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New records of three species of *Nolidae* (Lepidoptera: Noctuoidea) from India

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Abstract

Three species of family Nolidae, *Ariola triangulifera* Warren, *Asinduma exscripta* Walker and *Hylophilodes dubia* Prout are reported for the first time from India. Adults and genitalia of each species are described in brief.

Keywords: *Nolidae*, Lepidoptera, Noctuoidea, India.

1. Introduction

The concept of Nolidae has been dramatically altered in recent years (Speidel *et al.* [1], Holloway [2, 3, 4]; Kitching and Rawlins [5]; Beck [6]; Zahiri, *et al.* [7, 8]) to include groups that have long been considered the subfamilies of Noctuidae (Hampson [9]; Speidel *et al.* [1]) or Arctiidae (now Arctiinae), or even occasionally as distinct families themselves (Kitching and Rawlins [5]). Nolidae includes an estimated number of 1740 described species placed in 186 genera (Nieukerken *et al.* [10]). The group occurs worldwide, but shows a primarily Palaeotropical distribution (Kitching and Rawlins [5]). Moths of this group are easily identified from their morphological characters like elongation of the forewing retinaculum in a bar-like or digitate condition and possession of a post spiracular counter-tympanal hood (Zahiri, *et al.* [8]). Most of the Nolidae are small moths of little economic importance, but several genera include agricultural pests, the most notable of which are the spiny bollworms. Some of the Nolidae, like species of *Arcyophora* Guenee visit the eyes of cattle and other domestic stock at night to imbibe lachrymal juices and may transmit harmful viruses and other infections (Reid [11]).

The present inferences are based on the taxonomic examination of the collections from the North-Eastern India. This included the new records of three Nolidae species, *Ariola triangulifera* Warren, *Asinduma exscripta* Walker and *Hylophilodes dubia* Prout from India. All the three species were dealt by Holloway [3], but are described here for the sake of comparison.

2. Materials and Methods

The studied material was collected with the help of light traps fitted at the collection sites of North East India. The collected moths were killed with the help of Ethyl Acetate vapours and processed as per techniques in Lepidopterology. The identification was done with the help of relevant literature.

3. Results and Discussion

Genus *Ariola* Walker

Walker, 1858. *List Spec. Lepid. Insects Colln Br. Mus.* 12: 766.

Type species: *Ariola coelisigna* Walker, 1858.

Ariola triangulifera Warren

Ariola triangulifera Warren, 1912, *Novit. Zool.*, 19: 46.

Diagnosis: Head pale green; antenna green at base; thorax green with silvery scales. Forewing green with a curved silvery pale white fascia from the base of costa to apex; fuscous patch at the base of inner margin; outer margin pink, with black marginal marks and lines, cilia fuscous brown; hindwing and abdomen fuscous; undersides silvery fuscous.

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Male genitalia: Uncus small, curved, weakly sclerotised; gnathos present; tegumen long, narrow, tube like; transtilla membranous; juxta weakly sclerotised, triangular; vinculum small; saccus well developed; valve very long, uniformly wide; costal area strongly sclerotised; aedeagus very long, vesica small with three very long and robust cornuti; ductus ejaculatorious enters sub apically.

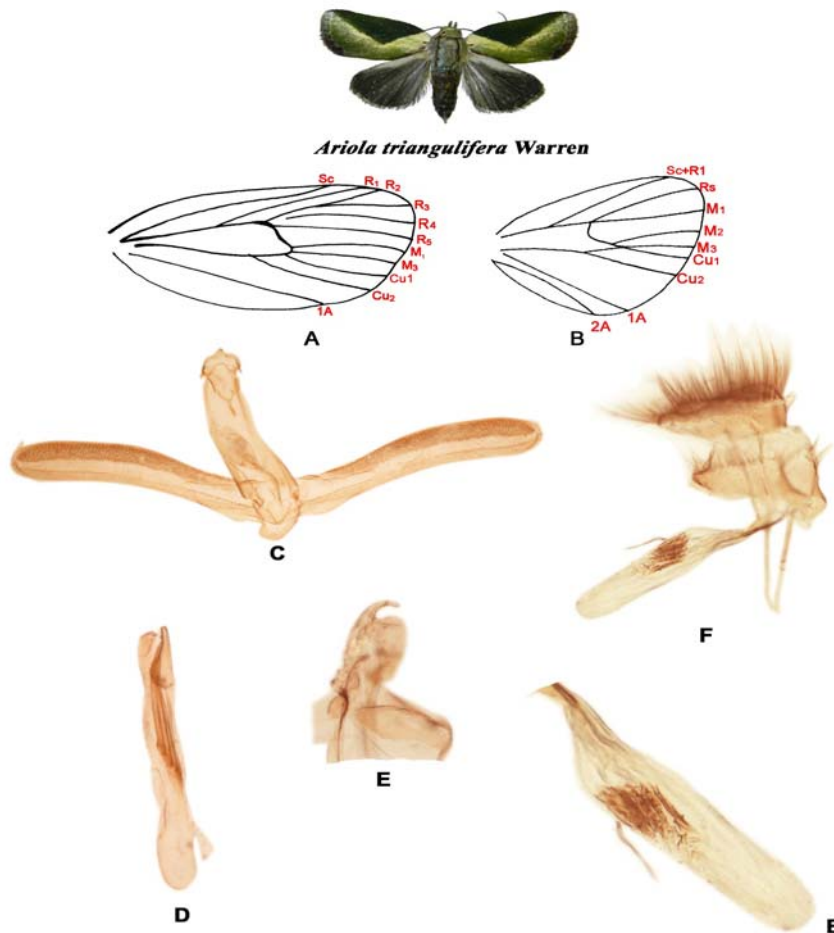
Female genitalia: Papilla anals rectangular with very long setae; ductus bursae small, weakly sclerotised; corpus bursae

