

RECORDS OF *KRYNICKILLUS MELANOCEPHALUS* KALENICZENKO, 1851 (GASTROPODA: AGRIOLIMACIDAE) IN LITHUANIA

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Introduction

The study of molluscs in Lithuania started in 19th century in Vilnius University. A substantial research of molluscs in Lithuania was started by Pranciškus Baltrus Šivickis at the beginning of the 20th century (Gurskas, 2016). The first most comprehensive works including checklists of molluscs for Lithuania are published by Hans Schlesch in 1930s (Schlesch, 1937; Schlesch, Krausp, 1938). Up to date in total 169 species of molluscs were known on the territory of Lithuania (Gurskas, 2016; Stalažs, Dreijers, 2016). During the recent investigation of invertebrates in Vilnius and vicinity new records of an exotic slug species, *Krynickillus melanocephalus* Kaleniczenko, 1851 were obtained. Here we report this alien slug from six localities in Lithuania.

Material and Methods

Material was collected in six localities (Table 1). In Vilnius city slugs were collected in 21 August 2017 by A. Stalažs and Mindaugas Džiugelis (AS, MD). In other localities slugs were collected in July, October and November 2017 by P. Ivinskis¹, J. Rimšaitė¹ (PI, JR) using Barber traps and collecting of slugs in meadows, cemeteries and under fallen wood. Additional material was provided by Rasa Bernotienė (RB). From localities: Druskininkai, Ribiškės, Rokantiškės cemetery and Vilnius city slugs identified by internal anatomy, including internal structure of penis and features of external colouration of slug body (Wiktor, 2000). Identification of species by dissection was done by Edgars Dreijers. From two localities: Daubėnai and Žemasis Pavilnys slugs were identified on the bases of external colouration.

List of localities

Locality name	Administrative district	Coordinates (LAT, LONG)	
Daubėnai	Vilnius district	N 54.574750	E 025.431029
Druskininkai	Druskininkai municipality	N 54.012094	E 023.969670
Ribiškės	Vilnius municipality	N 54.664619	E 025.316629
Rokantiškės cemetery	Vilnius municipality	N 54.704679	E 025.357760
Sereikiškės	Vilnius city	N 54.684524	E 025.298358
Žemasis Pavilnys	Vilnius municipality	N 54.680814	E 025.366658

List of species

Krynickillus melanocephalus Kaleniczenko, 1851

Daubėnai, 20 10 2017, several specimens, (RB); Druskininkai, 19 10 2017, 2 specimens (RB); Ribiškės, 20 07 2017 and 30 10 2017, hundreds of specimens (RJ, PI); Rokantiškės, 29 10 2017, 2 specimens (JR); Sereikiškės, 21 08 2017, more than 10 specimens (AS, MD); Žemasis Pavilnys, 1–17 10 2017, several specimens (RB).

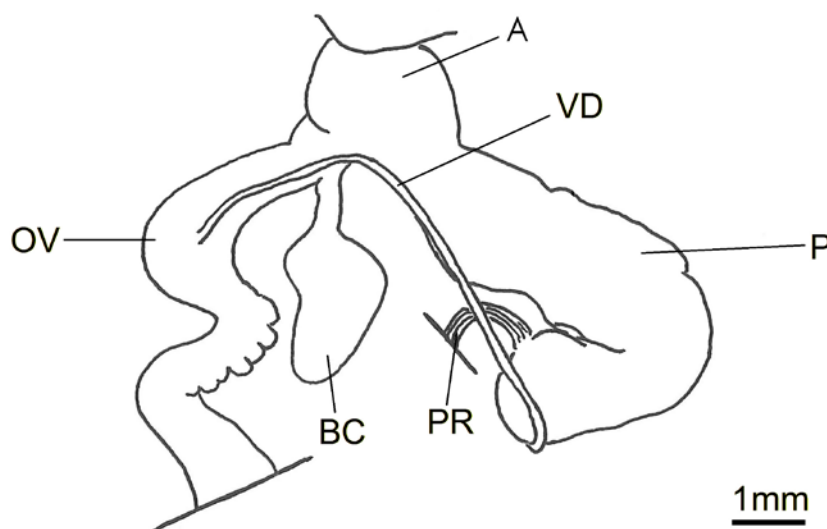


Fig. 1. *Krynickillus melanocephalus*: distal part of genitals. Specimen from Ribiškės deposited in collection of Museum of Natural History of Latvia (collection number Z 5/4122). A — atrium; VD — vas deferens; P — penis; PR — penis retractor; BC — bursa copulatrix; OV — oviductus.

