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♂ and ♀ of *Macrodorcas kesinia* spec. nov.

***Macrodorcas kesinia* spec. nov. (Coleoptera: Lucanidae) from East Thailand**

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Abstract

A new Lucanidae of the genus *Macrodorcas* Motschulsky, 1861 from Thailand, Chantaburi province, Soi Dao district is described. The new species has the typical appearance presented by other species of the genus *Macrodorcas* but can be separated significantly. *Macrodorcas kesinia* spec. nov. has been compared by external morphology and by male genitalia with the related species *Macrodorcas pseudaxis* (Didier, 1926) and *Macrodorcas virginiae* (Bomans, 1991) which are represented also in Thailand to substantiate the hypothesis of a new species of the genus *Macrodorcas*.

Key words

Coleoptera, Lucanidae, *Macrodorcas*, *Macrodorcas kesinia*, Chantaburi, Thailand, new species

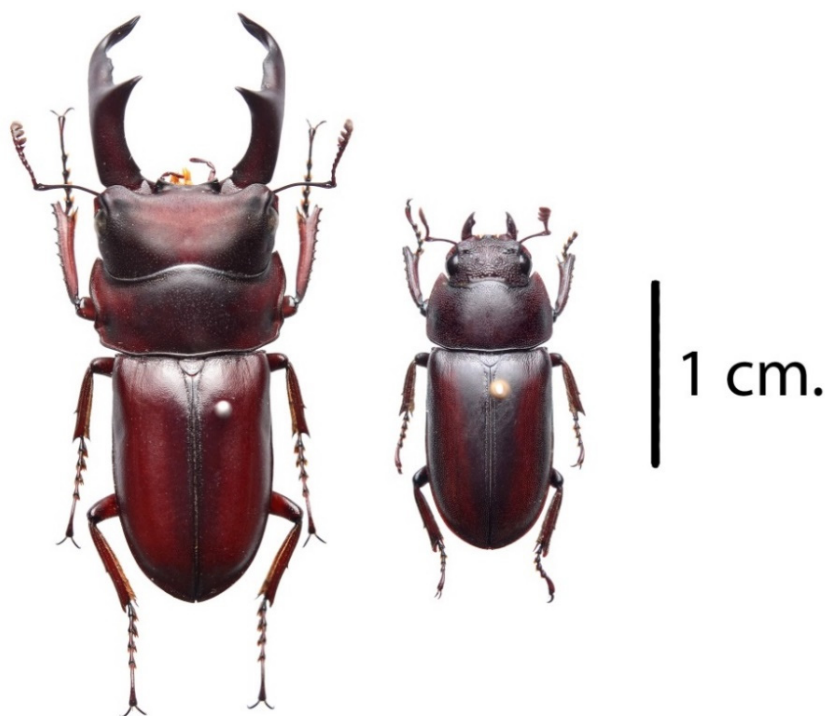


Fig. 1: *Macrodorcas kesinia* spec. nov., ♂ holotype and ♀ paratype, eastern Thailand, Chantaburi province, Soi Dao district.

Introduction

About 73 taxa of Lucanidae are known from Thailand so far (Ek-amnuay, P., 2008) including 6 taxa of the genus *Macrodorcas* Motschulsky, 1861 as listed:

- *Macrodorcas axisopsis* (Séguy, 1954),
- *Macrodorcas giselae* (Bomans, 1991),
- *Macrodorcas groulti* ssp. *suzumurai* (Fujita, 2010),
- *Macrodorcas pseudaxis* (Didier, 1926),
- *Macrodorcas taibaishanensis* (Schenk, 2008),
- *Macrodorcas virginiae* (Bomans, 1991)

The taxa of the genus *Macrodorcas* shows similar morphological characters as form of the mandibles and shape of the elytra. The pronotum is significantly wider than the elytra in all taxa. *Macrodorcas kesinia* spec. nov. (Fig. 1) has been collected during a survey in Chantaburi province, Soi Dao district of Thailand and is described in this paper.

