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43/2 Varadarajulu Nagar, 5<sup>th</sup> Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India  
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India  
Ph: +91 9385339863 | [www.threatenedtaxa.org](http://www.threatenedtaxa.org)  
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Cover: The critically endangered *Lilium polyphyllum* in watercolour and acrylics. © Aishwarya S Kumar.



## First report of the longhorn beetle, *Rosalia (Eurybatus) formosa* (Saunders, 1839) (Insecta: Coleoptera: Cerambycidae) from Mizoram, India

Amit Rana<sup>1</sup>  & Lobeno Mozhui<sup>2</sup> 

<sup>1</sup> Zoological Survey of India, North Eastern Regional Centre, Shillong, Meghalaya 793003, India.

<sup>2</sup> Department of Zoology, Nagaland University, Lumami, Nagaland 798627, India.

<sup>1</sup> rana.amit13@rediffmail.com, <sup>2</sup> lobenomozhui@gmail.com (corresponding author)

**Abstract:** The present paper records *Rosalia (Eurybatus) formosa* (Saunders, 1839), a cerambycid or longhorn beetle for the first time from the state of Mizoram in northeastern India. The documentation was done on the basis of two specimens that were collected from the District of Champhai, Mizoram. In this communication, photographs, as well as notes on the morphological features of the species are presented.

**Keywords:** Cerambycinae, Champai district, Compsocerini, Murlen National Park, new record, northeastern India.

Cerambycidae Latreille, 1802, commonly known as longicorns or long-horned beetles are one of the largest groups of beetles with approximately 40,000 known species in 4,000 genera and eight subfamilies (Wang 2017). A total of 1,536 longhorn beetles classified under 72 tribes, 440 genera and eight subfamilies are reported from India, of which, 592 species are from the northeastern region, which accounts to 38.1% of the total cerambycid species in India (Kariyanna et al. 2017). The subfamilies which represent the cerambycids from the regions are Spondylidinae, Lepturinae, Prioninae, Cerambycinae, and Lamiinae.

Within the northeastern states, 95 species under 64 genera and three subfamilies are reported from Assam (Mitra et al. 2017), 92 species under three subfamilies from Meghalaya (Hegde et al. 2022), 61 species under five subfamilies from Manipur (Kariyanna et al. 2017), 49 species under three subfamilies from Arunachal Pradesh (Kumawat et al. 2015), 36 species under three subfamilies from Nagaland (Mozhui et al. 2020), and 28 species under three subfamilies from Tripura (Agarwala & Bhattacharjee 2012). As per literature, not much work has been conducted in Mizoram.

The genus *Rosalia* Audinet-Serville, 1883 is divided into three subgenera: *Rosalia*, *Eurybatus* Thomson, 1860, and *Eurybatodes* Semenov, 1911. The subgenus *Eurybatus* differs from the subgenus *Rosalia* in several characters: (a) both males and females do not have tuft of hairs but spines on the antennae, (b) males do not possess a tooth at the outer angles of the mandibles, and (c) the body is covered with vermillion pubescence along with black bands and spots in *Eurybatus* and pale blue or bluish-grey pubescence with black bands and spots in *Rosalia*.

The beetle *R. (Eurybatus) formosa* is a species belonging to the tribe Compsocerini (Cerambycinae) and is known to occur in northeastern states of India

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such as Meghalaya, Assam, Arunachal Pradesh, and Sikkim (Mukhopadhyay & Haldar 2003). However, there is no record of *R. (Eurybatus) formosa* from the state of Mizoram. During one of the tours to Champhai district, Mizoram, the specimens of *R. (Eurybatus) formosa* were collected and examined.

