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**NEW TAXA OF THE GENUS CARABUS  
FROM CHINA (INNER MONGOLIA)  
(Coleoptera, Carabidae)**

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**Résumé.** Une nouvelle espèce, *Carabus (Morphocarabus) zubatschiki* sp. n. et deux sous-espèces nouvelles, *Carabus (s. str.) billbergi butvilai* ssp. n. et *Carabus (s. str.) arvensis florianiellus* ssp. n. sont décrites du Chine de Nord. Leurs caractères distinctifs sont définis.

**Abstract.** One new species: *Carabus (Morphocarabus) zubatschiki* sp. n. and two new subspecies: *Carabus (s. str.) billbergi butvilai* ssp. n. and *Carabus (s. str.) arvensis florianiellus* ssp. n. are described from China (Inner Mongolia). Diagnostic data are given.

**Key words:** Coleoptera, Carabidae, Carabini, *Carabus*, new taxa, China (Inner Mongolia).

## Introduction

Italian-Lithuanian entomological expedition carried out researches in China, in Inner Mongolia Region in the end of June - the beginning of July 2008. This region is interesting that here there is a border of three zoogeographical subregions: Mongolian: steppe-arid, Siberian-Daurian: dry-forested and Manchurian: wet-subtropical. Borders of these regions pass on Greater Khingan Range. During the expedition the collecting in soil glasses at height of 1500 m, near to one of the highest points of the ridge Taiping Ling (1712 m) has been made. This locality is situated near to locality Arxan which is isolated in Greater Khingan Range and characterized by high endemism. Small local tundra parts which are well isolated by the Siberian taiga forest growing below were still kept. The western slopes of a ridge are covered by the Siberian taiga forest which passes in arid-steppe sites, and on the east slope - in a subtropical Manchurian forest with agrarian sites.

The new taxa are sympatric with *Carabus canaliculatus canaliculatus* Adams, 1812 and *Carabus vietinghoffi fulgidus* Fischer von Waldheim, 1828.

## Descriptions

*Carabus (Morphocarabus) zubatschiki* sp. n. (Ph.1,2,3).

**Material examined: Holotype:** male with label: "China, Inner Mongolia, Greater Khingan Range, Arxan loc., 1500 m, 1-10.VII.2008, A. Saldaitis leg."; Paratypes: 12 males, 11 females, same data and same locality.

The holotype and part of paratypes are deposited in the collection of the State Museum of Biology (Moscow, Russia); part of paratypes is deposited in the collection of Mr. Aidas Saldaitis (Vilnius, Lithuania).

**Description:** Body length in males is 25.0 - 25.5 mm (including mandibles), width 9.0 - 9.3 mm; body length in females is 25.6 - 26.3 mm, width 9.0 - 9.5 mm.

Head not thickened; ratio width of pronotum/width of head 2.10; eyes strongly convex; mandibles relatively short and broad, slightly incurved; terebral tooth of the right and left mandibles bi-dentate, strongly prominent; retinaculum of the right mandible bigger, strongly prominent, retinaculum of the left mandible smaller,

slightly prominent; surface of mandibles smooth. Frontal furrows deep and long, inside coarsely-wrinkled. Frons nearly smooth, vertex and neck coarsely-wrinkled with sparse and coarse punctures. Labrum wider than clypeus, slightly notched, with two lateral setae. Antennae long, protruding beyond the base of pronotum by 5 apical segments; palpi strongly dilated; penultimate segment of the maxillary palpi slightly longer than the last segment; penultimate segment of the labial palpi with 2 setae. Mentum tooth triangular, narrow, shorter than lateral lobes; submentum with 2 setiferous pores.

Prothorax not cordiform or slightly cordiform, flattened, broadest at about middle; ratio width/length 1.26. Pronotum with coarse wrinkles and punctures; pronotal sculpture more rough and dense posteriorly. Median longitudinal line distinct; basal foveae small, shallow, inside coarsely-wrinkled. Sides of pronotum narrowly margined; lobes of hind angles short, evenly rounded, slightly bent downwards. Lateral margin with 3 setiferous pores: two pores at about middle and one pore near hind angle.

