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## ON THE OCCURRENCE OF THE INTRODUCED PEST *THRIPS SIMPLEX* (MORISON 1930) (THYSANOPTERA: THRIPIDAE) IN SLOVAKIA

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### Abstract

Exotic species introduction has recently increased European insect diversity in accordance with global climate change and international biological commodity trade, often with serious environmental and economic consequences for natural ecosystems as well as urban and farmland area. This short communication deals with the first official faunistic record of the gladiolus thrips *Thrips simplex* (Morison, 1930) (Thysanoptera, Thripidae) in Slovakia.

**Key words:** Gladiolus thrips, Slovakia, pest, *Thrips simplex*, Thysanoptera

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### INTRODUCTION

Introduced exotic species have recently increased European insect diversity, often with serious environmental and economic consequences for natural ecosystems as well as urban and farmland area. Approximately 580 thrips (Thysanoptera) species, including the pests with invasive and economic potential, are known from Europe (ZUR STRASSEN 2003), however, the species richness has grown up due to the synergic complex of many natural and human-induced phenomena (GOLDARAZENA 2011; KARADJOVA & KRUMOV 2003; RODIKATIS et al. 2006; TRDAN et al. 2003, 2005; VIERBERGEN et al. 2006; FEDOR & VARGA 2007; VARGA 2008; VARGA & FEDOR 2008, etc.). Exotic species, originally from tropical and subtropical regions, can more easily spread into temperate countries, especially due to the globalized trade with biological commodities and global climate change (COLLINS 1998; FEDOR & VARGA 2007; JENSER & CZENZ 1988; LEWIS 1997; PELIKÁN 1989, 1991; VARGA & FEDOR 2008; VIERBERGEN et al. 2006; VIERBERGEN & DE JONG 2013), continuously adapt to local climatic and

ecological conditions and even expand to other regions (MASAROVÍČ et al. 2014). Research on their ecology, distribution and invasion potential is often a key to reduce consequential economic damage.

The gladiolus thrips was firstly described by Morison (1930) as *Physothrips simplex* from flowers of *Dianthus carryophyllus* (Urrbrae, South Australia). Its origin still remains discussed (MORISON 1957; LEWIS 1973; MOUND 1997). The species has now rather cosmopolitan distribution and is found wherever *Gladiolus* plants are grown or cultivated: in Africa, southern Asia and Japan, Australia, several Pacific Islands, Europe and North and South America (DENMARK & PRICE 1998). It occurs mostly on *Gladiolus* cultivars, but also on *Calla* sp., *Pancratium* sp., *Protea* sp. and *Vitis* sp. (ZUR STRASSEN 2003). Due to its widespread distribution this is the first official faunistic record from Slovakia.

*Thrips simplex* (Morison 1930) is characterized by the following description: antennae composed of 8 segments, interocellar setae placed inside the ocellar triangle, a netlike structure between S1 setae of metanotum and reticles characterised by typical internal microscopic markings, body and legs dark brown, antennal segment 3 and tarsi paler, 3 (sometimes 4) pairs of posteromarginal setae on pronotum, wings paler basally.

Adults emerge milky white, but soon turn brown and being feeding. Eggs are deposited in the leaf tissue and corms. The two larval stages are light yellow and are usually found beneath the leaves or bracts. The fully developed second instar larva is about the size of the adult (DENMARK & PRICE 1998).

