

INSECTA MUNDI

A Journal of World Insect Systematics

0580

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from Southern Vietnam (Coleoptera, Scarabaeidae, Dynastinae)

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Date of Issue: October 27, 2017

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Insecta Mundi 0580: 1–10

ZooBank Registered: urn:lsid:zoobank.org:pub:CC0A1BA6-BA06-402C-BBAF-D794DE86C22A

Published in 2017 by

Center for Systematic Entomology, Inc.

P. O. Box 141874

Gainesville, FL 32614-1874 USA

<http://centerforsystematicentomology.org/>

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Layout Editor for this article: Eugenio H. Nearn

A new subspecies of *Eupatorus gracillicornis* Arrow, 1908 from Southern Vietnam (Coleoptera, Scarabaeidae, Dynastinae)

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Abstract. A new subspecies, *Eupatorus gracillicornis prandii* ssp. nov. (Coleoptera, Scarabaeidae, Dynastinae), from Southern Vietnam, is described and illustrated.

Key Words. Taxonomy.

Introduction

Eupatorus gracillicornis was described by G. J. Arrow (1908), the holotype was collected in Dong Van in North Vietnam (Dechambre 1975). This species is also distributed in India (Assam), Myanmar, Thailand, Laos, China, Cambodia and Malaysia. Until recently, only one aberration and three subspecies had been described, in addition to the nominative subspecies. The aberration is *E. gracillicornis* ab. *cinctus* Endrödi (Endrödi 1985). The subspecies *E. gracillicornis edai* Hirasawa was described from the Dawna range, near the central border of Myanmar and Thailand (Hirasawa 1991), *E. gracillicornis kimioi* Hirasawa was described from the Kanchanaburi Province in southwest Thailand (Hirasawa 1992), and *E. gracillicornis davidgohi* Yamaya was described from Fraser's Hill in western Malaysia (Yamaya 2013). The description of *E. g. davidgohi* was based on a single pair of specimens, but I have since seen photos of another male and female with the same characteristics from Genting Highlands (Fig. 16, 60, 73, 77). This subspecies looks valid and must be a very isolated and possibly endangered population.

I have been fortunate enough to review a large number of specimens from Southern Vietnam. After my comparisons with nominative specimens from other parts of Asia and also with all known subspecies, the Vietnamese specimens at first appeared similar to *E. g. gracillicornis* and *E. g. davidgohi*. However, with closer analysis, I noticed some unique characteristics that set these specimens apart from other subspecies. After detailed examination I have decided to describe a fifth subspecies.

Materials and Methods

Specimens were photographed with a Nikon D90 camera, except for specimens of *E. g. edai* and *E. g. davidgohi*, which were photographed in other conditions, using a different camera; some colors may not match in these cases. The *E. g. davidgohi* photos were also edited with Adobe Photoshop, to remove a blue tint from the original photos.

The length of the specimens was measured from the front margin of clypeus to the end of the pygidium. The width of the specimens was measured at the widest part of elytra. All measurements were taken in millimeters using a vernier caliper.

Some of the type specimens of *E. g. prandii* ssp. nov. that are illustrated here changed their elytra coloration due to multiple rehydrations, resulting in a darker color, with spots and patterns. The color description is based on the original color of the specimens.

The collection acronym used in this study is as follows:

MNHM – Milan Natural History Museum, Milan, Italy.

Description

Eupatorus gracillicornis prandii subsp. nov.

(Fig. 1–8, 33–42, 67, 68, 74, 80, 88)

Description. Mostly black, elytra straw-colored except for black sutural and external margins.

Holotype. Length 62.8 mm, width 34.8 mm. Clypeus with two small teeth. Head with long cephalic horn that may be strongly curved backwards or more or less straight. Pronotum sparsely punctate, mainly on the sides, shiny, with two anterior pronotal horns and two posterior horns, pair of posterior horns ~33% shorter than anterior pair. Elytra elongate, oval, 1.17 times as long as wide, widest behind the middle part. Elytra shiny, sparsely punctate near the sutural stripe. The sutural stripe is thick, expanded near the scutellum.

