ON THE OCCURENCE OF RARE AQUATIC BEETLE *HYDROGLYPHUS HAMULATUS* (GYLLENHAL, 1813) (COLEOPTERA, DYTISCIDAE) IN LITHUANIA

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Introduction

Larvae and adults of diving beetles (Dytiscidae) mostly inhabit freshwater environments and live in various water bodies from small pools to large lakes, from springs to large river, and have been seen even in the Baltic Sea. Adults of these beetles vary in body length from 1.5 to 45 mm and have different functional adaptations enabling them to exploit a wide variety of habitats. In Lithuania, 112 species of dytiscids have been recorded and 22 other species were listed as "expected" (Tamutis *et al.*, 2011). The dytiscid *Hydroglyphus hamulatus* (Gyllenhal, 1813) (Coleoptera, Dytiscidae, Hydroporinae) was mentioned for Lithuania in the literature (Pileckis & Monsevičius, 1995; Tamutis *et al.*, 2011), however information on its exact distribution in the country actually is absent. In this work we present a new locality of this rare beetle and discuss information on its European distribution and ecological characteristics.

Material and Methods

The dytiscid *Hydroglyphus hamulatus* was detected during the survey of benthic macroinvertebrates in Lake Šventas located in the North-Eastern Lithuania, Gražutė Regional Park, on September 14, 2018. Lake Šventas (surface area 4.259 km^2, maximal depth 18.2 m, mean depth 6.4 m) is a lake of glacial origin with high level of water transparency and no means of drainage. It is the largest lake in Lithuania which is characterized by long-term fluctuations in water level. Using a standard dip net (25×25 cm opening net bag with a mesh size of 0.5 mm) a semi-quantitative kick sample of macroinvertebrates was taken from the sandy/pebbly/stony/bottom (O'Hare *et al.*, 2007; Arbačiauskas, 2009). Animals were collected in the eulittoral, up to 1 m depth, applying a 3 min sampling effort. Stones and pebbles in the sampling site were covered by periphyton comprised of Cyanobacteria and Bacillariophyta.

Locality	Administrative district	Coordinates (LAT, LONG)
Gražutė Regional Park, Lake Šventas	Zarasai district	55.61685, 26.31119

The identification guide to freshwater macroinvertebrates of Estonia (Timm, 2015) was used for species identification. Taxonomic treatment of the taxon follows the Fauna Europaea database (Nilsson, 2013).

***Hydroglyphus hamulatus* (Gyllenhal, 1813)** (Fig. 1)

Lake Šventas, 14 09 2018, 26 spec. (leg. K. Arbačiauskas, det. G. Višinskienė).

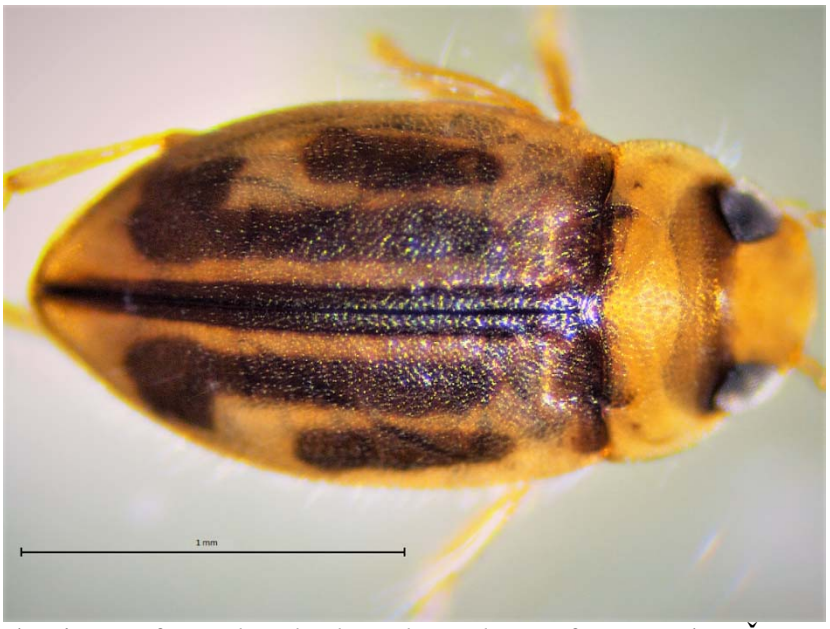

Figure 1. Dorsal view of *Hydroglyphus hamulatus* from Lake Šventas, Lithuania (author's photo).