long, narrow, upper half with dark patch; signum absent.

Material Examined:

Arunachal Pradesh: Hunli 16.ix.2011: 1♀.
 Mizoram: Hmuifang 26.ix.2012: 1♂, 1♀.
 Sangau 21.ix.2012: 1♂.

Distribution: India (Arunachal Pradesh, Mizoram), Solomons, Bismarcks, New Guinea, Sulawesi, Sundaland.



A. Forewing, B. Hindwing, C. Male genitalia, D. Aedeagus, E. Uncus, F. Corpus bursae, (Enlarged)

Genus *Asinduma* Walker

Walker, 1863, *J. Proc. Linn. Soc. (Zool.)* 7: 167.

Type species: *Asinduma exscripta* Walker, 1863.

***Asinduma exscripta* Walker**

Asinduma exscripta Walker, 1864, *J. Linn. Soc. (Zool.)*, 7: 167.

Diagnosis: Head white irrorated with brown; Thorax olive green with white suffusion. Forewing olive green with a silvery gloss; indistinct oblique waved sub basal and ante medial lines, the former ending at sub median fold; a slight discoidal lunule defined on outer side by silvery white; post medial line olive- green, bent outwards and almost obsolete below costa, then red- brown and slightly incurved to sub median fold, then olive green and dentate, some purplish fuscous before it beyond the cell, the whole area beyond it chocolate- brown except at costa and inner margin with the

very highly dentate silvery grey sub terminal line on it; a fine silvery grey line just before termen; cilia red brown tinged with grey. Hind wing dark- brown with cupreous gloss, the inner area greyer. Abdomen brown.

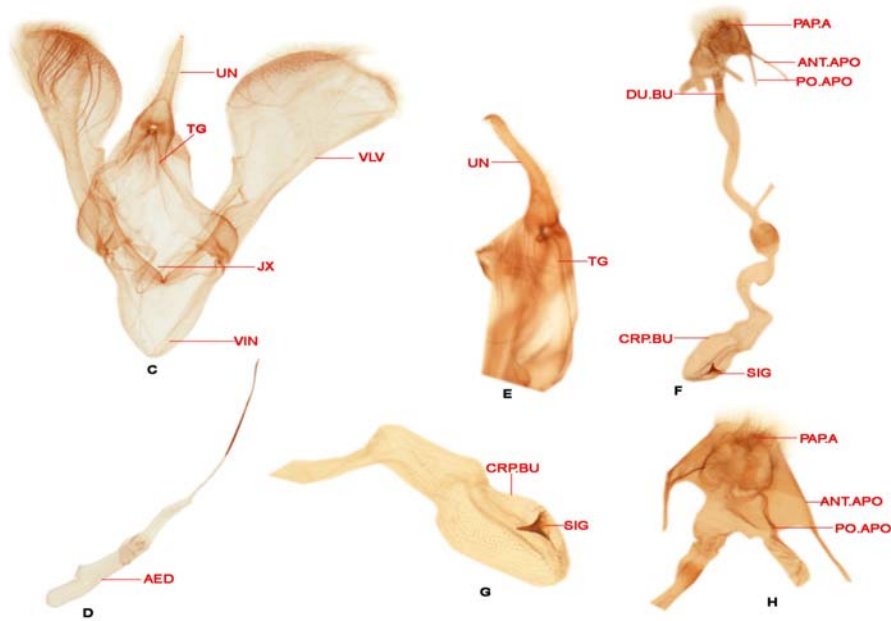
Male genitalia: Uncus long, simple, spined at tip; tegumen small, inverted V- shaped; juxta V- shaped; vinculum V- shaped, weakly sclerotised; saccus present; valve long, narrow at base, costal and saccular margin curved; cuculus swollen, setosed; aedeagus small, membranous; vesica long with very long cornuti; ductus ejaculatorious enters medially.

Female genitalia: Ovipositor lobes well developed, setosed; ductus bursae long tube like, membranous, sclerotisation band towards papilla anales; corpus bursae long, narrow, upper end swollen and sclerotised, lower part membranous; signum present, funnel shaped.

