

## Notes on Two *Apotomopterus* Species (Coleoptera, Carabidae) from Northern Vietnam<sup>1)</sup>

By

Yûki IMURA

Department of Gynecology, Tôkyû Hospital, Kita-senzoku  
1-45-6, Ôta-ku, Tokyo, 145 Japan

**Abstract** Two species of carabid beetles, *Carabus (Apotomopterus) tonkinensis* DEUVE and *C. (A.) clermontianus* BREUNING, are recorded from northern Vietnam, with their supplementary descriptions and taxonomical notes.

Early in the autumn of 1994, the National Science Museum, Tokyo, made an entomological expedition to northern Vietnam under the leadership of Dr. Shun-Ichi UÊNO, and the members succeeded in obtaining two species of carabid beetles belonging to the subgenus *Apotomopterus* of the genus *Carabus* (s. lat.), namely, *C. (A.) tonkinensis* and *C. (A.) clermontianus*.

The former is the least known species, described by DEUVE (1990, p. 26) on the basis of a single male specimen, and neither the female nor the detailed structure of endophallus of the male genitalia has been described until now.

The latter is a better known species, since it is rather common at the type locality, Tam Dao, one of the best known collecting sites in northern Vietnam. However, nothing has been described on the detailed structure of endophallus of the male genitalia, which is indispensable for discussion on the phylogeny and taxonomic relationship among the members belonging to the same subgenus.

In this paper, I am going to give the exact collecting data of both the species, with illustrations and supplementary descriptions of the female and/or of detailed structure of the male genitalia.

Before going further, I heartily thank Dr. Shun-Ichi UÊNO of the National Science Museum (Nat. Hist.), Tokyo, for kindly permitting me to examine all the specimens of the genus *Carabus* collected by the expedition, and for reading the manuscript of this paper. Special thanks are due to Drs. Mamoru OWADA, Yoshiaki NISHIKAWA and Masataka SATÔ for their kind help in collecting the materials used. I am also indebted to Dr. Th. DEUVE of the Muséum national d'Histoire naturelle, Paris, Messrs. J. GOTTWALD, Praha, and K. MIZUSAWA, Yokosuka, for their kindness in giving me opportunities to examine the type

1) This study is supported by the Grant-in-aid No. 06041116 for Field Research of the Monbusho International Scientific Research Program, Japan.

specimens necessary for this study.

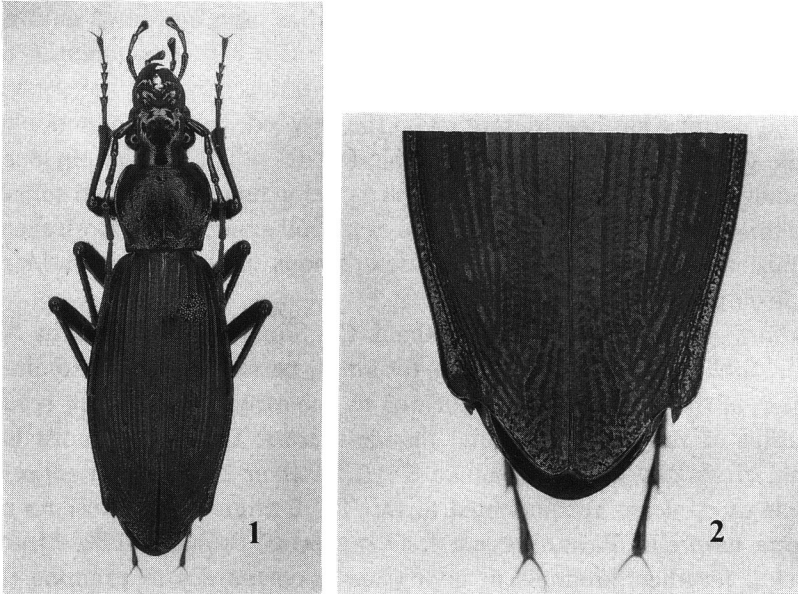
1. *Carabus (Apotomopterus) tonkinensis* DEUVE, 1990

(Figs. 1-6)

