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Morionidius inexpectatus sp. n. (Coleoptera: Carabidae: Morionini) from China

Morionidius inexpectatus sp. n. (Coleoptera: Carabidae: Morionini) z Číny

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Taxonomy, description, *Morionidius inexpectatus* sp. n., Coleoptera, Carabidae, Morionini, China

Abstract. A new species of the genus *Morionidius* Chaudoir, 1870 from China (Gansu) is described. It is allied to *M. insularis* Kasahara et Ohtani, 1992, from Japan, but differs by its larger size, slenderer body and legs, higher number of setae on the last urosternum and narrower aedeagus. This is the second Palaearctic species of the genus and one of the first Morionini known from the Palaearctic region.

INTRODUCTION

Recent explorations on the mountains of Asia brought discoveries of an exceptionally high number of new taxa of Coleoptera Carabidae. One of them is a very interesting representative of the mainly tropical tribe Morionini, belonging to the very poorly known genus *Morionidius*. In this paper we describe the new species, and discuss the possible systematic position of the genus within the tribe.

SYSTEMATIC PART

Morionidius Chaudoir, 1870

The genus *Morionidius* was erected by Chaudoir (1870) for the species *M. doriae* Chaudoir, 1870 from Sarawak (Borneo). Andrewes (1921) described a second species *M. charon* from Laos and Tonkin (= N Vietnam). Since then, nobody has mentioned the genus, until very recently. Kasahara & Ohtani (1992) described *M. insularis,* a new species from Japan and Kasahara (1993, 1995) gave new distributional data on it and on *M. charon*. Chaudoir's description is fairly complete, however the systematic position of the genus was never sufficiently cleared. For this reason, we would like to briefly discuss the relationships of this genus.

Morionidius inexpectatus sp. n.
(Figs 1-7)

Diagnosis. A *Morionidius* of large size, black, with long, slender legs.
Description (habitus of holotype as in Fig. 1). Size 18.9-23.1 mm; large species with elongate, convex body. Entirely black, including appendages.

Head large, smooth, with both supraocular setiferous punctures present; mandibles rather short and markedly curved. Eyes markedly prominent, almost hemispherical. Antennae quite short and stout, not reaching base of pronotum, weakly flattened from antennomere 6. Antennomeres 1-3 glabrous, only with usual apical setae, 4 with a few additional setae at apex, 5-11 densely pubescent but with central portion glabrous. Maxillary palpi of usual shape, narrow, labial palpi with last palpomere markedly dilated, securiform, pubescent. Anterior margin of clypeus almost straight, anterior setiferous puncture situated close to lateral margin instead of front margin. Frontal sulci long, deep, well defined, parallel in basal part, then weakly divergent, then parallel again and abruptly ending almost at the middle of length of eye.

Pronotum large, markedly transverse (index w/l =1.31 in the holotype), with lateral gutter large and strongly reflexed; both pairs of marginal setae present, anterior seta situated not far from anterolateral angle. Base of pronotum much narrower than anterior margin. Median longitudinal

