

## Harvestmen (Arachnida, Opiliones) with notes on their habitat requirements in selected areas of Central Slovakia

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### Abstract

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In some areas of Central Slovakia, the occurrence of harvestmen (Opiliones) species has been investigated fairly well; however, the data from other parts of the country are both scarce and out-of-date, or they have not been published yet. This work presents a summary of harvestmen species identified in the material sampled over the period 2003–2009, in 13 selected localities in the following geomorphological units in Central Slovakia: the Cerová vrchovina Hills, Horehronské podolie Valley, Hornonitrianska kotlina Basin, Poľana Mts, Revúcka vrchovina Hills, Slovenský kras Karst, Strážovské vrchy Mts and Zvolenská kotlina Basin. Altogether there have been identified 21 harvestmen species – representing 63.6% of the Slovak opiliofauna. There have been recorded thermophilous species like *Dicranolasma scabrum*, *Egaenus convexus* and *Zacheus crista*, as well as invasive thermophilous *Nelima semproni*. The work is the most recent and most comprehensive contribution to the knowledge of harvestmen species diversity, especially in the Hornonitrianska kotlina Basin and several mountain units in Central Slovakia.

### Key words

Arachnida, Central Slovakia, faunistics, harvestmen, Opiliones

### Introduction

Unlike spiders (Araneae), harvestmen (Opiliones) have not been well recognised in Slovakia until now. More intensive research on harvestmen is evident since the 1990s (ASTALOŠ et al., 1998; MAŠÁN and MIHÁL, 1993; MIHÁL, 1997). At present, harvestmen are studied by several authors (ASTALOŠ and MIHÁL, 2009; JARAB and KUBOVČÍK, 2002; MAŠÁN, 2005; MIHÁL et al., 2009; STAŠIOV and MARŠÁLEK, 2002 and others). The most complete summary of the recent research of harvestmen from the Slovak Republic can be found in a comprehensive monograph by STAŠIOV (2004).

The nature in Central Slovakia is characterised by a high diversity of harvestmen fauna associated with warm habitats in lowlands and low hills, habitats in

forests in mountain and river valleys at medium altitudes as well as cold mountain habitats. In the past, the harvestmen fauna in Central Slovakia was studied by several authors in various localities: MIHÁL (1998) in the Poľana Mts, ROUŠAR (1999) in the Strážovské vrchy Mts, MAŠÁN and MIHÁL (1993) in the Revúcka vrchovina Hills, STAŠIOV and SNOPKOVÁ (2002) in the Low Tatras Mts, MIHÁL et al. (2009) in the Cerová vrchovina Hills, and others.

The occurrence of harvestmen has been investigated in detail in several parts of Central Slovakia. However, the data from the other parts of the country are either scarce or out-of-date and some of them have not been published yet. This work presents harvestmen species identified in the material sampled in selected geographical units in Central Slovakia by six persons,

contributing to knowledge of harvestmen occurrence and distribution in Central Slovakia.

## Material and methods

The harvestmen (Opiliones) were sampled over the vegetation periods 2003–2009, at irregular time intervals. The sampling ran in 13 localities situated in the Cerová vrchovina Hills, Horehronské podolie Valley, Hornonitrianska kotlina Basin, Poľana Mts, Revúcka vrchovina Hills, Slovenský kras Karst, Strážovské vrchy Mts and Zvolenská kotlina Basin. Here the harvestmen were also collected by P. Gajdoš (2007–2009), V. Hruz (2006, 2007), S. Korenko (2005), I. Mihál (2007, 2009), A. Mock (2003) and V. Papáč (2006–2008). The material was obtained by hand-picking from soil surface, under stones, from wood parts, tree stumps, ground vegetation, also by extraction (sieving) from leaf litter, and obtaining through soil pitfall formaline traps. The harvestmen were identified and processed (det. et coll. I. Mihál in years 2008, 2009). The identification was made according to MARTENS (1978) and ŠILHAVÝ (1956, 1971) and, also, using reference samples in the collection of I. Mihál. The major part of the sampled material has been kept in 70% ethanol in collection of the first author of this paper and is deposited in the Institute of Forest Ecology, Slovak Academy of Sciences in Zvolen.