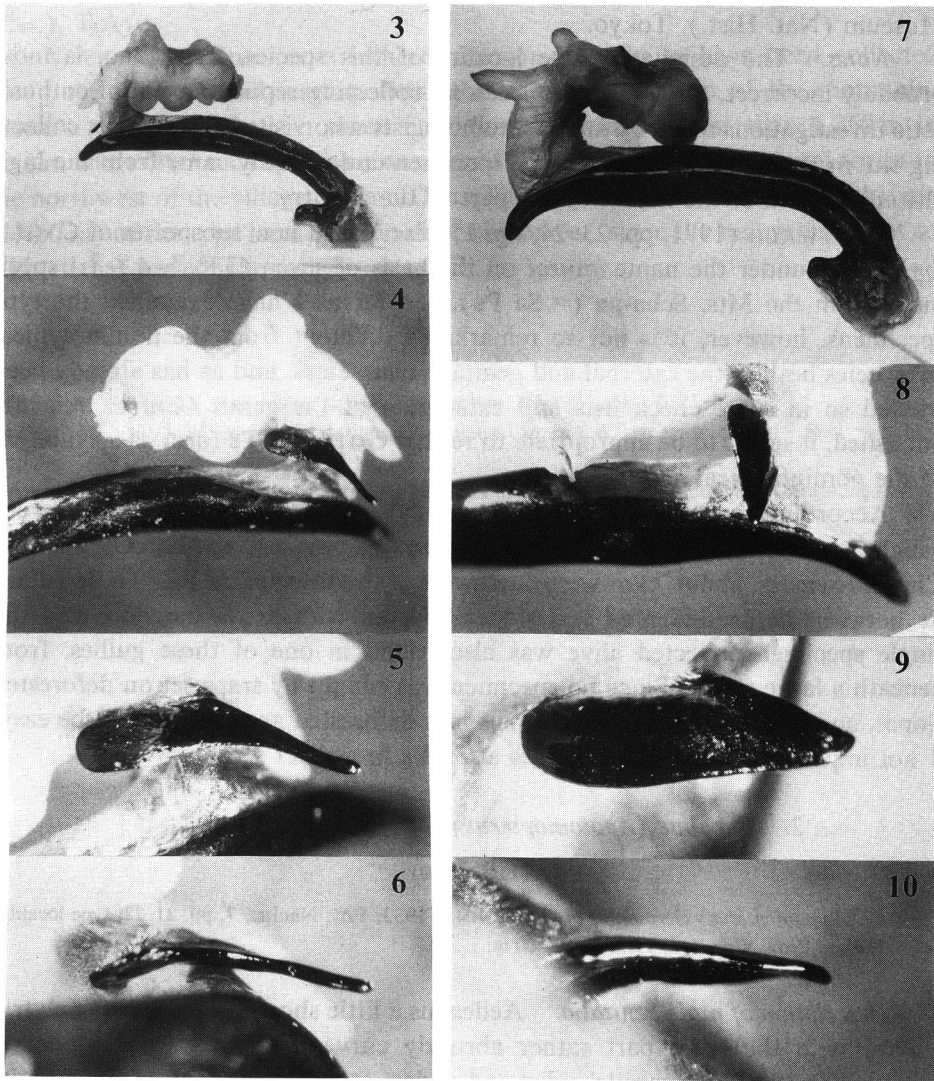
*Carabus (Apotomopterus) tonkinensis* DEUVE, 1990, Bull. Soc. Sci. Nat, (65), p. 26, figs. 1, 4; type locality: Vietnam, Tonkin, Tam Dao.

*Description of female.* As shown in Figs. 1-2, the preapical emargination of the elytra in the female is very characteristic in shape, which enables us to distinguish this species at first sight from two other allied ones, *Carabus (Apotomopterus) vogtae* BEHEIM et BREUNING and *C. (A.) masumotoi* IMURA. Elytral margins a little divergent posteriad and strongly reflexed above just before the preapical emargination which is very deep and characterized by triangularly shaped accessory process situated just under the emargination. Elytral apices obviously re-entrant at the sutural part.

*Description of male genitalia.* Endophallus of male genitalia similar in many details to that of *C. (A.) masumotoi* IMURA but differing from the latter in the following points: spinula large, elongate, and heavily sclerotized, its apical part being narrowly prolonged and inclined towards base and gently sinuate, with the surface weakly wrinkled in the basal part, rather glabrous and nitid in the apical half.



Figs. 1-2. *Carabus (Apotomopterus) tonkinensis* DEUVE, from a pass north of Mt. Phang Si Pang, 1,920 m alt., Lao Cai Prov., n. Vietnam; 1, ♀; 2, ditto (apical part of elytra).



