

Taxonomic and faunistic notes on East Palaearctic *Colymbetes* species, with the description of a new species from the Far East (Coleoptera: Dytiscidae)

Anders N. Nilsson

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Colymbetes pseudostriatum n. sp. (Coleoptera: Dytiscidae) is described from Sakhalin in the Russian Far East. The new species that is recorded also from E Siberia, NE China and Japan was earlier confused with *C. dolabratus* (Paykull) and *C. striatus* (Linnaeus). A lectotype is designated for *C. tolli* Zaitzev, 1907, and this name is synonymized with *Dytiscus dolabratus* Paykull, 1798, n. syn. A record of *C. fuscus* (Linnaeus) from Thibet is confirmed.

Anders N. Nilsson, Department of Biology and Environmental Science, SE-901 87 Umeå University, Sweden; E-mail: Anders.Nilsson@bmg.umu.se

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1. Introduction

The Holarctic genus *Colymbetes* Clairville includes 21 species, of which 16 are known from the Palearctic Region (Nilsson 2001). The Nearctic species of the genus were revised by Zimmerman (1981). The most recent review of the Palearctic species was provided by Zaitzev (1953; English translation 1972), although Dettner (1983) later reviewed the European species when describing the new Mediterranean species *C. schildknechti*. Consequently, it is the Asian species that remain least well-known today.

This paper focuses on the identity of an East Palearctic *Colymbetes* species very similar to the chiefly European *C. striatus* (Linnaeus). I first met with this species in material from Sakhalin collected by Sergey Kholin in 1993. Since only females were available for study for several years, no firm conclusion could be made at the time. Instead I decided to identify this material as be-

longing to the relatively unknown *C. tolli* Zaitzev, described from Yakutia (Nilsson & Kholin 1994). Moreover, I also suggested that the male from NE China identified by Balfour-Browne (1947) as *C. striatus* represented *C. tolli* (Nilsson 1995). It also seemed most likely that the *Colymbetes* sp. listed from Japan by Mori & Kitayama (1993) also belonged to the same species.

As I now am in possession of a male *Colymbetes* from Sakhalin plus type material of *C. tolli*, I am ready to revise all my former identifications. Quite unexpectedly, *C. tolli* turns out to be a junior synonym of the Holarctic *C. dolabratus* (Paykull). Consequently, the material I have previously attributed to this species represent an undescribed species that needs to be named.

The following abbreviations are used: (CAL) coll. R. Angus, London; (CAS) California Academy of Science, San Francisco; (CHB) coll. L. Hendrich, Berlin; (CNU) coll. A.N. Nilsson ,

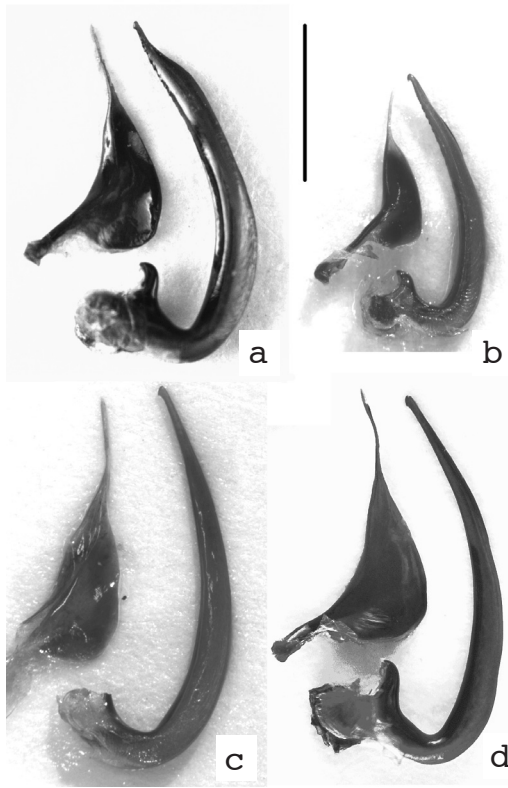


Fig. 1. *Colymbetes*, penis in lateral view and left paramere in external view. — a. *C. striatus* (Linnaeus), Sweden. — b. *C. tolli* Zaitzev, paralectotype. — c–d. *C. pseudostratus* sp. n. — c. Holotype. — d. Amur. Scale bar 2.5 mm.