## Description of localities

Note that the following abbreviations were used in the description of localities below: locality (L1–L13), cadastral area (CA), morphological unit (MU), quadrate code in the Databank of Fauna in Slovakia (DFS), altitude (ASL), exposition (EXP - Ø is used for a locality situated in a flatland, in the bottom of a valley or in a cave), habitat type (H), sampling date (D), sampled by: lgt.

**L1 – Žihlavník**, CA: Omšenie, MU: Strážovské vrchy Mts, DFS: 7175, ASL: 800–955, EXP: various, H: thermophilous meadows and pastures on limestone substrate, D: 31<sup>st</sup> August 2005, lgt. S. Korenko

**L2 – Koš**, CA: Koš, MU: Hornonitrianska kotlina Basin, DFS: 7277, ASL: 260–270, EXP: various, H: waterlogged weed communities with willow and poplar natural regeneration in depressions, D: 15<sup>th</sup> May 2007, lgt. P. Gajdoš

**L3 – Bystrianska jaskyňa Cave**, CA: Bystrá, MU: Horehronské podolie Valley, DFS: 7183, ASL: 565, EXP: NW, H: cave entrance area, the concrete wall facing the entrance, D: 8<sup>th</sup> October 2003, lgt. A. Mock

**L4 – Hrochotská dolina Mountain Valley**, CA: Hrochoť, MU: Poľana Mts, DFS: 7382, ASL: 600–700, EXP: various, H: mesophilous meadows and pastures and spruce forest margins on a slope above the village

of Hrochoť, D: 15<sup>th</sup> May 2005, lgt. V. Hruz, S. Korenko  
**L5 – Prislópy**, CA: Dúbravy, MU: Poľana Mts, DFS: 7382, ASL: 860–950, EXP: S, H: mesophilous meadows and pastures and spruce forest margins, D: 7<sup>th</sup> June 2007, lgt. V. Hruz

**L6 – Zadná Poľana**, CA: Detva, MU: Poľana Mts, DFS: 7382, ASL: 1250–1350, EXP: SE, H: natural climax spruce forest on andesite substrate, D: 18<sup>th</sup> August 2006, lgt. V. Hruz, I. Mihál

**L7 – Kriváň**, CA: Kriváň, MU: Zvolenská kotlina Basin, DFS: 7482, ASL: 450, EXP: NW, H: outside the village, margins of agrocoenoses and surroundings of a house in construction,

D: 8<sup>th</sup> August 2009, lgt. I. Mihál

**L8 – Zvolen**, CA: Zvolen, MU: Zvolenská kotlina Basin, DFS: 7480, ASL: 290, EXP: SW, H: inside the town, concrete wall of a garage, D: 22<sup>nd</sup> August 2007, lgt. I. Mihál

**L9 – Dómica**, CA: Kečovo, MU: Slovenský kras Karst, DFS: 7588, ASL: 340, EXP: S, H: xerotherm vegetation and pastures on limestone, D: 6<sup>th</sup> May 2004, lgt. P. Gajdoš

**L10 – Obrovská priepasť Abyss**, CA: Jablonov nad Turňou, MU: Slovenský kras Karst, DFS: 7389, ASL: 540, EXP: Ø, H: surroundings of the cave entrance, dysphotic (twilight) cave part, D: 13<sup>th</sup> April 2006, lgt. V. Papáč

**L11 – Šingliarova priepasť Abyss**, CA: Rožňavské Bystré, MU: Revúcka vrchovina Hills, DFS: 7388, ASL: 740, EXP: NE, H: surroundings of the cave entrance, dysphotic (twilight) cave part, D: 11<sup>th</sup> October 2003, lgt. A. Mock

**L12 – Podbanište Cave**, CA: Slizké, MU: Revúcka vrchovina Hills, DFS: 7486, ASL: 370, EXP: Ø, H: surroundings of the cave entrance, dysphotic (twilight) cave part, D: 23<sup>rd</sup> July 2007, lgt. V. Papáč

**L13 – Nyáriho jaskyňa Cave**, CA: Stará Bašta, MU: Cerová vrchovina Hills, DFS: 7885, ASL: 570, EXP: SE, H: surroundings of the cave entrance, dysphotic (twilight) cave part, D: 2<sup>nd</sup> October 2008, lgt. V. Papáč.

