

Short Communication

First record of the Semi-slug *Austenia resplendens* (Nevill, 1877) from Dampa Tiger Reserve, North-eastern region of India (Mollusca: Gastropoda: Helicarionidae)

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Abstract

The terrestrial semi slug *Austenia resplendens* (Nevill, 1877), which was earlier reported only from the Upper Myanmar region has been recorded for the first time from Dampa Tiger Reserve in the Mizoram state of northeast India. The new distributional record of this species extending the geographic range in the North-eastern India indicates the long dispersal ability in land mollusca. An updated distributional range and way of possible dispersal of the *Austenia* is discussed.

Keywords: Dispersal, Distribution, Durgellinae, Range, Semi-Slug, Threat

Introduction

The genus *Austenia* Nevill, 1878 is a semi slug terrestrial mollusc belongs to the subfamily Durgellinae and family Helicarionidae. Approximately 21 species of *Austenia* have been reported and are restricted to south-east Asian countries including the Himalayas and north-east part of India, Myanmar, Yunnan region of China, and currently the genus has extended range of distribution to Thailand and Vietnam also (Blanford and Godwin-Austen, 1908; Solem, 1966; Nabhitabhata, 2009; Thach, 2017). Most of the species belongs to this genus have been described from the Indo-Burma hotspot, except for two species *Austenia doisutepensis* Solem, 1966 has been reported from Thailand and *Austenia abletti* Thach, 2017 from Vietnam. The snails belonging to *Austenia* have close resemblance with that of *Pseudaustenia* of peninsula India, however differentiated by visceral parts. Nevertheless, this genus is intermediate between the more sluggish genus *Giarasia* and *Macrochlamys* (Blanford and Godwin-Austen, 1908).

The Dampa Tiger Reserve (DTR) is located in the Momit district of Mizoram in India and spread over in an area of 500 km², the western territory of which is bordering with neighbouring Bangladesh. The topographic

elevation ranges from 250-1100 m. The lowland area of the Tiger Reserve comprises of tropical evergreen forest and highland with semi-evergreen forests. The annual precipitation of the region ranges from 2000-2500 mm with average day temperature ranges between 12°C-35°C (Suchitra Devi *et al.*, 2011).

On 9th December 2019, during the field survey in DTR, a single empty shell of *Austenia* was collected along with other species of Mollusca *viz.* Cyclophoridae and Ariophantidae from the Damparengpui areas. The shell was collected from the forests floor under high leaf litter. The sample was collected by hand packing methods and brought back to the Zoological Survey of India (ZSI) for identification (Sajan *et al.*, 2017). The Indo-Burmese collection of type and voucher specimen of *Austenia* present in the National Zoological Collection of Zoological Survey of India (NZSI) was referred for comparison. After thorough examination of the characters, the shell was confirmed as *Austenia resplendens*.

Taxonomic Account

Super family HELICARIONOIDEA Bourguignat, 1877
Family HELICARIONIDAE Bourguignat, 1877

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Subfamily DURGELLINAE Godwin-Austen, 1888

Genus *Austenia* G. Nevill, 1817

1878. *Austenia* Nevill, (Subgenus of *Helicarion*), *Hand list*. I, p. 16.

Type Specimen: *Vitrina gigas* Benson, 1836 (original combination) [valid name (*Austenia gigas* Benson, 1836)]

Distribution: India: Eastern Himalaya, North-east India, Myanmar, Thailand and Vietnam.

***Austenia resplendens* (Nevill, 1877)**

(Figs. 2A-B, 3B-D)

1877. *Helicarion resplendens* Nevill, *J. Asiat. Soc. Beng.*, p. 23.

1878. *Helicarion (Austenia) resplendens* Nevill, *Hand list*. I, p. 16.

1881. *Helicarion (Austenia) resplendens* Nevill, *J. Asiat. Soc. Beng.*, p. 129, pl. 5, figs. 24, 24a.

1908. *Austenia resplendens* Blanford & Godwin-Austen, *Fauna Brit. India*, p. 194.