Allotype. Length 62.5 mm, width 31.9 mm. Clypeus with two small teeth, pronotum simply convex, strongly punctate, and closely rugose at sides. Pronotum with oval dimple at center of basal part. Elytra elongate, oval, 1.17 times as long as wide, widest behind the middle part, strongly punctate on the disc, covered with extremely short pubescence.

Diagnosis

The new subspecies is most similar to *E. g. gracillicornis*, but differs in the following ways:

Males. The posterior pronotal horns are distinctly shorter than the anterior ones (all pronotal horns of *E. g. gracillicornis* are roughly equal in length). In medium-sized males, the anterior pronotal horns are directed more forward and pointed inwards at the apex (anterior pronotal horns of medium-sized *E. g. gracillicornis* males are directed more outward). The sutural stripe is distinctly wider, expanded near the scutellum.

Genitalia differ from those of *E. g. gracillicornis* by having parameres that are wider at the apex and are smoothly curved in the central part of the outer margin, (when viewed dorsally; Fig. 80). The parameres of *E. g. gracillicornis* are distinctly protruded (Fig. 81). When viewed laterally, the dorsal margin of the phallobase is much more convex than that of *E. g. gracillicornis*.

Males are also distinguishable from those of the Malaysian subspecies *E. g. davidgohi* by the relatively long posterior pronotal horns (they are 2/3 as long as the anterior pronotal horns, compared to 1/3 as long in *E. g. davidgohi*), the more punctate pronotum, the slightly shorter tarsus, and the wider sutural stripe.

Females. The elytra are more strongly punctate on the disc, less shiny, and covered with a very short brown pubescence that gives them a velvety appearance. Some individuals have an oval dimple in the middle of the basal part of pronotum, that is not present in nominotypical subspecies.

Females are also easily distinguishable from those of *E. g. davidgohi*, which have less punctate elytra without pubescence, and have more slender tarsi.

Measurements. Males (n = 248), length: 48.1–73.9, width: 26.3–39.2. Females (n = 92), length: 46–62.5, width: 24.7–33.

Type material. Holotype. ♂, Da Lat, Lam Dong Prov. S. Vietnam. XI.2015, Allotype. ♀, Bidoup Nui Ba N.P. 1550 alt. Lam Dong Prov. S. Vietnam. X.2014; Paratypes: 210♂♂, 81♀♀, the same data as for the holotype; 3♂♂, the same data as for the holotype but XII.20016; 29♂♂, 8♀♀, the same data as for the allotype; 2♂♂ the same data as for the allotype but VI.2014; ♂ Da Tro, Binh Thuan Prov. S. Vietnam. X.2013; ♂ Da Ton, Bao Lam, Lam Dong Prov. S. Vietnam. X.2014; ♂, ♀ Loc Tan, Bao Lam, Lam Dong Prov. S. Vietnam. X.2014; ♀ Bao Loc, Lam Dong Prov. S. Vietnam. X.2014.

Type depositories. The holotype, allotype and two additional paratypes will be entrusted to MNHM. Some paratypes will be deposited in the author's collection and also in collections of Messrs. Massimo Prandi, Kazuho Kobayashi and Miss Kate Ford.

Distribution. Lam Dong and Binh Thuan provinces, S. Vietnam.

Etymology. This new subspecies is named after Mr. Massimo Prandi from Italy, who provided invaluable assistance in my research.

