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Helophorus (Coleoptera, Helophoridae)
of the Far East of Russia and Japan**

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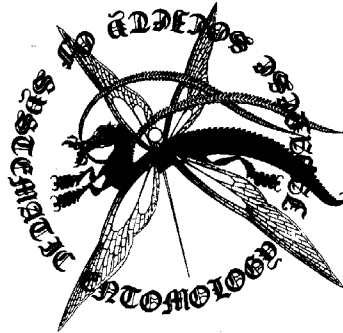
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Faunistics and Species Richness of Water Beetles of the Genus *Helophorus* (Coleoptera, Helophoridae) of the Far East of Russia and Japan

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Abstract Records of water beetles of the genus *Helophorus* from the Far East of Russia and Japan are presented, chiefly based on the more than 300 specimens collected in Russia by the two senior authors. Six species are recorded from Sakhalin and two from the Kurile Islands for the first time. *Helophorus nigricans* Poppius is recorded from Hokkaido, Japan for the first time. Local temporary ponds were inhabited by up to four species in South Primorye and up to three species in South Sakhalin.

Shatrovskiy (1989) listed 13 *Helophorus* species from Primorye, with two of them being only questionably recorded from the region, and no species at all from Sakhalin or the Kurile Islands. The Japanese fauna is considered equally poor in species, and Watanabe (1983) listed only three *Helophorus* species from Japan. Most probably, some of the Primorye species are restricted to the northern, more boreal part of the region, or to high altitude in the Sikhote Alin mountain range, with fewer species occurring in the South Primorye lowlands.

Due to the poor faunistic knowledge of *Helophorus* in the Far East, the diversity patterns are difficult to evaluate. In order to get a better documentation of the fauna, we here present some recent records including six species new to Sakhalin, two to the South Kuriles, and one to Japan.

Material and methods

This study is chiefly based on collections made by the two senior authors in 1992 and 1993. We collected together in South Primorye near Vladivostok and on Sakhalin in June 1993 and Kholin visited the same regions alone from July to October the same year. In July 1992, Nilsson collected alone in South Primorye. On Sakhalin, we spent most of our time in the Kholmok District, visiting also the Korsakov and Aniva Districts briefly. The other records included are based on specimens in collections examined by the junior author, who also identified all specimens collected by the two senior authors.

List of localities

Primorye: (1) 5 km W Zanadvorovka, Amba River, 10-11. vii. 1992; (2) 5 km NW Slavyanka, pond. 13. vii. 1992; (3) 3 km E Ryazanovka, bog pools, 12-16. vii. 1992; (4) 10 km N Khasan Station, mountain streamlet, 13. vi. 1992; (5) Ussuriski National Park, Kaminushka, (a) Komarovka River and ponds, 18-19. vii. 1992. (b) ponds 31. vii. 1993; (6) Anisimovka Station, Anisimovka River and pond, 20-21. vii. 1992; (7) 22 km N Vladivostok, Sputnik Station, ponds. (a) 25. vii. 1992, (b) 14. vi. - 7. x. 1993; (8) 35 km NW Vladivostok. 25. vii. 1992; (9) Lukyanovka, 7. viii. 1993.

Sakhalin: Korsakov District: (1) Okhotskoye, 20. vi. 1993; (2) 13 km W of Okhotskoye, 20. vi. 1993; (3) NW of Lake Tunaycha, 20. vi. 1993. -Kholmsk District: (4) Kostromskoye, 18. vi. - 8. ix. 1993; (5) Pionery, 23. vi. - 9. ix. 1993; (6) Kholmsk, 21. vi. - 10. ix. 1993; (7) Pyatirechye, Tiobut River, 25. vi. 1993. -Aniva District: (8) 15 km E of Aniva, 20. vi. 1993.

The numbers of the localities at which a species was found are listed for each species below; Primorye is coded as P, and Sakhalin as S. Each locality number is followed by the number of specimens collected.

List of species

Helophorus tuberculatus Gyllenhal

Elophorus tuberculatus Gyllenhal, 1808: 129 (orig. descr.).

Helophorus tuberculatus Gyllenhal, 1808; Shatrovskiy 1989: 270 (key); Angus 1992: 34 (key).

Localities with number of specimens. S 4:1.

This Holarctic species is widespread in the Far East of Russia south to Primorye. Our record is the first one from Sakhalin. It is not known from Japan.

Helophorus sibiricus (Motschulsky)

Empleurus sibiricus Motschulsky, 1860: 104 (orig. descr.).

Helophorus sibiricus (Motschulsky, 1860); Shatrovskiy 1989: 270 (key); Angus 1992: 38 (key).

Helophorus mukawaensis N. Watanabe, 1983: 43 (orig. descr.).

Localities with number of specimens. P 3:1, 4:1, 5b:12, 7b:26.

This northern Holarctic species is widespread in the Far East of Russia south to Primorye. It is known from Hokkaido, but not from the Russian Pacific Islands.

Helophorus nanus Sturm

Elophorus nanus Sturm, 1836:41 (orig. descr.).

Helophorus nanus Sturm, 1836; Shatrovskiy 1989: 273 (key); Angus 1992: 69 (key).

Localities with number of specimens. P 5b:5, 7b:16; S 1:1, 3:1, 4:26, 5:26.

This widespread Palearctic species was common in more or less temporary ponds in South Primorye and South Sakhalin.

***Helophorus orientalis* Motschulsky**

Helophorus orientalis Motschulsky, 1860: 106 (orig. descr.); Shatrovskiy 1989: 275 (key); Angus 1992: 74 (key).

Localities with number of specimens. P 6:16, 7b:3, 8:3, 9:1; S 2:2, 4:45, 5:2, 6:4, 7:1.

