

## Two new species of the genus *Nigrimacula* Shi, Bian & Zhou, 2016 (Orthoptera: Tettigoniidae: Meconematinae) from China



BINGYU REN<sup>1,3</sup>, HAO XU<sup>1,4</sup>, QIDI ZHU<sup>2,5\*</sup> & YANLIN CHANG<sup>1,6\*</sup>



<sup>1</sup>Key Laboratory of Zoological Systematics and Application of Hebei Province, College of Life Science, Hebei University, Baoding 071002, P. R. China

<sup>2</sup>College of Agronomy, Jiangxi Agricultural University, Nanchang 330045, P. R. China

<sup>3</sup> 17836567863@163.com;  <https://orcid.org/0009-0007-7799-4823>

<sup>4</sup> xuhao\_xh@outlook.com;  <https://orcid.org/0009-0004-2497-1458>

<sup>5</sup> qidizhu0323@163.com;  <https://orcid.org/0000-0001-8187-1286>

<sup>6</sup> changylin@126.com;  <https://orcid.org/0000-0001-8582-0339>

\*Corresponding authors

### Abstract

This paper reports two new species of the genus *Nigrimacula* Shi, Bian & Zhou, 2016 from China, i.e. *Nigrimacula laminoprotubera* **sp. nov.** and *Nigrimacula dentiprotubera* **sp. nov.** In addition, we provide the morphological photographs. All type specimens are preserved in the Museum of Hebei University.

**Key words:** Meconematini, *Nigrimacula*, new species, China

### Introduction

The genus *Nigrimacula* was proposed by Shi *et al.* (2016) with type species *Nigrimacula xizangensis* (Jiao & Shi, 2013). So far the genus comprises 13 species.

**Generic diagnosis.** Body small. Fastigium verticis conical, apex rounded, furrowed in the midline on dorsal surface. Eyes globular, protruding forwards. Lateral lobe of pronotum longer than high, humeral sinus distinct. Pro- and mesotibiae with short spines on ventral surface, fore tibial tympana open on both sides. Genicular lobes of hind femur with apices rounded, hind tibia with 1 pair of dorsal apical spurs and 2 pairs of ventral apical spurs. Tegmen narrow and long, hind wing slightly longer than tegmen. Posterior margin of male tenth abdominal tergite nearly straight. Male cercus variable. Fastigium verticis black, anterior margin of disc of pronotum with a pair of black spots. Anterior margin of metazona with a pair of black spots or not.

In this paper, we describe two new species from China, i.e. *Nigrimacula laminoprotubera* **sp. nov.** and *Nigrimacula dentiprotubera* **sp. nov.** All type specimens are preserved in the Museum of Hebei University.

Morphological images were acquired using Leica M205A digital imaging system. The photos were edited using Adobe Photoshop CC 2019. The following conventions were adopted for the specimen measurements: body length—distance from apex of fastigium verticis to posterior margin of tenth abdominal tergite in the midline; pronotum length—distance from anterior to posterior margins of pronotum in the midline; tegmen length—distance from base of tegmen to the apex; hind femur length—distance from base of hind femur to apex of genicular lobe.

### *Nigrimacula laminoprotubera* **sp. nov.**

Chinese name 片突斑背螽

Fig. 1

**Description. Male.** Body small. *Head.* Fastigium verticis conical, apex rounded, furrowed in the midline on dorsal surface. Eyes globular, protruding forwards. Apical segment of maxillary palpus nearly equal to subapical one,

apical area slightly inflated. *Thorax*. Pronotum with anterior margin straight, posterior margin rounded, lateral lobe longer than high, humeral sinus distinct. *Legs*. All femora unarmed on ventral surfaces. Fore tibia with 3 relatively short spines on internal margin of ventral surface, external margin with 4 short spines, tibial tympana open on both sides. Genicular lobes of hind femur with apices rounded; hind tibia with 26 internal and 30 external short spines on dorsal surface, apex with 1 pair of dorsal apical spurs and 2 pairs of ventral apical spurs. *Tegmina and wings*. Tegmina narrow and long, surpassing apex of abdomen. Hind wings slightly longer than tegmina. *Abdomen*. Posterior margin of tenth abdominal tergite slightly concave. Cercus compressed and incurved, outer side of basal area with a small conical process, basal half broad (ventral inner margin with a lamellate expansion, which inner edge concave longitudinally), possessing a narrow lamellate expansion near the middle of dorsal inner margin (Fig. 1E). Apical half of cercus narrow, apex rounded. Length of subgenital plate nearly equal to width, basal area faintly broad and apical area slightly narrow, posterior margin nearly truncate (Fig. 1C). Styli conical, inserted on lateral margins of apical area of subgenital plate.