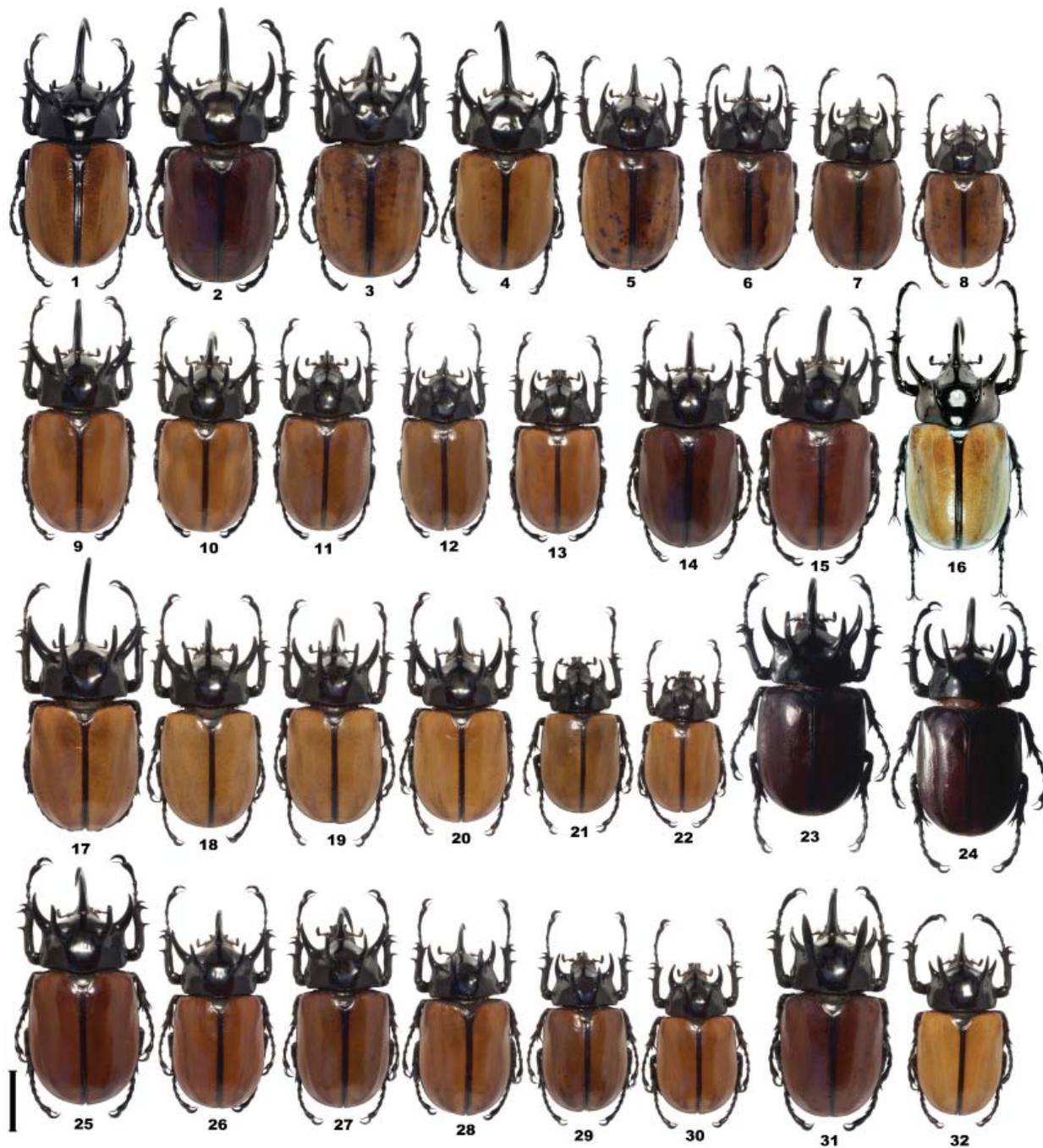
Acknowledgments

I am very grateful to Mr. Dang Ngoc Van from Vietnam for kindly offered nice specimens for my research, to Miss Kate Ford from the USA for giving me the opportunity to work with her collection, to Mr. Wong Tet Seng from China for *E. g. davidgohi* photos, to Mr. Wang Cheng-Bin from the Czech Republic for his kind advices, to Mr. Paul Schoolmeesters from Belgium for help with literature, and to Messrs. Kazuho Kobayashi from Japan and Massimo Prandi from Italy for reviewing this article.