## Results

In total, there have been identified 1,878 individuals of harvestmen, of this 602 females, 730 males, 425 subadults and 121 juveniles. They have been represented by 21 species belonging to four families.

The list below gives the identified species. In the list, the following abbreviations were used: ♀ – female, ♂ – male, subad. – subadult individual, juv. – juvenile individual.

**Palpatores** Thorell, 1879

**Nemastomatidae** Simon, 1879

1. *Mitostoma chrysomelas* (Hermann, 1804)

Locality: **L2** – 1♂, 16<sup>th</sup> July 2008, lgt. A. Gajdoš,

- L10** – 1♀, 2 subad., 13<sup>th</sup> April 2006, lgt. V. Papáč,  
**L11** – 1♀, 11<sup>th</sup> October 2003, lgt. A. Mock
2. *Nemastoma lugubre* var. *bimaculatum* (Müller, 1776)  
 Locality: **L2** – 1♀, 29<sup>th</sup> May 2008, 1♀, 1♂, 15<sup>th</sup> October 2008, 1♀, 13<sup>th</sup> May 2009, 1♀, 13<sup>th</sup> September 2009, 1♀, 16<sup>th</sup> September 2009, 1♀, 13<sup>th</sup> October 2009, lgt. P. Gajdoš, **L12** – 1♀, 23<sup>rd</sup> July 2007, lgt. V. Papáč
- Dicranolasmatidae** Simon, 1879
3. *Dicranolasma scabrum* (Herbst, 1799)  
 Locality: **L2** – 1♂, 16<sup>th</sup> July 2008, lgt. P. Gajdoš,  
**L13** – 1♂, 2<sup>nd</sup> October 2008, lgt. V. Papáč
- Trogulidae** Sundevall, 1833
4. *Trogulus nepaeformis* (Scopoli, 1763)  
 Locality: **L2** – 1♀, 29<sup>th</sup> May 2008, 1♂, 2 subad., 13<sup>th</sup> September 2009, 1♂, 2 subad., 16<sup>th</sup> September 2009, lgt. P. Gajdoš, **L6** – 1♀, 1<sup>st</sup> July 2009, lgt. I. Mihál
5. *Trogulus tricarinatus* (Linnaeus, 1767)  
 Locality: **L2** – 1♂, 4<sup>th</sup> December 2007, lgt. P. Gajdoš
- Phalangiidae** Simon, 1879
6. *Phalangium opilio* Linnaeus, 1761  
 Locality: **L1** – 1♂, 31<sup>st</sup> August 2005, lgt. S. Korenko
7. *Opilio parietinus* (De Geer, 1778)  
 Locality: **L7** – 1♀, 1♂, 22<sup>nd</sup> August 2009, lgt. I. Mihál
8. *Opilio saxatilis* C. L. Koch, 1839  
 Locality: **L5** – 1♂, 7<sup>th</sup> June 2007, lgt. V. Hruz
9. *Platybunus bucephalus* (C. L. Koch, 1835)  
