

Notes on the genus *Carabus* Linnaeus, 1758 (Coleoptera Carabidae) of Mount Bing-La-Shan, Xifeng County, Liaoning Province, Northeast China

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ABSTRACT

The present work provides some preliminary data on the genus *Carabus* Linnaeus, 1758 collected from Mount Bing-La-Shan, Xifeng County, Liaoning Province, Northeast China. Thanks to these studies, some species show a greater distribution than previously known. In these locations is reported a new population of *Carabus* (*Carabus*) *xiuyanensis* Deuve et Li, 1998.

KEY WORDS

carabid beetles; *Carabus*; faunistic; China.

Received 30.12.2014; accepted 21.01.2014; printed 30.03.2014

INTRODUCTION

The *Carabus* Linnaeus, 1758 (Coleoptera Carabidae) fauna in Northeastern China consists of two main faunal elements, the Euro-Siberian and Korean. The majority of the species are of large distribution with many very local subspecies (Kratz, 1881; Breuning, 1932-1936; Beheim & Breuning, 1943).

Only few endemic species, the endemics subgenera *Teratocarabus* Semenov et Znojko, 1932 and *Fulgenticarabus* Deuve et Li, 1998 contribute to the specificity of the fauna. Many taxa were described in the last years (Deuve Th. & Mourzine, 1998; Imura, 1991; Deuve, 1994; Deuve & Li, 2000a, 2000b; Rapuzzi, 2007).

Two of the authors (Lin Lin and Li Jingke) had the opportunity to investigate the Xifeng County in

the northeastern part of Liaoning Province, China, bordering Jilin Province to the North and East.

MATERIAL AND METHODS

The investigated area is a Mountain area named Bing-La-Shan at the altitude between 700-750 m, it is on the first mountain spurs East from Dongbei Plains. *Carabus* were collected using pit-fall traps in a forest area during the period 15/18 July 2012. Full data: Mt.Bing-La-Shan, alt.700-750 m, Liangquan Zhen, Xifeng County, Tieling City, Liaoning Province, July 15-18, 2012.

The studied specimens are preserved in the collection of one of the authors (I. Rapuzzi).

The adopted systematic order for the listed species of the genus *Carabus* is in accord with Deuve (2012).



Figure 1. Study area: Mount Bing-La-Shan, Xifeng County, Liaoning Province, Northeast China.

RESULTS

List of the species

Carabus (Aulonocarabus) rufinus rufinus
Beheim et Breuning, 1943 (Fig. 2)

This subspecies is widespread in a large part of Liaoning Province and adjacent area of Jilin Province till Changbai Shan (Li, 2000; Deuve & Li, 2000a; Deuve et al., 2011; Zhang et al., 2013).

Carabus (Scambocarabus) kruberi cfr. *laobeiensis*
Deuve et Li, 2000 (Fig. 3)

Only two females collected. The identification of the specimens will be confirmed after examination of males.

Carabus (Tomocarabus) fraterculus neochinensis
Deuve et Li, 1998 (Fig. 4)

The subspecies is widespread from Liaoning to Heilongjiang Provinces.

Carabus (Morphocarabus) wulffiusi dekraatzii
Kraatz, 1881 (Fig. 5)

By the small size the collected specimens be-

long to the subspecies *dekraatzii*, this form is common and widespread in the Northeast China (Deuve et al., 2011).

Carabus (Carabus) manifestus guanmenshuanus
Imura, 1991 (Fig. 6)

The subspecies is known from many localities from Liaoning Province and two from Jilin Province (Deuve et al., 2011; Zhang et al., 2013), the new locality is inside the range of the subspecies. The aedeagus in frontal and lateral views is figured (Figs. 7, 8).