This Holarctic species is widespread and common in the Far East of Russia. We have also seen 8 specimens from the South Kurile Island of Iturup, collected by R.I. Gara in the SW part in a ditch along the road from Reidovo on 18. viii. 1994. This material is housed in the Fish Collection, University of Washington, Seattle. It is here reported from Sakhalin and the South Kuriles for the first time.

***Helophorus browni* McCorkle**

Helophorus browni McCorkle in Angus, 1970:280 (orig. descr.); Shatrovskiy 1989: 274 (key).

Localities with number of specimens. P 1:1, 2:2, 5a:5, 5b:4, 6:16, 7a:6, 7b:32, 8:3, 9:4; S 5:1, 7:4.

This Holarctic species is known from northwestern North America and from the Far East of Asia. It is common in various ponds in Primorye, but found at only two sites in Sakhalin.

***Helophorus nigricans* Poppius**

Helophorus nigricans Poppius, 1907: 9 (orig. descr.); Shatrovskiy 1989: 273 (key).

Localities with number of specimens. P 5b:2, 7b:22; S 5:6.

This species is known from East Siberia, the Far East of Russia, Mongolia and North China. We found it in several ponds of various size in South Primorye. In Sakhalin it was only found in a sedge fen.

***Helophorus matsumurai* Nakane**

Helophorus matsumurai Nakane, 1963: 63 + pl. 32: 5 (orig. descr.); 1965: 51 (orig. descr.).

Localities with number of specimens. S 2:1, 5:2, 6:2, 8:5.

This species was described from Hokkaido. It is here recorded from Sakhalin for the first time. We have also seen four specimens from the S Kurile Island of Zeliomyi collected on 5-6. viii. 1994 by N. Minakawa in two streams connected with Lake Utinoye. This material is housed in the Fish Collection, University of Washington, Seattle.

***Helophorus* of Japan and the Kurile Islands**

Only three species of *Helophorus* have been reported from Japan so far (Watanabe 1983): *H. (Gephelophorus) auriculatus* Sharp from Honshu, *H. (G.) sibiricus* (as *H. muhawaensis* N. Watanabe) from Hokkaido, and *H. matsumurai* Nakane from Hokkaido.

To these species should be added *H. nigricans* from Hokkaido (1 male, Ebetsu,

Table 1. Known records of *Helophorus* from Japan and the Russian Pacific Islands.

Species	Island:	Honshu	Hokkaido	Iturup	Zelionyi	Sakhalin
<i>H. tuberculatus</i> Gyllenhal						x
<i>H. sibiricus</i> (Motschulsky)			x			
<i>H. nanus</i> Sturm						x
<i>H. orientalis</i> Motschulsky				x		x
<i>H. browni</i> McCorkle						x
<i>H. nigricans</i> Poppius			x			x
<i>H. matsumurai</i> Nakane		x	x		x	x
<i>H. auriculatus</i> Sharp		x				
No. of species		2	3	1	1	6

Ebetsubuto, 16. v. 1992, leg. K. Miyashita, coll. Nakane; 1 female, Hokkaido University). The range of *H. matsumurai* includes also North Honshu (Aomori Pref., Kokeyachi, 2. iv. 1992, leg. A. Abe, coll. Nakane). These records sum up to three species on Hokkaido and two on Honshu.

We are not aware of any literature records of *Helophorus* from the Kurile Islands. New records are those of *H. orientalis* from Iturup, and of *H. matsumurai* from Zelionyi. One specimen of *H. orientalis* was collected on the Kuriles (Tatami-yama, Paramushir Is., 23. vii. 1941 by H. Kôno and S. Sumimiya, in coll. Nakane).

Local species richness

Twenty ponds in Primorye on the Muravyev Amurski Peninsula north of Vladivostok, and ten ponds in the Kholmsk District of South Sakhalin were sampled repeatedly in order to estimate the local species richness of water beetles (Kholin &

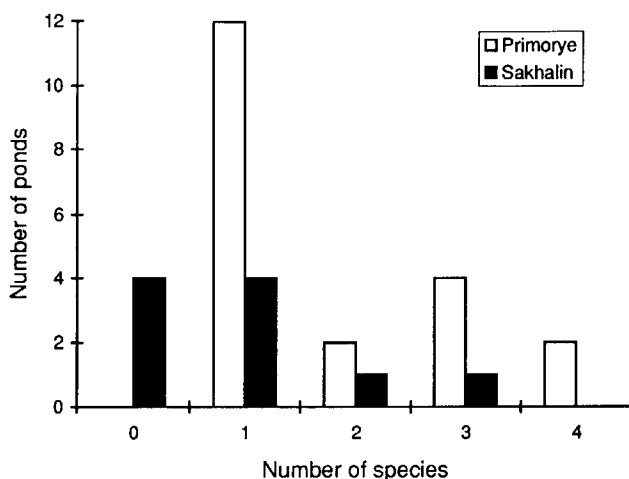


Fig. 1. Number of *Helophorus* species found in 10 Sakhalin and 20 Primorye temporary ponds using repeated net sampling.

Nilsson, in manuscript). The maximum numbers of locally coexisting species of *Helophorus* were four in Primorye and three in Sakhalin (Fig. 1). Our limited data suggest that the Primorye ponds tend to be inhabited by *Helophorus* more frequently than the Sakhalin ponds, and the average number of species per pond is slightly higher. This difference is best explained by the smaller regional species pool found in Sakhalin when compared to the mainland. It is striking that the species richness of *Helophorus* is lower in Primorye and the Pacific Islands than in most parts of Siberia or in the West Palearctic. The same pattern has been documented for some other groups of chiefly lentic insects like aquatic and semiaquatic Heteroptera (Jaczewski & Kostrowicki 1968) and dytiscid water beetles (Kholin & Nilsson, in manuscript).

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