 Locality: **L2** – 6 subad., 3 juv., 15<sup>th</sup> May 2007, 21 subad., 14 juv., 19<sup>th</sup> March 2008, 9 subad., 1 juv., 29<sup>th</sup> May 2008, 1 subad., 17 juv., 13<sup>th</sup> May 2009, lgt. P. Gajdoš, **L6** – 1♀, 3♂♂, 18<sup>th</sup> August 2006, lgt. V. Hruz, 1♂, 1<sup>st</sup> July 2009, lgt. I. Mihál
10. *Rilaena triangularis* (Herbst, 1799)  
 Locality: **L2** – 1♀, 6♂♂, 20 subad., 5 juv., 15<sup>th</sup> May 2007, 2♀♀, 1♂, 1 subad., 4 juv., 29<sup>th</sup> May 2008, 2♀♀, 1♂, 16<sup>th</sup> July 2008, 1♂, 12<sup>th</sup> August 2008, 2 juv., 9<sup>th</sup> December 2008, 7 subad., 7 juv., 13<sup>th</sup> May 2009, lgt. P. Gajdoš, **L4** – 1♂, 13<sup>th</sup> May 2005, lgt. S. Korenko, **L6** – 1♂, 18<sup>th</sup> August 2006, lgt. V. Hruz, **L9** – 1♂, 6<sup>th</sup> May 2004, lgt. P. Gajdoš
11. *Lophopilio palpinalis* (Herbst, 1799)  
 Locality: **L2** – 6 subad., 21 juv., 15<sup>th</sup> May 2007, 6 subad., 1 juv., 23<sup>rd</sup> August 2007, 1♀, 1♂, 4<sup>th</sup> December 2007, 1♀, 2♂♂, 19<sup>th</sup> March 2008, 5 subad., 1 juv., 29<sup>th</sup> May 2008, 1♀, 6♂♂, 4 juv., 16<sup>th</sup> July 2008, 2♀♀, 3♂♂, 6 subad., 2 juv., 20<sup>th</sup> August 2008, 1 subad., 15<sup>th</sup> October 2008, 2♀♀, 6♂♂, 3 subad., 9<sup>th</sup> December 2008, 3♂♂, 1 subad., 13<sup>th</sup> May 2009, 3♂♂, 8 subad., 3 juv., 12<sup>th</sup> August 2009, 6 subad., 16<sup>th</sup> September 2009, 1♀, 3♂♂, 2 subad., 13<sup>th</sup> October 2009, lgt. P. Gajdoš, **L4** – 1♂, 5<sup>th</sup> October 2005, lgt. S. Korenko, **L6** – 1♂, 18<sup>th</sup> August 2006, lgt. V. Hruz
12. *Zacheus crista* (Brullé, 1832)  
 Locality: **L4** – 6♀♀, 6♂♂, 6 subad., 7<sup>th</sup> June 2007, lgt. V. Hruz, **L5** – 2♀♀, 7♂♂, 7 subad., 6 juv., 7<sup>th</sup> June 2007, lgt. V. Hruz
13. *Egaenus convexus* (C. L. Koch, 1835)  
 Locality: **L2** – 1 juv., 20<sup>th</sup> August 2008, lgt. P. Gajdoš, **L9** – 3 subad., 6<sup>th</sup> May 2004, lgt. P. Gajdoš
14. *Oligolophus tridens* (C. L. Koch, 1836)  