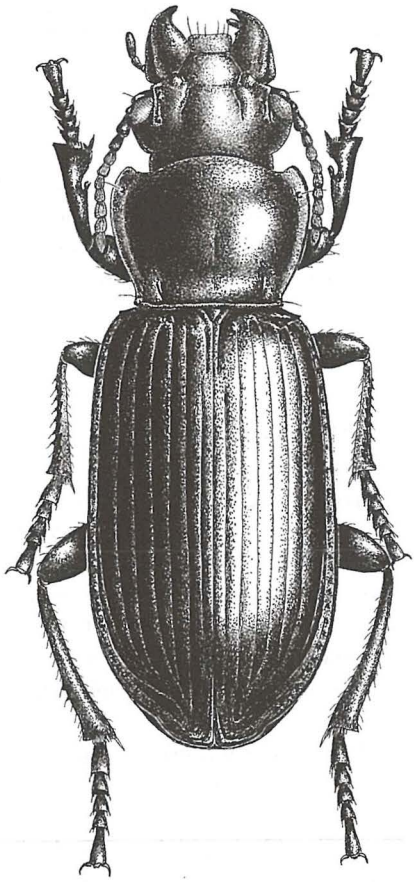
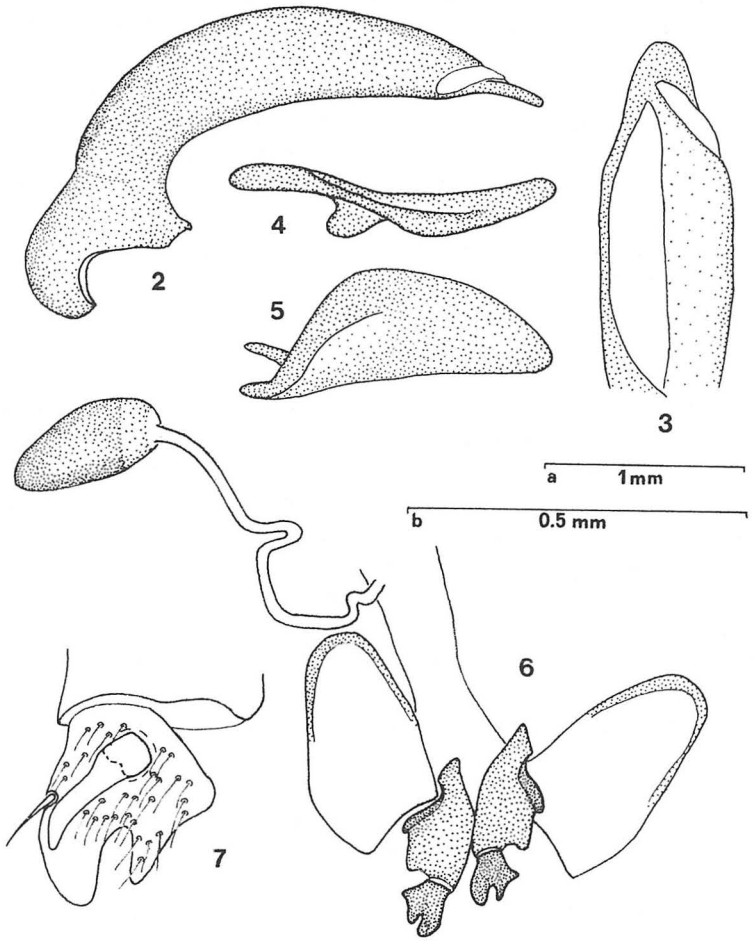


Fig. 1. *Morionidius inexpectatus* sp. n., holotype male, habitus.
Obr.1. *Morionidius inexpectatus* sp. n., holotypus, samec, habitus.

impression present but very superficial, basal foveae deep, linear, very well defined, entirely smooth. Anterior angles weakly protruding, anterior margin markedly convex at middle; sides shortly but strongly sinuate before almost right posterior angles.

Legs short and very robust; tarsi flattened dorso-ventrally, not furrowed dorsally. Protibiae weakly expanded at lateral distal angle; mesotibiae distinctly serrate externally, evidently expanded at lateral distal angle; metatibiae distinctly arcuate, with only two short denticles on external side, not protruding.

Elytra elongate (index l/w = 1.66 in the holotype), almost parallel-sided, convex, weakly dilated towards apex. Scutellar setiferous puncture present at base of a rudimentary scutellar stria, no discal setiferous punctures; umbilicate series of numerous setiferous punctures aligned along stria



Figs 2-7. *Morionidius inexpectatus* sp. n.: 2-3 - aedeagus in lateral (2) and dorsal (3) view, 4 - left paramere, 5 - right paramere, 6 - ovipositor and spermatheca, 7 - detail of last stylomere. Scale bars: a - 2-6, b - 7.
Obr. 2-7. *Morionidius inexpectatus* sp. n.: 2-3 - aedeagus v laterálním (2) a dorsálním (3) pohledu, 4 - levá paramera, 5 - pravá paramera, 6 - ovipositor a spermatéka, 7 - detail posledního stylomeru. Měřítka: a - 2-6, b - 7.

9, punctures only slightly more spaced at middle than at base and apex. Humeral angle distinctly denticulate, basal margin perpendicular to suture, interrupted at level of stria 5, then indicated by some deep punctures. Striae well marked, all distinct and equally deep, smooth; stria 1 interrupted behind base, then continuing slightly more laterally. Intervals very weakly convex. Last urosternum with 3 couples of setae in the male, with a series of 22-24 setae in the female.

Male genitalia. Aedeagus small and rather slender, in lateral view (Fig. 2) obtusely bent at basal third, with a dorsal ligula extending nearly to the base of apical lamella. Apex gently curved rightwards in dorsal view (Fig. 3), apical lamella flat, as long as wide and rounded at apex. Left paramere (Fig. 4) large and wide, triangular, rounded at apex; right paramere (Fig. 5) slender, weakly curved at middle, rounded at apex.