## MATERIALS AND METHODS

### Study area

Mizoram is situated between  $23.36^{\circ}\text{N}$  &  $92.8^{\circ}\text{E}$  and is located in northeastern India, bounded by Myanmar to the east and south, Bangladesh to the west, state of Tripura to the north-west, Assam to the north, and Manipur to the north-east. The state of Mizoram has a great diversity in phyto-physiognomies which are distributed according to an altitudinal gradient from tropical evergreen to montane and temperate areas. High rainfall and moist climate provide a high base for rich biodiversity consequently the total land under vegetation is 90.68% (Sati et al. 2014). With a tree cover area of about 75%, Mizoram ranks third in India with the highest total forest cover with immense timber plant species such as *Schima wallichii*, *Tectona grandis*, *Castanopsis* sp., and *Macaranga* sp. (SFR 2019). These timber plant species attract a large number of insects belonging to Cerambycidae.

### Sample collection

The specimens were collected during faunistic surveys conducted at Murlen National Park, Mizoram in 2018 (Figure 1). Prior permission was taken from the Murlen National Park office for conducting the survey and collection of specimens. Two females were collected from dense vegetation. Both specimens are deposited at the National Zoological Collections of Zoological Survey of India, North Eastern Regional Centre, Shillong, Meghalaya. The specimens were dried and examined under a Labomed CZM4 stereo zoom microscope, and photographed with Canon PowerShot G3 X digital camera.

## RESULTS

### Materials examined

Two females collected from a woody forest at Murlen, Champhai district, Mizoram, 01.xi.2018 & 03.xi.2018, geocoordinate readings,  $23.39^{\circ}\text{N}$  &  $93.17^{\circ}\text{E}$ ;  $23.31^{\circ}\text{N}$  &  $93.16^{\circ}\text{E}$ , coll. Dr. U. Saikia and group, ZSI, NERC, Shillong, Registration No.: I/COL/NERC/221; I/COL/NERC/222. The species was identified using keys/characters in Gahan (1906).

### Diagnostic characters

Female: Head black; pronotum red, bearing from three to four distinct black marks or spots; the entire