 Locality: **L2** – 7♀♀, 6♂♂, 11 subad., 23<sup>rd</sup> August 2007, 6♀♀, 2♂♂, 1 subad., 4<sup>th</sup> December 2007, 1♂, 19<sup>th</sup> March 2008, 4♀♀, 16<sup>th</sup> July 2008, 4♀♀, 5♂♂, 6 subad., 1 juv., 20<sup>th</sup> August 2008, 4♀♀, 1♂, 3 subad., 15<sup>th</sup> October 2008, 2 juv., 13<sup>th</sup> May 2009, 3♀♀, 5♂♂, 9 subad., 12<sup>th</sup> August 2009, 1♀, 1♂, 1 subad., 16<sup>th</sup> September 2009, 6♀♀, 3♂♂, 13<sup>th</sup> October 2009, lgt. P. Gajdoš, **L4** – 1♂, 5<sup>th</sup> October 2005, lgt. S. Korenko, **L6** – 1♂, 18<sup>th</sup> August 2006, lgt. V. Hruz
15. *Lacinius ephippiatus* (C. L. Koch, 1835)  
 Locality: **L2** – 6 juv., 15<sup>th</sup> May 2007, 5♀♀, 5♂♂, 9 subad., 23<sup>rd</sup> August 2007, 3♀♀, 1♂, 2 subad., 4<sup>th</sup> December 2007, 3 subad., 29<sup>th</sup> May 2008, 4♀♀, 3♂♂, 1 juv., 16<sup>th</sup> July 2008, 2♀♀, 1♂, 20<sup>th</sup> August 2008, 1♀, 1♂, 1 subad., 25<sup>th</sup> August 2008, 1♀, 1♂, 4 subad., 15<sup>th</sup> October 2008, 1♂, 1 subad., 13<sup>th</sup> May 2009, 1♀, 3♂♂, 1 juv., 12<sup>th</sup> August 2009, 2♂♂, 2 subad., 16<sup>th</sup> September 2009, 2♂♂, 13<sup>th</sup> October 2009, lgt. P. Gajdoš, **L6** – 1 subad., 1<sup>st</sup> July 2009, lgt. I. Mihál
16. *Mitopus morio* var. *morio* (Fabricius, 1799)  
 Locality: **L2** – 1♀, 12<sup>th</sup> August 2009, 1♀, 2♂♂, 13<sup>th</sup> September 2009, 1 subad., 16<sup>th</sup> September 2009, lgt. P. Gajdoš, **L6** – 33♀♀, 44♂♂, 7 subad., 18<sup>th</sup> August 2006, 20♀♀, 152♂♂, 7<sup>th</sup> November 2006, lgt. V. Hruz  
*Mitopus morio* var. *alpinus* (Fabricius, 1799)  
 Locality: **L6** – 38♀♀, 29♂♂, 13 subad., 18<sup>th</sup> August 2009, 24♀♀, 9♂♂, 7<sup>th</sup> November 2006, lgt. V. Hruz
17. *Gyas titanus* Simon, 1879  
 Locality: **L3** – 1 subad., 8<sup>th</sup> October 2003, lgt. A. Mock
18. *Astrobus laevipes* (Canestrini, 1872)  
 Locality: **L2** – 5♀♀, 10♂♂, 5 subad., 15<sup>th</sup> May 2007, 12♀♀, 2♂♂, 26<sup>th</sup> July 2007, 35♀♀, 32♂♂, 17 subad., 23<sup>rd</sup> August 2007, 75♀♀, 77♂♂, 4<sup>th</sup> December 2007, 11♀♀, 8♂♂, 2 subad., 29<sup>th</sup> May 2008, 3♀♀, 1♂, 3 juv., 16<sup>th</sup> July 2008, 31♀♀, 27♂♂, 39 subad., 6 juv., 20<sup>th</sup> August 2008, 11♀♀, 24♂♂, 10 subad., 25<sup>th</sup> August 2008, 46♀♀, 39♂♂, 54 subad., 15<sup>th</sup> October 2008, 1♀, 1♂, 1 subad., 9<sup>th</sup> December 2008, 2♀♀, 1♂, 13<sup>th</sup> May 2009, 4♀♀,

