http://doi.org/10.5281/zenodo.3591961

urn:lsid:zoobank.org:pub:3EB6307F-E41D-4CFB-AA9C-FECCF863B3D7

Some insects from beer traps in Westernmost Ukraine

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Dvořák, L., Haenni, J.-P., Dvořáková, K., Kameneva, E.P., Mariychuk, R., Manko, P., Oboňa, J. & Korneyev, V.A. Some insects from beer traps in westernmost Ukraine. — The results of beer trapping from westernmost Ukraine (Uzhhorod and Mukacheve Raion) are presented. From all obtained insect taxa more attention was dedicated to selected groups: Dermaptera, Diptera (Anisopodidae, Bibionidae, Heleomyzidae, Lauxaniidae, Scatopsidae and Ulidiidae) and Mecoptera. Altogether 17 taxa were recorded. Four species, namely bibionid *Dilophus bispinosus* Lundström, 1913, scatopsids *Scatopse notata* (Linnaeus, 1758) and *Apiloscatopse scutellata* (Loew, 1846), and scorpion-fly *Panorpa vulgaris* Imhoff & Labram, 1845 represent the first records from Ukraine, and the records of *Callopistromyia annulipes* Macquart, 1855 and *Euxesta notata* (Wiedemann, 1830) are verified.

Key words: Diptera, Dermaptera, Mecoptera, beer traps, first records.

Дворжак, Л., Енні, Ж.-П., Дворжакова, К., Каменєва, О.П., Марійчук, Р., Манько, П., Обоня, Й. і Корнєєв, В.О. Деякі комахи з пивних пасток у Закарпатській області Україні. — Серед комах, зібраних пивними пасткамии в Ужгородському та Мукачівському районах України найбільшу уваги приділено окремим групам: Dermaptera, Diptera (Anisopodidae, Bibionidae, Heleomyzidae, Lauxaniidae, Scatopsidae та Ulidiidae) та Mecoptera. Всього було зареєстровано 17 видів, з яких чотири , а саме — бібіоніду *Dilophus bispinosus* Lundström, 1913, скатопсид *Scatopse notata* (Linnaeus, 1758) та *Apiloscatopse scutellata* (Loew, 1846), а також скорпіонову муху *Panorpa vulgaris* Imhoff & Labram, 1845, вперше зазначено з України, а знахідки *Callopistromyia annulipes* Macquart, 1855 та *Euxesta notata* (Wiedemann, 1830) перевірено.

Ключові слова: Diptera, Dermaptera, Mecoptera, пивні пастки, перші знахідки.

Introduction

Bait traps are popular, efficient, cheap and simple passive methods of insects sampling (*e.g.,* Dodge & Seago, 1954; Mason, 1963; Korneyev *et al.,* 2014; Dvořák, 2016; Manko *et al.,* 2019). Beer (with various additions and modifications) is a very common and often used bait, which attracts especially Diptera, Mecoptera and other insect groups (*e.g.,* Dvořák *et al.,* 2017, 2019; Oboňa *et al.,* 2017). This method is very attractive because it works for at least one week without constant presence of the collector (*e.g.*, Dvořák, 2016). Using traps makes possible to monitor the occurrence and spread of pests or parasites (*e.g.*, Knight *et al.,* 1992).

This paper is a continuation of longer term beer trapping in westernmost Ukraine (see Dvořák *et al.,* 2017, 2019, and localities under study — below). The main objective of this article is to publish recent new and interesting insect's records from beer traps in westernmost Ukraine.

Material and methods

A big transparent plastic bottle (1.5 liters, with a circular opening in the upper third of the bottle laterally) was filled with 0.3 liter of beer were hung 1.5–2 metre above the ground on branches of apple trees (Fig. 1). The

material was collected by R. Mariychuk and sorted and sent to specialists by J. Oboňa & P. Manko.

K. Dvořáková identified Heleomyzidae and Lauxaniidae, J.-P. Haenni — Scatopsidae and L. Dvořák — the rest of groups. The voucher specimens are deposited in the personal collections of each author responsible for identification.

Localities under study

Ukraine. Sanatorium Perlyna Karpat («Перлина Карпат») 16 km NEE of Mukachevo, 48°31'16.8"N 22°52'14.7"E [48.521333, 22.870750], 166 m a.s.l., garden near forest with apple trees, two traps, 26.07.–14.08.2019, 12.09.–2.10.2019.