Materials and Methods

This paper is based on specimens collected by the first author in 2016 and 2017 at eastern Thailand, Chantaburi Province, Soi Dao district. The survey was done in evergreen hill forest during dry season. The specimens were pinned, dry-preserved and deposited in the Thailand Natural History Museum (THNHM) after the study. Photographs were taken using a Nikon D7000 with macro 60mm F2.8 lens and Canon 70D with macro 100mm F2.8 lens. The laboratory part for separating the male genitalia has been done at the Kasetsart University, Faculty of Agriculture, Department of Entomology. Stereomicroscope (LEICA EZ4W), knife, needle and petri dishes are used to separate and study the genitals. The male genitalia have been prepared by KOH and separated in 70% alcohol. The external morphological structure of the new species has been compared with more than 50 specimens of *Macrodorcas pseudaxis* (Didier, 1926) from various museum of Thailand and with specimens pictured in the book "*Lucanidae of the world*" (Fujita, H., 2010).

Etymology

Macrodorcas kesinia spec. nov. is named after Ms. Kesinee Chaichompoo collecting the new species first time in 2016.

Holotype

♂, collected at Thailand, Chantaburi, Soi Dao district, 1000 m., 4.IV.2016, in coll. Tanat Choeyjanta, Bangkok, Thailand; to be deposited at Thailand Natural History Museum after this study.

Paratypes

2 ♂, same collecting data, in coll. T. Choeyjanta, Bangkok, Thailand.; 3 ♂ and 4 ♀ collected at Thailand, Chantaburi, Soi Dao district, 1000 m., 25.III.2017 in coll. W. Pathomwattananurak, Bangkok, Thailand; to be deposited at Thailand Natural History Museum after this study.

Description

Holotype ♂, total body length 31,5 mm, mandible length 8,4 mm, head width 9,6 mm, thorax width 10,3 mm, abdomen width 8,3 mm. The mandibles are curved when looking at lateral view, each with a big intermediate tooth of equal size. The apex of the mandibles is curved to median and directed upward. The head is rather flat and smooth; the lateral margins of the pronotum have a serrate shape. The whole body has a dark red-brown colour. The medium to large sized males of *M. kesinia* spec. nov. have the same characteristic shape of mandible as described before (Fig. 2). Small sized males of *M. kesinia* spec. nov. have the same colour but the teeth inside of the mandibles are reduced to a serrate shape. Length of body males: 20-32 mm.



Fig. 2: *Macroductorcas kesinia* spec. nov., males of different size and two females

Diagnosis

Macroductorcas kesinia spec. nov. is closely related to *Macroductorcas pseudaxis* (Didier, 1962). The male can be separated from the males of *M. pseudaxis* by the following morphological characters (Fig. 3, 4 and 5):

- Pronotum curly curved lateral in all sizes.
- Colour dark red-brown. *M. pseudaxis* is reddish to light-brown.
- The mandibles of medium to big size males are more curved downward than in *M. pseudaxis*.
- The median tooth of the mandibles is bigger and placed at middle of the mandible. At *M. pseudaxis* the median tooth is placed closer to the apex of the mandibles.

The male genital of *M. kesinia* spec. nov. shows important differences in comparison to the genital of the related species *M. pseudaxis* and *M. virginiae* (Fig. 6).

- The parameres are clearly different in each species. The closest species in Thailand is obviously *M. pseudaxis*. The male genital of *M. kesinia* spec. nov. (Fig. 6, A) presents straight and sharp corners in the end making it quirky shaped.
- The apex of the parameres of *M. pseudaxis* (Fig. 6, B) is concave and of *M. virginiae* (Fig. 6, C) obtuse.