Discussion

Krynickillus melanocephalus Kaleniczenko, 1851 is a slug naturally distributed in Iran, Turkey, Ukraine (Crimea only) and in Caucasus region (including Georgia and part of Russian Federation) (Liharev & Wiktor, 1980; Wiktor, 2000; Korol & Korniushev, 2002; Wiktor & Jurkowska, 2007). Other two known *Krynickillus* species have local distribution: *Krynickillus urbanskii* (Wiktor, 1971) occurs in Bulgaria and Turkey and *Krynickillus hoplites* (Simroth, 1899) in Turkey only (Wiktor, 1983, 2000). Previous reports of slugs under the name "*Deroceras melanocephalus*" from Bulgaria actually are *Krynickillus urbanskii* (Wiktor, 1983, 2000).

For correct identification internal anatomy of specimens should be studied, and internal structure inside penis is the most important feature for the separation of the *Krynickillus* species (Wiktor 1983, 2000), but all three *Krynickillus* species, *K. hoplites*, *K. melanocephalus* and *K. urbanskii* differ also in external colouration of their body, and only *Krynickillus melanocephalus* has deeply black head, nape and section below mantle (Wiktor, 2000). Up to date only *Krynickillus melanocephalus* has been introduced into two Baltic countries, Latvia and Lithuania. These slugs differ in their external body coloration — the monochromatic grey coloured body and characteristic black head part (Wiktor, 2000) — which perfectly allows differentiation of the *Krynickillus melanocephalus* from the native slugs belonging to the genus *Deroceras*. The most

similar species to *Krynickillus melanocephalus* is *Krynickillus urbanskii*, but the late differs, first of all, in its external body colouration as well as in internal structure of penis (Wiktor, 2000).

Up to date *Krynickillus melanocephalus* is confirmed outside its natural area in following European countries: Belarus, Germany, Latvia, and several areas in Russian Federation and Ukraine (territories outside the Crimea region), and reports on findings of *K. melanocephalus* in new areas increased in last two decades (Meng & Bößneck, 1999; Korol & Korniuschin, 2002; Šteffek *et al.*, 2008; Gural-Sverlova & Gural, 2009; Ostrovsky, 2017; Schikov, 2012, 2013). Habitats of *K. melanocephalus* in initial areas of its distribution are forests in vicinity of water sources, lowlands and subalpine zone, and slugs can be found under leaves and bark (Wiktor, 2000; Welter-Schultes, 2012). Closest to Lithuania this slug is widely distributed in Latvia, where the species was found in 1997 for the first time (Šteffek *et al.*, 2008; Rudzīte *et al.*, 2010). In Lithuania *K. melanocephalus* occurs in natural (meadows in river valley) and urbanised areas (cemeteries and gardens). Habitats with *K. melanocephalus* in Lithuania are the same as in Latvia, where species rapidly spreads (Gudžinskas *et al.*, 2014). We suggest, that during next decades *K. melanocephalus* will continue to spread further. Knowing its distribution characteristics in Latvia, we predict that in Lithuania *K. melanocephalus* is already distributed more widely than it is currently known.

Acknowledgements

Authors are grateful to Dr .R. Bernotienė for providing material. Authors highly express thanks to reviewers for valuable comments.

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Duomenys apie *Krynickillus melanocephalus* Kaleniczenko, 1851 (Gastropoda: Agriolimacidae) Lietuvoje

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Santrauka

Pateikiami nauji duomenys apie svetimžemį juodagalvį šliužą (*Krynickillus melanocephalus*), surinkti 2017 m. Ši rūšis aptikta šešiose vietose Vilniaus ir Druskininkų apylinkėse. Šios rūšies šliužų natūralus paplitimo arealas buvo įvairios Juodosios jūros pakrančių šalys (Iranas, Turkija, Krymas, pietų Ukraina, Kaukazas), bet jie buvo įvežti ir į kitas teritorijas, aptikti Rusijoje, Ukrainoje, Baltarusijoje, Vokietijoje, Latvijoje ir Lietuvoje. Nauji šios rūšies aptikimo duomenys Lietuvoje leidžia daryti prielaidas, kad *Krynickillus melanocephalus* toliau plinta ir ateityje bus aptiktas kitose mūsų šalies vietose. Juodagalvis šliužas Lietuvoje aptinkamas tokiose pačiose buveinėse kaip Latvijoje, kur jis yra labai invazyvi rūšis.

Received: 5 November, 2017