6♂♂, 3 subad., 3 juv., 12<sup>th</sup> August 2009, 103♀♀, 100♂♂, 45 subad., 3 juv., 16<sup>th</sup> September 2009, 50♀♀, 46♂♂, 39 subad., 13<sup>th</sup> October 2009, lgt. P. Gajdoš

19. *Leiobunum* aff. *rupestre* (Herbst, 1799)

Locality: **L4** – 2♀♀, 2♂♂, 5<sup>th</sup> October 2005, lgt. S. Korenko

20. *Leiobunum rotundum* (Latreille, 1798)

Locality: **L2** – 1♀, 4♂♂, 3 juv., 12<sup>th</sup> August 2009, 1 subad., 16<sup>th</sup> September 2009, lgt. P. Gajdoš

21. *Nelima semproni* Szalay, 1951

Locality: **L2** – 1♀, 2 subad., 23<sup>rd</sup> August 2007, 1♀, 15<sup>th</sup> October 2008, lgt. P. Gajdoš, **L7** – 4♀♀, 4♂♂, 8<sup>th</sup> August 2009, lgt. I. Mihál, **L8** – 1♀, 22<sup>nd</sup> August 2007, lgt. I. Mihál.

## Discussion

The 21 harvestmen species represent 63.6% of the total species number identified in Slovakia up to now (S = 33, according to BEZDĚČKA, 2009; STAŠIOV, 2004). The

highest number of harvestmen species was found in the localities No. 2 (Koš, 15), No. 6 (Zadná Poľana, 6) and No. 4 (Hrochotská dolina, 5 species). The number of occurrence localities frequency was the highest in case of the species *Rilaena triangularis* (found in 4 localities), *Mitostoma chrysomelas*, *Oligolophus tridens* and *Nelima semproni* (3 localities). In *Astrobinus laevipes*, the highest number of the individuals caught was documented (993 individuals and 52.9% of the total number of harvestmen recorded).

A more detailed overview of the species richness of harvestmen fauna recorded in particular localities in the selected morphological units of Central Slovakia is given in Table 1. It can be seen that the long-term and intensive inventory has resulted in finding most species in the geomorphological unit Hornonitrianska basin where the harvestmen fauna has not been studied yet. The literature (STAŠIOV, 2004) reports only two harvestmen species identified in this unit (*Dicranolasma scabrum* and *Platybunus bucephalus*), and the occurrence of *Opilio saxatilis*, *Lacinius ephippiatus* and *Leiobunum rotundum* in the Hornonitrianska basin have not

Table 1. The occurrence of harvestmen species (Opiliones) recorded in selected morphological units in Central Slovakia

Species	A		B		C		D		E		F		G		H	
	1	2	3	4	5	6	7	8	9	10	11	12	13			
<i>Mitostoma chrysomelas</i>		*									*	*				
<i>Nemastoma lugubre</i>		*														*
<i>Dicranolasma scabrum</i>		*												*		
<i>Trogulus nepaeformis</i>		*				*										
<i>Trogulus tricarinatus</i>		*														
<i>Phalangium opilio</i>	*															
<i>Opilio parietinus</i>								*								
<i>Opilio saxatilis</i>					*											
<i>Platybunus bucephalus</i>		*				*										
<i>Rilaena triangularis</i>		*		*		*				*						
<i>Lophopilio palpinalis</i>		*		*												
<i>Zacheus crista</i>				*	*											
<i>Egaenus convexus</i>		*								*						
<i>Oligolophus tridens</i>		*		*		*										
<i>Lacinius ephippiatus</i>		*				*										
<i>Mitopus morio</i>		*				*										
<i>Gyas titanus</i>			*													
<i>Astrobinus laevipes</i>		*														
<i>Leiobunum</i> aff. <i>rupestre</i>				*												
<i>Leiobunum rotundum</i>		*														
<i>Nelima semproni</i>		*					*	*								

A – Strážovské vrchy Mts, B – Hornonitrianska kotlina Basin, C – Horehronské podolie Valley, D – Poľana Mts, E – Zvolenská kotlina Basin, F – Slovenský kras Karst, G – Revúcka vrchovina Hills, Cerová vrchovina Hills, 1–13: number of localities.

been published till now (NOVIKMEC, unpubl.) The locality Koš in this unit is strongly modified by human activities – water logged weed communities with natural seeding of willow and poplar in depressions. Here, a total of 15 harvestmen species were recorded, of which *Astrobus laevipes*, *Lacinius ephippiatus*, *Nemastoma lugubre*, *Oligolophus tridens* and *Trogulus nepaeformis* are frequent in moist habitats. The high abundance of *Astrobus laevipes* (altogether 993 individuals of all development stage) is surprising, indicating favourable conditions for the species in waterlogged habitats in the locality Koš. Similar results have been obtained by GAJDOŠ (2008), who studied araneofauna in this locality and who identified a total of 49 spider species, mostly hygrophilous ones, occurring in wetlands and waterlogged habitats.

