

## Description of two new species of *Carabus* Linnaeus, 1758 subgenus *Apotomopterus* Hope, 1838 (Coleoptera Carabidae) from Ha Giang Province, Vietnam

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**ABSTRACT** Two new *Apotomopterus* Hope, 1838 (genus *Carabus* Linnaeus, 1758) from Ha Giang Province, Northeast Vietnam are described and figured: *C. (Apotomopterus) narcissus* n. sp. and *C. (Apotomopterus) vietnamicus* n. sp.

**KEY WORDS** Coleoptera; Carabidae; *Carabus*; *Apotomopterus*; new species; Ha Giang; Vietnam.

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### INTRODUCTION

Ha Giang is the northernmost province of Vietnam and is in the northeastern part of the Country on the border with Yunnan (China). The region is highly mountainous with a very complex orography. There are numerous mountains that exceed 2000 m and at these altitudes there are temperate subtropical forests. These environments constitute optimal conditions for the presence of species of the genus *Carabus* Linnaeus, 1758 (Coleoptera Carabidae). At these southern latitudes such favorable conditions occur only occasionally and create a sort of “high altitude islands” where the *Carabus* species have a highly endemic character. So far only representatives of the subgenus *Apotomopterus* Hope, 1838 are known from Vietnam.

The study of a series of *Apotomopterus* from remote areas of Ha Giang province allowed me to identify two new species unknown to science.

A very important consideration concerns the fact that these new species of *Apotomopterus* belong to groups of species never previously reported from

Vietnam. The discovery of these new species therefore constitutes an important advance in the knowledge of the genus *Carabus* of Vietnam.

### RESULTS

#### *Systematics*

Ordo COLEOPTERA Linnaeus, 1758  
Subordo ADEPHAGA Schellenberg, 1806  
Familia CARABIDAE Latreille, 1802  
Subfamilia CARABINAE Latreille, 1802  
Genus *Carabus* Linnaeus, 1758  
Subgenus *Apotomopterus* Hope, 1838

*Carabus (Apotomopterus) narcissus* n. sp.  
<https://www.zoobank.org/AE428A61-0E8E-4D6D-9209-3FB600322C82>

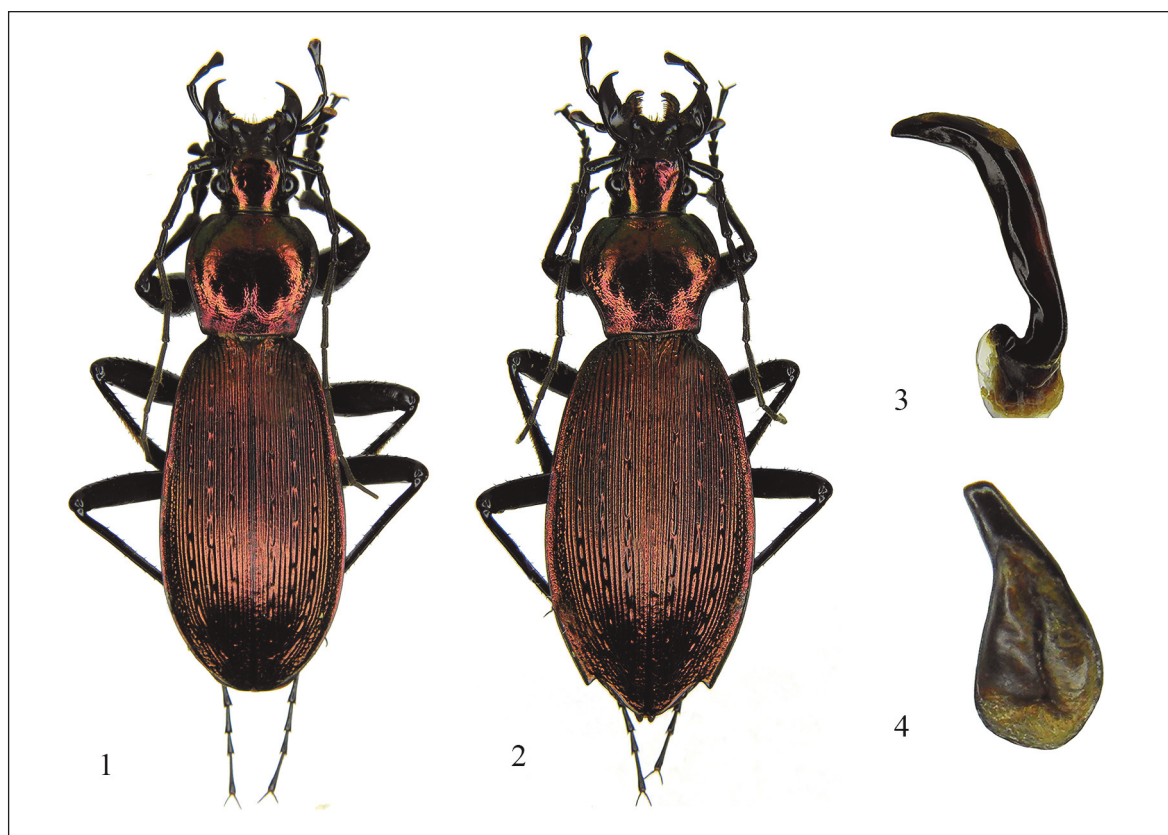
MATERIAL EXAMINED. NORTHEAST VIETNAM • 1 spm; Xin Man, 2000/2100 m, VI.2023;