Carabus (Carabus) xiuyanensis cfr. *xiuyanensis*
Deuve et Li, 1998 (Fig. 9)

This species is very close to *C. manifestus* Kraatz, 1881 and *C. sternebergi* Roeschke, 1898 species group by the imago morphology but it has a different shape of male aedeagus (Figs. 10, 11). The typical form was described from Xiuyan Xian and up to now is known only by the holotype male, a second female specimen very probably belonging to *C. xiuyanensis* is preserved in the collection of one of the authors (I. Rapuzzi). The *C. (C.) xiuyanensis kuandianicus* Rapuzzi, 2007 is very well separate by the uncinat apex of aedeagus.

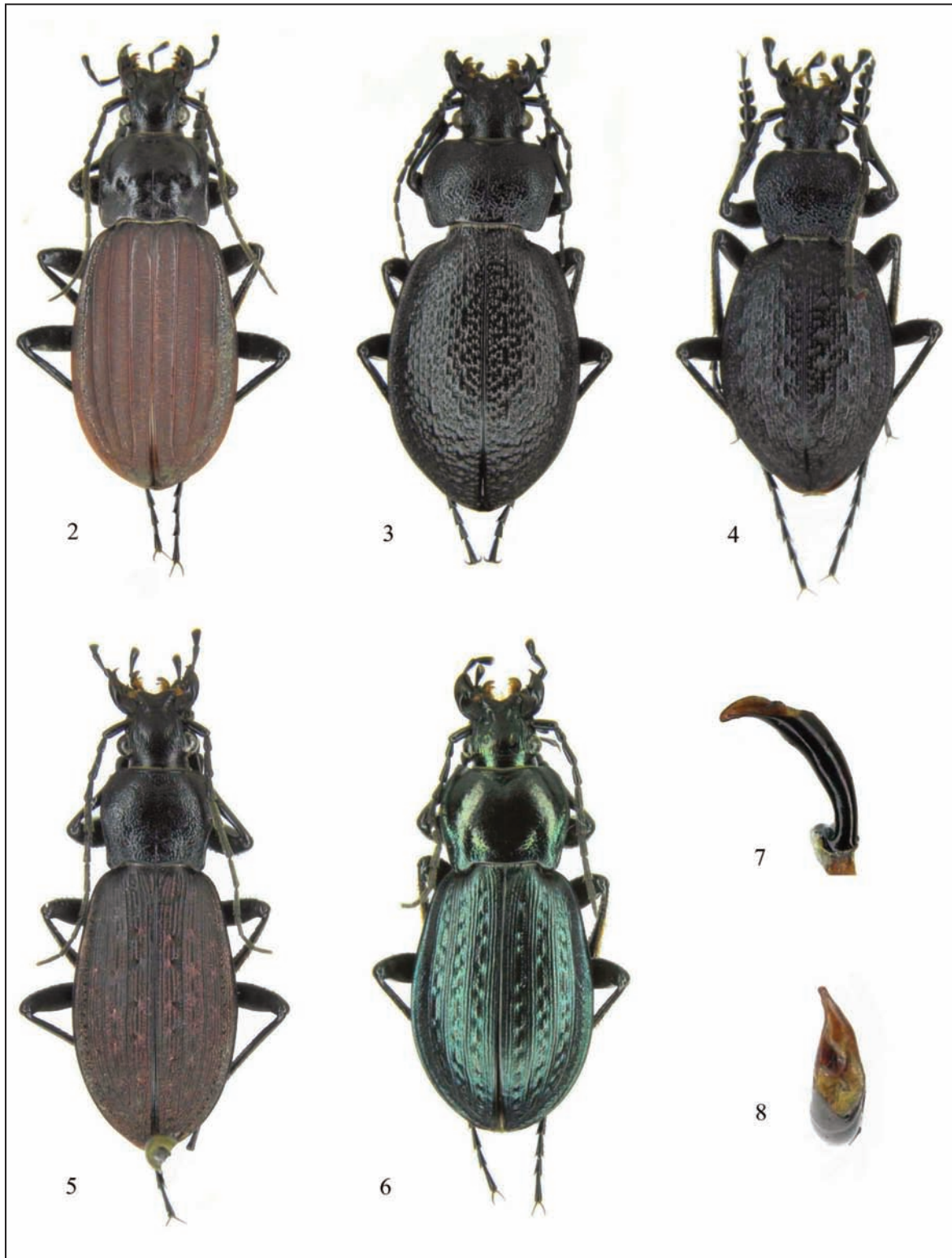


Figure 2. *Carabus (Aulonocarabus) rufinus* (28.5 mm). Figure 3. *C. (Scambocarabus) kruberi* cfr. *laobeiensis* (24.3 mm). Figure 4. *C. (Tomocarabus) fraterculus neochinensis* (18.7 mm). Figure 5. *C. (Morphocarabus) wulffiusi dekraatzii* (20.1 mm). Figure 6. *C. (Carabus) manifestus guanmenshuanus* (22 mm). Figures 7, 8: idem, aedeagus in lateral (Fig. 7) and frontal views (Fig. 8).

