

Proposal of Two New Subgenera of the Genus *Carabus* (s. lat.)
(Coleoptera, Carabidae) from China

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Abstract Two new subgenera of the genus *Carabus* (s. lat.) are proposed for several Chinese species hitherto placed in the subgenus *Oreocarabus*: *Qinlingocarabus* nov. (type species: *C. kitawakianus*) and *Heptacarabus* nov. (type species: *C. ohshimaianus*).

According to the recent genealogical studies based on the morphology of endophallus and the analytical data of mitochondrial DNA, the subgenus *Oreocarabus* (*sensu* DEUVE, 1994, '97; IMURA & MIZUSAWA, 1996, etc.) is considered to be polyphyletic, and should be separated into several distinct subgenera (IMURA *et al.*, 1998). As to the species distributed in China, at least two distinct lineages are recognized, i.e., *Titanocarabus* for *Carabus titanus* BREUNING and *C. sui* IMURA et ZHOU, and *Rhigocarabus* for *C. latro* SEMENOV. However, all the remaining species from the same territory cannot necessarily belong to either of these two subgenera. In view of the endophallic morphology, such species as *Carabus kitawakianus* IMURA, *C. reitterianus* BREUNING, *C. nanwutai* KLEINFELD, KORELL et WRASE and *C. blumenthaliellus* DEUVE bear common basic characters clearly distinguishable from those of *Titanocarabus* or of *Rhigocarabus*. In this paper, I propose a new subgenus for these four species. *Carabus ohshimaianus* DEUVE is similar in external features to *C. reitterianus*, but is much different in the endophallic structure as shown by IMURA (1995, p. 309, figs. 11–12). Another new subgenus is therefore proposed for DEUVE's species in the same paper.

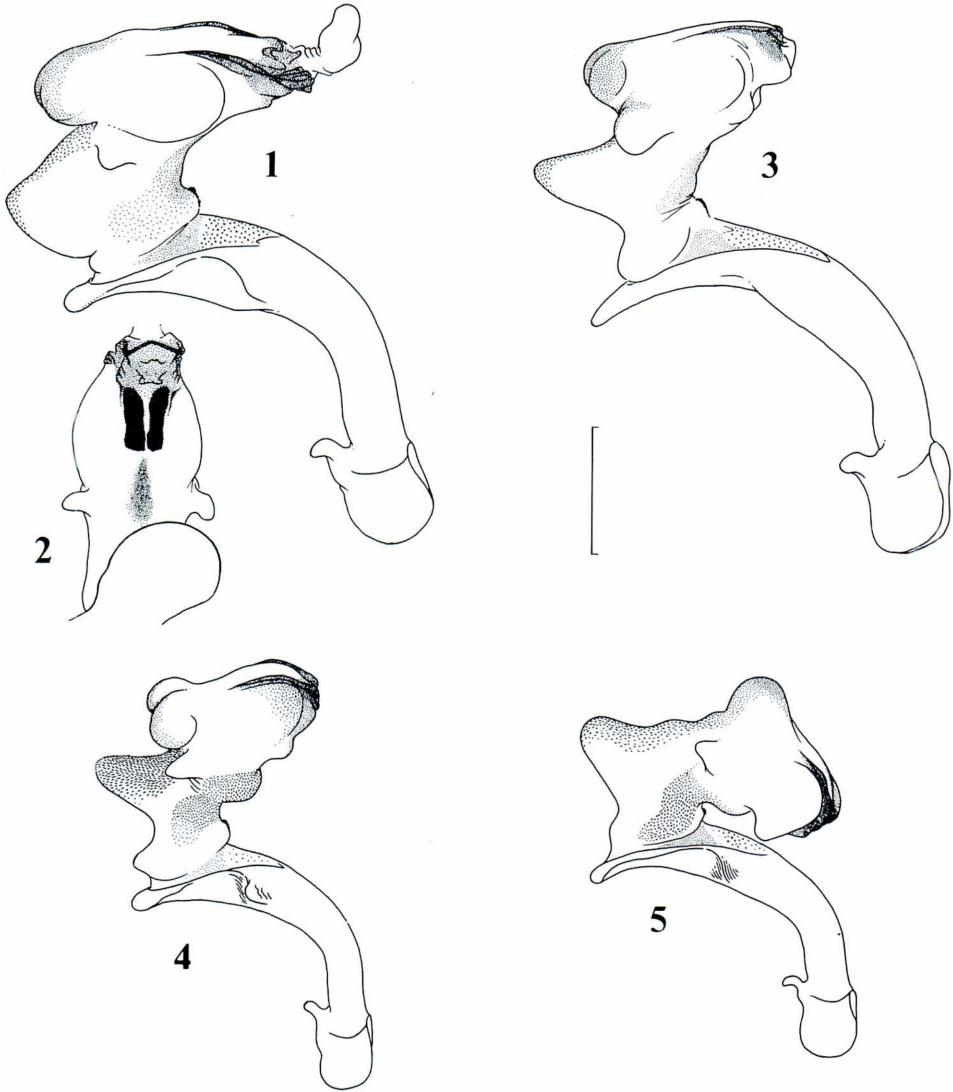
I am indebted to Dr. Shun-Ichi UENO for revising the manuscript of this paper. My deep gratitude is also due to Dr. Syozo OSAWA, Dr. Z.-H. SU, Dr. C.-G. KIM, Messrs. W. HEINZ, K. MIZUSAWA, H. SCHÛTZE and Mr. & Mrs. BUSINSKÝ for their kind help in various ways.