As expected, the thermophilous harvestmen species like *Dicranolasma scabrum*, *Egaenus convexus*, *Opilio saxatilis* and *Zacheus crista* were recorded in localities in the south-situated morphological units where the occurrence of harvestmen occurrence is relatively frequent (MIHÁL, 1995, 1998; MIHÁL et al., 2009). These ponto-mediterranean thermophilous species have their northern limit of distribution in the country (MIHÁL et al., 2003; STAŠIOV, 2004). The thermophilous species *Nelima semproni*, also, belongs to this group. It prefers open and warm oak-hornbeam forests, fields and black locust woods in lowlands. It is also frequent in dry weed communities. The first record of *Nelima semproni* in Slovakia was made in the south-western Slovakia in 1987 (MAŠÁN and MIHÁL, 1993). Since then, the species has been documented from 8 localities in 5 morphological units. Its habitats are very diverse, however, it seems to prefer urban environments and roads and riparian stands as corridors. *Nelima semproni* is likely to be an invasive species spreading to new localities and sites in Central and Eastern Slovakia (MIHÁL et al., 2003; STAŠIOV et al., 2010).

In the study, harvestmen were sampled also from the surroundings of caves and from the inside of caves. In five localities the five harvestmen species (*Dicranolasma scabrum*, *Egaenus convexus*, *Gyas titanus*, *Mitostoma chysomelas* and *Nemastoma lugubre*) were recorded. Central Slovakia is rich in karst and pseudo-karst caves and abysses where research on opiliofauna has been conducted recently. Up to now, the opiliofauna associated with caves has been only marginally studied. The publication by GULIČKA (1985) is the only exception of this, representing knowledge of soil micro-fauna, harvestmen included, in the surroundings of caves in the Slovenský kras Karst and the Muránska planina plateau. Faunistic data on harvestmen occurrence in such habitats can be also found in the work by KOŠEL (1984). More comprehensive summary of the knowledge of opiliofauna in the caves in Slovakia was published by STAŠIOV et al. (2003), who listed a total 11 harvestmen species occurring in caves, including most

species identified in this study (except for *Nemastoma lugubre*).

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## Kosce (Arachnida, Opiliones) vybraných území stredného Slovenska a poznámky k ich stanovištným nárokom

### Súhrn

Na strednom Slovensku nachádzame územia, resp. orografické celky, ktoré sú z hľadiska opiliofauny dobre preskúmané, ale aj územia, z ktorých sú o výskyte koscov (Opiliones) známe iba skromné údaje staršieho dáta, prípadne viaceré údaje nie sú publikované. Táto práca podáva súhrn nálezov koscov z materiálu šiestich zberateľov z vybraných orografických celkov stredného Slovenska. Kosce boli odchyťované vo vegetačnom období nepravidelne počas rokov 2003–2009 na 13 lokalitách v orografických celkoch Cerová vrchovina, Horehronské podolie, Hornonitrianska kotlina, Poľana, Revúcka vrchovina, Slovenský kras, Strážovské vrchy a Zvolenská kotlina. Celkovo bolo determinovaných 21 druhov koscov, čo tvorí 63,6% z celkovej druhovej diverzity opiliofauny Slovenska. Najviac druhov koscov bolo zistených na lokalitách č. 2 (lokalita Koš v Hornonitrianskej kotline, 15 druhov), č. 6 (Zadná Poľana, 6 druhov) a č. 4 (Hrochotská dolina na Poľane, 5 druhov). Najvyššiu frekvenciu výskytu v rámci lokalít mali druhy *Rilaena triangularis* (zistený na 4 lokalitách), *Mitostoma chrysomelas*, *Oligolophus tridens* a *Nelima semproni* (zistené na 3 lokalitách). U druhu *Astrobonus laevipes* bola zaznamenaná najvyššia

početnosť chytených jedincov (až 993 exemplárov, čo tvorí 52,9 % z celkového počtu determinovaných koscov). Boli zaznamenané aj teplomilné druhy *Dicranolasma scabrum*, *Egaenus convexus* a *Zacheus crista*, ktoré na Slovensku dosahujú severnú hranicu svojho areálu rozšírenia, ako aj teplomilný a invázny druh *Nelima semproni*. Práca prináša najnovšie a najkomplexnejšie poznatky najmä o druhovej diverzite koscov Hornonitrianskej kotliny, obohacuje poznanie opiliofauny ďalších pohorí na strednom Slovensku a upresňuje ekologické nároky vybraných druhov koscov, najmä so zreteľom na typ habitatu.

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