Description: The shell is medium in size, ear-shaped and appressed, slightly thick, fairly striated, brownish in colour, spire very low, apex flat, suture impressed, the whorl of the shell 2¼ and rapidly increasing, the last whorl large and slightly flattened, the aperture is large and ovate, oblique in shape, the collumellar region moderately arcuate.

Materials: 1 ex. (dry empty shell), Mizoram, Mamit district, DTR, Damparengpui, (Lat. 23.69461 N, Long. 92.40825 E, Alt. 671 m asl); 09-xii-2018; Coll. Deepti and party (Reg. No. NZSI M.32502/9).

Known distribution: Sawady [=Sawdi] and Bhamo, Upper Burma (Myanmar).

Current distribution: Damparengpui, Dampa Tiger Reserve, Mamit district of Mizoram.

Habitat: The shell of *Austenia resplendens* was collected under heavy leaf litter in the area of high steep slopes, 600-700 m on the windward side of the Dampa hills.

Comparative remark: The new finding of *Austenia resplendens* is more resembling with the Indian species *Austenia cacharica*, however easily distinguished by the size of the shell. Nevertheless, another sympatric species *Austenia gigas* (Benson, 1836) which is larger and thicker, also resembles with *Austenia resplendens* (Figure 2).

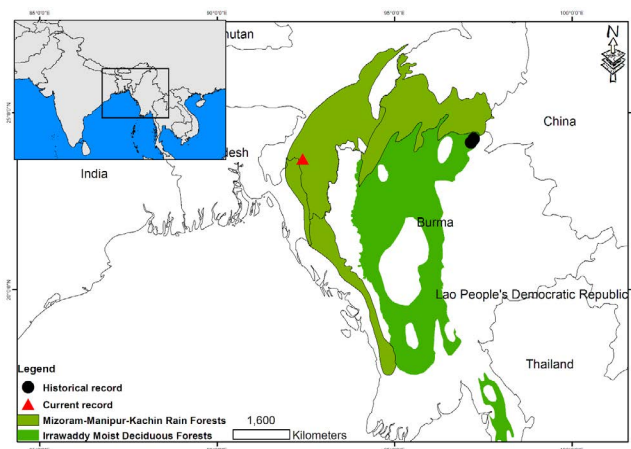


Figure 1. Current and historical records of *Austenia resplendens* (Nevill, 1877) in South and Southeast Asia. (Source: Olson et al., 2001)

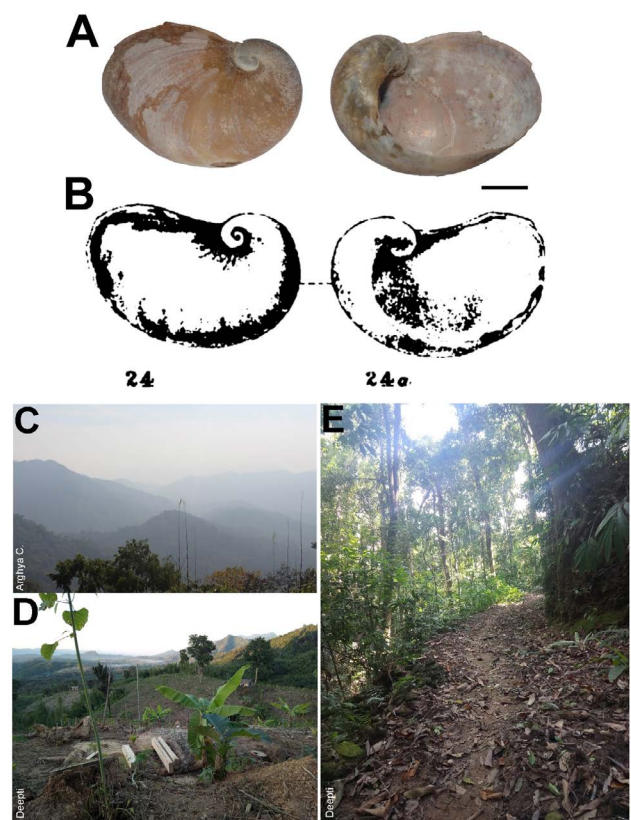


Figure 2. A. The photographs of *Austenia resplendens* (Nevill, 1877) from Dampa-Rengpui, Dampa Tiger Reserve, Mizoram, India, B. *A. resplendens*, illustrated by Nevill, 1881, *J. Asiat. Soc. Beng.*, pl. 5, Figs. 24, 24a. (Scale: 5 mm), C. landscape view of Dampa Tiger Reserve, D. Shifting (Jhum) cultivation at DTR, E. the critical habitat of *Austenia resplendens*.

