

Taxonomic note on the genus *Megalophasma* Bi, 1995 (Phasmida: Phasmatidae: Lonchodinae)

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壯蠨屬 *Megalophasma* Bi, 1995 的分類註釋 (蠨目: 蠨科: 長角棒蠨亞科)

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This paper presents a taxonomic note on the genus *Megalophasma* Bi, 1995. The male and egg of *M. granulatum* Bi, 1995 are described for the first time. *Neohirasea asperatus* (Bates, 1865) is transferred to *Megalophasma* to become *Megalophasma asperatus* (Bates, 1865) **comb. nov.** A key to the genus is given.

Key Words: Phasmida, Lonchodinae, *Megalophasma*, new combination, China, India.

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摘要: 本文提供壯蠨屬 *Megalophasma* Bi, 1995 的分類註釋; 首次描述顆粒壯蠨 *Megalophasma granulatum* Bi, 1995 的雄蟲及蟲卵; 轉移粗糙新棘蠨 *Neohirasea asperatus* (Bates, 1865) 至壯蠨屬為粗糙壯蠨 *Megalophasma asperatus* (Bates, 1865) **comb. nov.**

關鍵字: 蠨目, 長角棒蠨亞科, 壯蠨屬, 新組合, 中國, 印度

INTRODUCTION

The genus *Megalophasma* Bi, 1995 was established based on six females which were collected from Medog in the southern Tibet region, China. Bi (1995) originally placed *Megalophasma* in Heteronemiidae Rehn, 1904 based on the similarity to *Parasosibia* Redtenbacher, 1908 (Necrosiinae Brunner von Wattenwyl, 1893). Otte and Brock (2005), and Chen and He (2008) retained the taxonomic placement. Hennemann et al. (2008), however, transferred *Megalophasma* to Lonchodinae Brunner von Wattenwyl, 1893 (Phasmatidae Gray, 1935) without detail explanation. By examining the type-species, *Megalophasma granulatum* Bi, 1995, I conclude that its thick-built mesofemora in female, dilated anal segment in male and egg structure are diagnostic for Lonchodinae. The male and egg of *M. granulatum* Bi, 1995 are described and illustrated for the first time to contribute to the knowledge of the species. A new combination is proposed: *Megalophasma asperatus* (Bates, 1865) **comb. nov.** transferred from *Neohirasea* Rehn, 1904.

MATERIALS AND METHODS

Illustrated drawings and descriptions for male and egg of *Megalophasma granulatum* Bi, 1995 are based on material deposited at the Shanghai Entomological

Museum, Shanghai, China. Measurements of the male and egg are given in millimetres. Ootaxonomic description of *Megalophasma granulatum* Bi, 1995 is based on eggs removed from the abdomen of a non-type adult female. The eggs were presumed to be mature according to general egg structure of Lonchodinae (Hennemann and Conle, 2008). Ootaxonomic description refers to Clark (1976a, 1976b, 1979, 1988, 1998), Clark-Sellick (1997) and Zompro (2004). The abbreviations for depositories are as follows:

SEM: Shanghai Entomological Museum, Shanghai, China

UMO: Hope Entomological Collections, University Museum, Oxford, United Kingdom.

RESULTS

Genus *Megalophasma* Bi, 1995

Megalophasma Bi, 1995: 453.

Bragg, 2001: 637.

Zompro, 2004: 314.

Otte and Brock, 2005: 198.

Hennemann et al., 2008: 15.

Chen and He, 2008: 157.

Type-species: *Megalophasma granulata* Bi, 1995 (= *Megalophasma granulatum*): 453, by original designation.

Notes: Only two species are known from the genus.

Distribution: This genus is restricted to the southern Tibet region of China and the northern West Bengal region of India in the Himalaya.

