



Discovery of *Morphostenophanes* Pic, 1925 (Coleoptera: Tenebrionidae: Stenochiinae) in Xizang, China, with description of a new species

DE-YAO ZHOU^{1,*}, NYIMA TENZIN^{2,4,#} & REN-ZHI ZHANG^{3,5}¹ Jiading Agriculture Technology Extension Service Center, Jiading District, Shanghai 201403, China² Institute of Plateau Biology of Xizang Autonomous Region, Lhasa, Xizang Autonomous Region, 850001, China³ Room 1402, Unit 2, Huibang Apartment, 2a Jincheng Street, Zhongshan District, Dalian, Liaoning 116001, China⁴ [✉ danzeng220227@163.com](mailto:danzeng220227@163.com); [ORCID](https://orcid.org/0009-0002-9337-6877) <https://orcid.org/0009-0002-9337-6877>⁵ [✉ Dorcus1998@yahoo.com](mailto:Dorcus1998@yahoo.com); [ORCID](https://orcid.org/0009-0008-2443-5873) <https://orcid.org/0009-0008-2443-5873>

#These authors contributed equally to this work

*Corresponding author: [✉ scydmaeninae@163.com](mailto:scydmaeninae@163.com); [ORCID](https://orcid.org/0000-0002-2014-9967) <https://orcid.org/0000-0002-2014-9967>

Abstract

This study reports the first occurrence of the tenebrionid genus *Morphostenophanes* Pic, 1925 from Xizang, China, and describes a new species, *M. medogensis* Zhou & Zhang, **sp. nov.** Illustrations of the habitus and key diagnostic characters are provided to distinguish the new taxon from its congeners.

Key words: taxonomy, darkling beetle, Cnodalonini, new taxon, Qinghai-Xizang (Tibet) Plateau

Introduction

The darkling beetle genus *Morphostenophanes* Pic, 1925, a constituent of the low-latitude-diverse tribe Cnodalonini Oken, 1843, comprises a significant radiation of species endemic to subtropical Asia. The genus was originally established by Pic (1925) based on the type species *M. aenescens* Pic, 1925 from Yunnan, China, the genus was comprehensively revised by Zhou (2020). This revisionary work clarified the primary diagnostic features of the group, established six species groups, and described 17 new species and three new subspecies, thereby expanding the genus to 31 species-group taxa and demonstrating its exceptional diversification within the Sino-Indochina region.

Existing distributional data demonstrate that species of *Morphostenophanes* predominantly inhabit mountainous regions across central-south and southwestern China, with a southward extension into the Indochina Peninsula (Zhou 2020: Map 1). Notwithstanding this broad spatial distribution, a conspicuous absence of records from the Himalaya—a critical biogeographic corridor linking East and South Asia—has constituted a significant gap in our knowledge of the genus's range.

Here, we document the first occurrence of *Morphostenophanes* in Xizang, China, bridging this biogeographic discontinuity with the description of a new species. The new taxon is diagnosable by its reflexed or vertical prosternal process, and a pronotum with projecting posterior angles.

Material and methods

The holotype and paratypes of the new species are labelled with red and yellow cards, respectively. Specimens examined in the current study are deposited in the following institutions, museums or private collections. Abbreviations for collections as listed below:

- cJQY** Collection of Quan-Yu Ji, Nantong, China;
SNUC Insect Collection of the Shanghai Normal University, Shanghai, China.

Habitus photographs were taken using a Nikon® Z7 digital camera with Laowa® 100mm f/2.8 2x Macro lens, and stacked using Zerene Stacker (version 1.04); photographs of smaller characters were taken using the same camera equipped with Laowa® 25mm f/2.8 2.5-5X Ultra Macro lens; all photographs were refined in Adobe Photoshop® CC2019.

The following abbreviations are applied in measurements: EL—length of elytra along midline; EW—maximum width of elytra; OI—ocular index (Campbell and Marshall 1964); PL—length of pronotum along midline; PW—maximum width of pronotum. Body length was measured from the middle of the anterior margin of clypeus when the head is in a natural position to the apex of elytra, and body width equals to EW.

Taxonomy

Morphostenophanes medogensis Zhou & Zhang, sp. nov.

(Figs 1–3)

Type material. HOLOTYPE: CHINA: ♂, 'China: Xizang, Mêdog County (墨脱县), 80k, alt. ca. 2000 m, 2022. vii, Ling-Feng Yuan leg.' (SNUC). **PARATYPES:** CHINA: 1 ♂, 'China: Xizang, Mêdog County (墨脱县), Dagmo Town (达木乡), 2200 m, 2020.ii.' (cJQY); 3 ♀♀, 'China: Xizang, Bomê County (波密县), Gu Town (古乡), Baika Village (巴卡村, 29°53'41"N, 95°31'14"E), 2627 m, 2021.vii.11, Ren-Zhi Zhang leg.' (SNUC).

