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Invertebrates found in underground shelters of western Bohemia. II. Hoverflies (Diptera: Syrphidae)

Libor DVOŘÁK

Abstract : During the survey of invertebrates in underground shelters of western Bohemia and the Bohemian Forest (=Šumava Mts.) in last 20 years, the author found hibernating *Eristalis tenax* (LINNAEUS, 1758) on nine localities. No other hibernating species of hoverflies (Syrphidae) was found.

Key words : Diptera, Syrphidae, hibernation, Czech Republic.

Introduction

The author studied the occurrence of various invertebrates in underground shelters of the western Bohemia (Czech Republic) during the last 20 years. The results are prepared as a series of papers focussed on individual taxa. In the presented paper, the records of hoverflies are summarised.

Material

Hoverflies were searched for in underground shelters by using a head lamp. The material was identified by the author. The voucher specimens are deposited in the collections of Municipal Museum Mariánské Lázně, Czech Republic (MML).

Results

The only species found during the research is *Eristalis tenax* (LINNAEUS, 1758).

The data are listed as follows: municipality, code of the central European grid mapping system (PRUNER & MÍKA 1996), stand, date of collection, number of specimens, collector (if other than the author), and deposition of voucher specimens. The localities are listed alphabetically.

Material : Bečov nad Teplou (5942), small cellar near turning to Louka, 1.2.2006, 3 ♀♀. Chanovec (6747), mine, 12.1.2007, 2 ♀♀ (1 ♀ coll. MML), photo O. Vojtěch (Fig. 1). Hazlov (5839), mine by station, 28.1.2007, 1 ♀. Jamné (7152), mine, 23.1.2000, 2 ♀♀, leg. R. Lučan (coll. MML). Malenice (6849), cave Jiříčkova Sluj, 5.1.2007, 1 ♀ (coll. MML). Podhradí (5739), cellars under castle tower, 24.2.2015, 3 ♀♀ (1 ♀ coll. MML; Fig. 2). Slapany (5940), culvert under

railway, 24.2.2015, 3 ♀ ♀. Stará Role (5743), mine Bažantí vrch 2, 30.10.2013, 1 ♀ (coll. MML);
 dtto, 21.11.2013, 1 ♀ (coll. MML). Sudslavice (6948), Sudslavická cave, 5.1.2007, tens ♀ ♀ (1 ♀,
 coll. MML); dtto, 11.1.2008, 2 ♀ ♀.

Overwintering *E. tenax* was documented on nine localities of western Bohemia and the Bohemian Forest (=Šumava Mts.); map of records displayed using the Central European grid system is showed on Fig. 3.

All specimens were found in small crevices (Fig. 2) except the locality Chanovec, where one ♀ was found sitting on the wall (Fig. 1).



Fig. 1: *Eristalis tenax* at the locality Chanovec. Photo: Oldřich Vojtěch.



Fig. 2: *Eristalis tenax* at the locality Podhradí. Photo: Libor Dvořák.