Uzhhorod, Onokivtsi, 48°39'22.0"N 22°19'50.3"E [48.656111, 22.330639], 200 m a.s.l., garden with apple trees (Fig. 2), two traps, 26.07.–14.08.2019, 12.09.–2.10.2019.

Abbreviations of the localities (enclosed in brackets) in the text mean: K – Sanatorium, U – Uzhhorod; 1, 2 – two various traps at the same locality; a – trap managed in August, b – trap managed in October.

Results and discussion

Dermaptera: Forficulidae (comments L. Dvořák)

Eliseev (2015) lists nine species of Forficulidae from Ukraine.

Forficula auricularia Linnaeus, 1758

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 1 ♀; Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 2 **(U2b):** 1 ♀.

Remarks. Overall this is common species of earwigs known from almost all of the European countries. Already reported from beer traps in Uzhhorod (Dvořák *et al.*, 2017).

Diptera: Anisopodidae (comments L. Dvořák)

Altogether three species of Anisopodidae are to be known from Ukraine (Dvořák *et al.*, 2017). At least three other species could be except by further investigation.

Sylvicola cinctus (Fabricius, 1787)

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 1 ♀; Uzhhorod, Onokivtsi, [48.656111, 22.330639], 26.07.2019–14.08.2019, trap 2 **(U2a):** 10 ♂, 15

Fig. 1. Design of the beer trap design used in this paper (Uzhhorod, garden). Fig. 2. Garden in Uzhhorod, the place with several remarkable insect records (photos: Ruslan Mariychuk).

♀; Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 2 **(U2b):** 1 ♂, 2 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 4 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 12.09.2019–2.10.2019, trap 1 **(K1b):** 2 ♂, 4 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 12.09.2019–2.10.2019, trap 2 **(K2b):** 7 ♂, 6 ♀.

Remarks. Overall this is the most common species of the family known from almost all of the European countries. Already reported from beer traps in Uzhhorod (Dvořák *et al.*, 2017).

Sylvicola fuscatus (Fabricius, 1775)

Material. Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 1 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 12.09.2019–2.10.2019, trap 2 **(K2b):** 1 ♂, 1 ♀.

Remarks. Common species, widely recorded and distributed in Europe, the first verified record for Ukraine was published from Mukacheve Raion by Dvořák *et al.*, (2019).

Diptera: Bibionidae (comments L. Dvořák)

Skartveit (2013) listed only three Bibionidae for Ukraine, Dvořák et al. (2017) added two other species. Together with here presented record, seven species are known for Ukraine, so presence of many other species is expected.

Dilophus bispinosus Lundström, 1913

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 4 ♂, 2 ♀.

Remarks. A submediterranean species known from Great Britain and France in the West to Israel, Turkey and Armenia in the East, for full review see Dvořák (2017). **The first record from Ukraine**.

Diptera: Heleomyzidae (comments K. Dvořáková)

Only 41 species of Heleomyzidae are known from Ukraine (Woźnica, 2013); expected number is much higher.

Suillia affinis (Meigen, 1830)

Material. Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 2 ♂.

Remarks. Common species, widely recorded and distributed in Europe, also known from Ukraine (Woźnica, 2013).

Diptera: Lauxaniidae (comments K. Dvořáková)

Altogether 38 species of Lauxaniidae are listed for Ukraine by Merz (2013). The real number of species should at least twice as high.

Meiosimyza decempunctata (Fallén, 1820)

Material. Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 1 ♂.

Remarks. Common species, widely recorded and distributed in Europe; recorded from Ukraine (Merz, 2013).

Tricholauxania praeusta (Fallén, 1820)

Material. Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 2 ♀

Remarks. Common species, widely recorded and distributed in Europe; recorded from Ukraine (Merz, 2013).

Diptera: Scatopsidae (comments J.-P. Haenni)

Coboldia fuscipes (Meigen, 1830)

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 6 ♂, 1 ♀.

Remarks. A cosmopolitan species, widespread practically everywhere in Europe. It was already recorded from Ukraine by Dvořák *et al.* (2017). This species is frequently caught in beer-traps, soemtimes in great numbers.

Scatopse notata (Linnaeus, 1758)

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 1 ♂, 2 ♀.

Remarks. Nearly cosmopolitan species, widespread by man all over the world except for tropical regions (Hänel & Haenni, 2007). The larvae are saprophagous and live in a wide variety of decaying organic matter (e. g. rotten plant or vegetables remains, fungi, and the faeces of birds and mammals). They can occur under natural or anthropogenic conditions, for example very frequently in compost heaps. Although widespread and very common in Europe, *S. notata* is formally recorded here for the first time from Ukraine. **The first record from Ukraine**.

