

RESEARCH NOTES

НАУЧНЫЕ ЗАМЕТКИ

THE FIRST RECORD OF *HERMETIA ILLUCENS* (DIPTERA, STRATIOMYIDAE) FROM RUSSIA

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Received: 09.09.2019. Revised: 21.09.2019. Accepted: 24.09.2019.

Hermetia illucens has been registered in Russia for the first time. This is a species introduced to the Palearctic from America and currently distributed in tropical and subtropical regions around the world. This record is the easternmost point in the Western Palearctic. We have discussed the current global distribution of the species, and the reasons for its appearance on the Black Sea coast.

Key words: Black Sea coast, black soldier fly, dipterans, habitat, introduced species, Krasnodarsky Krai, soldier flies

The fly *Hermetia illucens* belongs to the subfamily Hermetiinae of the family Stratiomyidae. The genus *Hermetia* (Latreille, 1804) includes 76 species, which are distributed throughout the world. This genus is most abundant in species in the Neotropical realm where 52 species are known. The other zoogeographical regions have significantly less species within this genus (Woodley, 2001). According to Rozkošný & Nartshuk (1988), Woodley (2001), only one species is known in the Palaearctic. Üstüner et al. (2003) previously indicated the easternmost *H. illucens* location within the Western Palearctic region in Hatay (southeast of Turkey).

Hermetia illucens larvae are saprophagous. They inhabit different organic remains of plants and animals (MacFadden, 1967; Rozkošný, 1983; Roháček & Hora, 2013). Such a wide range of feed substrates allows them to penetrate in new areas and inhabit certain regions. Human activity has played a dominant role in the resettlement of this species throughout the world. The use of *Hermetia illucens* by humans is promising in the future, since its larvae can be breeding objects for organic fertiliser production, waste disinfection, use as feed for domestic and farm animals (Newton et al., 1977; Sheppard, 1992; Sheppard et al., 1994; Józefiak et al., 2016; Ushakova et al., 2018).

Hermetia illucens (Linnaeus, 1758)

Material. 1 ♀, Russia, Krasnodarsky Krai, vicinity of Malyi Utrish settlement, near the foot of Mount Lysaya, dirt road, 44.7091° N, 37.4633° E, 17 m, 14.08.2019, Igor B. Popov (Fig. A). 1 ♂, Russia, Krasnodarsky Krai, vicinity of Malyi Utrish

settlement, Utrish State Nature Reserve, slit Per-vaya Topolnaya, in forest undergrowth, 44.7248° N, 37.4887° E, 108 m, 14.08.2019, Vladimir V. Gladun (Fig. B). All collected samples were stored in the collection of the Zoology Department of the Kuban State University (Krasnodar, Russia). One of the samples was caught in the plant community *Juniperus exelsa* M.Bieb. – *Juniperus oxycedrus* L. – *Carpinus orientalis* Mill. – *Quercus pubescens* Willd., the second specimen in the plant community *Carpinus orientalis* – *Quercus pubescens*.

Distribution. *Hermetia illucens* has a pan(sub) tropical distribution (Woodley, 2001; Marshall et al., 2015). Apparently, it is originated from North and South America. In Europe, it was first registered in Malta in 1926 (Lindner, 1936), although Benelli et al. (2014) suggested that *H. illucens* was brought to Europe during the time of Columbus. This species was found in France (Chevin, 1986), Italy (Mason, 2013), Spain (Carles-Tolrá, 2001), Switzerland (Üstüner et al., 2003), Albania (Beschovski & Manassieva, 1996), Croatia (Beschovski & Manassieva, 1996), Portugal (Carles-Tolrá, 2001), Germany (Ssymank & Doczkal, 2010), Slovenia (De Groot & Veenvliet, 2011), Montenegro (Roháček & Hora, 2013), Greece (Tsagkarakis et al., 2015), and the Czech Republic (Tkoč & Vendl, 2016). In Macaronesia, *H. illucens* is known on the Canary Islands (Baez, 1975), in the Middle East – in Turkey (Üstüner et al., 2003), in East Asia – in Japan (Morimoto & Kiritani, 1995), South Korea (Jeong et al., 2018). In the Western Palaearctic, the flight period of *H. illucens* lasts from early March to mid-November (Üstüner et al., 2003).