Figs. 1, 3, 4; Holotype male. Paratypes: 4 males and 5 females: same data as the holotype. The holotype is temporarily housed at the author's collection (Prepotto, Udine, Italy) waiting to be definitively deposited in a public Institution (Figs. 1–4).

**DESCRIPTION OF HOLOTYPE. Male.** Long and slender shape. Length including mandibles: 33 mm, maximum width of elytra: 10.5 mm. Dorsal side intensely copper-gold, very shiny. Ventral side faintly metallic; appendix black. Head of medium-wide size; eyes big and prominent; frons and vertex flat, surface wrinkled and very faintly punctured; short neck. Clypeus faintly metallic; labrum bilobate; mandibles long and strong, sickle-shaped. Mentum tooth largely obtuse and bilobed, shorter than the lateral lobes. Palps very long and thin; preapical segment of labial palps with 5–6 setae. Submentum with a lateral seta. Very long and thin antennae, reaching the half of elytra. Pronotum quite small and elongated, very slightly transverse (1.05 times as broad as long), maximum width at the middle,

moderately sinuated; sides uniformly margined and fully bent upwards; hind angles of pronotum not lobed and not protruding behind its base. Disc of pronotum very faintly wrinkled, very shiny and metallic with a characteristic protuberance of a “papilionid” shape; very deep but thin median furrow; base of pronotum with a rather deep, strongly punctuated depression. Two lateral setae, one median and one preapical. Elytra long oval; maximum width just before the apex; very narrow shoulders. Triploid homodyname type of elytra sculpture: only the primary ones interrupted by small foveae; secondary and tertiary intervals forming uninterrupted lines of the same size as the primaries; the elytral sculpture tends to be more confused towards the apex of the elytra. Simple, non-punctate striae. Apex of elytra simple, not sinuate. Legs very long. Rather large pro-femurs and meta-femurs, very elongated and thin tarsi. Protarsi in male with 4 dilated segments, with ventral pad of adhesive soles.

Aedeagus. In lateral view (Fig. 3), the median



Figures 1–4. *Carabus (Apotomopterus) narcissus* n. sp. Fig. 1: holotype male. Fig. 2: paratype female. Fig. 3: holotype aedeagus lateral view. Fig. 4: idem, frontal view.

lobe is sub-rectilinear up to the apical lobe which is abruptly curved at an almost right angle; the apex is rather elongated and rounded. In frontal view (Fig. 4) the apical lobe appears abruptly truncated.

**VARIABILITY.** Very limited variability. In males the length including mandibles ranges from 31 mm to 33 mm, in females the length including mandibles range from 33 mm to 34 mm. In the female (Fig. 2) the elytra with a very strong preapical emargination forms a tooth acutely angled, sharp and prominent.

**ETYMOLOGY.** The name attributed to the new species wants to emphasize its undoubted beauty, in fact in the Greek myth Narcissus was known for his beauty which was noticed by all.