Umeå; (MNHN) Natural History Museum, Paris; (MZH) Zoological Museum Helsinki; (SMNH) Swedish Museum of Natural History, Stockholm; (ZISP) Zoological Institute, St. Petersburg.

2. Taxonomy and faunistics

Colymbetes striatus (Linnaeus) (Fig. 1a)

Dytiscus striatus Linnaeus, 1758:411 (orig. descr.).

Colymbetes striatus (Linnaeus): Konev 1976:57 (faun.); Nilsson & Holmen 1995: 142 (descr.).

Cymatopterus striatus (Linnaeus): J.Sahlberg 1880: 54 (faun.).

Material studied. Kazakhstan: ♂ CHB “Batkul Lake, 15–31.7.1994, Miatleaski J. leg.”. — Russia: ♂ ZISP “Yu. Lesostepn. polosa, Tobols. g.,

Ruzskiy VI–VIII.96”; ♀ CHB “riv. Ob, 130 km W from Biysk, Verch. Istok. 17.VI.97, leg. V. Murzin”; ♂ CAL “Siberia, Novosibirsk, W of R. Ob near dam, 30.V.70 R.B. Angus”; 1♂ 1♀ CAL “Siberia, Karasuk 53.5N 78E, 22–27.V.70 R.B.Angus”; ♀ MZH “Omsk, Granö”; ♀ MZH “Jeniseisk, Y. Wuorentaus”; ♂ MZH “Jekaterinb., C. Nyberg”; 2♂ SMNH “Krasnojarsk, Streblov”, “Ob-Jenisej Exp. 1876, F. Trybom, det. J. Sahlberg”; 1♂ 1♀ SMNH “Altai”, “Collectio Haglund”.

Note. As the studied material from West Kazakhstan and West Siberia represent the true *C. striatus*, I have accepted Konev’s (1976) records from East Kazakhstan as valid (see Fig. 2). The penis is very characteristic (Fig. 1a). There is a marked sexual dimorphism in elytral sculpture in this species. The transverse striae are much broader in the female than in the male, and the interstitial spaces are more convex. No females with less coarse, male-like striation are known.

Colymbetes dolabratus (Paykull) (Fig. 1b)

Dytiscus dolabratus Paykull, 1798:204 (orig. descr.).

Colymbetes dolabratus (Paykull, 1798): Zimmerman 1981: 10 (misspell., descr.); Dettner 1983: 42 (descr.).

Colymbetes dolabratus (Paykull): Nilsson & Holmen 1995: 144 (descr.); Nilsson 2001: 45 (synonyms).

Colymbetes tolli Zaitzev, 1907: 209 (orig. descr.), 1910: 43 (descr.); n. syn.

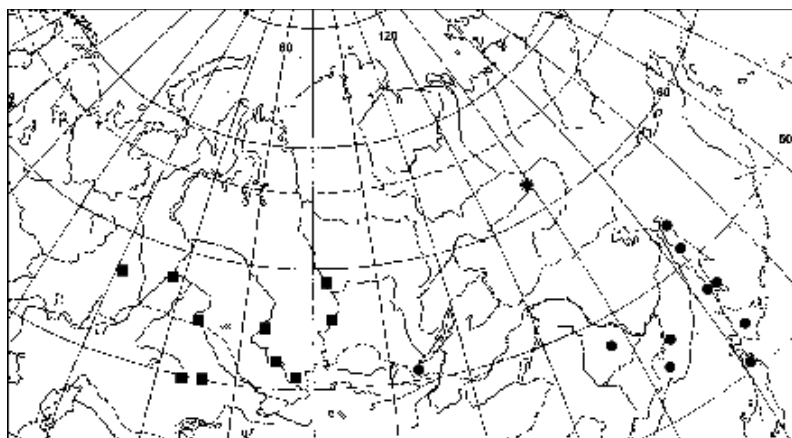
Cymatopterus striatus (Linnaeus): Poppius 1905: 23 (misident.).