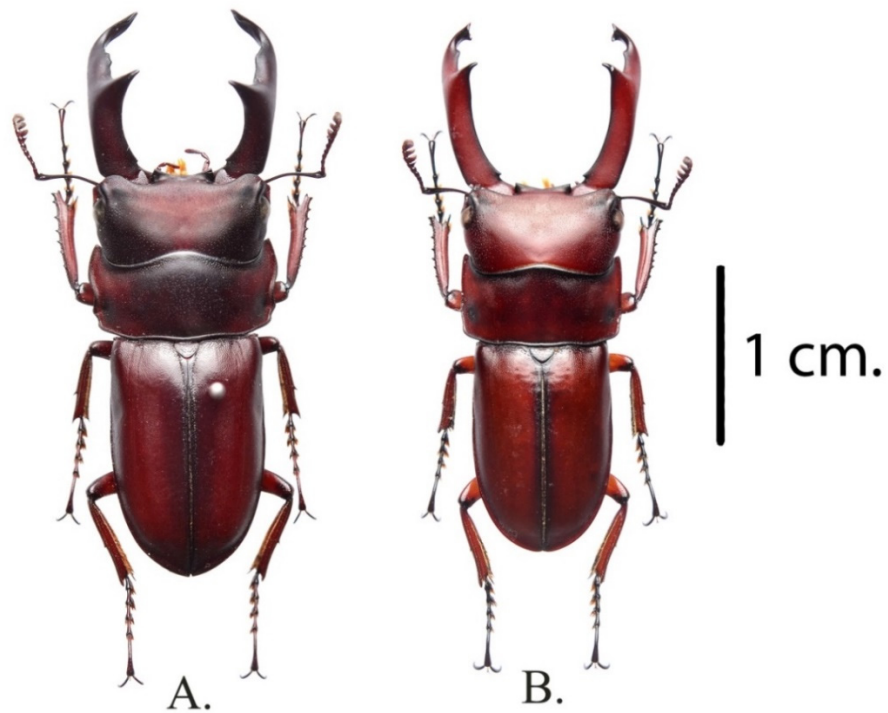


Fig. 3: Comparison of *M. kesinia* spec. nov. (A) and *M. pseudaxis* (B)
(dorsal view)

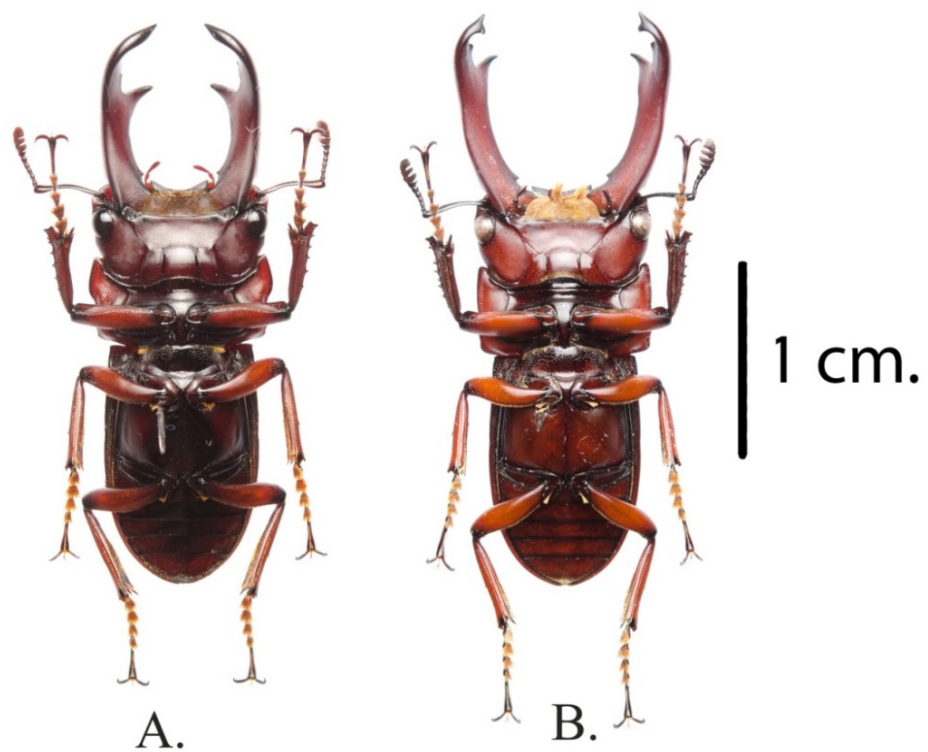


Fig. 4: Comparison of *M. kesinia* spec. nov. (A) and *M. pseudaxis* (B)
(ventral view)



Fig. 5: Comparison of *M. kesinia* spec. nov. (A) and *M. pseudaxis* (B) (male's head and pronotum)