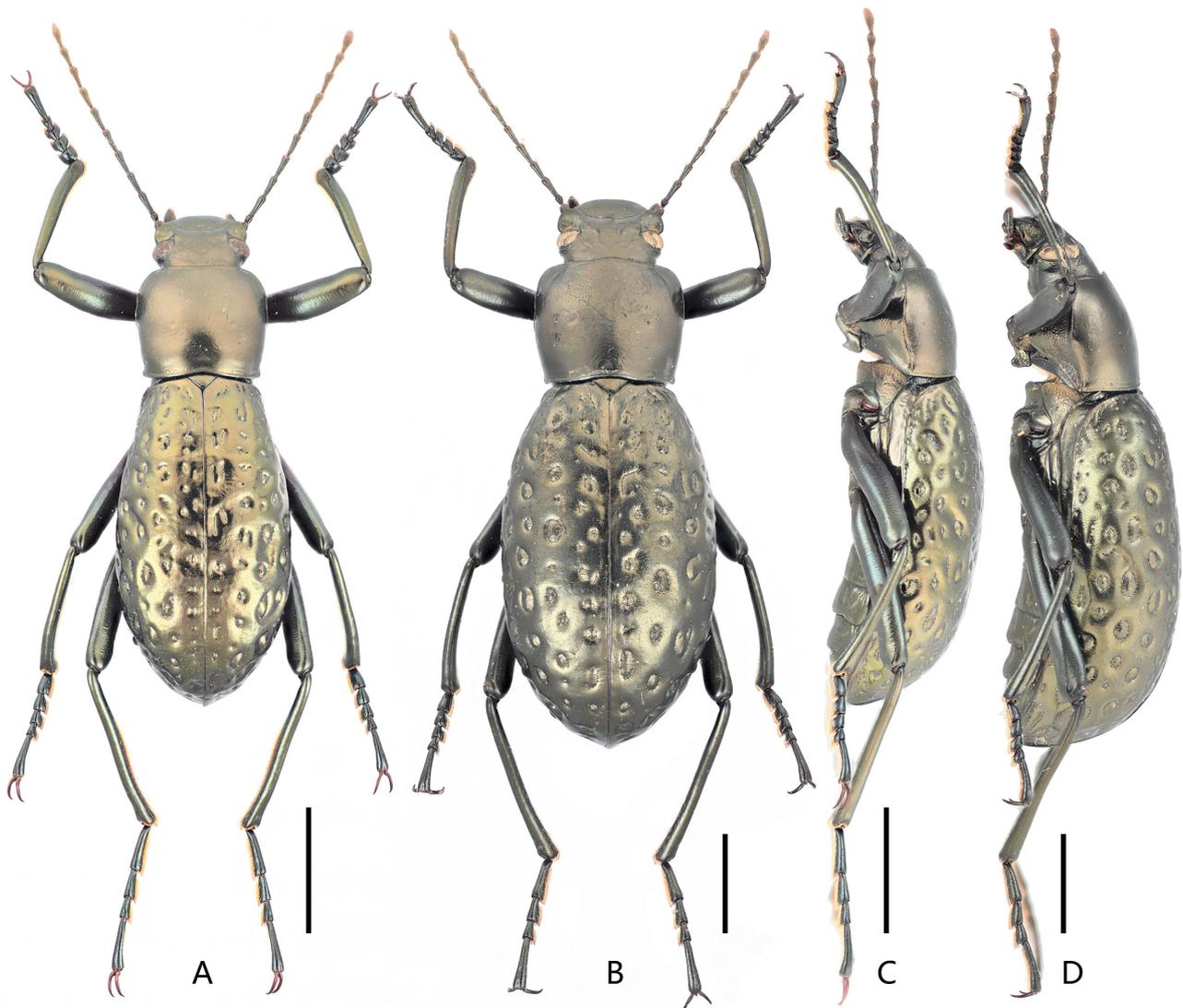


FIGURE 1. Habitus of *Morphostenophanes medogensis* sp. nov. A, C. Male, holotype. B, D. Female, paratype. In dorsal (A, B) and lateral (C, D) view. Scale bars = 5.0 mm.