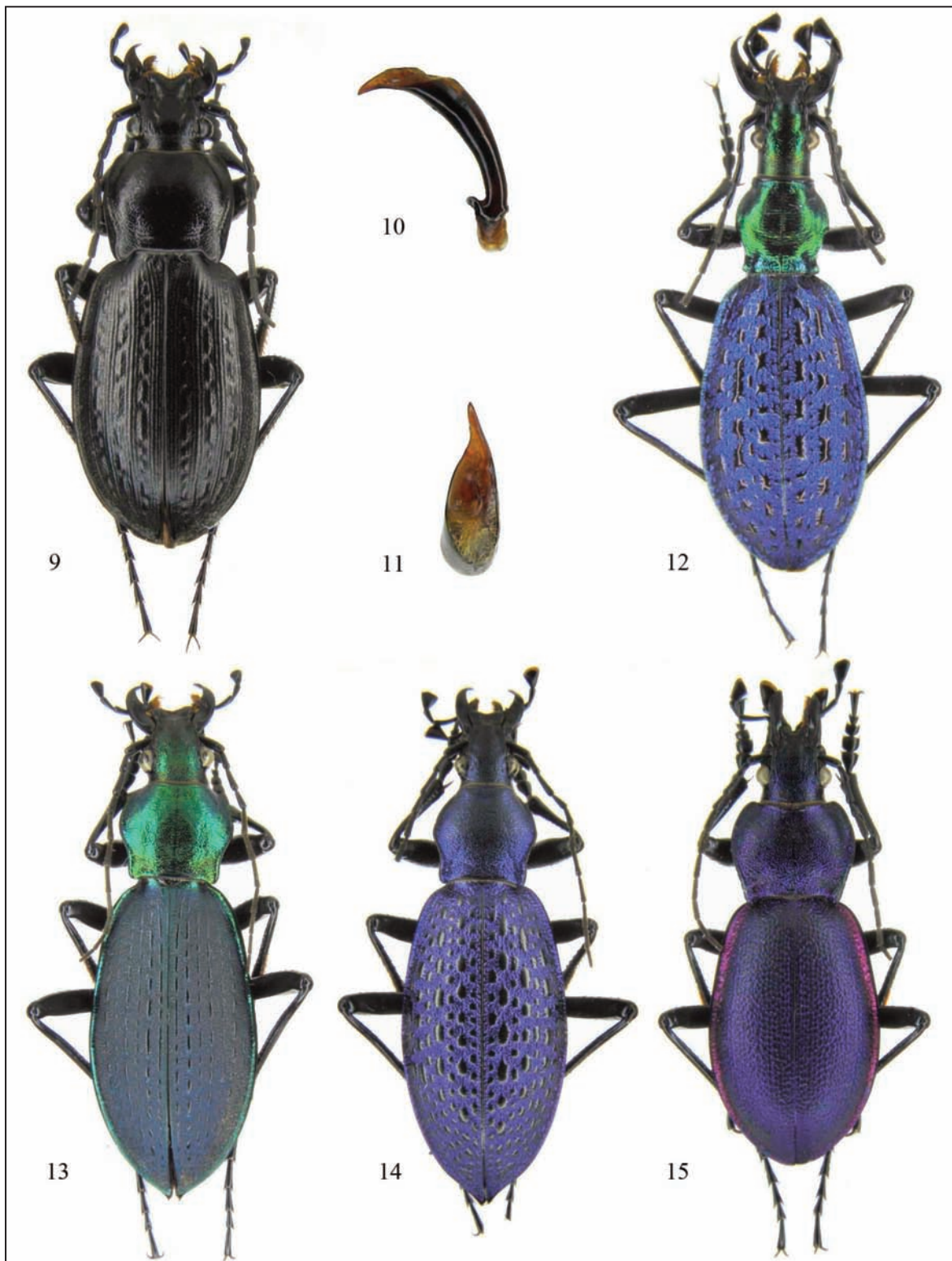


Figure 9. *Carabus (Carabus) xiuyanensis* cfr. *xiuyanensis* (21.8 mm); Figures 10, 11. *Idem*, aedeagus in frontal (Fig. 10) and lateral views (Fig. 11). Figure 12. *C. (Acoptolabrus) constricticollis frumielloides* (24.2 mm). Figure 13. *C. (Coptolabrus) jankowskii pseudosobaekensis* (35.6 mm). Figure 14. *C. (Coptolabrus) smaragdinus* cfr. *furumiellus* (32.7 mm). Figure 15. *C. (Teratocarabus) azrael mizunumaianus* (21 mm).

It was described on a single male specimen from Kuandian Xian area and up to now is known only by the holotype. The species seems to be very rare and endemic from Liaoning Province. The new data are very interesting and after the examination of the collected specimen we identify it as a form very close to the typical one.

***Carabus (Acoptolabrus) constricticollis frumielloides* Deuve, 1997 (Fig. 12)**

The collected specimens of *C. (A.) constricticollis* Kraatz, 1886 are with blue elytra and green pronotum, by this very particular coloration they belong to the subspecies *frumielloides* described from Bexi Xian (Deuve, 1997) and known from several localities in the Southeast Liaoning: Fengcheng Xian, Kuandian Xian, Xinbin Xian and Huaiyin Xian (Deuve & Li, 2000b), the new locality seems to be the northernmost one. A population with light blue shades elytra lives in Xiaoduling in Jilin Province (Deuve et al., 2011).

***Carabus (Coptolabrus) jankowskii pseudosobaekensis* Deuve et Li, 1998 (Fig. 13)**

The new locality is just in the middle between the typical locality (Bexi Xian, Mount Guanmen Shan, Liaoning) and the population from Jilin, Tonghua Xian, Xiaoduling (Deuve et al., 2011).

