

# **HERMETIA ILLUCENS L. (DIPTERA, STRATIOMYIDAE), A NEW ALIEN INVASIVE SPECIES IN SLOVENIA**

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**Abstract** - The black soldier fly (*Hermetia illucens*) was for the first time recorded in August 2009 for the territories of Slovenia. In 2010, the black soldier fly was found on several places in the coastal region of Primorska and in Ljubljana. The way of introduction and possible effects to other species are discussed.

**KEY WORDS:** *Hermetia illucens*, soldier fly, first record, Slovenia, fauna, Diptera, Stratiomyidae

**Izvešček** - *HERMETIA ILLUCENS* L. (DIPTERA, STRATIOMYIDAE), NOVA TUJERODNA INVAZIVNA VRSTA V SLOVENIJI

Muha vrste *Hermetia illucens* je bila na ozemlju Slovenije prvič najdena v avgustu l. 2009. Leta 2010 smo jo našli na več krajih obalnega dela Primorske in v Ljubljani. Razpravljava o načinu vnosa in možnih vplivih na druge vrste.

**KLJUČNE BESEDE:** *Hermetia illucens*, prva najdba, Slovenija, favna, Diptera, Stratiomyidae

In recent decades alien invasive species have increasingly become recognized as an international problem (Secretariat of the Convention on Biological Diversity, 2005). Although from many alien species no negative impacts are documented and many occur only locally, some have the ability to spread rapidly and have considerable negative impact on native species and ecosystems (Vila et al. 2009) as well as on human health (Juliano & Lounibos 2005).

Increasing numbers of alien species are discovered within the boundaries of Slovenia. Although the distribution of alien plant species (Jogan 2001) and invasive species which can affect human health like the tiger mosquito *Aedes albopictus* (Skuse, 1895) (Diptera: Culicidae) (Kalan 2009) are well documented, most other flies (Insecta, Diptera) are poorly investigated in Slovenia. The presence of 13 alien diptera species is documented in Slovenia (de Groot et al. 2007, DAISIE 2009). In this paper we report the first findings of the black soldier fly *Hermetia illucens* L. (Diptera, Stratiomyidae), in Slovenia (Fig. 1).



**Fig. 1:** *Hermetia illucens* in the ZOO of Ljubljana. Photo Paul Veenvliet.

This species was observed at four locations in Slovenia:

1. Ljubljana ZOO, Ljubljana, x: 101262, y: 459468: several individuals in 2009 and a single female on 3 August 2010.
2. Vič, Ljubljana, x: 99742, y: 460341: a single female on 4 August 2010.
3. Prade near Koper, x: 44583, y: 404773, a dead female found on 13 September 2010.
4. Bošamarin near Koper, x: 43004, y: 401364, 7. 10. 2011, a male observed chasing other insects. This specimen was not shy and could be observed from close by.

*H. illucens* is a large soldier fly. In its native range in the USA, adults occur from April until October. Larvae are found in manure and carrion. Their development takes 25 - 31 days depending on the diet (Myers et al. 2008) and ambient temperature.

In Europe, *Hermetia illucens* was first discovered on Malta in 1936 (Lindner 1936, Venturi 1956). More recently, the species is reported in other European countries including Spain and Portugal (Carles-Tolrá et al. 2002), France (Dauphin 2003), Italy (Mason et al. 2009), Switzerland, Croatia (Rozkošny and Knutson 2007) and Slovenia (this paper). Presumably the primary pathway of introduction is deliberate import as a biocontrol agent for house flies (Skuhrová et al. 2010). In Slovenia it is occasionally sold as reptile food under the name “Phoenix worms”. However, it is more likely that the species entered Slovenia by dispersal via Italy after the initial

introduction in Europe (Turchetto and Vanin 2010) or as larvae in transported compost (Venturi 1956).

The species is known to inhibit oviposition in house flies *Musca domestica* L. (Diptera: Muscidae) (Bradley and Sheppard 1984), to recycle organic matter (Larde 1990) and reduce the bacteria *Escherichia coli* and *Salmonella enterica* in chicken manure (Erickson et al. 2004). On the other hand, there are several human cases of cutaneous myiasis by larvae of *H. illucens* in tropical countries (Adler and Brancato 1995; Calderon-Arguedas et al. 2005). Its potential impact in native biodiversity is uninvestigated.

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