**Coloration.** Body yellowish green. Fastigium verticis black, occiput with a broad longitudinal reddish brown stripe along the midline. Eyes reddish brown. Disc of pronotum with a broad longitudinal reddish brown stripe in the midline, which becoming lighter in metazona. Anterior margin of pronotum and anterior margin of metazona with a pair of black spots respectively. Tegmen with some scattered irregular dark spots.

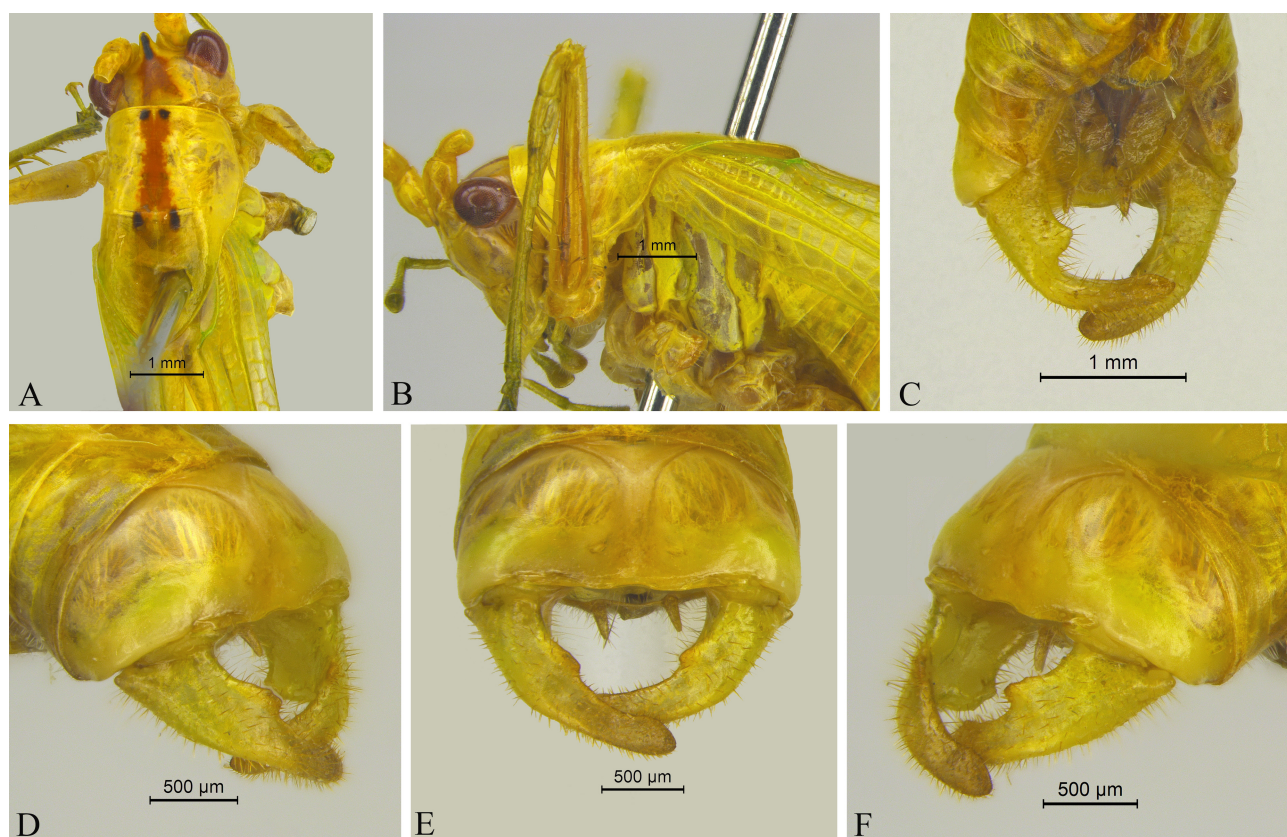
**Female.** Unknown

**Specimens examined.** Holotype: ♂, Defu, Napo, Guangxi, 13 August, 2024. coll. Hao Xu.

**Measurements (mm).** Body: ♂10.4; pronotum: ♂4.6; tegmen: ♂16.0; hind femur: ♂9.8.

**Discussion.** The new species is similar to both *Nigrimacula sichuanensis* Wang & Shi, 2016 and *Nigrimacula biprotubera* Duan, Su, Shi & Chang, 2023, but differs in: male cercus compressed, basal half broad (ventral inner margin with a lamellate expansion, which inner edge concave longitudinally), possessing a narrow lamellate expansion near the middle of dorsal inner margin. (Fig. 1E).

**Etymology.** The name of new species is derived from male cercus with a narrow lamellate expansion near the middle of dorsal inner margin, from Latin ‘*lamino-*’ (lamellate) and ‘*protuber-*’ (process).



**FIGURE 1.** *Nigrimacula laminoprotubera* sp. nov., male: **A–B.** head and pronotum: **A.** dorsal view; **B.** lateral view; **C–F.** apex of abdomen: **C.** ventral view; **D, F.** dorso-lateral view; **E.** dorsal view.



*Nigrimacula dentiprotubera* sp. nov.