Apiloscatopse scutellata (Loew, 1846)

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 4 ♀.

Remarks. A common and widespread scatopsid species in Europe, with autumnal flight period. The larvae have been found among leaf-litter, in the upper layer of forest soils and have been described by Haenni (1982). This species had not been recorded from Ukraine so far however at our knowledge. **The first record from Ukraine**.

These findings bring the number of Scatopsidae species reported from Ukraine (Haenni, 2013) to nine. No doubt that many other will be recorded with further investigations.

Diptera: Ulidiidae (comments E.P. Kameneva)

Callopistromyia annulipes Macquart, 1855

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 1 ♀; Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 2 **(U2b):** 5 ♂, 2 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 3 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 12.09.2019–2.10.2019, trap 1 **(K1b):** 2 ♂, 1 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 12.09.2019–2.10.2019, trap 2 **(K2b):** 1 ♂.

Remarks. Invasive North American species, originally recorded from Europe in Switzerland and Germany (Merz, 2008; Merz & van Gyseghem, 2008) and in the next ten years distributed throughout Middle Europe, from France and the Netherlands to Poland and Hungary (Map 1) (Kameneva & Korneyev, 2019a). **The first verified record from Ukraine.**

Euxesta notata (Wiedemann, 1830)

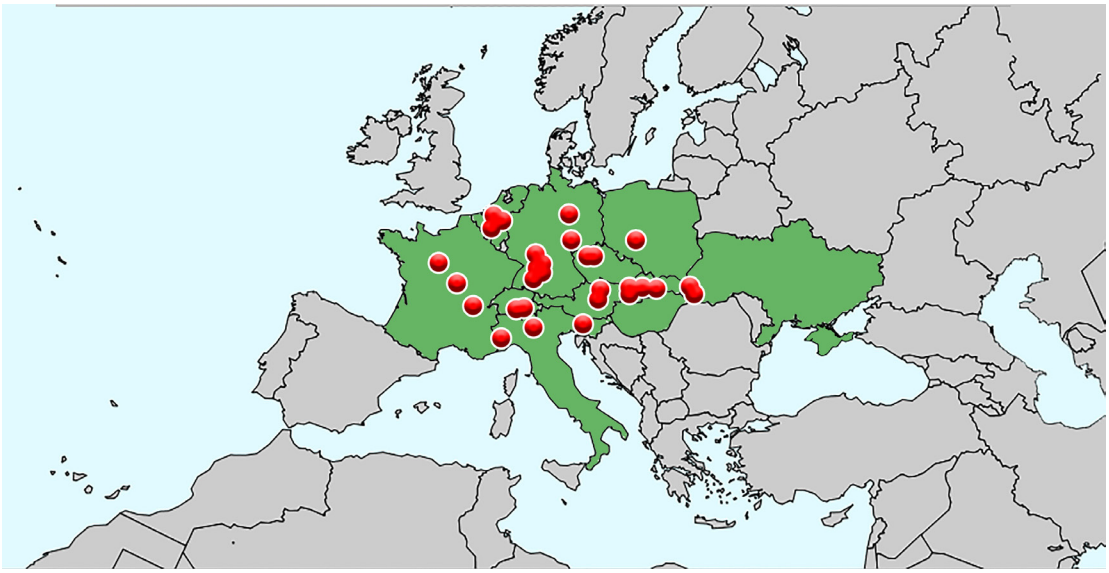
Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 2 **(U2b):** 1 ♀.

Remarks. Invasive North American species, known in Europe originally from Switzerland since 2009 (Kameneva & Korneyev, 2017) and in the next ten years distributed throughout Middle Europe, from France to Slovakia (Map 2) (Kameneva & Korneyev, 2019b). **The first verified record from Ukraine.**

