

## First record of *Amerila eugenia* (Fabricius, 1794) [Lepidoptera : Erebidae : Arctiinae] from Eastern India

Olive Biswas<sup>1\*</sup>, Udipta Chakraborti<sup>1</sup>, Sankarsan Roy<sup>1</sup>, Biplob Kr. Modak<sup>2</sup>, Suresh Kumar Shah<sup>1</sup> and Balaram Panja<sup>3</sup>

<sup>1</sup>Zoological Survey of India, Prani Vigyan Bhawan, M-Block, New-Alipore, Kolkata-700053, West Bengal, India

<sup>2</sup>Sidho-Kanho-Birsha University, Purulia, West Bengal, India

<sup>3</sup>Office of the Divisional Forest Officer, 24 – Parganas South Division, New Administrative building, B.K.B. Sarani, Alipore, Kolkata – 700027

corresponding E-mail: [olive1rocks@gmail.com](mailto:olive1rocks@gmail.com)

### ABSTRACT

Present communication reports *Amerila eugenia* (Fabricius, 1794), a lepidopteran species under subfamily Arctiinae of family Erebidae for the first time from Eastern part of India (Sunderban Biosphere Reserve, West Bengal).

**Key words:** Sunderban Biosphere Reserve, India, Erebidae, Arctiinae, *Amerila eugenia* (Fabricius, 1794)

### INTRODUCTION

The Arctiinae (formerly family Arctiidae) are a large and diverse subfamily of moths, with around 11,000 species found all over the world. This subfamily includes moths commonly known as tiger moths (with bright colours), footmen (usually drab coloured), lichen moths and wasp moths. Cotes and Swinhoe (1887)[1] was the first published catalogue on this group of moths from then limits of India (including Ceylon and Burma) with 204 species under 82 genera from Indian main land. Thereafter, several other lepidopterists have worked on this group of moths from India. Very recently Singh *et al.* (2014)[2] compiled a total number of 525 species under 140 genera of three tribes, Arctiini (151 species under 42 genera), Lithosiini (308 species under 90 genera) and Syntomini (66 species under 8 genera) of Arctiinae from India.

Sunderban Biosphere Reserve, the World Heritage site, situated in the southern part of West Bengal, India and Bangladesh, have the largest mangrove ecosystem of the World. The Indian Sundarbans Delta is bounded by the Ichamati - Raimangal River in the east, by the Hoogly River in the west, by the Bay of Bengal in the south, and the Dampier-1 Hodges line drawn in 1829-1830 in the north.

Till date, very little is known about the moth (Lepidoptera: Heterocera) diversity of this unique ecosystem. Mathuda (1957)[3] had reported only two species of the moths from Sunderban mangroves. Kumar *et al.* (2014)[4] reported 26 species under 23 genera of 8 families of moths from this Biosphere Reserve. Later, Mitra *et al.* (2014)[5] added 1 more species from the Indian part of Sunderbans. Most recently Biswas *et al.* (2016)[6] compiled a total of 45 species under 39 genera of 10 families of moths from Sunderban Biosphere Reserve.

While surveying the insect fauna under the project “Role of Insect pollinators on the conservation of major mangrove species in Sunderban Islands, West Bengal, India” we came across a specimen of *Amerila eugenia* (Fabricius, 1794), a moth of the Sub-family Arctiinae under Family Erebidae.

Hampson (1920)[7] documented *Amerila eugenia* (Fabricius, 1794) from Punjab and Bombay (now Mumbai). Later, Dubatolov (2010)[8] recorded the distribution of this species along Central and South India. Singh & Singh (2012)[9] worked on detailed external morphological characters and genital characters of this species from

Karnataka, South India. Most recently Singh *et al.* (2014)[2], compiled a total of 525 species of Indian Arctiinae and reported the same distributional records as reported by Hampson (1920)[7] and Dubatolov (2010)[8].

Present communication records this species for the first time from Sunderban Biosphere Reserve, West Bengal. Thus, *Amerila eugenia* (Fabricius, 1794) is found to have a new distributional record from Eastern India for the first time.

#### MATERIALS AND METHODS

The moth was collected at night with the help of a light trap which was operated using 27 Watt Philips energy saver CFL Lamp from 6.00 p.m. to 9.00 p.m. on a white sheet of cloth measuring approximately 3x2 m. Photograph was taken by using Nikon D7000 camera. Leica EZ4 and Leica EZ4 HD microscopes were used for specimen identification. Methodology for collection, preservation etc were followed after Arora, (1986)[10] and for identification of species standard literatures (Hampson, 1894 ; Holloway, 1988, Singh & Singh, 2012)[11, 12, 9] have been followed. The distributions were checked from available literatures. The coordinates of the collection site were recorded using GPS (Garmin Oregon 550) which were further used in preparing maps of the survey sites. Map has been prepared using Bhuvan imagery [13] accessed on dated 26/12/2015 (Fig. 1).