Key to *Megalophasma* Bi, 1995:

1. Female 2
- Male 3
2. Vertex with a pair of apically rounded horns; postero-lateral angles of seventh tergum triangularly expanded *M. granulatum*
- Vertex with a pair of apically pointed horns; postero-lateral angles of seventh tergum not expanded *M. asperatum* **comb. nov.**
3. Vertex with a pair of apically rounded horns; mesonotum inconspicuously granulated; antero-ventral and postero-ventral carinae of femora with three to four spines *M. granulatum*

- Vertex with a pair of apically pointed horns; mesonotum distinctly granulated; antero-ventral and postero-ventral carinae of femora with two to three spines *M. asperatum* **comb. nov.**

***Megalophasma granulatum* Bi, 1995**

Megalophasma granulata, Bi, 1995: 454, figs. 8-11.

Otte and Brock, 2005: 198.

Hennemann et al., 2008: 15.

Chen and He, 2008: 157, figs. 125: A-B.

Types: Holotype: ♀, Medog, Xizang (Tibet), China, 2.VII.1980, Jin Gentao & Wu Jianyi (SEM); Paratypes: 6♀♀, Medog, Xizang (Tibet), China, 2-18.VII.1980, Jin Gentao & Wu Jianyi (SEM).

Other material examined: 22♂♂, 6♀♀, 10 extracted eggs, Medog, Xizang (Tibet), China, 2-18.VII.1980, Jin Gentao & Wu Jianyi (SEM).

Description of male (Figs. 1-3): Medium-sized. General colour of body and legs olive brown. Body slender, covered with inconspicuous granules.

Head: Oval, about 1.5 times longer than wide. Sparsely covered with small granules. Vertex flat, with an oblong depression between bases of antennae and with two flattened elevations between the compound eyes. Genae with a short pale postocular stripe behind eyes. Occiput flat. Median occipital furrow indistinct. Posterior margin with six small swellings, median pair larger than lateral one. Compound eyes light brown, rounded, with a dark transverse stripe. Antennae filiform, reaching apices of protibiae, segments indistinct, sparsely covered with blackish setae; first segment cylindrical, flattened basally, about 3 times longer than second segment, slightly longer than third segment.

Thorax: Pronotum sparsely covered with small granules, almost as long as head, rectangular, anterior margin truncate, posterior margin rounded, transverse and longitudinal sulci crossing at middle. Mesonotum mainly reddish brown except the posterior region which is olive brown; elongate, 4.5-5.5 times longer than pronotum, distinctly longer than mesofemora, broadly emarginated medially, posterior margin distinctly broader than head; median line distinct, densely covered with small inconspicuous granules, lateral margins with a row of minute pits. Mesosternum reddish brown with small inconspicuous granules. Metanotum longer than the combined length of head and pronotum with minute pits along lateral margins, inconspicuously granulated. Mesopleura, metapleura and metasternum olive brown, with inconspicuous granules.

Abdomen: Cylindrical, brown, terminal three terga dark brown; as long as antennae, longer than the combined length of head and thorax, lacking granules. Parallel-sided from second to seventh terga, with a row of minute pits laterally. Median segment marginally longer than the head. Second to fifth terga equal in length. Sixth tergum shorter than fifth tergum. Eighth tergum expanded posteriorly, posterior margin 2 times longer than the anterior margin. Ninth tergum as long as

eighth tergum, moderately constricted posteriorly. Anal segment as long as seventh tergum, elongate, with deep V-shaped emargination on posterior margin, split into two semi-terga at distal half. Semi-terga tapering posteriorly, inner margin curved, apices curved inward with small dentations. Poculum cup-like, medially carinate, reaching anterior region of anal segment, posterior margin with a small indentation. Cerci light brown, cylindrical and short, with short setae, apices curved inward.

Legs: Femora thick-built. Tibiae slender than the femora. Densely covered with short setae. Olive brown as most parts of body, apices of femora and tibiae with darker colour. Profemora curved basally, longer than mesonotum. Postero-ventral and antero-ventral carinae of femora with three to four small spines near apex. Medio-ventral carina slightly raised basally.

Measurements: See Table 1.

Description of egg (Figs. 4-5): Capsule brown, oval-shaped, surface lacking granulation. Operculum flat, with distinct closed-stalked capitulum. Micropylar plate oblong, tapering anteriorly, anterior apex rounded. Micropylar cup placed near the end of micropylar plate. Length 1.4 mm., width 0.9 mm., height 10 mm.