1) Subgenus *Qinlingocarabus* IMURA, nov.

(Figs. 1–5)

Type species: *Carabus (Qinlingocarabus) kitawakianus* IMURA, 1993.

Small- to rather large-sized carabid beetle with the external features almost agree-



Figs. 1–5. Male genital organ of *Carabus (Qinlingocarabus)* spp. — 1–2, *Carabus (Qinlingocarabus) kitawakianus* from Houzhenzi of Zhouzhi Xian on the Qinling Mts., S. Shaanxi; 3, *C. (Q.) reitterianus* from Mt. Xinglong Shan, S. Gansu; 4, *C. (Q.) nanwutai* from 80 km S of Xi'an on the Qinling Mts., S. Shaanxi; 5, *C. (Q.) blumenthaliellus* from Mt. Dashennongjia, W. Hubei; 1, 3–5, aedeagus with fully everted endophallus in right lateral view; 2, apical portion of endophallus in ventral view. Scale: 2 mm.

ing with those of the subgenus *Titanocarabus*, but characterized by endophallic structures as follows: 1) membranous preostium wide without ostium lobe; 2) ligulum composed of assemblage of small pigmented granules to form longitudinally arranged

low carina; 3) neither paraligula nor basal lateral lobes recognized; 4) median lobe well-developed; 5) prepraeputal lobes vestigial; 6) parapraeputal lobes recognizable as a pair of membranous protuberances, though small; 7) praeputal pad strongly inflated, bilobed at tip in certain species, with weak pigmentation; 8) aggonoporus with the lateral lobes rather strongly pigmented though short; 9) ventral wall of endophallus before lacinia associated with a pair of weak pigmented spots, which are strongly sclerotized in certain species.

Notes. The present new subgenus comprises four Chinese species, namely, *Carabus kitawakianus* IMURA, *C. reitterianus* BREUNING, *C. nanwutai* KLEINFELD, KORELL et WRASE and *C. blumenthaliellus* DEUVE. The type species, *C. kitawakianus* is rather peculiar in having a pair of strongly sclerotized patches on the ventral wall of the endophallus before the lacinia. This species is endemic to the Qinling Mountains of southern Shaanxi and occurs rather sporadically in the middle altitudinal area of the same mountain range. It is known to be sympatric with *C. (Titanocarabus) titanus* on the southeastern slope of Mt. Taibai Shan (IMURA, 1993, p. 382). The second species, *C. reitterianus*, is distributed most widely of all the four species, which occupies the mountainous regions of northern Sichuan, southern Gansu and the western part of the Qinling Mountains. The latter two species, *C. nanwutai* and *C. blumenthaliellus* are closely allied to each other in the external appearance, but readily distinguishable by differently shaped aedeagus and endophallus. *Carabus nanwutai* is endemic to rather high altitudinal area of the Qinling Mountains and is very unique in the shape of the praeputal pad which is apparently bilobed at the tip. *Carabus blumenthaliellus* is known so far only from the Shennongjia Massif lying in the westernmost part of Hubei Province. In many respects, *Qinlingocarabus* nov. seems to be most closely allied to *Titanocarabus* and they must have been derived from the common ancestor. Also it seems to have certain affinity with *Piocarabus* which is widely distributed in the northern part of the Chinese territory including Mongolia. The new name comes from the Qinling Mountains, on which as much as three species belonging to the new subgenus occur almost sympatrically.

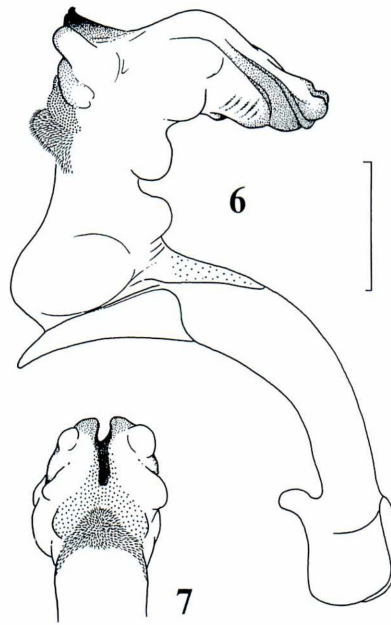
2) Subgenus *Heptacarabus* IMURA, nov.