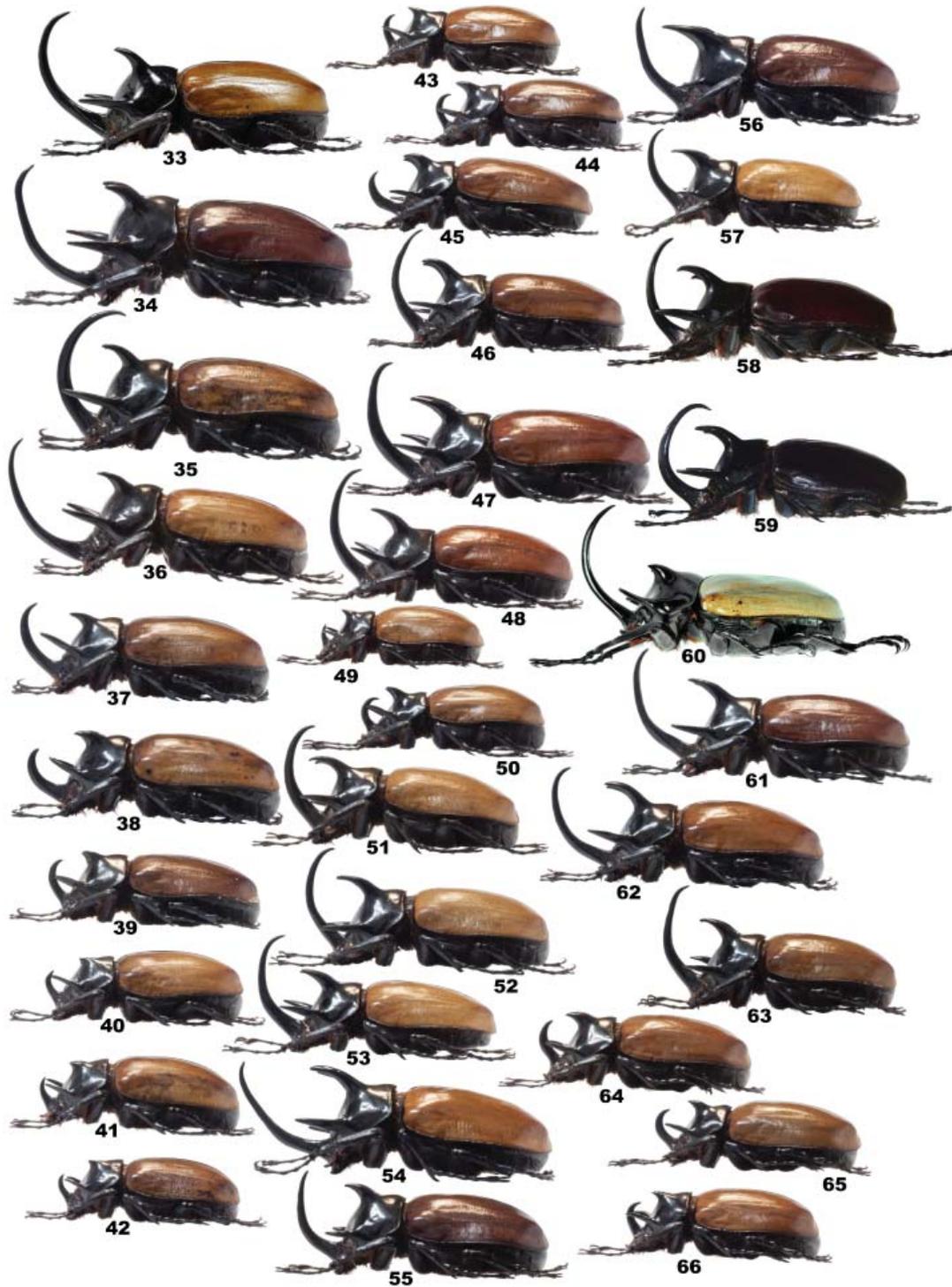
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Received March 12, 2017; Accepted June 16, 2017.
Review Editor David Plotkin.