Type material. Syntypes of *dolabratus* not seen; probably in coll. Paykull SMNH. — Lectotype ♂ of *tollii* in ZISP here designated, labelled: “Ozero v okrestn. Yakutska. Bar. Tol VIII 93”, “*Colymbetes Tolli* sp.n. Zaicev det.” and my lectotype label; paratype ♂ with same locality label and my paralectotype label, and genitalia dissected and glued to a card by me (Fig. 1b).

Additional material. ♂ MZH “Nikolskaja, Fl. Lena m., B. Poppius”.

Note. The type locality is shown on the map (Fig. 2). Poppius locality is situated slightly north of the type locality. A lectotype of *C. tollii* was designated in order to fix the identity of this poorly known nominal species. Besides the relatively large size, the studied specimens from Yakutia show no distinct deviations from the Scandinavian

Fig. 2. Map of North Asia showing known records of *Colymbetes pseudo-striatus* sp. n. (dots), and *C. striatus* (Linnaeus) east of longitude 60°E (squares). Type locality of *C. tolli* Zaitzev shown with a star.



material they were compared with. As the widespread Holarctic *C. dolabratus* is known for its marked geographic variation (Nilsson & Holmen 1995, Zimmerman 1981) a more detailed study of this species, including molecular markers, would be most welcome.

Colymbetes pseudo-striatus sp. n. (Fig. 1c–d)

Colymbetes striatus (Linnaeus): J. Balfour-Browne 1947: 451 (misident.).

Colymbetes tolli Zaitzev: Nilsson & Kholin 1994: 151 (misident.); Nilsson 1995: 67 (in part, misident.); Nilsson *et al.* 1999: 122 (misident.).

Colymbetes sp.: Mori & Kitayama 1993: 125 (male genitalia depicted).

Type material. Holotype ♂ in ZISP labelled: “RU: S Sakhalin, NW Starodubskoye, Lake Malyy Pribrezhnoye, 23.VII.2001, 47°25.789'N 142°46.344'E, Leg. B. Martin & N. Minakawa”. — Paratypes 5♂♂ 9♀♀: 2♀♀ in ZISP labelled: “RU: Sakhalin, pond, Beregovue Langry, 20.IX.1995 SK Kholin”; ♀ in CNU dito, “river mouth”; ♀ in CNU labelled: “RU: Sakhalin, Pionery #18, 4/9-95 SK Kholin”; ♀ in CNU labelled: “Russia, Sakhalin, Kostromskoye P3, 8/9-93 S. Kholin; ♂ in CAS “Hsiaoling, Manchuria, VII.1939, M. Weymarn”, “H.B. Leech Collection”, “*Colymbetes striatus* L. J. Balfour-Browne 1944”; 2♂♂ 1♀ in CHB “Russia, Buryatia, Kjachta distr., 5 km NO Kiran Village 50°21'43"N, 104°46'11"E, 20-30.VI.1999 leg. I. Melnik”; ♀ in CHB “Primorskiy kray, Dalneretschenskij reg., Lubanovka city,

Malinovka stream in Dolinnogi forest, 7.IX.1980, leg. Andreev”; 1♂ 1♀ in MNHN “Amur”; ♀ in MNHN labelled “Berisovka, Transbaikalien”, “*Colymbetes Tolli* Zaitz. det. Gschwendtner”; ♂ in ZISP labelled “Prim. Kray, Ussuriysk 15.VI.58”, “*Colymbetes tolli* Zaitz. det. V. Zacharenko”.

Diagnosis. The new species is very similar to *C. striatus* from which it differs in the more slender and evenly narrowed penis and in the female elytral sculpture that is more or less similar to the male.

Description. Length 16.2–18.2 mm, width 7.9–8.9 mm. Head black; two posteromedial spots and area anterior to eyes testaceous. Antenna rufotestaceous, segments 4–11 with more or less developed apical infuscation. Palpi testaceous, apically piceous. Pronotum testaceous with well-defined black transverse medial mark somewhat narrower and shorter than in *C. striatus*. Elytron dark testaceous with transverse striae black. Ventral surface mainly black; hypomeron and epipleuron testaceous; metacoxal processes and posterior margins of abdominal sterna 3–6 rufous. Legs rufotestaceous; metafemur more or less brown. Pronotum on disc with deep striae forming open elongate cells oriented towards anterolateral angle; striae in average slightly shorter and less dense than in *C. striatus*. Elytron with transverse striae narrow and interspaces flat in male; in most females striae only slightly deeper and interspaces barely more raised; in some of the Sakhalin females striae wider and interspaces raised, almost like in *C. striatus*. Metasternal process between mesocoxae narrow, subequal to minimum width of prosternal process. Metasternal