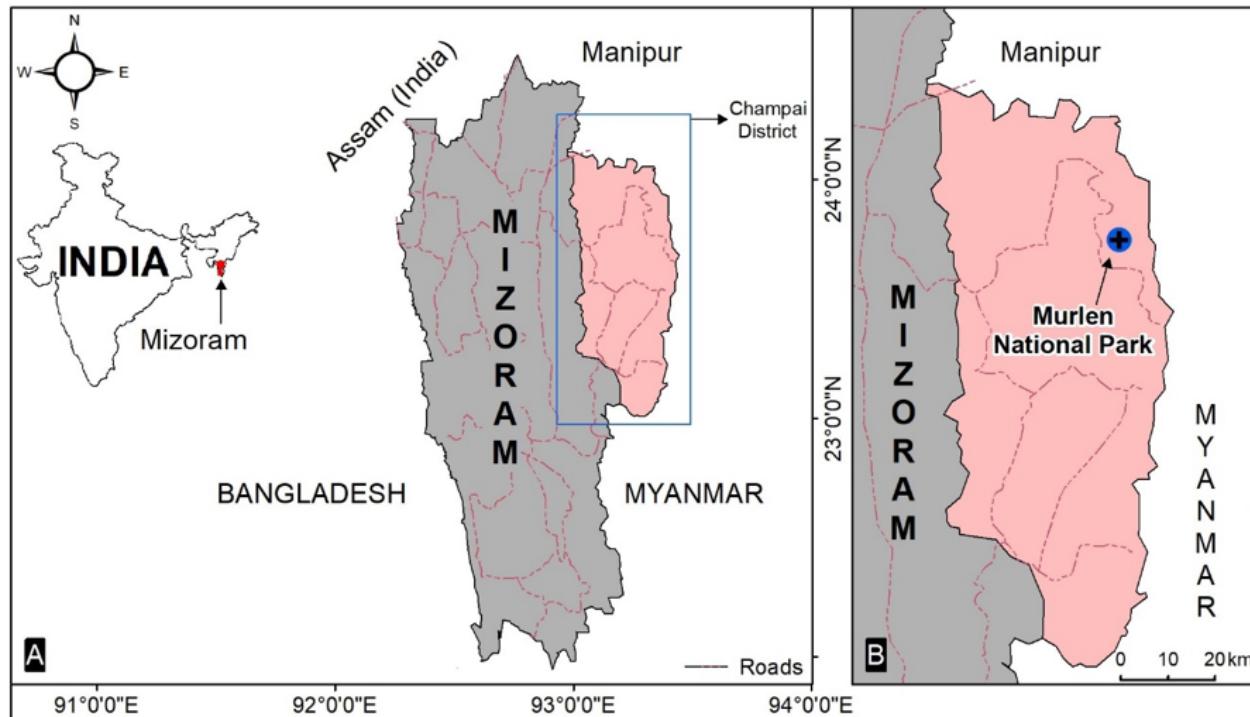


Figure 1. Location map of Murlen National Park in Champhai District, Mizoram.

region of the mesosternum along with the coxal borders of prosternum and metasternum black; elytra red, having a broad black band at the base and also behind the middle, with two black oblique spots, one placed on the dorsal and the other one laterally between the bands; body beneath red, with last ventral segment black (Image 1, 2). Femora is sub clavately thickened beyond the middle or sub-fusiform, scantly punctulate and slightly nitid. Intercoxal process of the prosternum and mesosternum is narrow.

Disc of the pronotum is prominent with four black spots, two are median while the remaining two are lateral. The antero-median spot on the prothorax is small and disappears in some as it is apparent in one of the studied specimens in this communication. Prothorax is globose and protuberant at the sides, a character which is distinct in the case of females and this is very much clearly visible and prominent in the two specimens studied; each of the lateral black spots is placed on a small conical tubercle making it distinct in females. All measurements are in 'mm'.

Specimen 1/ Specimen 2; total length: 25.25/28.45; antennae length: 26.40/30.77; prothorax length: 4.86/4.84; prothorax width: 5.45/5.82; humeral angle width: 6.52/8.15.

## DISCUSSION

Based on earlier works by Gahan (1906), a total of six species have been recorded under the genus, *Rosalia* Audinet-Serville, 1833. *Rosalia formosa* (Saunders, 1839) has been recorded from the Himalaya: Sikkim: Darjeeling; Barrackpore; Assam (as per Gahan 1906) but not from Mizoram- hence this is a new record for the state. The other five species known to occur in northeastern India are: *Rosalia decempunctata* (Westwood, 1848), *Rosalia gravida* Lameere, 1887, *Rosalia lateritia* (Hope, 1831), *Rosalia hariola* Thomson, 1860, and *Rosalia lameerei* Brongniart, 1891 (Takakuwa 1994; Sreedevi et al. 2017). Elsewhere, *R. formosa* has been reported from, China, Myanmar, Nepal, Laos, and Thailand (Mitra et al. 2017). Another subspecies *Rosalia formosa pallens* Gressitt, 1945, which has its distribution in China and Vietnam, has been redescribed by Takakuwa (1994). The subspecies is very similar to the nominotypical subspecies from India at first sight; however, the basal black band of elytra, in the case of *R. formosa pallens*, partly touches the external margins which in the case of *R. formosa* extends completely; while, the postmedian black band of elytra is more or less oblique at anterior margin when compared to *R. formosa* where it is nearly straight. Given the rich biodiversity of the region, and



Image 1. *Rosalia formosa* (Saunders, 1839), dorsal view. © Amit Rana.



Image 2. *Rosalia formosa* (Saunders, 1839), ventral view. © Amit Rana.

the diverse species of cerambycid beetles, more faunistic surveys and systematic studies can lead to discoveries of new species or addition to known species.

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c/o Wildlife Information Liaison Development Society,  
43/2 Varadarajulu Nagar, 5<sup>th</sup> Street West, Ganapathy, Coimbatore,  
Tamil Nadu 641006, India  
ravi@threatenedtaxa.org

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