## METHODS

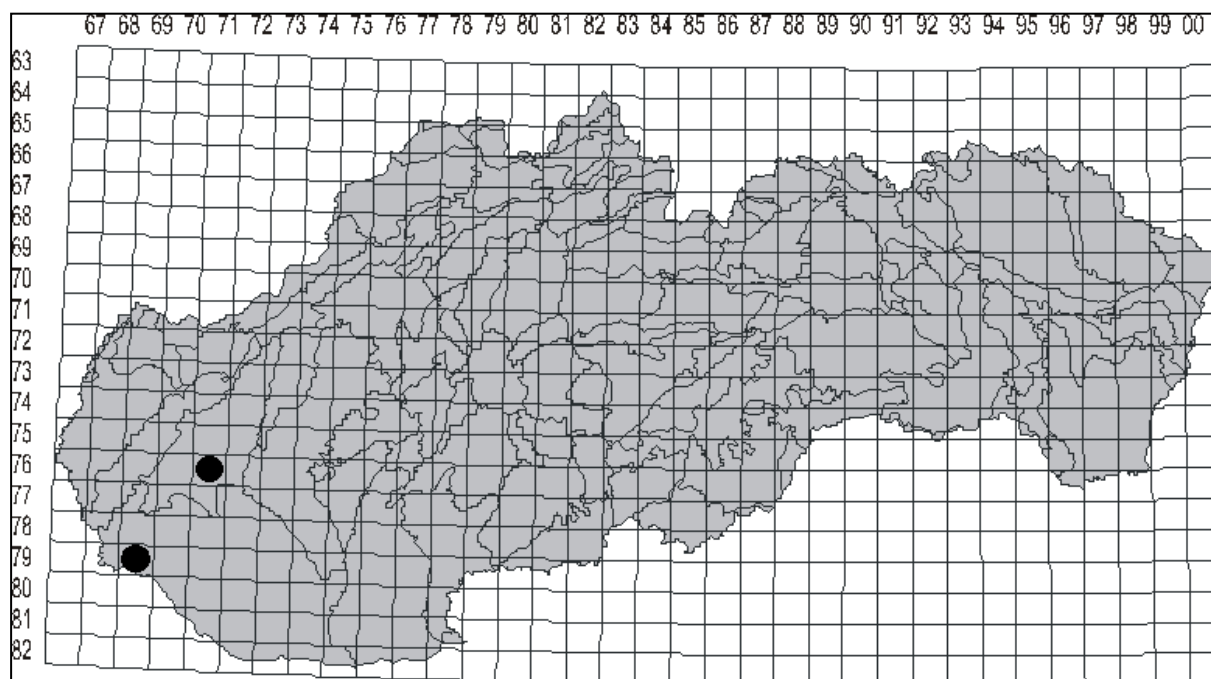
The thrips were sampled within our complex research on Thysanoptera diversity in Slovakia, individually, using the pincers and brush as well as shaking the flowers. AGA solution (alcohol, glycerol, aqua) and ethanol were used as a conservation liquid. Thrips were mounted according to standard preparatory techniques using for thrips (FEDOR et al. 2012; SIERKA & FEDOR 2004). *Thrips simplex* specimens were determined according to ZUR STRASSEN (2003). The material has been deposited in the collections of the authors.

## RESULTS AND DISCUSSION

The first official faunistic record of the introduced gladiolus thrips *Thrips simplex* (Morison 1930) in Slovakia:

Material examined: 10 specimens were found in SW Slovakia, in the city of Trnava (Fig 1, GPS: 48°21'47,19'' N, 17°34'59,52'' E; DFS grid square 7671). August 4, 2015, 2 ♂ 8 ♀, collected with the brush and pincers from pink-violet gladioli flowers. 28 specimens of the gladiolus thrips were also discovered in the village of Miloslavov (Fig. 1, GPS: 48°06'16,95'' N, 17°17'56,57'' E, DFS grid square 7969). August 5, 2015, 14 ♀, sampled by shaking the violet gladioli flowers and using the brush. September 4, 2015, 14 ♀, obtained by shaking the yellow gladioli flowers and applying the brush. Leg.: R. Masarovič, J. Sigmund, det.: R. Masarovič, coll. R. Masarovič.

The species breeds on gladiolus corms, leaves and flowers and appears to be more numerous on dark flowered cultivars (HERR 1934; HAGREAVES & COOPER 1980; MILEVOJ et al. 2008). Adults and larvae feed on gladiolus foliage and stalks causing blasting and silvering of leaves. Larvae are full of green chlorophyll, which is clearly visible through the body wall (HERR 1934). The flowers are also deformed and discolored (HERR 1934; DENMARK & PRICE 1998). Thrips create silvery white spots on gladiolus flowers which later turn brown (DENMARK & POE 1972). The gladiolus thrips is probably the most dangerous pest that infests gladioli as it causes damage by sucking and can completely destroy flowers (ZGONEC 1990).



**Fig. 1:** Study sites with first records of *T. simplex* in the map of Slovakia

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