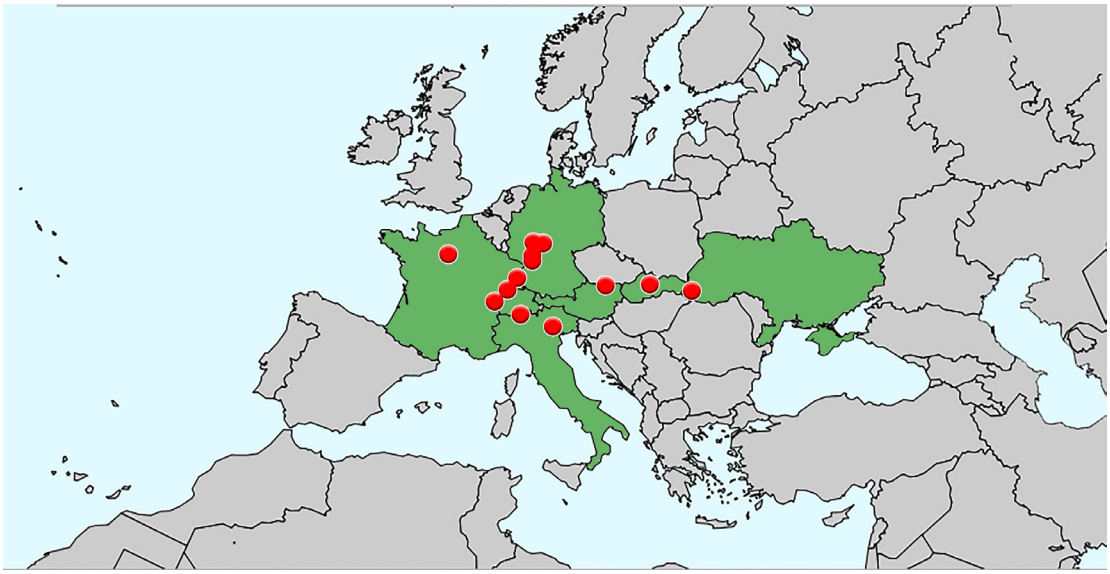
Euxesta pechumani Curran, 1938

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 2 (U2b): 1 ♀.

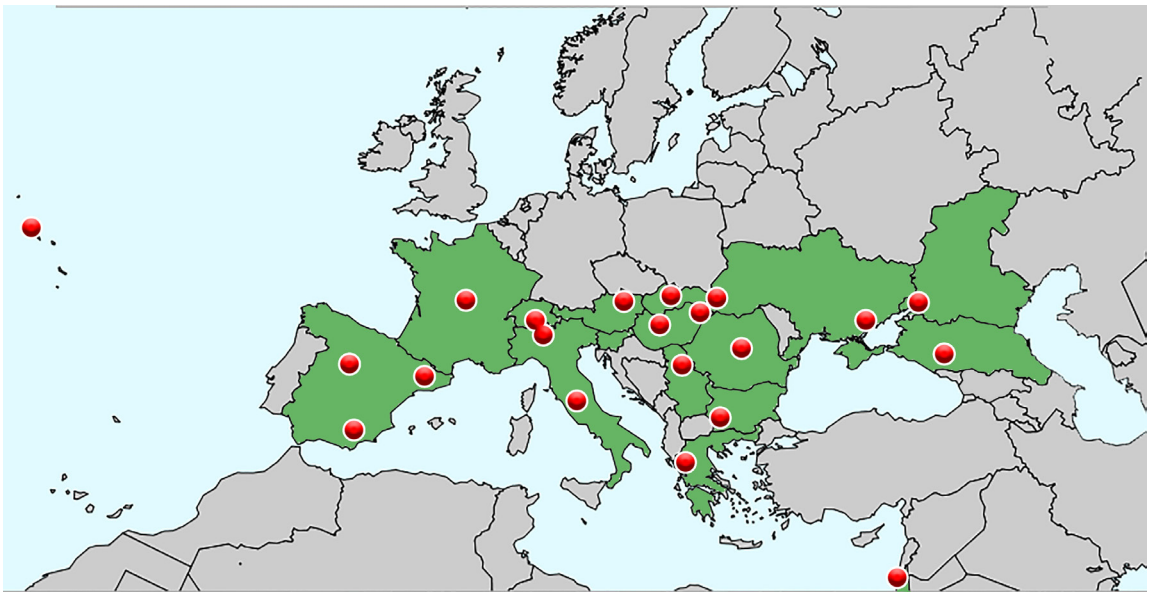
Remarks. Invasive North American species, known in Europe originally from Italy since 1922, originally misidentified as "*E. notata*" (Bezzi, 1922; see Kameneva, 2008) and currently occurring through Southern Europe, from Azores and Spain through Ukraine and south of European Russia to Israel and Turkmenistan (Map 3) (Kameneva & Korneyev, 2019c). In Ukraine, it was recorded from Berdyansk in 1954 (Kameneva, 2008).



Map 1. Known distribution of *Callopistromyia annulipes* in Europe (based on UkrBIN Dataset #4200) (Kameneva & Korneyev, 2019a).