(Figs. 6-7)

Type species: *Carabus (Heptacarabus) ohshimaianus* DEUVE, 1988.

Medium-sized carabid beetle with the external features closely allied to *Qinlingocarabus* nov., but definitely different from that subgenus in the following respects: 1) median lobe not developed at all; 2) prepraeputal lobes well recognizable as a thickly haired single projection; 3) parapraeputal lobes situated just beside praeputal pad; 4) praeputal pad much deformed, strongly protrudent dorsad to form a plate-like sclerite which is separated by marked central gutter with strong pigmentation.

Notes. Although clearly distinguishable by the above endophallic characters from *Qinlingocarabus* nov., *Heptacarabus* nov. may be regarded as the most special-



Figs. 6–7. Male genital organ of *Carabus (Heptacarabus) ohshimaianus* from Bashan on the Dabashan Mts., NE. Sichuan; 6, aedeagus with fully everted endophallus in right lateral view; 7, median portion of endophallus in basal view. Scale: 2 mm.

ized form of the former subgenus. Its distribution is limited to the Dashennongjia Massif of western Hubei and the Dabashan Mountains of northeastern Sichuan. The new subgenus is named after the sculptural pattern of elytra in the type species, which is heptaploid homodyname.

All the Chinese species which have been treated as belonging to *Oreocarabus* (or *Hypsocarabus* by some authors, e.g., BŘEZINA, 1994) should be re-arranged as follows:

I. Subgenus *Titanocarabus* BREUNING, 1933

(Type species: *Carabus titanus* BREUNING)

1. *Carabus (Titanocarabus) titanus* BREUNING, 1932
2. *C. (T.) sui* IMURA et ZHOU, 1998

II. Subgenus *Qinlingocarabus* IMURA, nov.

(Type species: *Carabus kitawakianus* IMURA)

1. *Carabus (Qinlingocarabus) kitawakianus* IMURA, 1993
2. *C. (Q.) reitterianus* BREUNING, 1932

3. *C. (Q.) nanwutai* KLEINFELD, KORELL et WRASE, 1996
4. *C. (Q.) blumenthaliellus* DEUVE, 1988

III. Subgenus *Heptacarabus* IMURA, nov.

(Type species: *Carabus ohshimaianus* DEUVE)

1. *Carabus (Heptacarabus) ohshimaianus* DEUVE, 1988

IV Subgenus *Piocarabus* REITTER, 1896

(Type species: *Carabus vladimirskyi* DEJEAN)

1. *Carabus (Piocarabus) vladimirskyi* DEJEAN, 1830

V. Subgenus *Rhigocarabus* REITTER, 1896

(Type species: *Carabus morawitzianus* SEMENOV)

Hypocarabus SEMENOV, 1898 (type species: *Carabus latro* SEMENOV).

1. *Carabus (Rhigocarabus) latro* SEMENOV, 1898
2. *C. (R.) qinlingensis* IMURA, 1993
3. *C. (R.) laotse* BEHEIM et BREUNING, 1943
4. *C. (R.) tewoensis* DEUVE, 1992¹⁾
5. *C. (R.) mikhaili* DEUVE et MOURZINE, 1997¹⁾

要 約

井村有希：中国産オサムシの2新亜属。——これまでミヤマオサムシ亜属 *Oreocarabus* にその所属を置かれてきた中国産の数種のオサムシに対し、♂交尾器内袋構造の違いに基づいて、*Qinlingocarabus* (基準種 *Carabus kitawakianus*) と *Heptacarabus* (基準種 *C. ohshimaianus*) という、ふたつの新亜属を設立した。

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1) *Carabus tewoensis* and *C. mikhaili* belong most likely to the subgenus *Rhigocarabus*, though I was unable to examine their endophallus.

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Elytra, Tokyo, **26** (2): 262, November 15, 1998

New Record of Staphylinid Beetles (Coleoptera) from Yoron-tô Island of the Ryukyus, Japan

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Until now, no staphylinid beetle has been reported from Yoron-tô Island of the Ryukyus, Japan. One of the authors, S. ONODA, had an opportunity of making a faunal investigation of soil insects on Yoron-tô Island of the Ryukyus. He was able to obtain four species of staphylinid beetles at Kurohana of the island on September 13, 1996. They are as recorded below.

1. *Philonthus aeneipennis* BOHEMAN, 1 ♀.
2. *Philonthus amicus* SHARP, 1 ♀.
3. *Philonthus discoideus* GRAVENHORST, 2 ♀♀.
4. *Aleochara (Xenochroa) puberula* KLUG, 1 ♀.