***Carabus (Coptolabrus) smaragdinus* cfr. *furumiellus* Deuve, 1994 (Fig. 14)**

The specimens are with very deep blu-violet elytra and dark blue-green pronotum. They very probably belong to a transition form between *C. smaragdinus furumiellus* and *C. smaragdinus cyanelytron* Deuve et Li, 2003 described and known from Southwest Jilin Province but are closer to the first one by more elongate body and more green pronotum.

***Carabus (Teratocarabus) azrael mizunumaianus* Imura, 1991 (Fig. 15)**

The new locality is situated more to the North West than the known localities in Liaoning Province (Bexi Xian and Xinbin Xian) (Deuve & Li, 2000b).

CONCLUSIONS

The *Carabus* fauna from Mt. Bing-La-Shan, Xifeng County, Tieling City, Liaoning Province is closely related to the *Carabus* fauna from Central South Liaoning (Bexi, Xinbin and Fengcheng).

The distribution of several species, namely: *C. (Teratocarabus) azrael mizunumaianus*, *C. (Acoptolabrus) constricticollis frumielloides*, and *C. (Coptolabrus) smaragdinus* cfr. *furumiellus* was enlarged to the North thanks to the present investigation. The presence of a new population of *C. (Carabus) xiuyanensis* is the most interesting result of the present study.

ACKNOWLEDGEMENTS

This work was supported by a grant from the National Science Foundation of China (No. 41371072; No. 41101049).

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