

## ENDANGERED AND VULNERABLE HOVERFLIES (DIPTERA: SYRPHIDAE) OF THE ALÚVIUM ŽITAVY NATURE RESERVE (SOUTH-WESTERN SLOVAKIA)

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**Abstract:** Six threatened species of hoverflies (Diptera: Syrphidae) have been reported in the territory of Alúvium Žitavy Nature Reserve. All belongs to wetland preferring species.

**Key words:** threatened species, Syrphidae, Alúvium Žitavy Nature Reserve, south-western Slovakia.

### INTRODUCTION

Hoverflies occurring in endangered and disappearing habitats are a subject of protective measures (SPEIGHT 1986). The most threatened hoverflies are associated with littoral habitats (LÁSKA & MAZÁNEK 1998). Adult hoverflies have an undisputable role as pollinators in biotopes with a lack of bees, for example in wetlands (DE BUCK 1990, KEILBACH 1954).

In the Slovak territory the family of Syrphidae is presented by 384 species (MAZÁNEK 2009). For Slovak territory we have no current Red list of threatened species of hoverflies but we can assume that up to 100 species of hoverflies we can consider to be threatened species. There has not been realised hoverfly research in wetland Alúvium Žitavy Nature Reserve (NR) till now.

### MATERIAL AND METHODS

The Nature Reserve Alúvium Žitavy is situated in south-western part of the Slovak republic. The study area covers 32.53 ha at the altitude of 109 m a. s. l. in the registered area of town Hurbanovo and village Martovce. The examined area is the

part of European network of Natura 2000 sites (SK-UEV0159). The wetland is surrounded by intensive agricultural land-use type of landscape. The study of hoverflies was realised in three different sites:

**Site 1** – left bank dam and the edge of riparian vegetation below the bridge Hurbanovo – Imeľ in registered area of Hurbanovo (47°59' N, 18°9' E).

**Site 2** – left bank dam and the edge of macrophyte vegetation dominated by common reed and white willow below the bridge Veľký Vég – Martovce in registered area of Martovce (47°51' N, 18°8' E).

**Site 3** – right bank at junction Nitra and Žitava and edge of Carolina Poplar fields (*Populus × canadensis* Moench) in registered area of Martovce (47°50' N, 18°7' E).

Investigation of hoverflies was carry out in seasons 2007–2010, using a sweep net. Hoverflies were determined using works BAŇKOWSKA (1963), DUŠEK & LÁSKA (1967, 1976, 1985), MAZÁNEK et al. (1998), SPEIGHT & SARTHOU (2008), STUBBS & FALK (2002). The nomenclature of taxons was used according to studies by MAZÁNEK (2009) and SPEIGHT (2013). The preference of species habitats is according to SPEIGHT (2013).



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## RESULTS AND DISCUSSION

In total 63 species of hoverflies were sampled in years 2007 – 2010. Concerning a total number of determined hoverflies, 6 species belonged to those that are threatened. They constitute 9.52 % of all determined species. All the species belong to that species prefer wetlands according to preferred environment classification (SPEIGHT 2013).

### *Lejops vittata* (Meigen), 1822

**S1:** 15. 4. 2008 – 4♀; **S2:** 15. 4. 2008 – 1♀, 12. 5. 2010 – 1♀; **S3:** 16. 5. 2007 – 1♂ 3♀.

The species *L. vittata* is assessed by ČEPELÁK (1986) from Slovakia as rare species, without any specific criteria. According to the Red list of threatened species in the Czech Republic (MAZÁNEK & BARTÁK 2005) *L. vittata* is critically endangered species. The species is even categorized as becoming extinct in the Red list in Poland (PALACZYK et al. 2002). KRÁLIKOVÁ (2005) found out the high abundance of the species in the Parížske močiare National Nature Reserve (NNR, SW Slovakia) belonging to species of eudominant presence despite of the rare and endangered character the species in the Slovak Republic and in the Czech Republic. In the contrary this species was not caught in the Žitavský luh NR (SW Slovakia) (KRÁLIKOVÁ 2006). ČEPELÁK (1986) and STRAKA & MAJZLAN (2010) stated the occurrence of *L. vittata* in the Šúr NR (SW Slovakia). The presence of the species is also known in Pálava Biosphere Reserve (BR) in the Czech Republic (LÁSKA & MAZÁNEK 1998). According to SPEIGHT (2013) preferred environment are freshwater; standing and slow-running freshwater bodies supporting stands of *Phragmites*, *Typha* or *Scirpus*, including coastal lagoons with *S. maritimus* and ox-bows on functional floodplains of large rivers.