Elytrae oval, relatively convex; widest at about middle; shoulders not prominent; sides of elytrae narrowly margined. Ratio length/width 1.70; ratio width of elytrae/width of pronotum 1.55. Elytral sculpture triploid, homodynamous; all elytral interspaces moderately convex, about equally developed, interrupted into short links. Primary foveoles indistinct; striae coarsely punctured.

Ventral body surface smooth, metepisternum smooth, slightly longer than its width; sides of abdomen slightly wrinkled; sternal sulci absent.

Legs of normal length; fore male tarsi with four dilated segments bearing hairy pads.

Endophallic structure (Ph.8).

Coloration greenish-blue, dark blue, dark green, greenish-blue with bronze lustre or bronze; elytral margins sometimes bronze. Mandibles, palpi, antennae, legs and ventral body surface black.

### Differential diagnosis

The new species is doubtlessly related to *Carabus (Morphocarabus) hummeli* Fischer von Waldheim, 1823. The subspecies of *C. hummeli* most close territorially to the area of a new species are *Carabus (Morphocarabus) hummeli smaragdulus* Kraatz, 1878, which is widely distributed in the south of Amur and Khabarovsk Region; South Ussuri and North China, and *Carabus (Morphocarabus) hummeli gaolinensis* Obydov, 2008 from Manchuria.

The new species differs from these subspecies of *Carabus hummeli* by following features: head with more rough sculpture; mandibles broader and shorter; palpi more dilated; pronotum broader, more flattened; elytra less convex, elytral sculpture less rough, primary elytral foveoles less distinct; endophallic structure absolutely different (Ph.8,9).

**Habitat:** The new species has been collected on the uppermost point of Greater Khingan Range. Here there were almost deprived forests hills covered a high grass and separate low birches and rare tundra lots with a moss and rocky lots.

**Dedication:** The new species is named in honour of Mr. Valdemaras ZUBASCHIKAS (Vilnius), the expert on the genus *Carabus* and the authors' good friend, who tragically was lost during expedition to Northern Caucasus in 1994.

**Remark:** *Carabus (Morphocarabus) hummeli gaolinensis* Obydov, 2008 has been described by one of the authors from vicinities of Gaolinzi Village (Manchuria, eastern slopes of Greater Khingan Range, near Yalu Village). It is not far from a place of find of a new species. But these two taxa have significant morphological differences, including endophallic structure. Probably a new species is isolated on a small part of Greater Khingan Range and not connected with populations of *C. hummeli*. So, significant morphological differences from *C. hummeli*, especial in endophallic structure and isolation on a small part of Greater Khingan Range allow to assuming, that a new species is a result of allopatric speciation.

***Carabus (s. str.) billbergi butvilai* ssp. n.** (Ph.4,5).

**Material examined: Holotype:** male with label: "China, Inner Mongolia, Greater Khingan Range, Arxan loc., 1500 m, 1-10.VII.2008, A. Saldaitis leg."; Paratypes: 16 males, 20 females, same data and same locality.

The holotype and part of paratypes are deposited in the collection of the State Museum of Biology (Moscow, Russia); part of paratypes is deposited in the collection of Mr. Aidas Saldaitis (Vilnius, Lithuania).

**Description:** Body length in males is 19.5 - 21.5 mm (including mandibles), width 8.2 - 9.0 mm; body length in females is 22.4 - 23.5 mm, width 9.0 - 9.3 mm.

Head not thickened; ratio width of pronotum/width of head 2.40; eyes strongly convex; mandibles relatively short, slightly incurved; terebral tooth of the right and left mandibles bi-dentate, moderately prominent; retinaculum of the right and left mandibles relatively big, prominent; surface of mandibles smooth. Frontal furrows shallow, inside finely-punctured. Frons nearly smooth, vertex and neck finely-wrinkled with sparse punctures. Labrum wider than clypeus, strongly notched, with two lateral setae. Antennae protruding beyond the base of pronotum by 3 apical segments; palpi moderately dilated; penultimate segment of the maxillary palpi slightly shorter than the last segment; penultimate segment of the labial palpi with 2 setae. Mentum tooth triangular, shorter than lateral lobes; submentum with 2 setae.