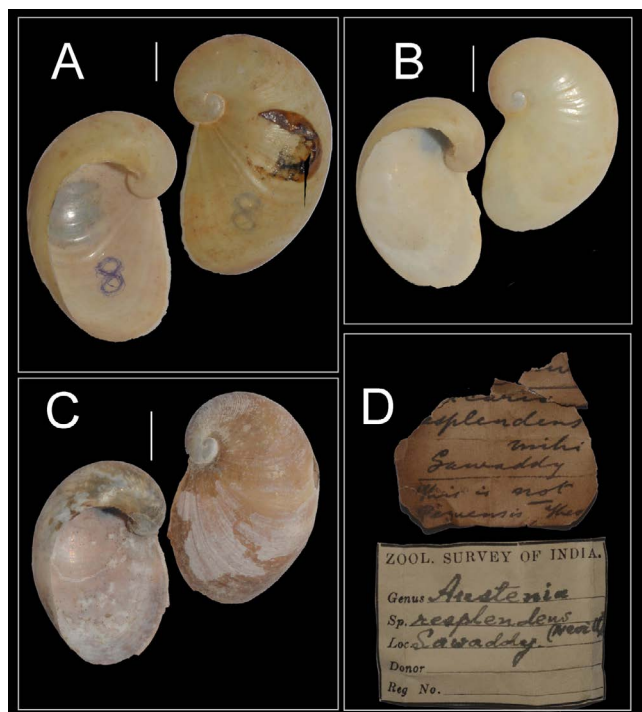


Figure 3. A. *Austenia gigas* form “Cachar, Assam”, B. *Austenia resplendens* from “Sawaddy”, C. *Austenia resplendens* from Dampa Tiger Reserve, Mizoram, India., D. Original labelled of the specimen deposited at National Zoological Collection of ZSI (Scale: 5 mm).

Discussion

The shell under report from Damparengpui was thoroughly studied and compared with the voucher specimens present in the NZSI and confirmed to be an *Austenia resplendens*, based on the diagnostic characters. The *Austenia resplendens* is also reported to be the range extension of the Burmese species into the Indian Territory. It is to be noted that the first and senior author have recently reported another Burmese terrestrial land snails *Oxytesta shanensis* (Godwin-Austen, 1883) from the Namdapha Tiger Reserve,

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Arunachal Pradesh (Sajan *et al.*, in press 2019). The north-east region of India under the Indo-Burma Hotspots and Mizoram-Manipur-Kachin rainforest ecoregion (Myers *et al.*, 2000; Olson *et al.*, 2001) is rich in biological richness and its narrow spatial spread also act as transitional zone with large number of edge species with show affinity with the bordering ecosystems. Moreover the mountain undulations of the study landscape are also known as biogeographic highways which connect Malayan and Chinese regions. The current new distribution record may help towards understanding the long dispersal pattern of terrestrial gastropods fauna and connectivity pattern between two ecoregion viz., Mizoram-Manipur-Kachin rainforest and Irrawaddy moist deciduous forests (Figure 1). During the survey, the authors also encounter the shifting cultivation (*Jhum*), extractions of firewood and timbers, evidence of forest fire and non-timber forest products from the area, which may directly affect the invertebrate diversity, habitat destructions and threat to the land snail population. Therefore, the extensive field survey should need to be carried out in this region for better understanding dispersal pattern of lesser known invertebrates for suitable conservation and management of natural resources of Dampa Tiger Reserve.

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