### *Mesembrius peregrinus* (Loew), 1846

**S1:** 29. 9. 2010 – 2♂; **S2:** 15. 4. 2008 – 1♂; 14. 5. 2008 – 3♂; 29. 9. 2010 – 1♂; 13. 10. 2010 – 2♀; **S3:** 10. 6. 2009 – 1♂; 29. 9. 2010 – 2♂.

*M. peregrinus* is assessed by ČEPELÁK (1986) from Slovakia as rare, without any specific criteria. This species was identified in Slovakia in localities Vínne jazero and Lakšárska Nová Ves (ČEPELÁK 1986) and in the Žitavský luh NR (KRÁLIKOVÁ 2006). In the Red List of Threatened Species in the Czech Republic the species belongs into the critically endangered species (MAZÁNEK & BARTÁK 2005). The occurrence of the species in the Pálava BR is mentioned by LÁSKA & MAZÁNEK (1998). Species prefers following environment: wetland/freshwater; temporary pools in humid, seasonally-flooded, unimproved grassland and on alluvial floodplains in general, including slightly brackish waters (SPEIGHT 2013).

### *Anasimyia lineata* (Fabricius), 1787

**S1:** 17. 7. 2007 – 1♀; 12. 8. 2009 – 1♀; 12. 5. 2010 – 1♀; **S2:** 22. 9. 2010 – 1♂; **S3:** 16. 5. 2007 – 1♀; 14. 5. 2008 – 1♀.

*A. lineata* is categorized by ČEPELÁK (1986) as rare (without any specific criteria) in Slovakia. In the Czech Republic *A. lineata* is assessed as a vulnerable species (MAZÁNEK & BARTÁK 2005). The occurrence of the species in the Pálava BR is mentioned by LÁSKA & MAZÁNEK (1998). Preferred environment for this species are: wetland; bog, fen and marsh, including pond-side and riverine fen and alluvial wetlands, such as oxbow lakes (SPEIGHT 2013).

### *Parhelophilus versicolor* (Fabricius), 1794

**S1:** 9. 7. 2008 – 1♀; 10. 6. 2009 – 1♂; 29. 9. 2010 – 1♂; **S2:** 11. 6. 2008 – 1♂; 10. 6. 2009 – 1♀; **S3:** 13. 6. 2007 – 1♂; 13. 5. 2009 – 5♂.

The species belongs to the category rarus in Slovakia (ČEPELÁK 1986) and is considered as vulnerable in the Red list of threatened species in the Czech Republic (MAZÁNEK & BARTÁK 2005). *P. versicolor* prefers this environment: wetland/freshwater; fen, marsh and reed beds with patches of standing water, also along canals and water-filled ditches (SPEIGHT 2013).

### *Platycheiru perpallidus* Verrall, 1901

**S2:** 7. 4. 2010 – 1♀; **S3:** 19. 7. 2009 – 1♀.

ČEPELÁK'S (1986) categorisation is rarus. *P. perpallidus* has been categorized as an endangered species in the Czech Republic according to MAZÁNEK & BARTÁK (2005). Preferred environment for this species are wetland/freshwater; water-margin tall sedge and reed beds in fen and transition mire and along rivers or the edge of lakes (SPEIGHT 2013).

### *Lejogaster tarsata* (Megerle in Meigen), 1822

**S2:** 11. 6. 2008 – 1♂.

Species *L. tarsata* belongs to vulnerable species according to categorisation of MAZÁNEK & BARTÁK (2005) in the Czech Republic. Species prefers following environment: freshwater/wetland; clean water streams, springs in fens and spring-fed ponds (SPEIGHT 2013).

From the above mentioned occurrence of endangered and vulnerable species the Alúvium Žitavy NR can be evaluated as high natural value area for syrphids and the research of hoverflies contributes to better knowledge of biological value of this area.

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