarasikam* SCHMID, 1971 and *Glossosoma atestas* MALICKY & CHANTARAMONGKOL, 1992 (both reported from India). The inferior appendages in both *Glossosoma atitto* and *Glossosoma kamarasikam* are broader at the apex and have a narrow end but the inferior appendage in *Glossosoma atestas* is uniform throughout its entire length. The preanal appendages in *Glossosoma atitto* are slimmer and curved upwards in lateral view while in *Glossosoma kamarasikam*, the preanal appendages are much broader at base but with a pointed tip whereas, the preanal appendages in *Glossosoma atestas* are also broad at base but has several setae at its tip.

Description: Adult male, body colour in alcohol, dark brown. Underside of the abdomen as well as the coxa and femur of the hind legs are orange coloured. Forewing length 7mm, dark brown in colour.

Material examined: 8♂♂, India: Arunachal Pradesh: Ramsing Bridge, 29.x.2017, G. Maheswaran & Party, (NZC); Hawa camp, 28.x.2017, 2males, G. Maheshwaran & party (NZC); Hawa camp, 28.x.2017, 18 males, G. Maheshwaran & party (NZC). Himachal Pradesh: Panchpulla, 14.v.2016, 6 males, 3 females, Pandher & Kaur (NZC); Bhaksunag, 13.v.2016, 2 males, Pandher & Kaur (NZC). West Bengal: Suntalikhola Park, 25.ix.2018, 1 male, Pathania & Party (NZC).

Distribution: India (Arunachal Pradesh, Himachal Pradesh, and West Benga); China; Vietnam; Thailand.

Ecnomus areion MALICKY, 1999 (Figs.4-7)

Diagnosis: Due to the compact, plump and round shape of the male copulation apparatus, this species is similar to *Ecnomus henoch* MALICKY, 1993 from Nepal and *E. suadrus* MALICKY & CHANTARAMONGKOL, 1993 from Thailand. The preanal appendages of *E. areion* and *E. henoch* are narrower at the base but broader towards apex whereas in *E. suadrus* the preanal appendages are slimmer and slightly pointed at the apex (leaf like). The inferior appendages are slightly bent in *E. areion* and *E. henoch* but are strongly bent in *E. suadrus*. The preanal appendages are with oval shaped apex in dorsal view in *E. areion* whereas the preanal appendages are truncate and bifid at the apex in dorsal view in *E. henoch*.

Description: Adult male, body colour in alcohol, brownish. Underside of the abdomen slightly creamy. Forewing length 6.5 mm, brown in colour.

Material examined: 1♂, India: Arunachal Pradesh: Ramsing Bridge, 29.x.2017, G. Maheshwaran & party (NZC).

Distribution: India (Arunachal Pradesh); Thailand; Vietnam.

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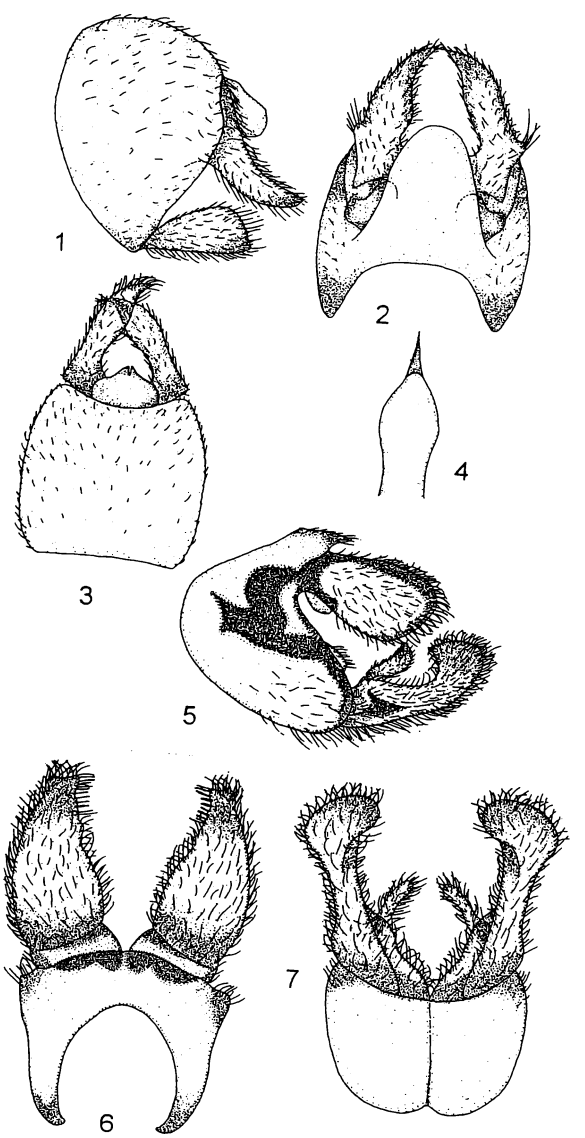
Address of authors: *Zoological Survey of India, 'M' Block, New Alipore, Kolkata - 700053; West Bengal, India.* Corresponding author: mpandher.iari@gmail.com



Figs. 1-3. *Glossosoma atitto*. 1. Male genitalia, lateral view; 2. Male genitalia, dorsal view; 3. Male genitalia, ventral view.
Figs. 4-7. *Ecnomus areion*. 4. Phallus, dorsal view; 5. Male genitalia, lateral view; 6. Male genitalia, dorsal view; 7. Male genitalia, ventral view.