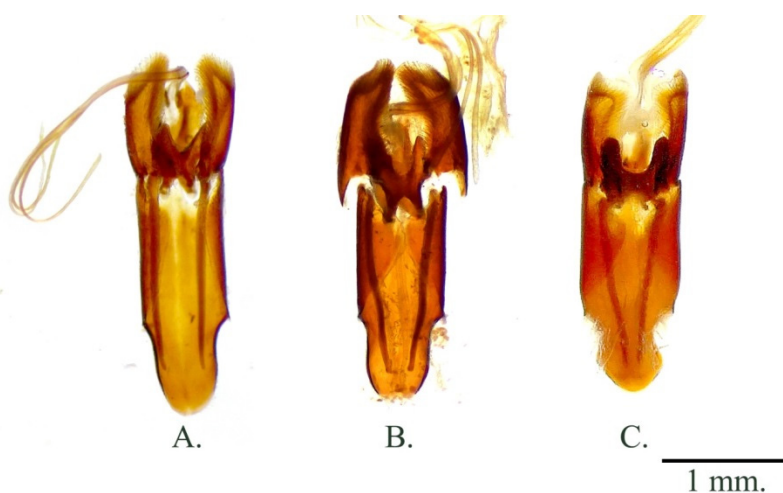


Fig. 6: Comparison of male genitalia of *M. kesinia* spec. nov. (A), *M. pseudaxis* (B) and *M. virginiae* (C)

Female characteristics

- The colour of females of *M. kesinia* spec. nov. is dark red-brown with a reddish bar at side of both forewings (Fig. 7, A).
- The pronotum is more densely punctured than the pronotum of females of the related species such as *M. pseudaxis* (Fig. 7, B).
- Length of females: 15-20 mm.

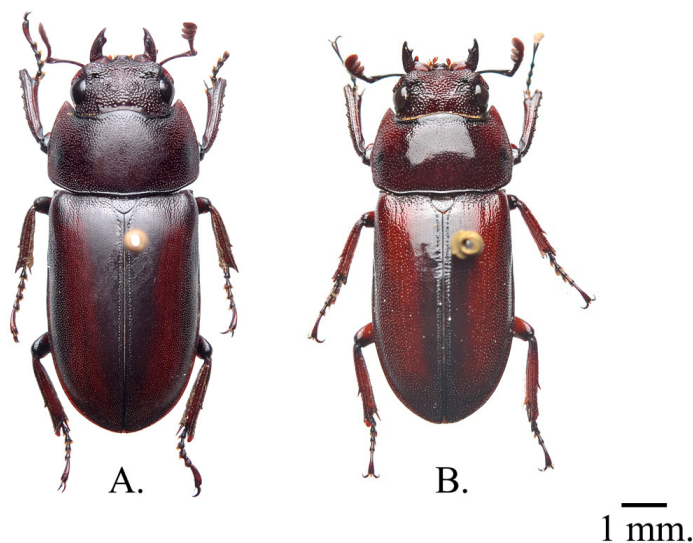


Fig. 7: Comparison of females of *M. kesinia* spec. nov. (A) and *M. pseudaxis* (B)

Distribution:

Thailand, Chantaburi Province, Soi Dao Mt., Soi Dao District

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New record of *Prosopocoilus fulgens* (Didier, 1927) (Coleoptera: Lucanidae) from Vietnam

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Abstract

We record the species *Prosopocoilus fulgens* (Didier, 1927) for the first time from Vietnam, with 6 specimens collected in Ta Phin Commune, Dong Van District, Ha Giang Province, Vietnam in 2016 and 2017. A description of *Prosopocoilus fulgens* (Didier, 1927) is given for our specimens from Vietnam. We discuss morphological differences between Vietnamese specimens and specimens from other localities.

Key words

Prosopocoilus fulgens, new record, Vietnam, fauna.

Introduction

The species *Prosopocoilus fulgens* (Didier, 1927) was described based on two specimens from "Tonkin": a male from Ban-Samang and a female from Ban-Sion. Ban-Samang is in northern Laos (Khoueng Viangchan, Laos), and Ban-Sion is not in Vietnam; so it is probably also in northern Laos. "Tonkin" historically included northern Vietnam and northern Laos. Many authors have simply translated "Tonkin" as North Vietnam. This led to the reported distribution of *P. fulgens* wrongly including Vietnam. In this paper, we record *P. fulgens* for the first time from Vietnam, with 6 specimens collected in Ta Phin Commune, Dong Van District, Ha Giang Province, Vietnam in 2016 and 2017. The type locality of this species is Ban-Samang, Laos. The species has been reported from northern Laos, northern Thailand and China (southern Yunnan, SE Tibet, and Hainan).