Prothorax very broad, convex, broadest at about middle; ratio width/length 1.41. Pronotum with coarse wrinkles and punctures; pronotal sculpture more rough and dense laterally. Median longitudinal line distinct; basal foveae small, shallow, inside coarsely-wrinkled. Sides of pronotum broadly margined, its margins broader posteriorly; lobes of hind angles evenly rounded, slightly bent downwards. Lateral margin with 2 setiferous pores: one pore at about middle and one pore near hind angle.

Elytrae oval, convex; widest at about middle; shoulders prominent; sides of elytrae broadly margined. Ratio length/width 1.56; ratio width of elytrae/width of pronotum 1.36. Elytral sculpture triploid, heterodynamous; all elytral interspaces moderately convex; primary elytral interspaces interrupted into rows of broad links; secondary and tertiary elytral interspaces integral, slightly convex, about equally developed. Primary foveoles indistinct; striae coarsely punctured.

Ventral body surface smooth, metepisternum with fine wrinkles, slightly longer than its width; sides of abdomen slightly wrinkled; sternal sulci not deep.

Legs of normal length; fore male tarsi with four dilated segments bearing hairy pads.

Coloration brown with bronze lustre. Mandibles, palpi, antennae, legs and ventral body surface black.

**Differential diagnosis**

The new subspecies differs from *Carabus (Carabus) billbergi billbergi* Mannerheim, 1827 by following features: head with more rough sculpture, pronotum broader, more flattened, hind angles shorter; elytra with less rough sculpture, sternal sulci less deep; coloration very constantly brown with bronze luster. In the nominotypical subspecies coloration much variably (from blue to green and bronze).

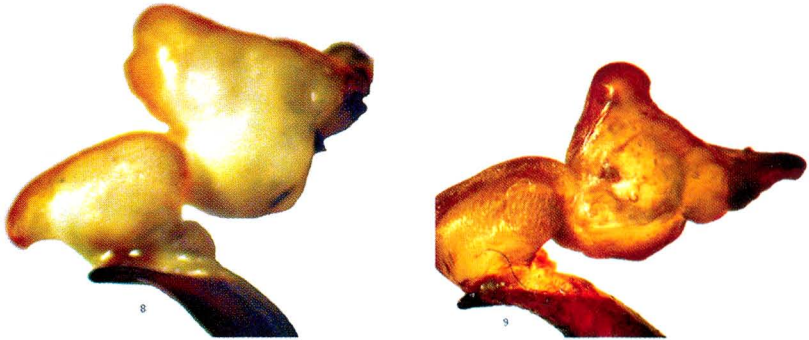
**Habitat:** The new subspecies has been collected on the uppermost point of Greater Khingan Range. Here there were almost deprived forests hills covered a high grass and separate low birches and rare tundra lots with a moss and rocky lots.

**Dedication:** The new subspecies is named in honour of Mr. Rimantas BUTVILA (Joniškis, Lithuania), a keen entomologist and the authors' good friend.





- Ph.1. *Carabus zubatschiki* sp. n., male (holotype)  
 Ph.2. *Carabus zubatschiki* sp. n., male (paratype)  
 Ph.3. *Carabus zubatschiki* sp. n., female (paratype)  
 Ph.4. *Carabus billbergi butvilai* ssp. n., male (holotype)  
 Ph.5. *Carabus billbergi butvilai* ssp. n., female (paratype)



Ph.6. *Carabus arvensis florianiellus* ssp. n., male (holotype)  
Ph.7. *Carabus arvensis florianiellus* ssp. n., female (paratype)

Endophallus in complete extension :  
Ph.8. *Carabus zubatschiki* sp. n.  
Ph.9. *Carabus hummeli smaragdulus* (from Malyi Khingan)

***Carabus (s. str.) arvensis florianiellus* ssp. n.** (Ph.6,7).

**Material examined: Holotype:** male with label: "China, Inner Mongolia, Greater Khingan Range, Arxan loc., 1500 m, 1-10.VII.2008, A. Saldaitis leg."; Papatypes: 45 males, 87 females, same data and same locality.

The holotype and part of paratypes are deposited in the collection of the State Museum of Biology (Moscow, Russia); part of paratypes is deposited in the collection of Mr. Aidas Saldaitis (Vilnius, Lithuania).