Discussion

Hydroglyphus hamulatus (Gyllenhal, 1813) (syn. *Hyphydrus hamulatus* Gyll., *Bidessus hamulatus* Gyll.) species is known from Northern and Central Europe, Belarus, Ukraine, Denmark, Estonia, Finland, Germany, Latvia, Poland, Sweden, Northern and Central European Territory of Russia, and from Mongolia (Nilsson, 2003; Dyadichko, 2010, Nilsson, 2013). These small (adults are up to 2 mm long) diving beetles with specific pattern of coloration of superior wings are found mainly in large lakes as well as in slowly flowing rivers (Pakulnicka & Biesiadka, 2011). *Hydroglyphus hamulatus* is rare in Poland; it was reported from very few sites, however, may be abundant in some lakes (Pakulnicka, 2008). This dytiscid prefers clean, well-oxygenated lakes, and oligotrophic water bodies in general (Pakulnicka, 2008; Pakulnicka & Biesiadka, 2011, Pakulnicka *et al.*, 2015). As a new species for Ukraine, *H. hamulatus* was recorded in 2009 in a large lake with clear water, on sandy bottom without aquatic vegetation (Dyadichko, 2010). *Hydroglyphus hamulatus* distribution generally correlates with water conductivity and concentration of SO_4 ions, as well as oxygen concentration (Pakulnicka *et al.,* 2015). It seems that *H. hamulatus* is rather rare and threatened in all countries where it occurs. Even if the species may be abundant, it usually occurs only locally.

Hydroglyphus hamulatus as well as other Hydroporinae species are predators, which feed chiefly on microcrustaceans, especially Cladocera, and small chironomids (Nilsson, 1996).

The latest catalogue of Lithuanian beetles (Tamutis *et al.*, 2011) listed two species of *Hydroglyphus* genus (*H. pussilus* and *H. hamulatus*) occurring in Lithuania, but only some lists of beetles were indicated as related sources for *H. hamulatus* (Pileckis & Monsevičius, 1995; Silfverberg, 2004; Alekseev, 2010). The information on a single record of *H. hamulatus* in Puvočiai, Varėna district, in 1993 (leg. G. Slavinskas) are

noted in the card index of S. Pileckis which are stored in Kaunas T. Ivanauskas zoological museum. However, the voucher specimen(s) as well as the information on the details of the finding remain unknown (R. Ferenca personal information). The lake where we found specimens of *H. hamulatus* is considered to be one of the cleanest lakes in Lithuania (data of state monitoring of surface waters; Aplinkos apsaugos agentūra, 2018). Consequently, our data confirm previous observations that this species prefers large and clean lakes with clear water and inhabits the littoral with sandy/pebbly/stony bottom without aquatic vegetation.

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Apie reto vandens vabalo *Hydroglyphus hamulatus* (Gyllenhal, 1813) (Coleoptera, Dytiscidae) paplitimą Lietuvoje

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Santrauka

Švento ežere (Zarasų r., Gražutės regioninis parkas) 2018 m. rasti 26 retos Europoje dusios *Hydroglyphus hamulatus* suaugėliai. Ši nedidelė dusia (suaugėlių kūno ilgis iki 2 mm), aptikta atliekant makrobestuburių tyrimus ežero eulitoralės „kieto grunto“ makrobuveinėje. Tyrimų vietoje ežero dugną gyliuose iki 1 m sudarė smėlis, žvirgždas ir nedideli (iki 10 cm) akmenys apaugę perifitonu sudarytu iš melsvadumblių ir titnagdumblių. Straipsnyje apžvelgiami kai kurie *H. hamulatus* ekologijos bei paplitimo ypatumai.

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