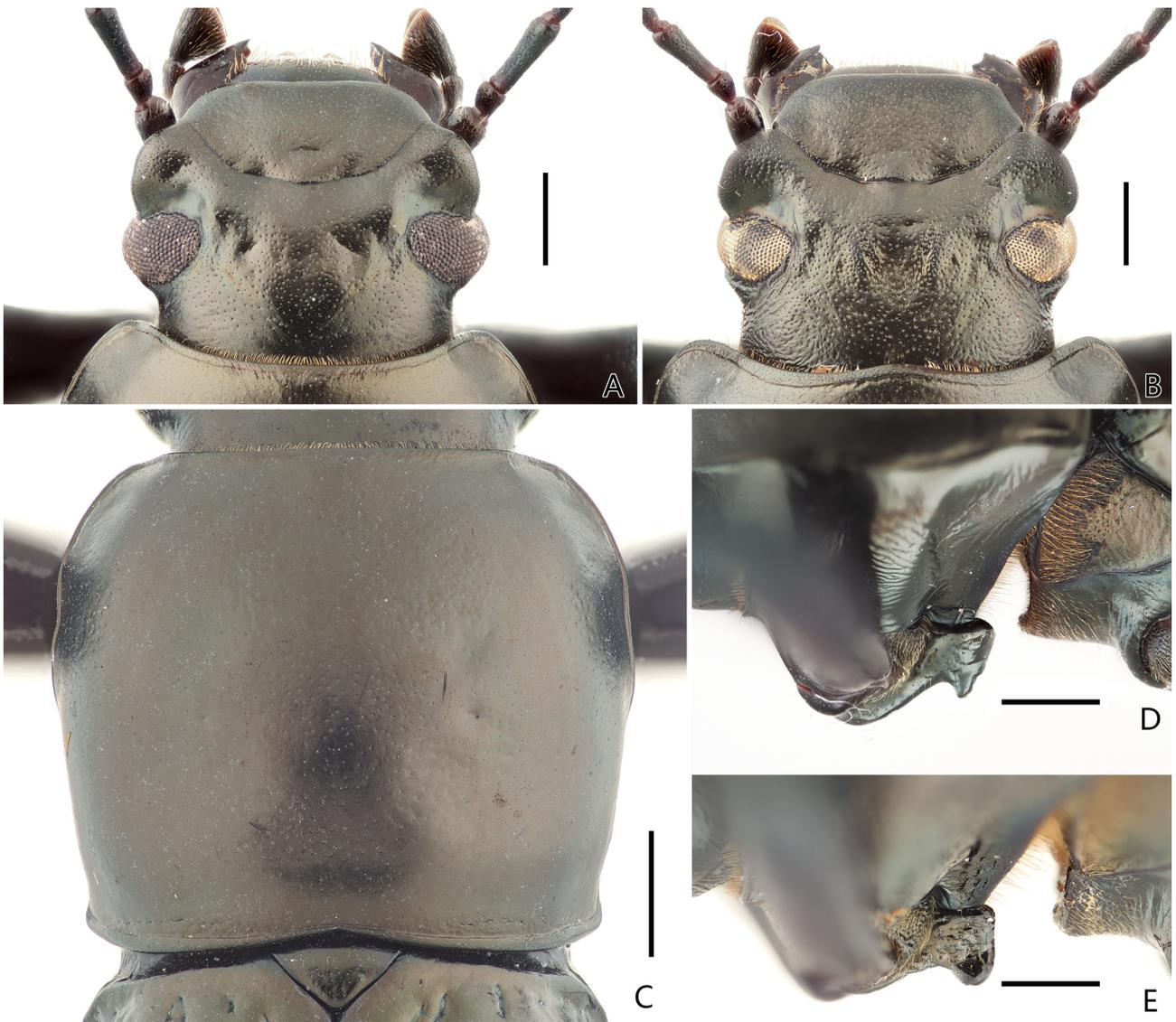


FIGURE 2. External characters of *Morphostenophanes medogensis* **sp. nov.** Male (A) and female head (B) in dorsal view. Male pronotum in dorsal view (C). Male (D) and female (E) prosternal processes in left lateral view. Scale bars = 1.0 mm.

Diagnosis. Body medium-sized, dark green, with metallic luster. Head coarsely punctate. Pronotum quadrate, with projecting posterior angles and curved posterior margin; prosternal process reflexed or vertical. Elytra in female weakly convex.

Holotype male. Habitus (Fig. 1A, C) slender, length 19.5 mm, width 6.8 mm, moderately convex, noticeably constricted between pronotum and elytra. Body dark green, with metallic luster; antennomeres 7–11 dark brown, tarsal claws reddish brown.