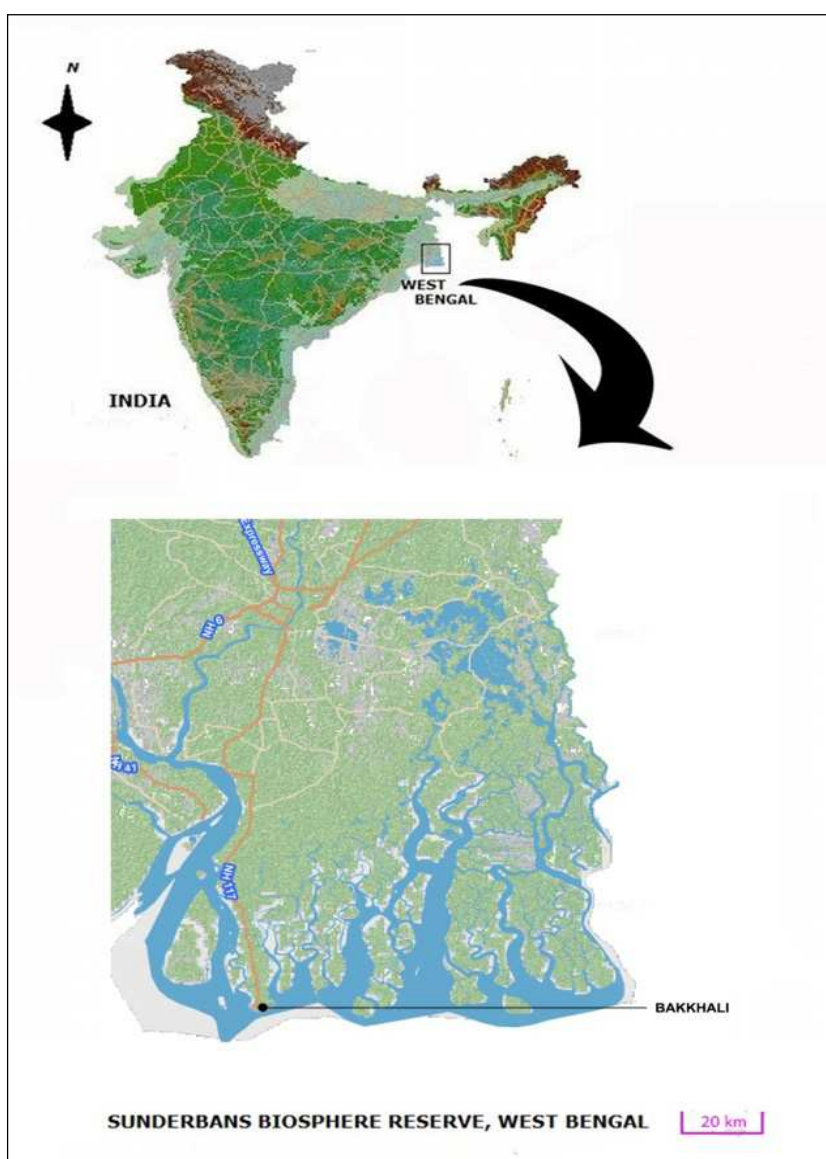


Fig 1 : Map of collection site

**RESULTS AND DISCUSSION**

One example (♀) of *Amerila eugenia* (Fabricius, 1794) (Fig. 2) was identified from the collections of the Sunderban Survey which is recorded for the first time from Eastern India (Sunderban Biosphere Reserve, West Bengal).

**Systematic Account**

**Family Erebidae** (Leach, 1815)

**Sub-family Arctiinae** (Leach, 1815)

**Genus *Amerila*** (Walker, 1855)

***Amerila eugenia* (Fabricius, 1794)**

1794. *Noctua eugenia* Fabricius, *Ent. Syst.* 3(2): 19–20.

2014. *Amerila eugenia* : Singh *et al.* *Rec. zool. Surv. India, Occ. Paper* 367 : 1-76.

**Description:**

Head whitish fuscous with two black spots. Antennae minutely ciliated. Scape with crimson below and a black spot above. Labial palpi upturned with crimson scales above and white below. 2<sup>nd</sup> and 3<sup>rd</sup> segments with a black spot near apex. Proboscis present.

Thorax whitish fuscous. Collar and tegula with a pair of black spots. Pro-, meso- and meta thorax with a pair of black spots.

Forewing whitish fuscous with brown tinge and two basal black spots. Costa and outer margin brownish. Apex with broad brown patch. Vein 5 from well below the centre of discocellulars. Veins 7, 8 and 9 stalked. Vein 10 anastomosing with 7 to form an areole.