Female genitalia. Stylomere 1 glabrous, stylomere 2 (Figs 6, 7) biphid, deeply emarginate externally; with a long seta internally and a large spine-like structure, probably a highly modified ensiform seta, superiorly. All the superior side is covered with long, thin setae. Spermatheca large, well sclerotized, oval, without annexed gland and with ductus rather long and not sclerotized.

Type material. Holotypus, male, labelled: China, South Gansu, Wenxian env., 18-26.VI.1995, leg. Beneš, in the collection R. Sciaky (Milano); 2 paratypes male and female, same locality but 31.V.-2.VI.1996 (in the collection V. Beneš, Ústí nad Labem); 3 paratypes females labelled: China, W Sichuan, Miansizhen, 24.VI.1996, leg. Beneš, in the collections R. Sciaky and V. Beneš; 2 paratypes females labelled: China, N Sichuan, Nanping, 30.V.1996, leg. Beneš & Štěpař, in the collections R. Sciaky and V. Beneš.

Derivatio nominis. The specific epithet is the Latin adjective *inexpectatus* (not expected). It refers to the surprising occurrence of a member of Morionini in Gansu.

Differential diagnosis. *M. inexpectatus* sp. n. seems indeed related to *M. insularis*, from Japan, from which it differs in the larger size (18.9-23.1 mm instead of 14.3-21.3) the higher number of setae on last urosternum (3 pairs instead of 1 pair in the male, 20 instead of 12-14 in the female), the narrower aedeagus and the deeply biphid stylomere 2. We have not examined material of *M. insularis*, therefore it is possible that the differences are even more pronounced. *M. charon* (of which we have examined two paratypes and two more specimens) is smaller (12-18 mm), shorter and has much stouter legs, mainly the tarsi. *M. inexpectatus* differs from the other known species of the genus, *M. doriae*, even more significantly in body size (18.9-23.1 mm instead of 9) and by several other characters.

The shape of stylomere 2 is similar to that illustrated by Kasahara & Ohtani (1992) for *M. insularis*, but more strongly biphid; moreover these authors do not show the long external seta and the spine-like structure, but we do not know whether these two structures are really absent or have not been noticed.

Anyway, the shape of stylomere 2 in both these species is completely different from that of *Morion orientalis* (Dejean, 1825) as illustrated by Habu (1985). In fact, in this genus the stylomere 2 has two well developed ensiform setae on the ventral outer margin and one on the dorsal outer margin. This difference shows that the two genera are quite distant and probably also that they do not have the same living habits, as already supposed by Kasahara & Ohtani (1992).

Discussion. The genus *Morionidius* belongs to the tribe Morionini; the few Palaearctic species of this tribe known at present belong to the large genus *Morion* Latreille, 1810, the largest of the tribe, represented in all zoogeographic regions, but mostly in the tropics. The species from the Nearctic and Neotropical regions belong to the subgenus *Morion* s. str., the species from the

Palaearctic, Afrotropical, Oriental and Australian regions have been separated into the subgenus *Neomorion* Jeannel, 1948. *Morionidius* shares some characters with *Morion*, but some other characters are very peculiar and are absent in any other genus allied to *Morion*.

The convex body resembles that of some species of *Morion* (*Morion*) and is very different from that of *Morion* (*Neomorion).* Other characters shared at least with some species of *Morion* are: the convex anterior margin of pronotum (sinuate in *Neomorion*) and the occurrence of several pairs of setae on the last urosternum (only one pair in *Neomorion*).

Typical at the characters of *Morionidius*, absent in *Morion* are: the almost straight labrum (deeply indented at middle in *Morion*) and the dilated last palpomere of labial palpi (narrow in *Morion*).

We believe that the convex body, the almost straight anterior margin of labrum and the convex anterior margin of pronotum can be regarded as plesiomorphic, while the occurrence of several pairs of setae on the last urosternum is an apomorphic character. We do not know how to consider the polarity of the dilated last segment of labial palpus, but it seems to us more probable that it can be regarded as apomorphic. Two of these characters (the almost straight anterior margin of labrum and the dilated last palpomere of labial palpus) appear also in *Stereostoma* Murray, 1857 an African genus of Morionini very distant from *Morion*, as it was already observed by Chaudoir, who wrote: „Il semble faire le passage des *Morio* par le *Moriosomus* aux *Stereostoma*, mais il est plus raccourci que ces derniers" (Chaudoir 1870: 383).

