



A new species of *Lucanus* Scopoli, 1763 (Coleoptera, Lucanidae) from Tibet, China

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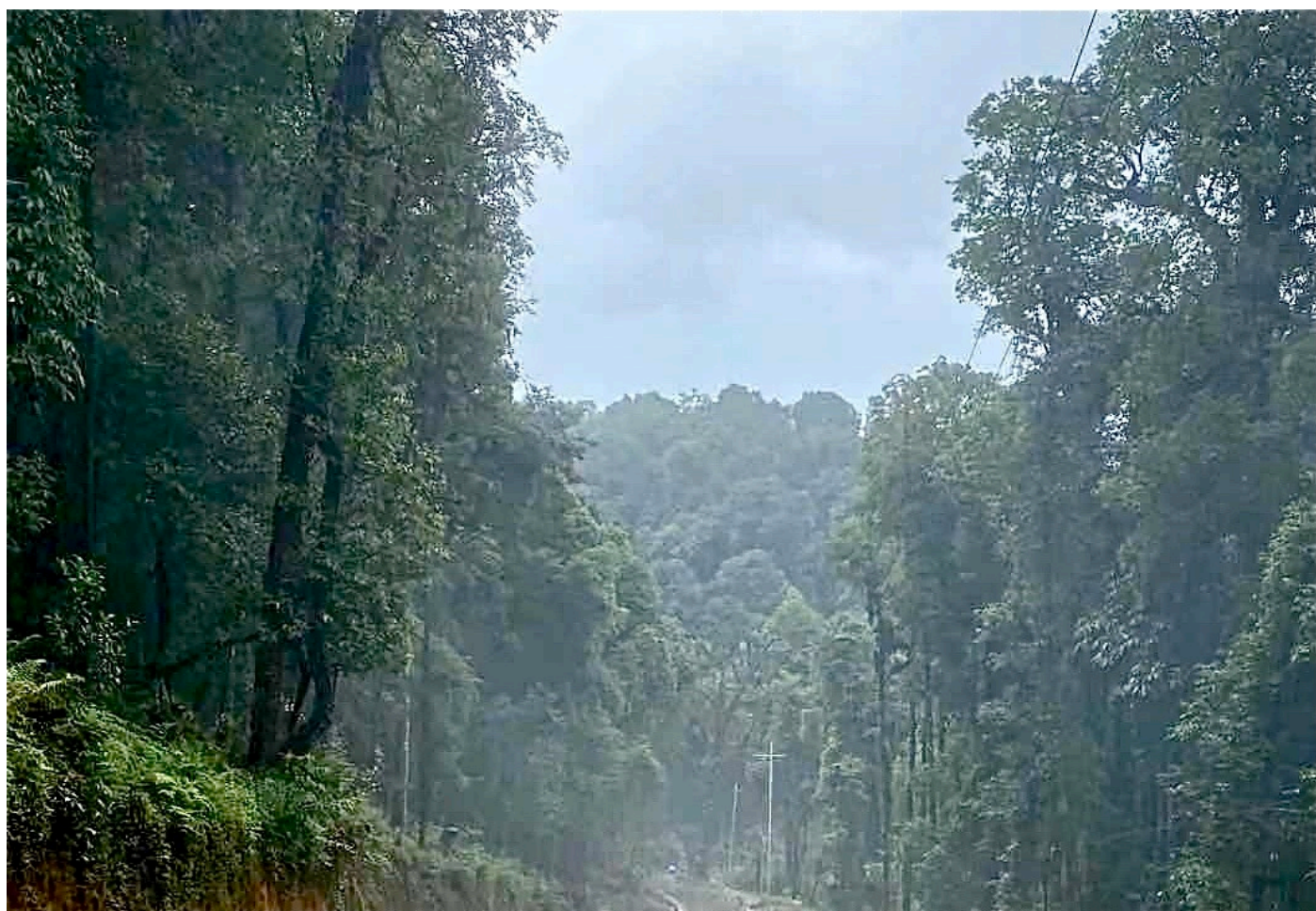
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A new species of *Lucanus* Scopoli, 1763 (Coleoptera, Lucanidae) from Tibet, China

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Keywords:

Coleoptera; taxonomy;
Lucanidae; new species;
Lucanus; Tibet;
shulini; China.

Abstract. – A new species of Lucanidae is described from Tibet, China, *Lucanus shulini* sp. nov. (Coleoptera: Lucanidae: Lucaninae). Significant morphological characters of the new species are illustrated by color plates.

Bian C.-Z. & Zhan Z., 2021. – A new species of *Lucanus* Scopoli, 1763 (Coleoptera, Lucanidae) from Tibet, China. *Faunitaxys*, 9(27): 1 – 4.