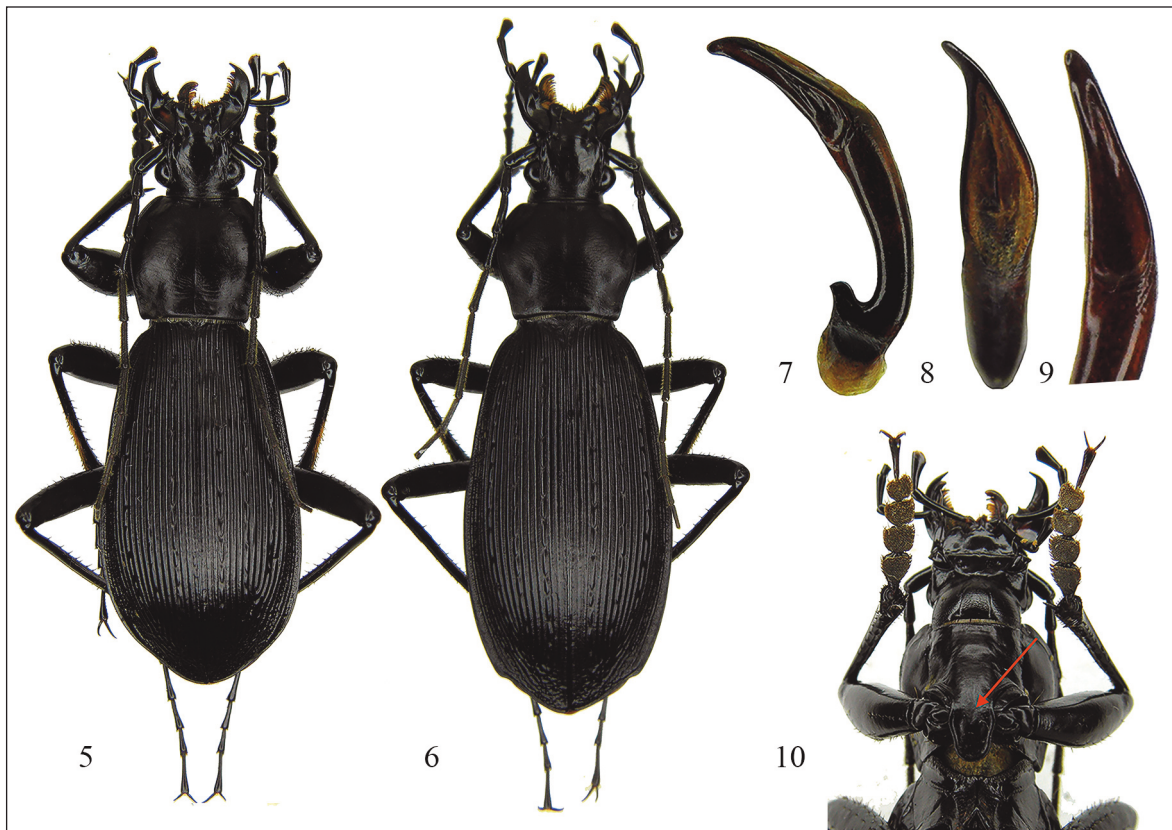
**REMARKS.** *Carabus* (*A.*) *narcissus* n. sp. belongs to the “*eccoptopterus* species group” (Kleinfeld, 2019; Deuve, 2019, 2021) and it is the first time that a species from this group has been reported for Viet-

nam. Morphologically, the greatest similarity is with *C. wangziensis* (Deuve et al., 2005) from which, however, it is distinguished by the following characteristics: general shape tinner and elongated; glossier and brighter color; ventral parts with metallic shades; bifid submentum tooth (simple in *wangziensis*); pronotum less transverse (1.2 times as broad as long in *wangziensis* and 1.05 in *narcissus*), pronotum more shiny and less wrinkled, medial sulcus of the pronotum very deep (only superficial in *wangziensis*); more regular and subtle elytral sculpture; aedeagus more massive and apical lobe longer and more bent to the left, in frontal view more abruptly truncated at the apex.

*Carabus* (*Apotomopterus*) *vietnamicus* n. sp.