The occurrence of some plesiomorphic character states shared with *Morion* s. str. but not with *Neomorion* is probably not significant and only indicates that both genera originated from the same ancestor, even though *Neomorion* has evolved in a different direction. On the other hand, the occurrence of some autapomorphic character states indicates that the evolution of *Morionidius* has developed along a different pathway from that of the genus *Morion*. *Morionidius* is therefore probably to be regarded as the most primitive of these genera of Morionini.

Distribution. There are known three populations of this species. In the type locality, Wenxian, in Southern Gansu, the specimens were found at an altitude of 1200 m a.s.l. in a valley with rivers and steep, dry hills; lower parts of the hills support sparse shrubs to the elevation of about 1300 m, then the shrubs are replaced by a very dense, almost impenetrable oak forest and other plants. The specimens were taken during a very wet period, with rain almost every day, but the area in general is extremely dry, especially the foothills. The *Morionidius* were found under rocks together with *Carabus* (*Coptolabrus*) *formosus bousqueti* Deuve, 1993 and *Carabus* (*Acathaicus*) *idolon* Semenov, 1898. The other two localities are almost the same as the typical one. Interestingly, Miansizhen is ca 500 km to the south and divided by rather high (above 5000 m a.s.l.) mountain range. This fact suggests, that *M. inexpectatus* sp. n. can be expected to have a large distribution in the region.

Biogeographical observations. The occurrence of this species in Gansu and Sichuan is extremely interesting, since these Chinese region are generally not considered as the "transition zone" of China where the Palaearctic and Oriental faunas intermix. It is customary to consider Yunnan as the "transition zone", with the mountain fauna typically Palaearctic and the lowland fauna Oriental; Gansu and Sichuan are north of Yunnan, and their fauna should therefore be regarded as fully Palaearctic. The occurrence of a new species of this genus in this area, that has been prospected several times in recent years, is extremely interesting and unexpected.

Semenov Tian-Shanskij (1935) pointed out that the regions of Sichuan and Yunnan have been the refugium of the most primitive taxa of beetles, but they also were a centre of intensive evo-

lution of many derived lineages of Carabidae. Among the Carabini, we may mention the case of the archaic *Apotomopterus* Hope, 1838 now sympatric, in that area, with the highly evolved, specialized species of the subgenera *Aristocarabus* Semenov, 1896 and *Coptolabrus* Solier, 1848. Similarly, the primitive genus *Archastes* Jedlička, 1935 (Nebriini) lives in the same area, which is probably the most primitive extant group related to *Leistus* Froelig, 1799, but we also find many species of *Leistus* in the area, often highly modified and with curious autapomorphies (Tschitschérine 1903, Farkač 1995, Sciaky 1994, 1995).

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SOUHRN

V práci je popsán nový druh střevlíčka *Morionidius inexpectatus* sp. n. z čínských provincií Gansu a Sečuán. Jméno nového druhu vyjadřuje neočekávanost tohoto nálezu, neboť je druhým palearktickým a teprve prvním pevninským palearktickým druhem. Jediný dosud známý druh palearktické oblasti je *Morionidius insularis* Kasahara et Ohtani, 1992 z Japonska. Nově popsaný druh je porovnán s dosud známými druhy rodu *Morionidius* z Bornea resp. Laosu a Vietnamu.

Jsou diskutovány fylogenetické vztahy v rámci tribu Morionini. Na základě zkoumání vnější morfologie imag je vyslovena hypotéza, že rody *Morion* Latreille, 1810 a *Neomorion* Jeannel, 1948 jsou taxony fylogeneticky odvozené a vzájemně blízce příbuzné, zatímco rod *Morionidius* Chaudoir, 1870 je představitelem primitivnější vývojové linie.

Autoři na základě dosavadních výsledků výzkumu řady rodů čeledi Carabidae poukazují na význam zmíněných oblastí Číny pro zoogeografii a fylogenetiku. Provincie Gansu a Sečuán jsou „přechodnou zónou", v níž se prolínají prvky palearktické a orientální fauny. Současně jsou refugiem vývojově archaických taxonů a zároveň oblastí, v níž intenzivně probíhají evoluční procesy - byl zde nalezen značný počet fylogeneticky vysoce odvozených taxonů střevlíků (viz např. triby Carabini a Nebriini).