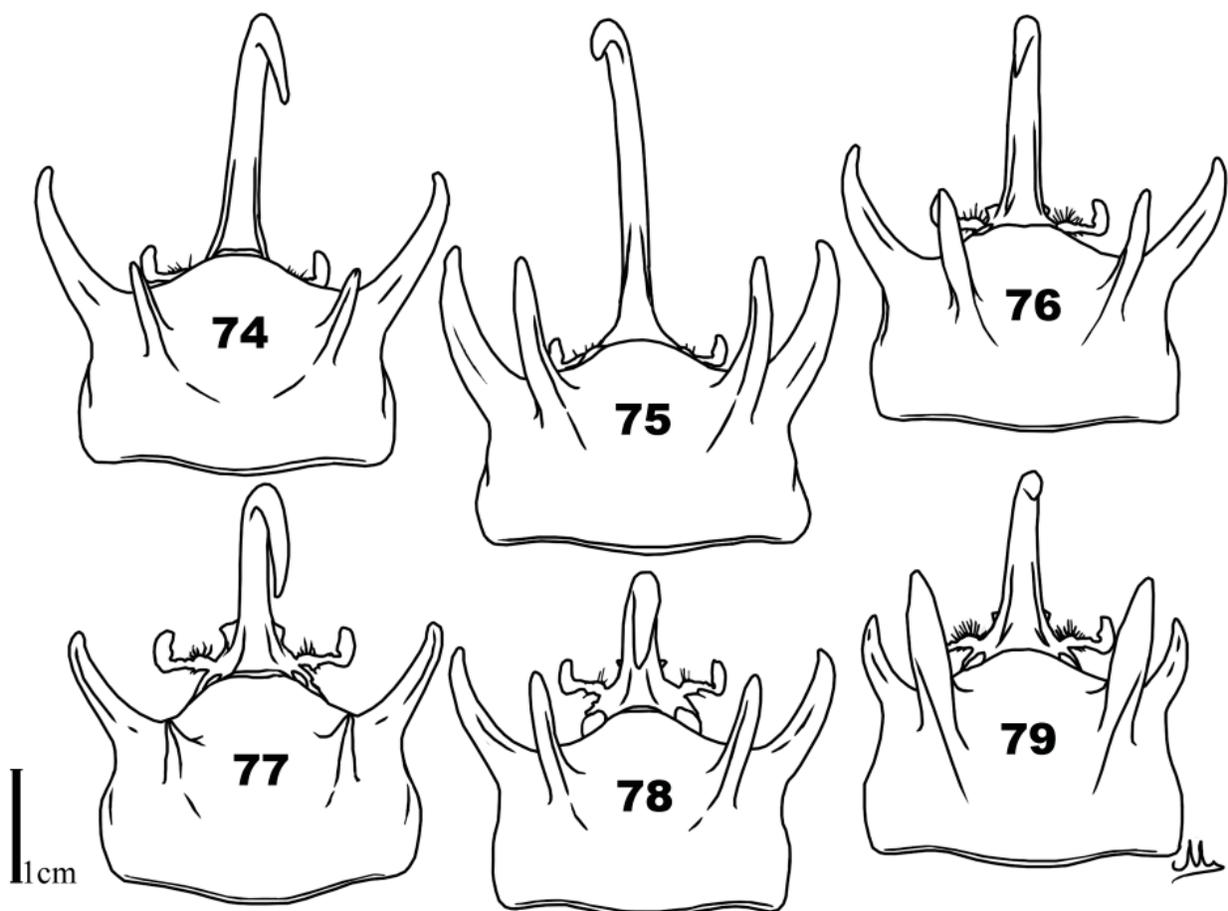
Figures 1–32. *Eupatorus gracillicornis* ssp. males in dorsal view (Scale bar – 2 cm). 1–8) *Eupatorus gracillicornis prandii* ssp. nov. from S. Vietnam, Lam Dong Prov. 1) Holotype. 2–8) Paratypes. 9–13) *Eupatorus g. gracillicornis* from N. Vietnam, Sa Pa, Lao Cai Prov. 14) Same from N. Vietnam, Pioac Mt. Cao Bang Prov. 15) Same from W. Malaysia, Perak. 16) *Eupatorus g. davidgohi* from W. Malaysia, Genting Highlands 17) *Eupatorus g. gracillicornis* from N. Thailand, Wiang Pa Pao, Chang Rai 18, 19, 21) Same from NW. Thailand, Ban Mae, Umphang 20) Same from N. Thailand, Mae Wang, Chang Mai 22) Same from N. Thailand, Doi Saket 23–24) *Eupatorus g. edai* paratypes from W. Thailand, W. Tak Prov. 25–26) *Eupatorus g. gracillicornis* from S. China, S. Yunnan, Liyngshan Mt. 27–30) Same from NE. Laos, Mt. Phan 31–32) *Eupatorus g. kimioi* from SW. Thailand, Kanchanaburi Prov.



