

## Description of two new species of *Carabus* Linnaeus, 1758 from China (Coleoptera Carabidae)

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### ABSTRACT

In the present paper two new species of *Carabus* Linnaeus, 1758, subgenus *Apotomopterus* Hope, 1838, are described and figured: *Carabus (Apotomopterus) francottei* n. sp. and *Carabus (Apotomopterus) eccoptopteroides* n. sp., comparative notes with the related taxa are provided.

### KEY WORDS

Coleoptera; Carabidae; *Carabus*; *Apotomopterus*, new species; China.

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### INTRODUCTION

In terms of number of species the subgenus *Apotomopterus* Hope, 1838 is the largest subgenus of the genus *Carabus* L., 1758. The subgenus is widespread in Southeast China and adjacent Countries, in many places several species are sympatric (Deuve, 1997a, 1997b; Kleinfeld, 2009).

In the last decades thanks to the investigation of new or less known areas a large number of new species and subspecies was described (Kraatz, 1894; Boileau, 1896; Breuning, 1931, 1932-1936, 1950; Hauser, 1932; Deuve, 1991, 1995, 1997a, 1997b, 2001, 2002; Brezina, 2003; Deuve, 2004; Lassalle, 2006; Deuve & Li, 2009; Kleinfeld, 2009; Deuve, 2012a, 2012b).

The examination of some *Apotomopterus* specimens from North Guangdong and South Sichuan provinces in Southern China allowed to identify two new species described herein.

### *Carabus (Apotomopterus) francottei* n. sp.

EXAMINED MATERIAL. Holotypus male (Fig. 1), China, North Guangdong province, Mts. Nanling Shan, VI.2009. The holotypus is deposited in the

author's collection. Paratypus: 1 male, same data as holotypus. The paratypus is deposited in the author's collection.

DESCRIPTION OF HOLOTYPE MALE. Length including mandibles: 33 mm, elytral width: 10.7 mm. Color black with very few metallic luster brownish-copper on dorsum and pronotum, mat.

Head moderately thickened. Frontal impressions deep and rugose, exceeding anterior margin of eyes; vertex slightly convex, surface of the vertex slightly punctured and rugulose; short neck. Surface faintly punctulate and rugulose. Mandibles moderately long, strong, and regularly curved. Palpi long, penultimate segment of labial palp multisetose (3-4). Eyes very convex and prominent. Antennae very long extending of 5 ½ antennomeres pronotal base and extending the second half of elytra. Pronotum very large and sinuate, transverse, about 1.34 times as broad as long, slightly convex; sides of pronotum narrow margined, slightly bent upwards; hind angles slightly protruding behind its base; surface of pronotum uniformly punctured; basal depressions large, roughly punctured.

Elytra elongate, sub-parallel sides, slightly emarginated at apex, moderately convex, maximum width behind middle; shoulders rather large and

rounded; sculpture triploid homodyname, intervals uniformly convex, only the primary interrupted in the row in quite long links by small foveae, not punctured striae. Male aedeagus (Figs. 2, 3) small, regular curved; apical half slightly thickened, a little sinuate on the ventral side; apex a little narrowed spatulate.

VARIABILITY. No variability of paratypus. Body length 31 mm.

ETIMOLOGY. The new species is cordially dedicated to Dr. Auguste Francotte (Liege, Belgium) naturalist and specialist of Coleoptera Cerambycidae, my friend from many years.

COMPARATIVE NOTES. The new species is closely related with the sympatric *C. (Apotomopterus) sauteri nanlingensis* Deuve et Tian, 1999, but easy to be distinguished by the following characteristics (Deuve & Tian, 1999): larger and more sinuate pronotum; homodyname triploid sculpture of elytra with very regular intervals; larger and flat elytra; different color of elytra and pronotum; larger and curved median lobe of aedeagus.

### *Carabus (Apotomopterus) eccoptopteroides* n. sp.

EXAMINED MATERIAL. Holotypus male (Fig. 4), China, South Sichuan province, Pu-Ge County, Lianxiang, Kakaliangzi, 1/11.VI.2012. The holotypus is deposited in the author's collection. Paratypes: 18 females, same data as holotypus. The paratypes are deposited in the author's collection.

DESCRIPTION OF HOLOTYPE MALE. Length including mandibles: 36 mm, elytral width: 11 mm. Color black with very faint copper luster on dorsum and pronotum, mat. Legs, antennae and palpi black.

Head of normal shape, neck quite narrow, eyes small and slightly prominent. Flat vertex with a raised polish trilobate plate, the rest of the surface of the vertex rugulose. Mandibles short and stout. Palpi thin and very long, labial palp bi or three setose. Antennae long and thin, extending with 5 ½ antennomeres beyond pronotal base and extending the apical half of elytra. Pronotum rounded, slightly transverse, about 1.18 times as broad as long; disc of pronotum slightly convex; sides of pronotum very narrow margined, not bent upwards; hind angles very short, slightly protruding behind its base; surface of pronotum thin punctu-

red; basal depressions small and not deep. Elytra very elongate, narrow, oval, moderately convex, maximum width just behind the middle; shoulders very narrow and rounded; sculpture triploid homodyname, intervals uniformly convex, with the primaries cut into quite long segments by small foveae; not punctured striae. Male aedeagus (Figs. 5, 6) very elongate, basal and median portion rectilinear and sub-cylindrical, apical portion strongly curved and very elongated; apex large and rounded.

VARIABILITY. Only females: the length of the body ranges from 36 mm to 43 mm. Pronotum more or less transverse: from 1.16 to 1.26 times as broad as long. Elytra very long, very narrow, rather convex, with very strong preapical emargination, the posterior angles are acuminate and very protruding, forming a sharp tooth. The apical half of elytra is margined and bent upwards.