wing broad. Abdominal sternum 2 with more than 30 narrow short ridges in each stridulatory file. Male pro- and mesotarsomeres 1–3 very broadly dilated; protarsomeres 1–3 ventrally with about 22 rounded scales; protarsomere 5 with ventral excavation bordered with setal rows; protarsal claws of subequal length, basally denticulate, and anterior claw ventrally expanded with margin straight; mesotarsal claws subequal in length, posterior claw apically curved in dorsal view; penis long and slender, evenly narrowed to apex, with apical hook, and without subapical ventral serration (Fig. 1c–d).

Etymology. The specific epithet means false *striatus*, and refers to the great similarity and earlier confusion of the two species.

Biology. In Sakhalin collected in coastal ponds and river lagoons with silty bottoms. Adults were collected from June to September. Three mature final-instar larvae collected in a silt pond 13 km W of Okhotskaya in South Sakhalin on 20 June 1993 probably belong to *C. pseudostratus*.

Distribution (Fig. 2). Russia (Buryatia, Amur, Primorye, Sakhalin), China (Heilongjiang), and Japan (Hokkaido and North Honshu). The *Colymbetes* sp. recorded from the Upper Kolyma in the Magadan Province by Matis & Gramma (1975) may also belong to this species, or may be more likely to *C. dolabratus* because of the high latitude of the record.

Colymbetes fuscus (Linnaeus)

Dytiscus fuscus Linnaeus, 1758: 411 (orig. descr.).

Colymbetes fuscus (Linnaeus): Dettner 1983: 42 (descr.); Nilsson & Holmen 1995 (descr.).

Material studied. 1♂ 1♀ MNHN “Thibet, Dutreuil de Rhins, 1893”.

Note. This species was overlooked in my review of Chinese Dytiscidae (Nilsson 1995). It was recorded from Thibet with a question-mark by Guignot (1961), and later this record was repeated by Dettner (1983). It is here confirmed. The male is almost black, maybe due to post-mortem change, but the penis and male stridulatory file are identical to European specimens.

3. Discussion

Besides the general similarity, *Colymbetes pseudostratus* and *C. striatus* share the ventral excavation bordered with setal rows on male protarsomere 5. This character is present also in *C. koenigi* Zaitzev, 1927, described from the Caucasus. I have studied 5 syntypes of Zaitzev’s species in ZISP and conclude that it is a valid species, to be separated from *C. striatus* on the smaller penis that is more abruptly narrowed subapically.

One species unknown to me that may have the same modification of the male protarsomere 5 as these three species or not is *C. magnus* Feng, 1936, described from Tianjin in China. I have not been able to locate the unique holotype of this species. Feng’s (1936) original drawing of the penis does not exclude the possibility that his species is identical with *C. pseudostratus*. However, based on my earlier misinterpretation of *C. tolli*, I do not want to take the risk to repeat this kind of error.

The two species *C. pseudostratus* and *C. striatus* are seemingly allopatric east/west vicariants within the Palearctic Region. The easternmost records of *C. striatus* are from the Yenisey, whereas *C. pseudostratus* reaches its western limit at Lake Baikal (Fig. 2). The in-between area needs additional documentation. A female in ZISP from Irkutsk (leg. V. E. Jakovlev) has the elytral sculpture typical for *C. striatus*. As some *C. pseudostratus* females from Sakhalin display a similar sculpture, the identity of the Irkutsk female is uncertain.

I have so far not been able to examine any material of *C. pseudostratus* from Japan. However, as the male genitalia of the ‘*Colymbetes* sp.’ illustrated by Mori & Kitayama (1993) appear identical with the ones I have seen in material from China and Russia, my conclusion is that they are conspecific. The faunas of Hokkaido and South Sakhalin are very similar indeed (Nilsson & Kholin 1994).

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