Material Examined:

Mizoram: Hrangchal Kwan 18.IX.2012: 1♂, 2♀♀.

Distribution: India (Mizoram), Borneo, Peninsular Malaysia, Sumatra.



A. Forewing, B. Hindwing, C. Male genitalia, D. Aedeagus, E. Uncus, F. Female genitalia, G. Corpus bursae, H. Papilla analis with Apophysis

Genus *Hylophilodes* Hampson

Hampson, 1912. *Cat. Lepid. Phalaenae Br. Mus.* 14: 510.

Type species: *Halias orientalis* Hampson, 1894.

***Hylophilodes dubia* Prout**

Hylophilodes dubia Prout, 1926, *Sarawak Mus. J.*, 3: 228.

Head light green; Labial palpi porrect, light green, with red scales; Third joint long; Antennae smooth, reddish brown; collar and thorax light green, later with white scales on meso and metathorax. Forewing pale green, irrorated with dull green towards costa, the costa itself pale suffused; Antemedial and postmedial pale, oblique lines; A small greenish discal lunule; a slight green subterminal line, strongly incurved opposite cell and fold, but not acutely angled; Fringe tipped red; Hindwing white; Abdomen white with light green tinge; Underside shining white, forewing with costa and tips of fringe rufous.

Male genitalia: Uncus broad, flat towards base, narrow, tubular towards tip, setosed, apically, sclerotised; juxta

somewhat V- shaped; valve small, broad, narrow at base; costal margin strongly convex; cucullus broad, round, setosed; saccular margin with small hook like spine, towards cucullus; aedeagus small, round, thick, sclerotised; vesica membranous, with cornuti; ductus ejaculatoris enters sub terminally.

Female genitalia: Papilla analis broad, heavily setosed; posterior and anterior apophysis of same length; ductus bursae small, membranous, narrow; corpus bursae long, upper half swollen, moderately sclerotised, lower half weakly sclerotised.

Material Examined:

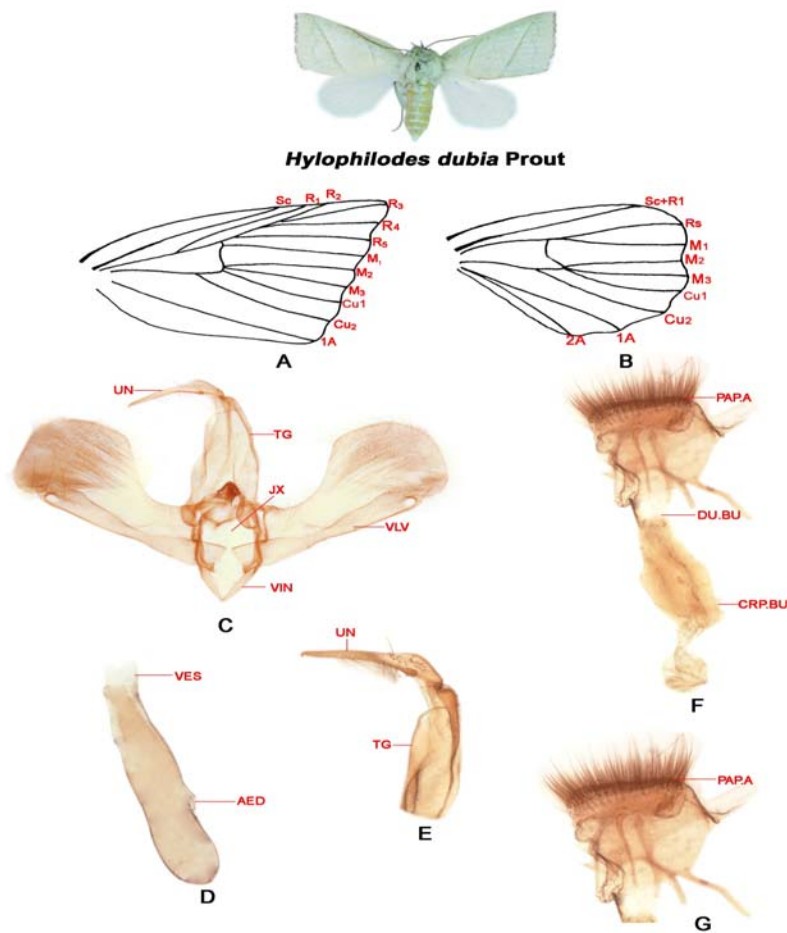
Arunachal Pradesh: Hunli 16.ix.2011: 1♀.

Mizoram: Champhai 25.ix.2009: 1♀.

Mizoram: Hrangchal Kwan 18.IX.2012: 1♂, 2♀♀.

Sangau 21.ix.2012: 1♀

Distribution: India (Arunachal Pradesh, Mizoram), Borneo, Sumatra, Palawan.



A. Forewing, B. Hindwing, C. Male genitalia, D. Aedeagus, E. Uncus, F. Female genitalia, G. Papilla analis with Apophysis

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