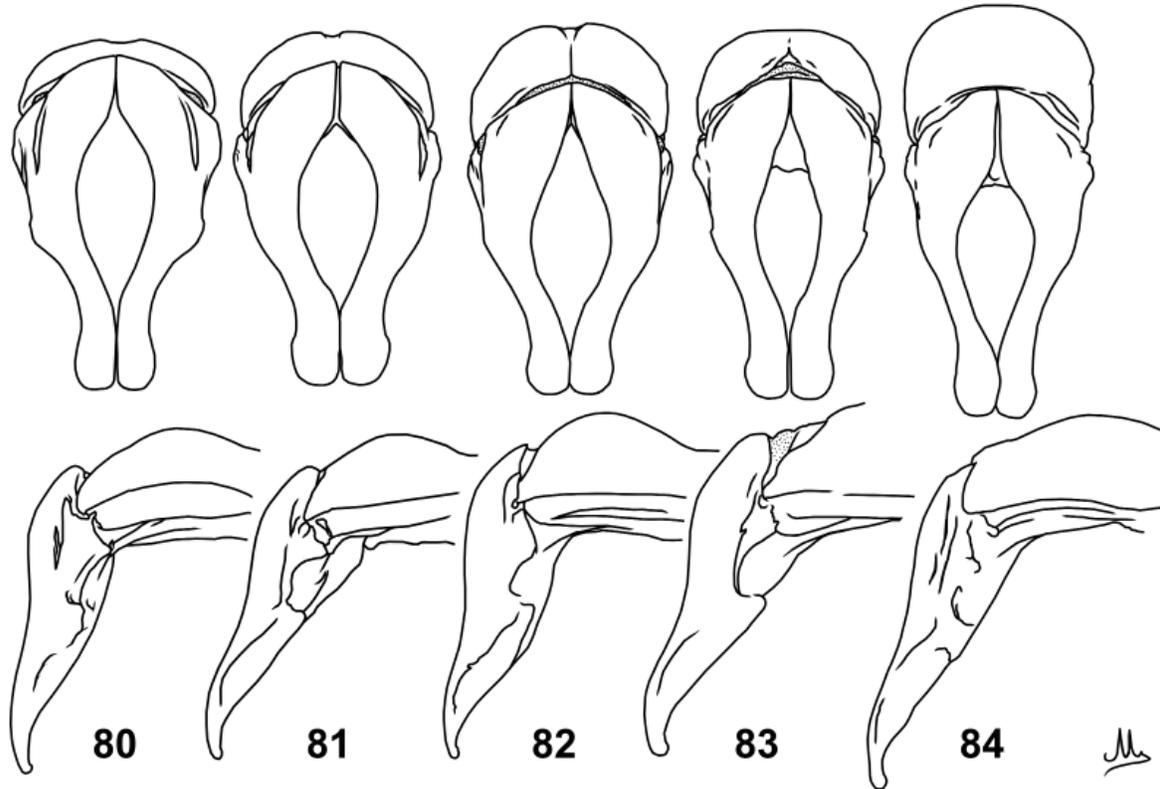
Figures 33–66. *Eupatorus gracillicornis* ssp. males in lateral view (Scale bar – 2 cm). 33–42) *Eupatorus g. prandii* ssp. nov. from S. Vietnam, Lam Dong. 33) Holotype. 34–42) Paratypes. 43–46) *Eupatorus g. gracillicornis* from NE. Laos, Mt. Phan 47, 48) Same, from S. China, S. Yunnan, Liyngshan Mt. 49) Same, from N. Thailand, Doi Saket 50–52) Same, from NW. Thailand, Ban Mae, Umphang 53) Same, from N. Thailand, Mae Wang, Chang Mai 54) Same, from N. Thailand, Wiang Pa Pao, Chang Rai 55) Same, from N. Vietnam, Piaoac Mt. Cao Bang Prov. 56, 57) *Eupatorus g. kimioi* from SW. Thailand, Kanchanaburi Prov. 58, 59) *Eupatorus g. edai* paratypes from W. Thailand, W. Tak Prov. 60) *Eupatorus g. davidgohi* from W. Malaysia, Genting Highlands 61) *Eupatorus g. gracillicornis* from W. Malaysia, Perak 62–66) *Eupatorus g. gracillicornis* from N. Vietnam, Sa Pa, Lao Cai Prov.