Head (Fig. 2A) transversely subquadrate, sparsely and coarsely punctate; clypeus transversely heptagonal, gently bent downwards in front, with anterior margin nearly straight, clypeal transverse impression short; frontoclypeal suture depressed, becoming weaker laterad, widely U-shaped; genae strongly raised, depressed before eyes, strongly and roundly produced anterolaterally; frons broad, anterior part gradually sloping forwards; eyes transversely reniform, strongly convex laterally; inner ocular sulci finely depressed; tempora weakly convex, finely wrinkled. OI = 69.0. Antennae slender, exceeding basal third of elytra, with antennomeres weakly thickened to each apex; relative lengths of antennomeres from base to apex: 0.62: 0.37: 0.95: 0.92: 1.00: 0.97: 1.00: 0.90: 0.92: 0.87: 1.07. Mentum hexagonal, finely and sparsely punctate.

Pronotum (Fig. 2C) quadrate, widest slightly before the middle; PW/PL = 1.13; anterior margin nearly straight, slightly convex at the middle, with marginal sulcus markedly presented to almost absent; lateral margins curved,

lateral sulci thin, visible only along anterior half in dorsal view; posterior margin noticeably concave at middle, posterior marginal sulcus markedly presented; anterior angles rounded, posterior angles projecting; disc convex in middle, shagreened, finely and sparsely punctate. Scutellum triangular, glossy, finely punctate.

Elytra fusiform, widest near middle, lapping at the apex (Fig. 3G); EL/EW = 1.84; dorsum moderately convex, highest near anterior 2/5; bearing five rows of ring-like depressions with raised centers, some interrupted.

Prosternum shagreened, finely and sparsely punctate; prosternal process (Fig. 2D) reflexed, with pointed apex; hypomeron weakly rugulose, shagreened. Metaventricle glossy, metaventral anterior process weakly wrinkled. Abdomen depressed, with surface somewhat rough, densely and finely punctate, with III and IV ventrites sulcate at each both sides.

Legs slender. Protibiae (Fig. 3A) curved at apical third, with inner margin pubescent in apical half; mesotibiae (Fig. 3B) weakly curved at apical third, with inner margins pubescent in apical third; metatibiae (Fig. 3C) weakly sinuous, with inner margins pubescent in apical 3/5.

Aedeagus (Fig. 3D) elongate, curved in lateral view; parameres slender, producing in a straight line in lateral view, 0.23 times as long as the total length of aedeagus, with apex of flabelli form. Sternite VIII (Fig. 3E) with apical lobes each rectangular in lateral view, superior margin curved, roundly connected to the inferior margin.

Female. Habitus (Fig. 1B, D) stouter than the male, BL = 19.1–22.6 mm, with roughened dorsum. Head (Fig. 2B) with more projecting genae and smaller eyes, OI = 57.0–61.8, clypeus and frons more coarsely punctate. PW/PL = 1.13–1.20; prosternal process with rounded apex (Fig. 2E); elytra more convex, EL/EW = 1.64–1.78, highest in middle; abdomen straight in lateral view. Ovipositor (Fig. 3F) knife shaped, gradually narrowing apically, fused coxites almost as long as baculus.

Variation. The male paratype with BL = 20.8 mm, OI = 52.6, antennae broken. Prothorax with PW/PL = 1.30. Elytra with the ratio of EL/EW as that of the holotype.

Comparative notes. The habitus and elytral structure of *Morphostenophanes medogensis* sp. nov. reveal its adscription of the *M. elegantulus* Masumoto & Bečvář, 2008 species group. The new species can be readily separated from other congeners by its moderately convex habitus of dorsum, coarsely punctate head frons, reflexed or vertical prosternal process, and pronotum with projecting posterior angles.

Comments. The new findings northwestwards expand the distribution of *Morphostenophanes*, and indicating the possibility of the discoveries of additional new species belonging to other species groups in the vast Himalayan region.



FIGURE 3. External and anatomic characters of *Morphostenophanes medogensis* sp. nov. Male protibia (A) and metatibia (C) in dorsal view. Male mesotibia (B) in ventral view. Aedeagus (D) in dorsal (d) and lateral view (l), and enlarged parameres apices (p). Male sternite 8 in lateral view (E). Female ovipositor in lateral view (F). Elytral apices (G). Scale bars = 1.0 mm.

Distribution. China: Xizang (Médog and Bomê).

Etymology. The new species is named after its type locality, Médog County.