Chinese name 齿突斑背蝽

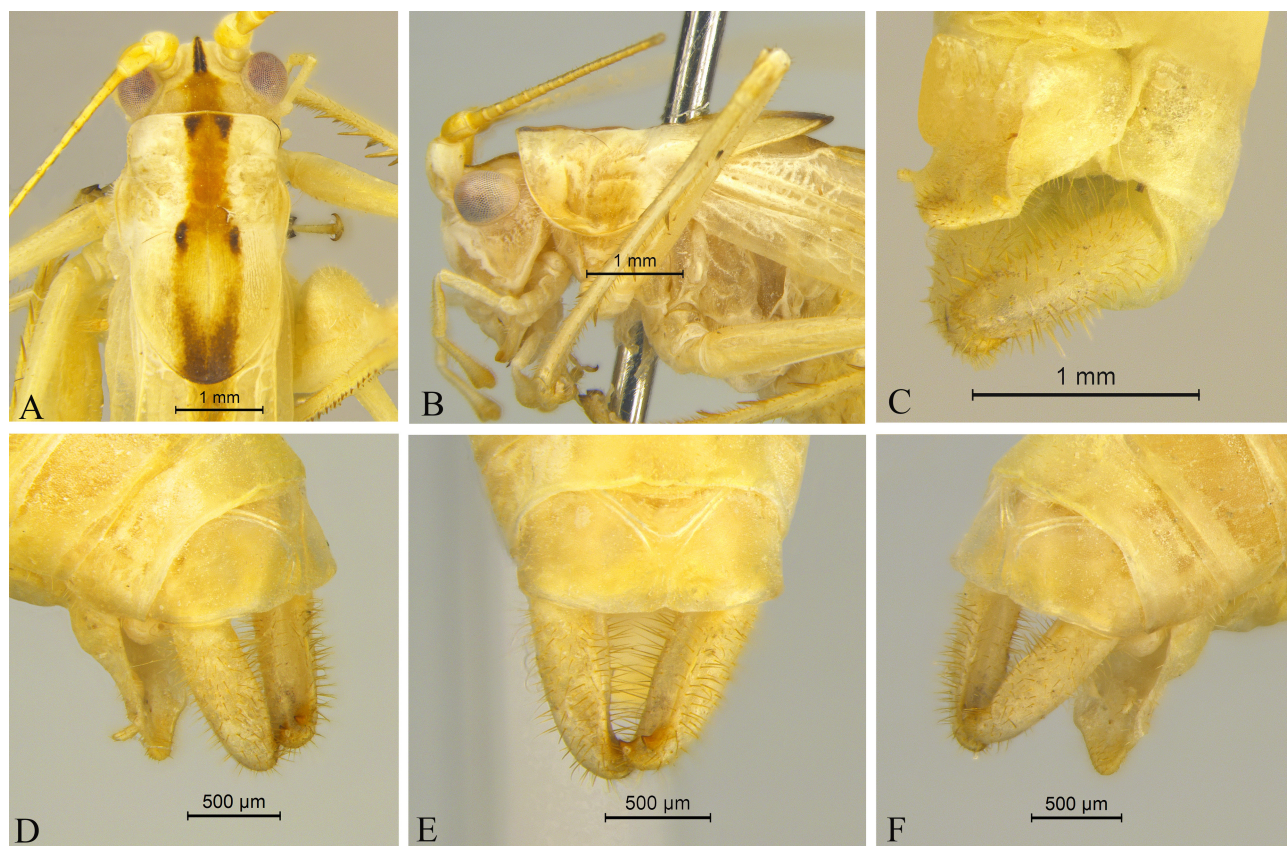
Fig. 2

**Description. Male.** Body small. *Head.* Fastigium verticis conical, apex rounded, furrowed in the midline on dorsal surface. Eyes globular, protruding forwards. Apical segment of maxillary palpus nearly equal to subapical one, apical area slightly inflated. *Thorax.* Pronotum with anterior margin straight, posterior margin rounded, lateral lobe longer than high, humeral sinus distinct. *Legs.* All femora unarmed on ventral surfaces. Fore tibia with 3–4 relatively short spines on internal margin of ventral surface, external margin with 4 short spines, fore tibial tympana open on both sides. Middle tibia with 2 short spines on internal margin of ventral surface, external margin with 4 short spines. Genicular lobes of hind femur with apices rounded; hind tibia with 20–21 internal and 23 external short spines on dorsal surface, with 2 internal and 5–6 external short spines on ventral surface, apex with 1 pair of dorsal apical spurs and 2 pairs of ventral apical spurs. *Tegmina and wings.* Tegmina narrow and long, surpassing apices of hind femora. Hind wings slightly longer than tegmina. *Abdomen.* Posterior margin of tenth abdominal tergite with a small triangular notch. Cercus robust, nearly cylindrical, inner side longitudinally concave, apical area slightly narrow, internal surface of apical and subapical areas with a dentoid process respectively (Fig. 2D–F). Subgenital plate with base broad, narrowing, apex rounded (Fig. 2C). Styli short conical, inserted on lateral margins of subapical area of subgenital plate.

**Coloration.