Map 2. Known distribution of *Euxesta notata* in Europe (based on UkrBIN Dataset #4201) (Kameneva & Korneyev, 2019b).



Map 3. Known distribution of *Euxesta pechumani* in Europe (based on UkrBIN Dataset #4202 (Kameneva & Korneyev, 2019c).

Ulidia erythrophthalma Meigen, 1826 (?)

Material. Mukachevo,16 km NEE of, [48.521333, 22.870750], 12.09.2019–2.10.2019, trap 1 **(K1b):** 1 ♀.

Remarks. This specimen has pale yellowish wings rather than infuscated (as in *U. nigripennis*) or entirely hyaline (as in *U. albidipennis*) and is preliminary identified as *U. erythrophthalma* by L.D. Further study of males from this locality it necessary.

Mecoptera: Panorpidae (comments L. Dvořák)

There are many old papers dealing with Panorpidae of Ukraine, some of them contain doubtful records or synonymised taxa. In fact, according to present knowledge of distribution and taxonomic status, altogether six species of Panorpidae are known from Ukraine (Dvořák *et al.*, in prep.).

Panorpa communis Linnaeus, 1758

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 1 **(U1b):** 1 ♂; Uzhhorod, Onokivtsi, [48.656111, 22.330639], 26.07.2019–14.08.2019, trap 2 **(U2a):** 2 ♂, 7 ♀; Uzhhorod, Onokivtsi, [48.656111, 22.330639], 12.09.2019–2.10.2019, trap 2 **(U2b):** 1 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 26 ♂, 24 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 12.09.2019–2.10.2019, trap 1 **(K1b):** 2 ♂.

Remarks. Common European species, already reported from beer traps in Uzhhorod (Dvořák *et al.*, 2017).

Panorpa germanica Linnaeus, 1758

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 26.07.2019–14.08.2019, trap 2 **(U2a):** 1 ♀.

Remarks. Common European species, reported from the Ukrainian Carpathians by Carpathians (Dzięzdzielewicz, 1898) already.

Panorpa vulgaris Imhoff & Labram, 1845

Material. Uzhhorod, Onokivtsi, [48.656111, 22.330639], 26.07.2019–14.08.2019, trap 2 **(U2a):** 1 ♂, 12 ♀; Mukachevo,16 km NEE of, [48.521333, 22.870750], 26.07.2019–14.08.2019, trap 1 **(K1a):** 6 ♂, 7 ♀.

Remarks. This common and widely distributed European species was not separated from *P. communis* in past. The authors do not know any published record(s) of this species from Ukraine. **The first verified records for Ukraine**.

Conclusions

As already indicated, the beer trapping is still interesting methods of insects sampling. In present study 17 insect taxa (specifically: Dermaptera: Forficulidae (1 sp.); Diptera: Anisopodidae (2 spp.), Bibionidae (1 sp.), Heleomyzidae (1 sp.), Lauxaniidae (2 spp.), Scatopsidae (3 spp.) and Ulidiidae (4 spp.); Mecoptera: Panorpidae (3 spp.)) were recorded. Four records, namely *Dilophus bispinosus* Lundström, 1913, *Scatopse notata* (Linnaeus, 1758), *Apiloscatopse scutellata* (Loew, 1846), and scorpion-fly *Panorpa vulgaris* Imhoff & Labram, 1845 represent new country records.

Acknowledgements

We would especially like to thank editor and anonymous reviewers for helping by providing constructive comments on improving the manuscript. This study was partly supported by the project FAN (B) – Förderkreis für allgemeine Naturkunde (Biologie) in the framework of the project "Diversity of aquatic insect in the Ukrainian part of the Latorytsia River basin", and by the Cultural and

Educational Grant Agency under the contract No. 005PU-4/2019. We thank John Skartveit (NLA University College Bergen, Norway) and Andrzej Józef Woźnica (Wrocław University of Environmental and Life Sciences, Poland) for the consultation of knowledge on some dipteran families.

This paper resulted from the accumulation of biodiversity information resources on the platform of UkrBIN (2019), which is a web application documenting biodiversity launched in cooperation with the Institute of Zoology of the National Academy of Sciences, and providing rich sources of data for basic information on the abundance and occurrence of species in various spatial and temporal scales. Special thanks are due to Nikolai Yunakov and the UkrBIN team for their constant efforts to improve it.

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Received 27.11.2019 Accepted 12.12.2019 Published 19.12.2019