Hindwing whitish fuscous tinged with brown. Costa and outer margin brownish. Vein 3 from below lower angle of cell. Vein 6 and 7 from upper angle of cell. Frenulum present.

Legs with coxae and femora crimson on outer sides, white inside. Tibia and tarsal segments brownish outside and crimson inside. Mid tibia with single pair and hind tibia with two pairs of spurs.

Abdomen crimson with the base of 1<sup>st</sup> segment whitish fuscous. Lateral series of black spots present.

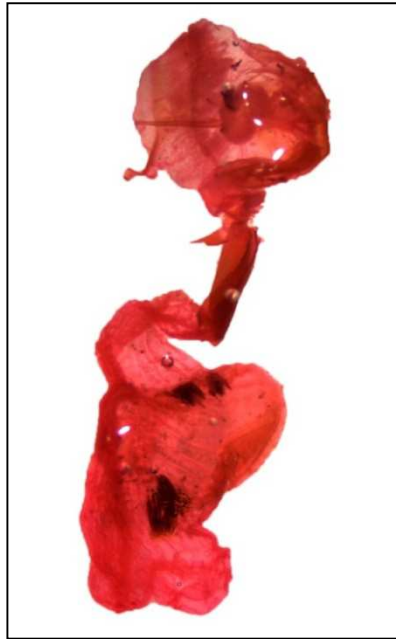
Female genitalia (Fig 3) with posterior apophyses larger than anterior apophyses. Papilla analis with well defined setae. Ductus bursae short and broad. Corpus bursae membranous. Presense of two signa.

**Distribution :** India (Punjab, Bombay, Karnataka, Central and South India) [Hampson 1920; Singh & Singh 2012; Dubatolov 2010]<sup>[7, 9, 8]</sup>, West Bengal [Eastern India] (Present record).

**Material examined :** 1 ex. (♀), Henry's Island, Bakkhali, Sunderban Biosphere Reserve, dist. South 24 Parganas, West Bengal, India, dt.22.v. 2015. Coll : B. Mitra & Party.



Fig. 2 : Whole body photograph of *Amerila eugenia* (Fabricius, 1794)



**Fig 3 : Female genitalia of *Amerila eugenia* (Fabricius, 1794)**

#### **Acknowledgements**

Authors are grateful to Dr. Kailash Chandra, Director, Zoological Survey of India, Kolkata for giving necessary permissions and constant support. Thanks are also due to Shri K. C. Gopi, Scientist 'F' for kindly for guiding us and making useful suggestions.

#### **REFERENCES**

- [1] Cotes, E.C. and Swinhoe, C. Catalogue of the moths of India. Sphinges and Bombyces, **1887**, pp 1-812 (Arctiidae : pp 87-135).
- [2] J. Singh, N. Singh and R. Joshi. *Rec. zool. Surv. India, Misc. pub.*, Occ. Paper, **2014**, **367**: 1-76.
- [3] G.S. Mathuda. *Proc. Mangrove Symp, Calcutta*, **1957**, 66-87.
- [4] J. Kumar, A. Basu Roy, B. Mitra. *Zoological Survey of India Envis News-letter*. **2014**, **20** (1, 2): 9-12.
- [5] B. Mitra, S.K. Shah, U. Chakraborti, S. Roy, O. Biswas, B. Biswas, S.K. Das, P. Girish Kumar. *Bionotes*. **2014**, **16** (4): 34-135.
- [6] O. Biswas, B.K. Modak, A. Mazumder, B. Mitra. *Journal of Entomology and Zoology Studies*. **2016**, **4** (2) : 13-19.
- [7] Hampson, G.F. Catalogue of the Lepidoptera Phalaenae in the British Museum. London. Suppl. 2 Taylor and Francis Ltd., London. **1920**, pp 619.
- [8] V.V. Dubatolov. *Neue Entomologische Nachrichten*. **2010**, **65**: 1-106.
- [9] N. Singh & J. Singh. *Journal of Threatened Taxa*. **2012**, **4** (2): 2398–2401.
- [10] Arora, G.S. On methods of Collection and Preservation of Lepidoptera. In: Manual: Collection, Preservation and Identification of Insects and Mites of Economic Importance, Zoological Survey of India, Kolkata, India, **1986**, pp 109 – 120.
- [11] Hampson, G.F. Fauna of British India including Ceylon and Burma (Moths) Vol. II, Taylor & Francis, London, **1894**, pp 1 – 609.
- [12] Holloway, J.D. The Moths of Borneo (Arctiidae, Syntomiinae, Euchromiinae, Arctiinae, Aganainae to Noctuidae).The Malayan Nature Journal, Kuala Lumpur, Malaysia. **1988**, **6**: pp 1 – 101.
- [13] Bhuvan Imagery. <http://bhuvan.nrsc.gov.in>. (accessed on 26 December, 2015).