Acknowledgments

Quan-Yu Ji (季权宇) (College of Life Sciences, Hebei University) provided valuable material. Kiyoshi Ando (Ehime University, Matsuyama, Japan) and Enrico Ruzzier (World Biodiversity Association, Verona, Italy) critically read and commented on the draft manuscript. The study was supported by the “Baseline survey on diversity of pollinating insects in Qomolangma National Nature Reserve 珠峰国家级自然保护区传粉昆虫多样性本底调查研究”.

References

- Campbell, J.M. & Marshall, J.D. (1964) The ocular index and its applications to the taxonomy of the Alleculidae (Coleoptera). *The Coleopterists Bulletin*, 18, 42.
<https://doi.org/10.5962/p.372397>
- Pic, M. (1925) Nouveautés diverses. *Mélanges Exotico-Entomologiques*, 44, 1–32.
<https://doi.org/10.5962/bhl.title.52304>
- Zhou, D.-Y. (2020) A revision of the genus *Morphostenophanes* Pic, 1925 (Coleoptera, Tenebrionidae, Stenochiinae, Cnodalonini). *Zootaxa*, 4769 (1), 1–81.
<https://doi.org/10.11646/zootaxa.4769.1.1>

西藏窄亮轴甲属 *Morphostenophanes* 首发现并记述一新种 (鞘翅目: 拟步甲科: 窄甲亚科)

周德尧^{1, #*}, 旦增尼玛^{2, 4, #}, 张任之^{3, 5}

¹上海市嘉定区农业技术推广服务中心, 嘉定区, 上海201403, 中国

²西藏自治区高原生物研究所, 拉萨市, 西藏自治区850001, 中国

³中山区金城街2a汇邦公寓2单元1402室, 大连市, 辽宁省116001, 中国

⁴  danzeng220227@163.com;  <https://orcid.org/0009-0002-9337-6877>

⁵  Dorcus1998@yahoo.com;  <https://orcid.org/0009-0008-2443-5873>

#共同第一作者

*通讯作者:  scydmaeninae@163.com;  <https://orcid.org/0000-0002-2014-9967>

摘要: 首次报道西藏窄亮轴甲属 *Morphostenophanes* 分布并描述一新种, 即墨脱窄亮轴甲 *M. medogensis* sp. nov.。另附新种整体和关键形态特征图版, 以与同属其它物种区分。

关键词: 分类; 拟步甲; 轴甲族; 窄亮轴甲属; 新分类单元; 中国

Erratum

ZHOU, D.-Y. (2020) A revision of the genus *Morphostenophanes* Pic, 1925 (Coleoptera, Tenebrionidae, Stenochiinae, Cnodalonini). *Zootaxa*, 4769 (1), 1–81.

1) On page 5 (materials and methods), the author omitted an abbreviation ‘MYTC’, which was misspelled as “MYNU” in the following text for a collection, here the author supplies it as follows:

MYTC Mianyang Teachers’ College (Qiu Lu).

2) On pages 10 and 11 (type material section), the author incorrectly designated a syntype of *Morphostenophanes aenescens* var. *subparallelus* Pic, 1925 as the lectotype of *Morphostenophanes aenescens* Pic, 1925, and designated another syntype of *Morphostenophanes aenescens* Pic, 1925 as a paralectotype. Here the author redesignates them as follows:

LECTOTYPE of *Morphostenophanes aenescens* var. *subparallelus* is hereby designated: Yunnan [handwriting on pale card] // V. *subparallelus* Pic [handwriting on pale yellow card] // coll Pic [handwriting on pale yellow card] // *Morphostenophanes aenescens* Pic det. Dr. Kaszab [handwriting of the first two lines on pale card] // MUSÉUM PARIS 1958 coll. M. PIC // SYNTYPE [red card] // SYNTYPE *Morphostenophanes aenescens* var. *subparallelus* Pic, 1925 // MNHN EC9694 // LECTOTYPE, *Morphostenophanes aenescens* var. *subparallelus*, ♂, des. De-Yao Zhou 2025 [printed on white card] (male, MNHN, Fig. 3A–C).

LECTOTYPE of *Morphostenophanes aenescens*, labelled: Yunnan [handwriting on pale card] // *Morphostenophanes aenescens* Pic [handwriting on pale card] // MUSÉUM PARIS 1958 coll. M. PIC // SYNTYPE [red card] // SYNTYPE *Morphostenophanes aenescens* Pic, 1925 // MNHN EC9693 // LECTOTYPE, *Morphostenophanes aenescens* Pic, 1925, ♂, des. De-Yao Zhou 2025 [printed on white card] (1 female, MNHN, Fig. 3G, H).

Both types were examined through ten photographs taken by Antoine Mantilleri.