** Body light yellow. Fastigium verticis black, occiput with a broad longitudinal reddish brown stripe along the midline. Eyes reddish brown. Disc of pronotum with a broad longitudinal reddish brown stripe in the midline, which becoming lighter in metazona. Anterior margin of pronotum and anterior margin of metazona with a pair of dark brown spots respectively. Posterior area of metazona dark brown. Tegmen with some scattered irregular dark spots.

**Female.** Unknown.

**Specimens examined.** Holotype: ♂, Forest Sea Waterfall in Pangda Village, Yadong, Xizang, 22 July, 2024. coll. Qidi Zhu. Paratype: 1♂, Forest Sea Waterfall in Pangda Village, Yadong, Xizang, 22 July, 2024. coll. Qidi Zhu.



**FIGURE 2.** *Nigrimacula dentiprotubera* sp. nov., male: A–B. head and pronotum: A. dorsal view; B. lateral view; C–F. apex of abdomen: C. ventro-lateral view; D, F. dorso-lateral view; E. dorsal view.

**Measurements (mm).** Body: ♂9.6–9.7; pronotum: ♂4.2–4.5; tegmen: ♂12.6–12.9; hind femur: ♂9.3–9.7.

**Discussion.** The new species is similar to *Nigrimacula binotata* Shi, Bian & Zhou, 2016, but differs in: pronotum with 2 pairs of dark brown spots. Subgenital plate with base broad, narrowing, apex rounded (Fig. 2C).

**Etymology.** The name of new species is derived from apical and subapical dentoid processes on the internal surface of the male cercus, from Latin ‘*denti-*’ (dentoid) and ‘*protuber-*’ (process).

## Acknowledgments

This project is supported by the National Natural Science Foundation of China. (No. 32270488), the Survey of Wildlife Resources in Key Areas of Xizang (Phase II) (No. ZL202303601) and Survey and Assessment of Priority Areas for Terrestrial Biodiversity Conservation in Guangxi (2024).

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