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Introduction

Lucanus Scopoli (Coleoptera: Lucanidae) presents as the type genus of Lucanidae (Coleoptera) that members distributed in Nearctic, Oriental and Palearctic Regions. However, the highest biodiversity of this genus is in eastern Asia, and many species are difficult to identify because of similar morphological characteristics. For the fauna of China, Huang & Chen (2010, 2012, and 2017) listed around 55 species, and nearly 25% of this genus were reported from Tibet, China. In 2019, during our friend's scientific field trip to South Tibet, he found an interesting species of stag beetle and managed to collect some specimens. After receiving those specimens and comparing it with the allied species, we found that it is an undescribed species and decided to publish it. By letting the collector known and agreed, we decided to use the first author's grandfather, a soldier who once protected the border of China, for the name of this species. This new species, *Lucanus shulini*, shares a closer relationship with *Lucanus liupengyui* Huang & Chen, 2017. In this paper, we described the new species and compared it with the allied species. A checklist of *Lucanus* from Tibet, China is also included.

Materials and methods

The specimen was relaxed and softened in an HH-2 digital homeothermic water bath at 44.4°C for 24 hours, then transferred to distilled water to clean, observe and dissect. To examine the genitalia, the abdomen was detached and treated with a 10% solution of potassium hydroxide for 12 hours, then transferred to distilled water to flush the remaining KOH and stop any further bleaching. After examination, the body parts were mounted on a glass slide with Euparal Mounting Medium for future studies. Habitus photographs were taken using a Canon macro photo lens 100mm on a Canon 5D Mark IV. Detailed photographs with transmitted light were performed using a Shanghai BM-SG12S microscope with a Canon 550D. The final deep-focus images were created with Zerene Stacker 1.04 stacking software. Adobe Photoshop 2020 was used for post-processing. The morphological terminology follows Holloway (2007) and Huang & Chen (2010, 2013, 2017).

The material examined for this study is deposited in the following collections:

- CLJZ: Collection of Lin-Jingzhi, Taipei
- CZZH: Collection of Zhan-Zhihong, Nanjing
- NAU: Nanjing Agricultural University, Nanjing

Results

Genus **Lucanus** Scopoli, 1763

(Vernacular name: 深山锹甲属)

***Lucanus shulini* sp. nov.**

(Vernacular name: 卞氏深山锹)

(Fig. 1-3, 7, 9, 11)

ZooBank: <http://zoobank.org/0CE2AC6B-55B8-497F-B64F-7EFB2BEA7DD9>

Holotype, ♂ (NAU), Linzhi 2100m, Tibet, China, IX. 2019. Zhang-Renzhi leg. [林芝市, 西藏自治区].

Paratypes (16 ex.)

– 7 ♂ & 8 ♀ (CZZH), same data as the holotype.

– 1 ♂ (CLJZ), same data as the holotype.

Description of the male

Dimensions (mm).

– *Length*: 29.8-38.7 (incl. mandibles), 23.8-28.9 (excl. mandibles).

– *Width*: 8.4-10.1 (at pronotum), 10.5-12.3 (at elytra).

Coloration. – Body moderately convex; brackish brown throughout except for antennae and palpi black, femora and tibiae yellowish brown with black edges, tarsi black; densely clothed with yellow hairs throughout.

Head. – Trapezoidal; upper surface densely covered with punctures; frontal ridge clearly and evenly risen upward at middle; lateral ear-shaped ridges roundly evenly expanded laterad and posteriad. – *Clypeus* triangular, lateral margins triangularly expanded at near base. – *Canthus* covering 2/5 of outer margin of eye. – *Mentum* nearly trapezoidal, anterior margin weakly emarginated, densely covered with punctures and long yellow hairs. – *Mandibles* roundly curved inward from base toward

apices, densely covered with punctures and covered with yellow hairs in basal 1/4, each with 2 inner teeth at apical 2/5 and with indistinct tooth at lower side before apex. – *Antennae* with 2nd-6th segment short and simply formed, 7-10th clavate with yellowish brown pubescence.

Pronotum. – Convex, widest at basal 2/5, weakly narrowed toward before and behind; anterior angles acute, posterior angles slightly rounded; upper surface densely covered with small punctures.

Scutellum. – Nearly semicircular, densely covered with punctures and yellow hairs.

Elytra. – Convex, shiny, 0.73 times as wide as long, surface densely covered with minute punctures and yellow hairs, humeral angles rounded.

Legs. – Rather short, protibiae each with 3 outer teeth and with outer apex divaricated, mesotibiae each with 3 sharp outer spines, metatibiae each with 1-2 sharp outer spines.

Genitalia (as photographed). – Basal piece trapezoidal in ventral view, 1.87 times as long as prameres; flagellum short, flattened in basal 2/5, apex weakly enlarged (Fig. 9).

Description of the female

Dimensions (mm).

– *Length*: 27.9-30.7 (incl. mandibles), 24.9-24.3 (excl. mandibles).