Figs. 3-10. Male genital organ of *Carabus* (*Apotomopterus*) spp. from n. Vietnam; aedeagus with fully everted endophallus in right lateral view (3, 7), ditto in left lateral view showing spinula (4, 8), spinula in dorsal view (5, 9), ditto in basal view (6, 10). — 3-6. *C. (A.) tonkinensis* DEUVE, from a pass north of Mt. Phang Si Pang. — 7-10. *C. (A.) clermontianus* BREUNING, from Tam Dao.

*Specimens examined.* 1 ♀, pass N. of Mt. Phang Si Pang, 1,920 m, Hoang Lien Son Mts., Lao Cai Prov., 9-X-1994, S. UÉNO leg.; 2 ♂♂, 3 ♀♀, same locality (1,920 m), 10-X-1994, S. UÉNO, M. SATÔ & Y. NISHIKAWA leg.; 1 ♂, 2 ♀♀, same locality (1,920-1,940 m), 11-X-1994, S. UÉNO, M. SATÔ & Y. NISHIKAWA leg.; all preserved in coll. Department of Zoology, National Science

Museum (Nat. Hist.), Tokyo.

*Notes.* The designated type locality of this species, Tam Dao, is most probably incorrect, since there has been no collecting report in spite of enthusiastic investigations made by many entomologists who visited this famous collecting site in recent years, and the type specimen undoubtedly came from the high altitudinal area of the northwestern part of the country.

GOTTWALD (1991, pp. 23–24, fig. 1) described a new subspecies of *C. (A.) tonkinensis* under the name *imurai* on the basis of seven (3♂♂, 4♀♀) specimens from the Mts. Scha-pa (=Sa Pa). So far as I have examined the type specimens, however, it is not so remarkably different from the nominotypical subspecies both in the external and genitalic characters, and as has already been treated so in some check lists and catalogues of the genus *Carabus* recently published, it seems to be appropriate to regard GOTTWALD's form as a synonym of the nominotypical *tonkinensis*.

According to Dr. UÉNO, all but one of the nine specimens examined were caught by baited traps set in small gullies near the pass between Lao Cai and Lai Chau Provinces, about 7 km west-northwest of the town of Sa Pa. These gullies lie between deforested area and slopes covered with arrow-bamboo, and the single specimen collected alive was also found in one of these gullies, from beneath a large stone. Since no specimen was caught by traps set on deforested slopes, and since the town of Sa Pa lies in a deforested area, it may not be easy, if not impossible, to find this species at Sa Pa in a strict sense.

## 2. *Carabus (Apotomopterus) clermontianus* BREUNING

(Figs. 7–10)

*Carabus (Apotomopterus) clermontianus* BREUNING, 1933, Ent. Nachr., 7, pp. 21–22; type locality: Tonkin, Prov. Vinh-Yen, Tam-dao, 1,400 m.

*Description of male genitalia.* Aedeagus a little shorter than half the elytral length, with the basal part rather abruptly curved ventrad, median portion subcylindrical, almost parallel-sided and widest at about the middle, apical lobe rather robust, gently curved ventrad in lateral view and inclined to the right in dorsal view, with the apex not strongly pointed. Endophallus rather narrow, almost rectangularly curved at the middle, with well developed horn-like vertical lobe. Spinula strongly sclerotized, almost smooth or weakly wrinkled on the surface, strongly depressed, and lanceolate, with the apex triangularly pointed and not hooked ventrad.

*Specimens examined.* 1♂, Tam Dao, 1,200 m, Vinh Phu Prov., 24–IX–1994, S. UÉNO leg.; 1♀, same locality (980 m), 23–IX–1994, M. OWADA leg.; both preserved in coll. Department of Zoology, National Science Museum (Nat.

Hist.), Tokyo.

*Notes.* Most specimens hitherto known are said to have been collected along the stepped trail leading from the village to the top of the mountain. UÉNO's specimen was also taken near the top, which is less than 1,250 m in height, while OWADA's specimen was found near the edge of the natural forest to the northwest of the village of Tam Dao. The original description of the altitude (1,400 m) of the type locality is no doubt incorrect, since the mountain is not so high at that part of the range.

### References

- BREUNING, S., 1933. Zehn neue asiatische Caraben. *Ent. Nachr.*, **7**: 21–27.
- DEUVE, Th., 1990. Description de deux nouveaux *Carabus* d'Extrémité orient. *Bull. Soc. Sci. Nat.*, (65): 26–28.
- GOTTWALD, J., 1991. Zwei neue ostpaläarktische *Carabus*-Taxone (Coleoptera, Carabidae). *Ent. basil.*, **14**: 23–26.

