

First records of the family Heloridae (Hymenoptera) from Estonia

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The small genus *Helorus* (Hymenoptera: Heloridae) has never been investigated in Estonia. This study presents results of revising Estonian Heloridae fauna based on collection specimens. Altogether 16 *Helorus* specimens were investigated representing four different species, all of which are new for Estonian fauna.

Viron harsiaispistiäistäistä (Hymenoptera: Heloridae) ei ole aikaisemmin julkaistu tietoja. Heimoon kuuluu vain yksi suku, *Helorus*. Kolmestatoista tunnetusta *Helorus*-lajista neljä esiintyy Euroopassa. Kaikki neljä eurooppalaista lajia ilmoitetaan tässä tutkimuksessa Viron faunalle uutena Tarton yliopiston luonnontieteellisen museon 16 yksilön aineiston perusteella.

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Introduction

Heloridae is a small family of parasitic Hymenoptera containing a single genus *Helorus*. Currently 13 extant *Helorus* species are known, a majority of which are found from Holarctic region (Izadzadeh *et al.*, 2015). Only four species are known from Europe (van Achterberg, 2006). Helorids are solitary endoparasitoids of lacewing (Neuroptera: Chrysopidae) larvae (Masner, 1993). All European species are generally 6–8 mm long black insects with elongated first segment of metasoma (Figure 1).

Estonian fauna of Heloridae had never been investigated although the oldest Estonian specimen in the examined collections was collected more than a century ago. The family is also poorly investigated in other Baltic states and Russian Leningrad Oblast with only one species (*Helorus striolatus*) recorded from Lithuania (van Achterberg, 2006). Fennoscandian helorids are somewhat better studied, with three species known from Finland (Hellén, 1941; Mitroiu *et al.*, 2015) and four from Sweden (Hedqvist, 2007).

In this study we revise Estonian Heloridae fauna based on collection specimens.

Methods

All specimens are deposited in the zoological collection of the Natural History Museum of University of Tartu (TUZ). Specimens were identified using the recent key published by C. van Achterberg (2006). There is some inconsistency in treatment of some European Heloridae species (e.g. Prpic-Schäper, 2010) and we follow the C. van Achterberg (2006) principally since the same taxonomy is also in use in the most recent study (Izadzadeh *et al.*, 2015).

Results

Altogether 16 (11 ♀♀ 5 ♂♂) Estonian specimens of *Helorus* are deposited in TUZ representing all four European species of the genus.

Helorus anomalipes (Panzer, 1798)

1 ♀ 3 ♂♂: 2 ♂, Tartu, Raadi (58.3952°N 26.7377°E), 23.vii.2003 leg. V. Soon (TUZ027797, TUZ055750); 1 ♀, Rahumäe (59.3898°N 24.7084°E), 18.vii.2014, leg. P. Tarlap (TUZ027797); 1 ♂ Tartu (58.4037°N 26.705°E), 3.viii.2017, leg. V. Soon (TUZ079618).

Helorus nigripes Foerster, 1856

1 ♂, Dorp. [Dorpat=Tartu] (TUZ119250).

Helorus ruficornis Foerster, 1956

2 ♀♀ 1 ♂: 2 ♀♀, Palupõhja, Kaha (58.4318°N 26.2413°E), 8.–25.vii.2009, 4.–18.viii.2009, Malaise trap, leg. V. Soon (TUZ039633, TUZ252884); 1 ♂ Pillapalu küla (59.3427°N 25.6427°E), 16.vii.2016, leg. P. Tarlap (TUZ023504).

Helorus striolatus Cameron, 1906

8 ♀♀: 1 ♀, Pillapalu küla (59.3427°N 25.6427°E), 16.vii.2016, leg. P. Tarlap (TUZ023505); 2 ♀♀, Palupõhja, Kaha (58.4318°N 26.2413°E), 8–25.vii.2009, Malaise trap, leg. V. Soon (TUZ252875, TUZ252876); 3 ♀♀, Vehendi (58.2319°N 26.1558°E), 9–24.vii.2010, Malaise trap, leg. V. Soon (TUZ252877, TUZ252878, TUZ252879); 1 ♀, Hirvli (59.4301°N 25.5385°E), 24.vi.2011–6.vii.2011, Malaise trap, leg. L. Ojasoo (TUZ039656); 1 ♀, Võhu (59.2462°N 26.6192°E), 18–29.vi.2013, Malaise trap, leg. A. Soon, E. Soon, V. Soon (TUZ251081).



Figure 1. A female of *Helorus striolatus* from Estonia (specimen TUZ252877).

Discussion

All four European species of *Helorus* are found in Estonia, which is more than in most neighboring territories. However, *H. nigripes* is known only from a very old record. The exact collecting date of this specimen is not known, but the style of labels indicates it was collected more than hundred years ago. Among European *Helorus* species *H. nigripes* is also the most rarely collected elsewhere (van Achterberg, 2006). It is likely that this species is regionally extinct by now.

Apparently malaise traps are far more effective in capturing Heloridae than regular collecting with an insect net. The majority of specimens (9 specimens) were captured with Malaise traps, and curiously all trapped specimens are females. Probably it is because females move actively around in vegetation searching for hosts and possibly have a longer lifespan than the males. However, *H. anomalipes* was never captured with Malaise traps. This could be due to different biology of this species, but more likely Malaise traps were not placed in the preferred habitat of this species.

Revealing additional species in Estonia with further studies is unlikely since all European species are already found. However if further studies support taxonomic treatment of Prpic-Schäper (2010), Estonian specimens of *H. ruficornis* need to be re-examined. Further collecting is necessary for confirming oc-

currence of *H. nigripes* as well as delimiting distribution of all *Helorus* species. Current data is too scattered to enable outlining distribution and abundance of *Helorus* species in Estonia.

References

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