**Description:** Body length in males is 18.3 - 21.5 mm (including mandibles), width 6.9 - 7.6 mm; body length in females is 20.2 - 22.4 mm, width 7.8 - 8.2 mm.

Head not thickened; ratio width of pronotum/width of head 2.20; eyes strongly convex; mandibles relatively short, strongly incurved; terebral tooth of the right and left mandibles bi-dentate, strongly prominent; retinaculum of the right and left mandibles also prominent; surface of mandibles smooth. Frontal furrows deep, inside coarsely-punctured. Frons, vertex and neck coarsely-punctured. Labrum wider than clypeus, moderately notched, without lateral setae. Antennae protruding beyond the base of pronotum by 4 apical segments; palpi moderately dilated; penultimate segment of the maxillary palpi equal to the last segment; penultimate segment of the labial palpi with 2 setae. Mentum tooth triangular, equal to lateral lobes; submentum with 2 setae.

Prothorax slightly cordiform, relatively convex, broadest at about middle; ratio width/length 1.27. Pronotum with very dense coarse punctuation; pronotal sculpture more rough and dense laterally and posteriorly. Median longitudinal line indistinct; basal foveae shallow, inside coarsely-wrinkled. Sides of pronotum broadly margined, its margins broader posteriorly; lobes of hind angles triangular, not deep. Lateral margin with 2 setiferous pores: one pore at about middle and one pore near hind angle.

Elytrae oval, moderately convex; widest behind middle; shoulders prominent; sides of elytrae narrowly margined. Ratio length/width 1.58; ratio width of elytrae/width of pronotum 1.26. Elytral sculpture triploid, heterodynamous; all elytral interspaces about equally convex; primary elytral interspaces interrupted into rows of very short links; secondary and tertiary about equally developed. Primary foveoles indistinct; striae coarsely punctured.

Ventral body surface smooth, metepisternum smooth, slightly longer than its width; sides of abdomen slightly wrinkled; sternal sulci not deep.

Legs of normal length; fore male tarsi with four dilated segments bearing hairy pads.

Coloration bronze, cooper, green; pronotal and elytral margins sometimes red or green. Mandibles, palpi, antennae, legs and ventral body surface black.

**Differential diagnosis**

The new subspecies differs from *Carabus (Carabus) arvensis conciliator* Fischer von Waldheim, 1822 and *Carabus (Carabus) arvensis faldermanni* Dejean, 1829 by very dense coarse punctuation of pronotum and elytral sculpture, which is very rough; all elytral interspaces about equally convex; primary elytral interspaces interrupted into rows of very short links.

**Habitat:** The new subspecies has been collected on the uppermost point of Greater Khingan Range. Here there were almost deprived forests hills covered a high grass and separate low birches and rare tundra lots with a moss and rocky lots.

**Dedication:** The new subspecies is named in honour of Mr. Alessandro FLORIANI (Milan, Italy), a prominent collector of Palaearctic Lepidoptera, the authors' good friend and the fine partner on expedition.

**Remark.** The holotypes of the taxa described by one of the authors (D. Obydov) earlier: *Carabus (Megodontus) vietinghoffi fulgidiformis* Obydov, 2008 and *Carabus (Morphocarabus) hummeli gaolinensis* Obydov, 2008 are deposited in the collection of the State Museum of Biology (Moscow, Russia).

### Acknowledgments

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### Figures

Ph.1-7. *Carabus* (general view)

- Ph.1. *Carabus zubatschiki* sp. n., male (holotype)  
 Ph.2. *Carabus zubatschiki* sp. n., male (paratype)  
 Ph.3. *Carabus zubatschiki* sp. n., female (paratype)  
 Ph.4. *Carabus billbergi butvilai* ssp. n., male (holotype)  
 Ph.5. *Carabus billbergi butvilai* ssp. n., female (paratype)  
 Ph.6. *Carabus arvensis florianiellus* ssp. n., male (holotype)  
 Ph.7. *Carabus arvensis florianiellus* ssp. n., female (paratype)

Ph.8-9. Endophallus in complete extension

- Ph.8. *Carabus zubatschiki* sp. n.  
 Ph.9. *Carabus hummeli smaragdulus* (from Malyy Khingan)