Description of specimens collected from Vietnam

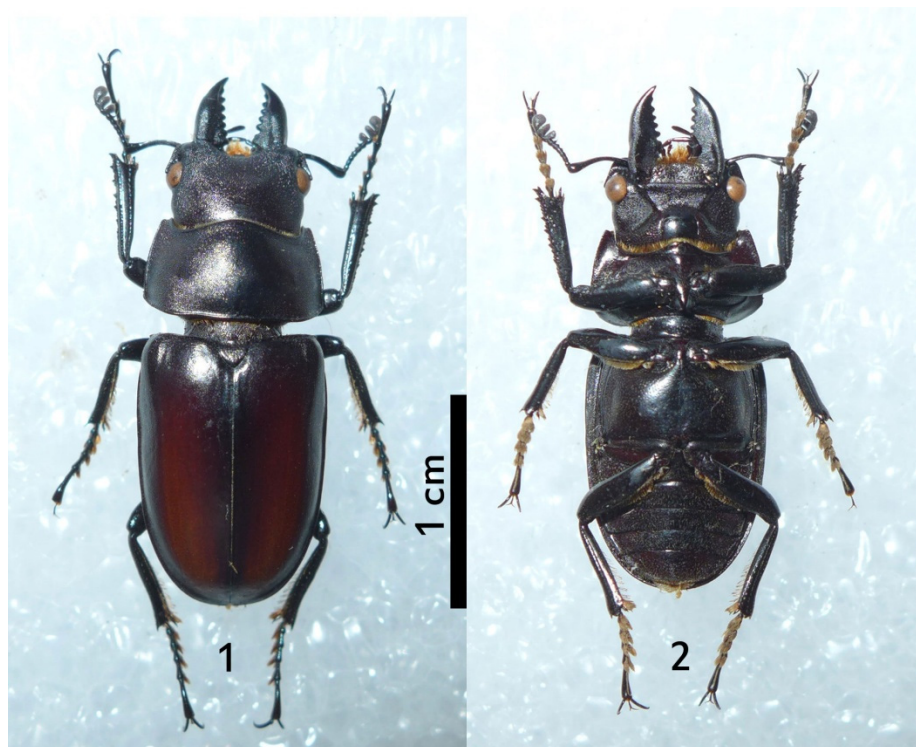
Color: Mandibles, head, pronotum, and legs black; elytra dark reddish on margins and reddish brown on disc, shiny and glabrous; scutellum black; ventral surface very dark red, nearly black.

Habitus: ♂, total length 26 mm, mandible length 5 mm, head width 6 mm, head length 4 mm, prothorax width 8,5 mm, elytra length 13,5 mm, elytra width 9,0 mm (Fig. 1-2).

Head, dorsal surface covered by many fine micropunctures. Surface of vertex depressed gradually in a triangular area defined by the anterolateral angles and the middle of the posterior margin of the head. Canthus dividing one half of the eye; preocular margin straight, slim, not broad. Labrum protruding with a shallow central depression and two lateral narrow hollows. Anterolateral angle of the head with a sharp obtuse angle. Postocular margin slightly convex.

Mentum trapezoidal, with anterolateral angles rounded, covered by sparse yellow hair, concentrated nearer to anterior margin. Submentum weakly concave, trapezoidal, clearly defined and microsculptured.

Mandibles rather short, about equal to head length; flat, look like a knife with pointed tip; outer margin rather straight from the base to the middle and weakly curved inward from middle to tip; inner margin straight from base to near apex, continuously serrated with 7 teeth, two teeth near the base partially fused together.



Figs. 1-2: Male: 1) Dorsal view; 2) Ventral view (Scale bars = 1cm).

Antennal club with three pubescent antennomeres; antennomere 7 sharply pointed at tip, not lamellate as antennomeres 8-10. Pronotum finely microsculptured as in head, wider and slightly shorter than head; lateral margins minutely crenulate and weakly convex from anterior angle to lateral angle. Anterior angle truncated. Lateral angle is not remarkable; weakly concave at the posterior 1/3 and very weakly concave behind the lateral angle; posterior angle rounded. Elytra, lateral margin parallel, more finely microsculptured than head and pronotum, with no striations or punctures, wider than pronotum and head.

Legs, protibia with 5 bigger distinct teeth, with many smaller triangular teeth along the lateral margins from base to apex, apex bifurcate. Mesotibia and metatibia smooth, without spines at lateral margin, with an external fringe of dense yellow setae distributed at apical 2/3. Two vertical rows of dense yellow setae are distributed on the basal half of mesofemur and metafemur.

Male genitalia (Figs. 3-5.): Aedeagus slender and elongate (dorsal view total 3mm in length, about 3 times as long as wide), feebly curved from parameres in lateral view; basal piece parallel and nearly 1.5 times as long as parameres. Paramere triangular and sharply pointed at apex in lateral view, lamellate and rounded at apex in dorsal or ventral view; median lobe elongate; flagellum slightly shorter than aedeagus.