Figures 67–73. *Eupatorus gracillicornis* ssp. females in dorsal view (Scale bar – 2cm). **67, 68** *Eupatorus gracillicornis prandii* ssp. nov. from S. Vietnam, Lam Dong Prov. **67**) Allotype. **68**) Paratype. **69**) *Eupatorus g. gracillicornis* from N. Vietnam, Pioac Mt. Cao Bang Prov. **70**) Same from N. Vietnam, Sa Pa, Lao Cai Prov. **71**) Same from NE. Laos, Mt. Phan **72**) Same from N. Thailand, Doi Saket **73**) *Eupatorus g. davidgohi* from W. Malaysia, Genting Highlands.



Figures 74–79. *Eupatorus gracillicornis* ssp. major males head and pronotum in dorsal view. **74**) *Eupatorus gracillicornis prandii* ssp. nov. holotype from S. Vietnam, Lam Dong Prov. **75**) *Eupatorus g. gracillicornis* from N. Thailand, Wiang Pa Pao **76**) Same from N. Vietnam, Sa Pa, Lao Cai Prov **77**) *Eupatorus g. davidgohi* from W. Malaysia, Genting Highlands **78**) *Eupatorus g. edai* paratype from W. Thailand, W. Tak Prov. **79**) *Eupatorus g. kimioi* from SW. Thailand, Kanchanaburi Prov.



Figures 80–84. Male genitalia of *Eupatorus gracillicornis* ssp. in caudal and lateral view. **80)** *Eupatorus gracillicornis prandii* ssp. nov. from S.Vietnam, Lam Dong Prov. **81)** *Eupatorus g. gracillicornis* from N. Thailand, Chang Rai **82)** *Eupatorus g. kimioi* from SW. Thailand, Kanchanaburi Prov. **83)** *Eupatorus g. edai* from W. Thailand, W. Tak Prov. **84)** *Eupatorus g. davidgohi* holotype from W. Malaysia, Fraser's Hill; this illustration is derived from a photograph of the holotype presented in Yamaya (2013).



Figure 85. Inside tropical rainforest in Loc Duong, Da Lat, habitat of *Eupatorus gracillicornis prandii* ssp. nov.



Figure 86. Tropical rainforest landscape, Loc Duong, Da Lat, habitat of *Eupatorus gracillicornis prandii* ssp. nov.



Figure 87. *Eupatorus gracillicornis* ssp. distribution map. ♠. *Eupatorus g. gracillicornis* ♥. *Eupatorus g. kimioi* ♣. *Eupatorus g. edai* ♦. *Eupatorus g. davidgohi* ★. *Eupatorus gracillicornis prandii* ssp. nov.