<https://www.zoobank.org/2034C841-FF1D-404A-9124-3641ACBEA4C8>

**MATERIAL EXAMINED.** NORTHEAST VIET-



Figures 5–10. *Carabus* (*A.*) *vietnamicus* n. sp. Fig. 5: holotype male. Fig. 6: paratype female. Fig. 7: holotype aedeagus lateral view. Fig. 8: idem, frontal view. Fig. 9: idem, detail of the ventral side. Fig. 10: holotype prosternal apophysis.

NAM • 1 spm; Xin Man, 2000/2100 m, VI.2023; Figs. 5, 7–10; Holotype male. Paratypes: 4 males and 3 females: same data as the holotype; 1 female: Vietnam, Ha Giang, VI.2000. The holotype is temporarily housed at the author's collection (Prepotto, Udine, Italy) waiting to be definitively deposited in a public Institution (Figs. 5–10).

**DESCRIPTION OF HOLOTYPE.** Male. Long-ovate shape. Length including mandibles: 32 mm, maximum width of elytra: 11 mm. Dorsal side uniformly black, shiny. Ventral side and appendix black. Head of medium size; eyes big and quite prominent; frons and vertex moderately convex, surface almost perfectly smooth, moderately wrinkled at the sides; short neck. Clypeus bisetose; labrum bilobate; mandibles long and strong; the terebral tooth protruding on the right, obtuse on the left. Mentum medial tooth largely obtuse and acuminate, longer as the lateral lobes. Palps very long and thin; preapical segment of labial palps with 3 setae. Submentum with a later seta. Very long and thin antennae, reaching three-quarters of the length of elytra. Pronotum quite small and elongated, moderately transverse (1.2 times as broad as long), maximum width at the middle; shape uniformly and evenly curved, not sinuate; sides thinly but completely margined and slightly bent upwards; base of the pronotum straight, hind angles not prominent. Disc of pronotum superficially but uniformly wrinkled; median furrow shallow but complete; basal impressions quite marked. Two later setae, one median and one preapical. Prosternal apophysis glabrous and smooth, only at the apex with a crown of setae (Fig. 10). Elytra long ovate, moderately convex; maximum width at three-quarters of the length of the elytra; very narrow and smooth shoulders. Perfectly triploid homodyname type of elytra sculpture: only the primary intervals interrupted by small foveae; secondary and tertiary ones forming uninterrupted lines of the same size as the primaries. Simple, non-punctate striae. Apex of elytra slightly sinuate. Legs very long. Rather stout pro-femurs, very elongated and thin tarsi. Protarsi in male with 4 dilated segments, with ventral pad of adhesive soles.

Very characteristic aedeagus. In later view (Fig. 7), the median lobe is regularly arched and progressively enlarged up to the middle, then regularly becomes thinner again up to the apex which is elongated and rather sharply curved to the left; the apex is flattened, elongated, and apically rounded.

The ventral side presents a very characteristic depression which extends from the middle of the aedeagus to its apex (Fig. 9). In frontal view (Fig. 8) the apical lobe is very elongated and rather sharply flexed to the left.

**VARIABILITY.** Very limited variability. In males the length, including mandibles, range from 30 mm to 32 mm, in females the length, including mandibles, range from 32 mm to 33 mm. In the female (Fig. 7), the elytra with a large preapical emargination forms a tooth obtusely angled and rounded.

**ETYMOLOGY.** The given name *vietnamicus* intends to indicate the country of origin of the new species.

**REMARKS.** *Carabus (A.) vietnamicus* n. sp. presents such morphological characteristics that it makes difficult to establish its affinities with other species, in fact it could constitute an autonomous and separate group of species. In the region there are two other species of *Apotomopterus* with a homodyname triploid sculpture of elytra: *C. (A.) kouanping* Maidron, 1906 and *C. (A.) cheni* Deuve, 1992. With *C. cheni* the new species presents enormous differences (general shape of the body; structure of the aedeagus; preapical emargination of the elytra in the female) and only apparently it presents similarities with *C. kouanping*. In fact, the new species is distinguished from *C. kouanping* by the following characteristics: more massive general shape; more shiny appearance; maximum width of the elytra at three quarters; prosternal apophysis glabrous, smooth, and not punctured; different shape of the aedeagus with a very characteristic depression on the ventral side.

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