ETIMOLOGY. The given name wants to indicate the morphological vicinity of the present new species with *C. (Apotomopterus) eccoptopterus* Kraatz, 1894.

COMPARATIVE NOTES. *C. (Apotomopterus) eccoptopteroides* n. sp. is related with several *Apotomopterus* species: *C. (A.) aeneocupreus* Hauser, 1932; *C. (A.) benardi* Breuning, 1931; *C. (A.) eccoptopterus* Kraatz, 1894; *C. (A.) keithi* Deuve, 1995; *C. (A.) piriformis* Deuve, 1997 but easy separable by the following characters (Kraatz, 1894; Breuning, 1931; Hauser, 1932; Deuve, 1995, 1997b):

*eccoptopterus*: the new species is similar by the very elongate shape of body but differs by the strongly punctured pronotum, stronger preapical emargination of females elytra and by the shape of aedeagus strongly curved at the apical portion.

*keithi*: the new species differs by the larger size, strongly punctured pronotum, stronger preapical emargination of females elytra and by the shape of aedeagus strongly curved at the apical portion.

*benardi*: the new species is very different for the much more elongate body, the more convex elytra with very regular sculpture and the faintly punctured pronotum.

*piriformis*: the new species differs for the more elongate body, the more regular sculpture of elytra, the faintly punctured pronotum and the shape of aedeagus more strongly curved at the apical portion.

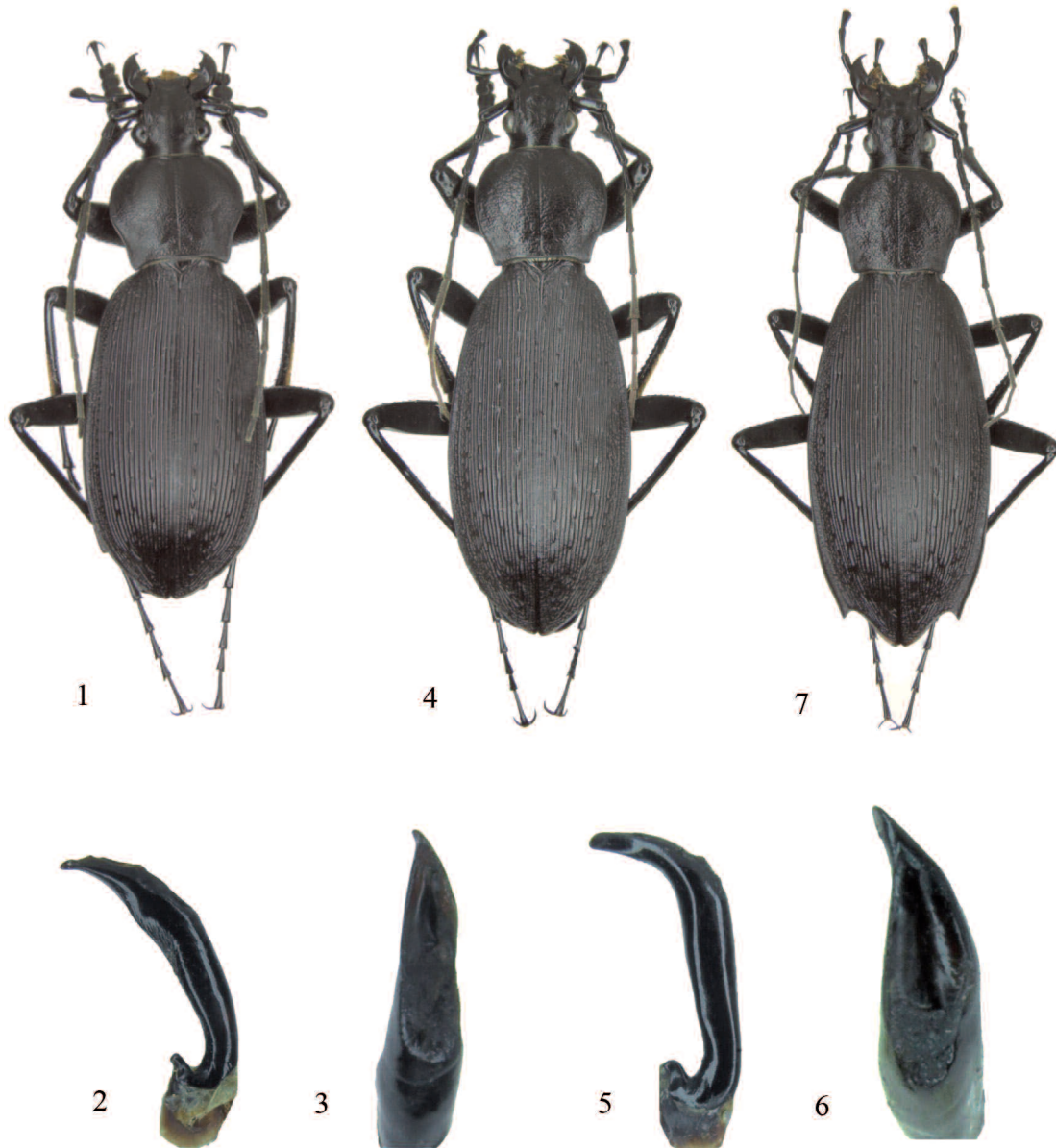


Figure. 1. *Carabus (Apotomopterus) francottei* n. sp. holotypus. Figures. 2, 3. idem, male edeagus lateral view (Fig. 2) and frontal view (Fig. 3). Figure. 4. *C. (A.) eccoptopteroides* n. sp. holotypus. Figures. 5, 6. idem, male edeagus lateral view (Fig. 5) and frontal view (Fig. 6). Figure. 7. *C. (A.) eccoptopteroides* n. sp. paratypus female.

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