Figs. 3-5. Male genitalia: 3) Ventral view; 4) Dorsal view and 5) Lateral view
(Scale bar = 1mm)

Variation in other specimens: (Figs. 6-8): Body length measured from apex of mandible to terminal tip of elytra: 20,9-27,9 mm. All specimens have short mandibles: length measured from apex to base 3,86-6,28 mm; 5 to 7 small teeth along inner margin from apex to base of mandible.



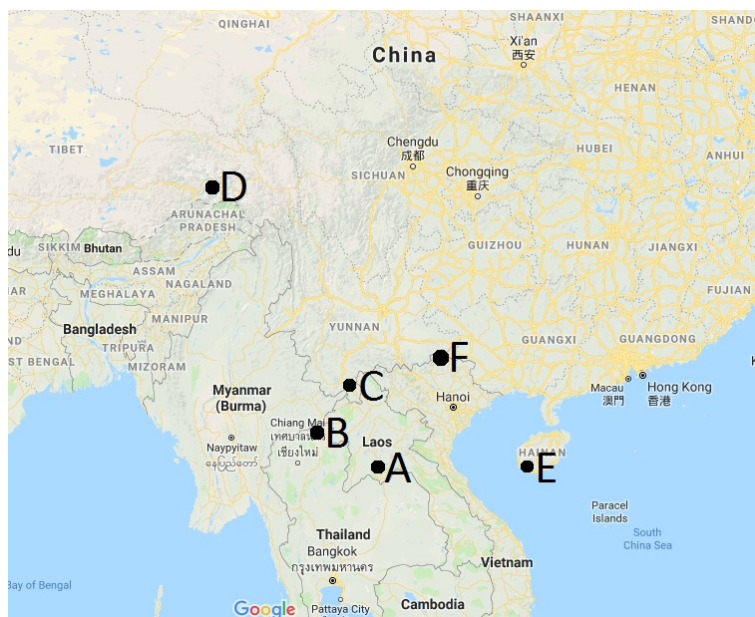
Figs 6-8. Variation of males

Discussion

Type locality for *Prosopocoilus fulgens* (Didier, 1927) is Tonkin: "Ban-Samang" (Khoueng Viangchan, Northern Laos). Known distribution of the species also includes northern Thailand (Chiang Mai and Chiang Rai) and China (southern Yunnan [Xishuangbanna, Nabanhe nature reserve]), Hainan [Ledong County, Mt. Jianfengling], S.E. Tibet [Linzi Pref., Motuo County]).

According to the original description (Didier 1927), the type specimen from Laos is darker at ventral view and dark brown at dorsal view; mandible with a dorsal ridge; the base of mandible is more slender than in Ha Giang specimens; short distance between eye and pronotum (maybe an error of drawing - we do not have a picture, so difficult to know if drawing is correct). The specimens from Dong Van (Ha Giang, Vietnam) are black in ventral view and elytra are slightly bicolored (reddish dark on margins and reddish brown on disc, shiny, and glabrous). The dorsal ridges on mandibles are not sharp, and the base of mandible is thicker than in type specimens. There is an obtuse jugal process, and distance between head and pronotum is longer even in small specimens.

According to Huang and Chen (2003): the male specimen from Yunnan is similar to the original description and figure of this species; the male specimen from SE Tibet lacks a dorsal ridge at mandible; the male specimen from Hainan has elytra less shiny and with larger and denser punctures.



Map of *Prosopocoilus fulgens*' specimens:

- A: Type locality, "Ban-Samang" (Khoueng Viangchan, Northern Laos),
- B: Chiang Mai and Chiang Rai (Thailand),
- C: Southern Yunnan (China),
- D: SE Tibet (China),
- E: Hainan (China),
- F: Ha Giang (Vietnam)

Based on the morphological and geographical characteristics of the specimens, we recognize 4 different populations: (1) including Laos (Ban Samang), Yunnan (Xishuangbanna), and Thailand (Chiang Mai, Chiang Dao); (2) Tibet; (3) Hainan; and (4) Vietnam. Fujita (2010) illustrated two males of a *Prosopocoilus* sp. (species 628, plate 125) from Ha Giang that match fairly well with the specimens of the present study. We need to confirm the type specimen and more specimens from China should be collected to evaluate variation within the species.

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