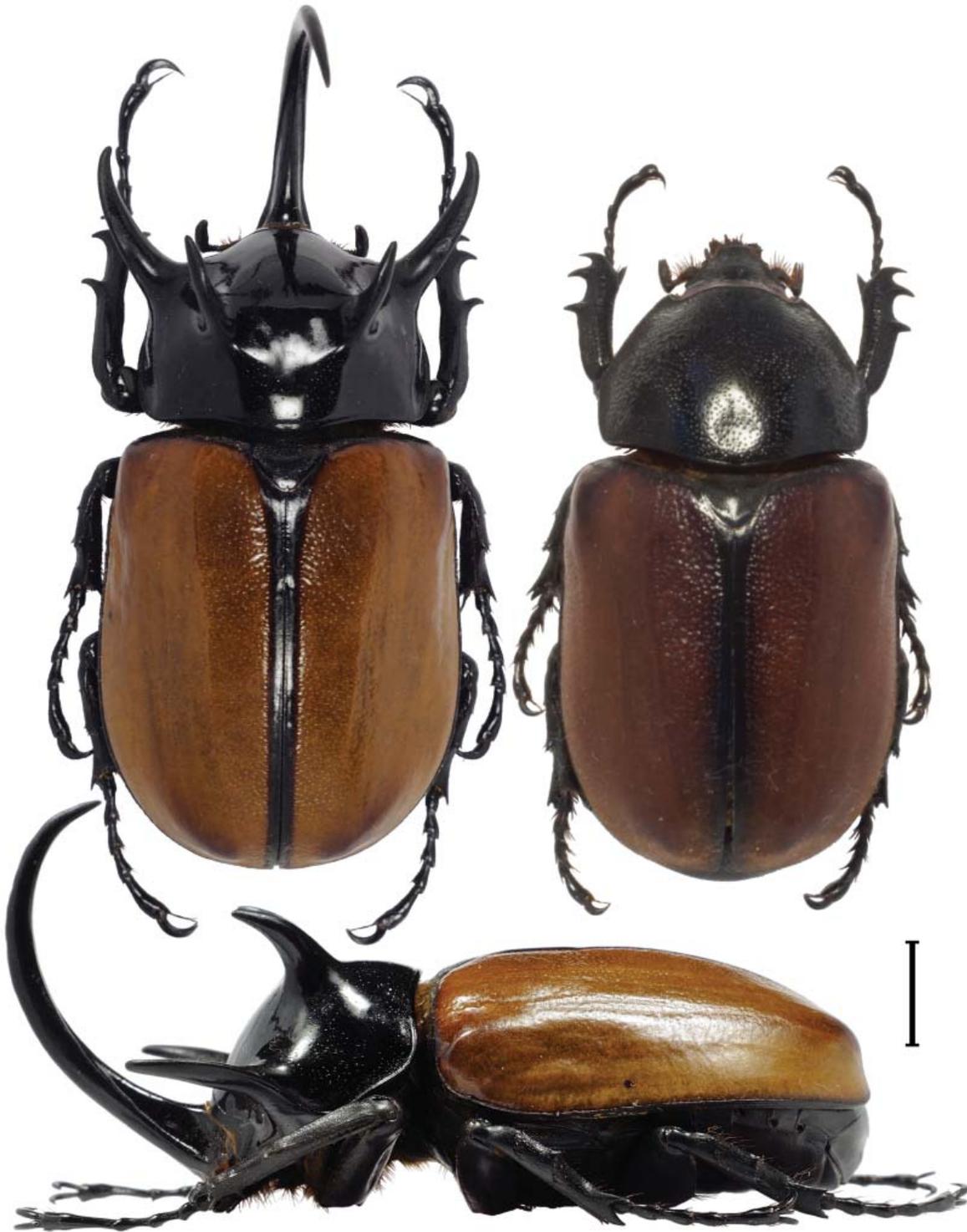


Figure 88. *Eupatorus gracillicornis prandii* ssp. nov. holotype and allotype close-up view (Scale bar – 1 cm).