Notes: The male and egg are described for the first time. This species favours the lower levels of the scattered forests in the type-locality (private communication with Xie Guanglin, Hebei University).

Distribution: Tibet (Medog), China.

***Megalophasma asperatum* (Bates, 1865) comb. nov.**

Lonchodes asperatus, Bates: 1865: 339.

Staelonchodes asperatus, Kirby, 1904: 318.

Menexenus asperatus, Brunner von Wattenwyl, 1907: 245.

Neohirasea asperatus, Otte and Brock, 2005: 217.

Types: Syntypes: 1♂, 2♀♀, Darjeeling, India (UMO), assessed by Phasmida Species File's images (Brock, 2014).

Notes: This species was originally placed in *Lonchodes* Gray, 1835 and later transferred to *Staelonchodes* Kirby, 1904 (a junior synonym of *Lonchodes*), *Menexenus* Stål, 1875 and *Neohirasea* Rehn, 1904 (Kirby, 1904; Brunner von Wattenwyl, 1907; Otte and Brock, 2005). In fact, it is closely related to *Megalophasma granulatum* Bi, 1995 and here combined. This species is not recorded in China.

Distribution: West Bengal (Darjeeling), India.

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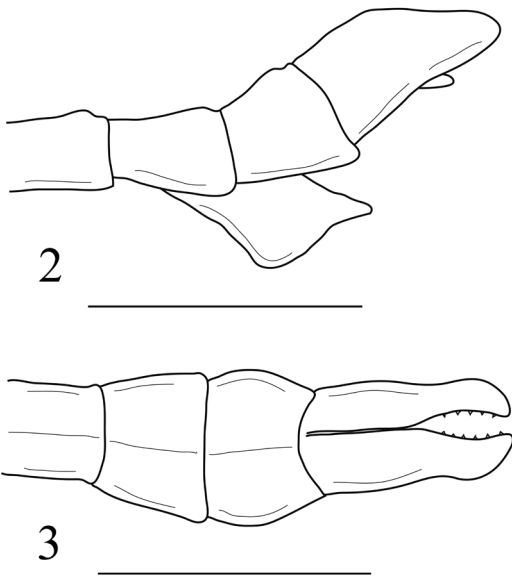
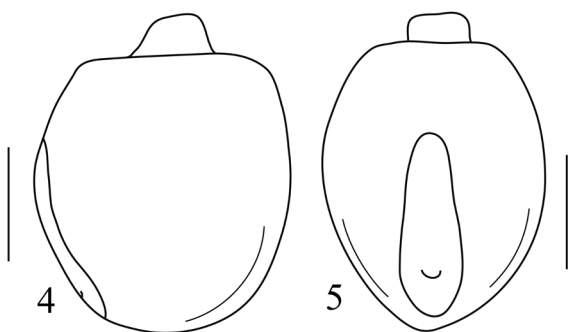
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TABLE AND FIGURES

Table 1. Measurements of male *Megalophasma granulatum* Bi, 1995.

Body part	Length mm	Mean (n = 8)
Body	66–77	70.1
Head	3–3.5	3.2
Antennae	30–37	31.9
Pronotum	3–3.5	3.1
Mesonotum	14–17	15.5
Metanotum	8–10	8.6
Median segment	3–3.5	3
Profemora	16–18	16.5
Mesofemora	11–12	11.9
Metafemora	14–17	15.9
Protibiae	16–18	16.8
Mesotibiae	11–13	11.8
Metatibiae	15–17	16

Figure 2–3. Male *Megalophasma granulatum* Bi, 1995 [scale bar 5 mm]. 2. Male, end of abdomen, lateral view. 3. Male, end of abdomen, dorsal view. (Drawing by author)**Figure 4–5.** Egg of *Megalophasma granulatum* Bi, 1995 (scale bar 1 mm). 4. Lateral view. 5. Dorsal view. (Drawing by author)**Figure 1.** Body of male *Megalophasma granulatum* Bi, 1995 [scale bar 5 mm]. (Drawing by author)