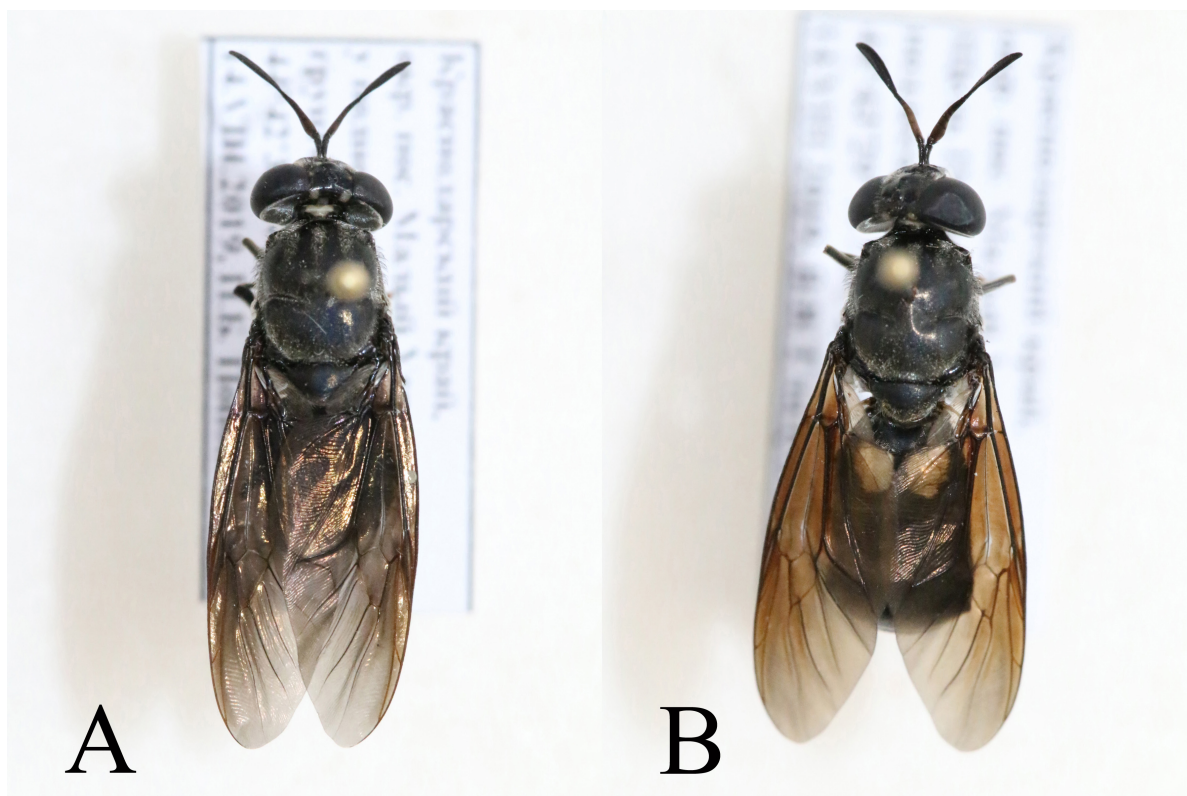


Fig. *Hermetia illucens* (Linnaeus, 1758): A – female, B – male (photo: Vladimir V. Gladun).

In the Palaearctic, the majority of the *Hermetia illucens* locations were found in the coastal zone and in the vicinity of seaports, except a few records in European inland. An unexpected observation of this species on the Black Sea coast of Russia is likely the result of being introduced through the seaport. Natural migration of *H. illucens* along the coast is unlikely, despite of a mild climate on the Black Sea coast. The closest locations of this species were discovered in 1993 (Shkodre, Albania) and in 2001 (Khatae, Turkey). They are situated at a considerable distance from the place of our record. Moreover, for a long time no other locations were found from adjacent countries, which would prove a natural resettlement of *H. illucens* along the Black Sea coast.

Acknowledgements

I am grateful to Igor B. Popov (Kuban State Agricultural University, Russia) who kindly provided me with field material and helped me in the fieldwork. I am cordially indebted to O.A. Kondratyev (Director of the Utrish State Nature Reserve (Russia) for permission to conduct field studies. I thank to O.N. Bykhalova (Deputy Director for Science of the Utrish Reserve) and Ya.G. Rudenok (Deputy Director for territory guarding of the Utrish Reserve) for contribution in research organisation within the area of the Utrish State Nature Reserve.

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ПЕРВАЯ НАХОДКА *HERMETIA ILLUCENS* (DIPTERA, STRATIOMYIDAE) В РОССИИ

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Hermetia illucens впервые зарегистрирован на территории России. Этот вид-интродуцент был завезен в Палеарктику из Америки. В настоящее время распространен в тропических и субтропических регионах по всему миру. Эта находка является самой восточной точкой в Западной Палеарктике. Обсуждается современное распространение вида в мире, а также причины появления на Черноморском побережье.

Ключевые слова: вид-интродуцент, двукрылые, Краснодарский край, местообитание, мухи-львинки, черная львинка, Черноморское побережье