– *Width*: 10.5-10.9 (at pronotum), 11.5-12.0 (at elytra).

Coloration. – Body convex, black throughout, densely clothed with yellow hairs throughout.

Head. – Small; upper surface densely covered with large punctures which are somewhat confluent; clypeus nearly semicircular, sparsely covered with punctures and yellow hairs. – *Canthus* evenly expanded laterally, covering 2/5 of outer margin of eye. – *Mentum* transversely quadrate, densely covered with large punctures which are somewhat confluent. – *Mandibles* short and robust. – *Antennae* small.

Pronotum. – Convex; widest at middle; lateral margins rounded, nearly straight in basal 2/5; anterior and posterior angles rounded; upper surface densely and shallowly covered with small punctures.

Scutellum. – Nearly semicircular, densely covered with small punctures.

Elytra. – Convex, shiny, surface densely covered with minute punctures and short yellow hairs, humeral angles rounded.

Legs. – Rather robust; protibiae expanded outward, each with 3 sharp outer teeth and with outer apex divaricated; mesotibiae each with 3 sharp outer spines; metatibiae each with 2 sharp outer spines.

Genitalia (as photographed). – Spermatheca slender, tip acute (Fig. 11).

Etymology. – This new species is named for the first author's grandfather, Mr. Bian-Shulin.

Differential Diagnosis. – This new species is similar to *Lucanus liupengyui* Huang & Chen, 2017 from Tibet, China, but differs from the latter in the following characters:

in male:

1) apical part of mandibles weakly curved inward, each with 2 inner teeth at apical 2/5 (strongly curved inward, each with large tooth at middle in the latter);

2) posterior margins of lateral ear-shaped ridges on head not risen upward (strongly risen upward in the latter);

3) elytra shiny;

4) tibiae robust;

5) in male genitalia, basal piece narrower;

in female:

1) punctures of head larger;

2) punctures of pronotum and elytra clearer;

3) tibiae robust;

4) mentum transversely quadrate, anterior margin straight (anterior margin rounded, weakly emarginated at middle in the latter);

5) in female genitalia, hemisternite slightly narrower, spermatheca slender whose tip acute.

Distribution. – Linzhi, Tibet, China.

Checklist of *Lucanus Scopoli* from Tibet, China

Lucanus atratus Hope, 1831

Lucanus mearesii Hope, 1842

Lucanus cantori Hope, 1842

Lucanus furcifer Arrow, 1950

Lucanus lunifer francisciae Lacroix, 1971

Lucanus imitator Boucher & Huang, 1991

Lucanus hayashii Nagai, 2000

Lucanus wemckenii Schenk, 2006

Lucanus fryi schepanskii Schenk, 2008

Lucanus nyishwini bretschnideri Schenk, 2008

Lucanus langi Huang, He & Shi 2011

Lucanus choui Huang & Chen, 2013

Lucanus liupengyui Huang & Chen, 2017

***Lucanus shulini* Bian & Zhan sp. nov.**

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Résumé

Bian C.-Z. & Zhan Z., 2021. – Une nouvelle espèce du genre *Lucanus* Scopoli, 1763 (Coleoptera, Lucanidae) du Tibet, Chine. *Faunitaxys*, 9(27): 1 – 4.

Un nouveau Lucanidae est décrit du Tibet, Chine : *Lucanus shulini* n. sp. (Coleoptera: Lucanidae: Lucaninae). Ses caractéristiques morphologiques sont représentées et comparées à celles de l'espèce la plus proche : *Lucanus liupengyui* Huang & Chen, 2017.

Mots clés. – Coleoptera, Lucanidae, *Lucanus*, *shulini*, taxonomie, nouvelle espèce, Tibet, Chine.



Fig. 1-3. Habitus of *Lucanus shulini* sp. nov. (Scale = 10 mm).

1) Male, holotype. 2) Male, paratype. 3) Female, paratype.



Fig. 4-6. Habitus of *Lucanus liupengyui* Huang & Chen, 2017 (from Tibet) (Scale = 10 mm).

4-5) Males. 6) Female.



Fig. 7-8. Mentum of female.

7) *Lucanus shulini* sp. nov. 8) *Lucanus liupengyui* Huang & Chen, 2017.



Fig. 9-10. Male genitalia (a: ventral view, b: lateral view) (Scale = 2 mm).

9) *Lucanus shulini* sp. nov. 10) *Lucanus liupengyui* Huang & Chen, 2017.



Fig. 11-12. Female genitalia (Scale = 2 mm).

11) *Lucanus shulini* sp. nov. 12) *Lucanus liupengyui* Huang & Chen, 2017.

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Illustration de la couverture : View of Linzhi City, Tibet, China. Alt. 2100 m. Habitat of *Lucanus shulini* sp. nov.

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