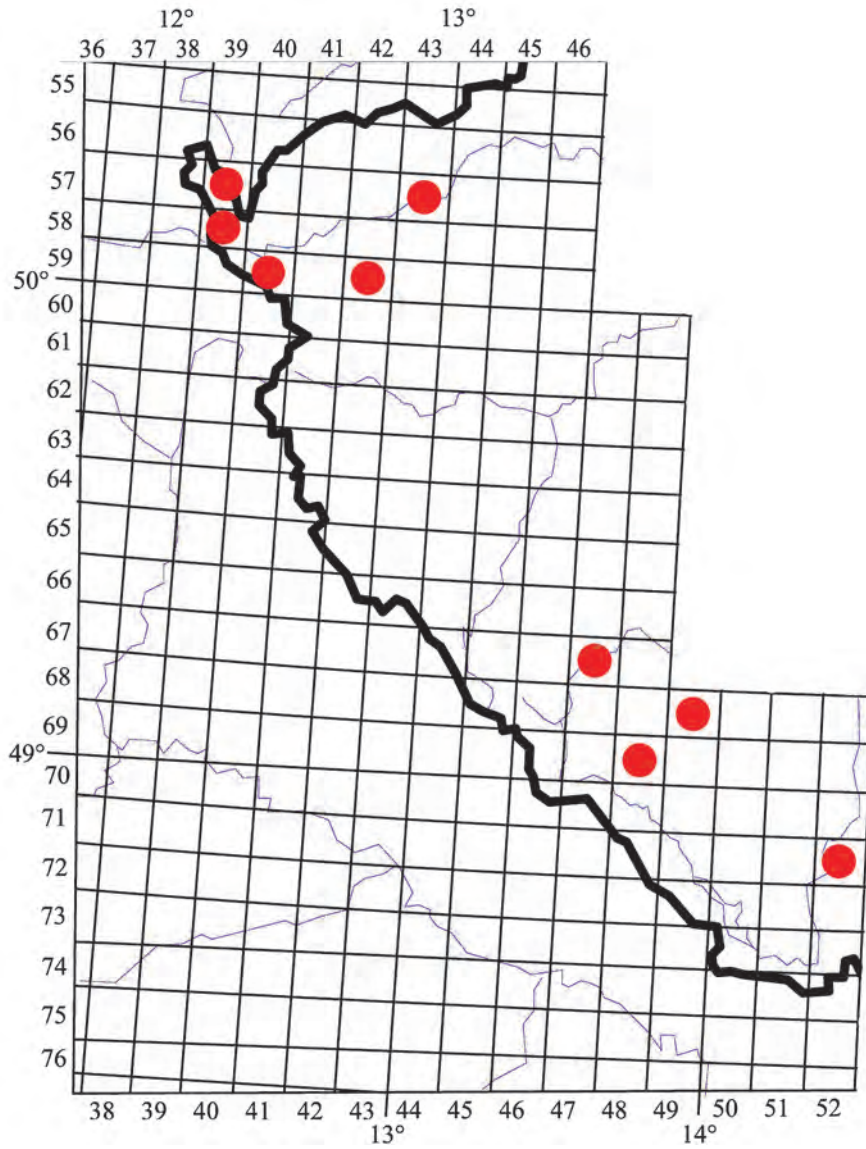


Fig. 3: The records of hibernating *Eristalis tenax* in western Bohemia and the Bohemian Forest.

Discussion

The overwintering of *E. tenax* in underground shelters is well known, so it is reported from various shelters and countries: caves, shallow shelters, mines, and stone water tank in the United Kingdom (KENDALL & STRADLING 1972), small and large mines and

bunkers in Norway (KJAERANDSEN 1993), cellars in Lower Saxony, Germany (WOLFF 1990, 1996), caves in Austria (CHRISTIAN & SPÖTL 2010), cave on Åland island, Finland (FRITZÉN & KOPONEN 2011) or cellars and mines in Rhineland-Palatine/Saarland, Germany (WEBER 2012).

According to all known data, *E. tenax* seems to be the only hoverfly regularly overwintering in underground shelters in Europe.

Zusammenfassung

Im Rahmen der Untersuchung von Evertebraten in Stollen Westböhmens und des Böhmerwaldes (=Šumava Mts.) konnten überwinternde *Eristalis tenax* (LINNAEUS, 1758) (Syrphidae) an neun Standorten nachgewiesen werden

References

- CHRISTIAN E. & C. SPÖTL (2010): Karst geology and cave fauna of Austria: a concise review. — *International Journal of Speleology* **39** (2): 71-90.
- FRITZÉN N.R. & S. KOPONEN (2011): The cave spider *Meta menardi* (Araneae, Tetragnathidae) – occurrence in Finland and notes on its biology. — *Memoranda Soc. Fauna Flora Fennica* **87**: 80-86.
- KENDALL D. A. & D.J. STRADLING (1972): Some observations on overwintering of the drone fly, *Eristalis tenax* L. — *Entomologist* **105**: 229-230.
- KJAERANDSEN J. (1993): Diptera in mines and other cave systems in southern Norway. — *Entomologica Fennica* **4**: 151-160.
- PRUNER L. & P. MÍKA (1996): Seznam obcí a jejich částí v české republice s čísly mapových polí pro síťové mapování fauny (List of settlements in the Czech Republic with associated map field codes for faunistic grid mapping system). — *Klapalekiana* **32** (Supplementum): 1-115 (in Czech, english summary).
- WEBER D. (2012): Die Höhlenfauna und -flora des Höhlenkatastergebietes Rheinland-Pfalz/Saarland, 5. Teil. — *Abhandlungen zur Karst- und Höhlenkunde* **36**: 1-2367.
- WOLFF D. (1990): Überwinternde Schwebfliegen (Diptera, Syrphidae) bei Ebstorf. — *Drosera* **90**: 123-125.
- WOLFF D. (1996): Überwinternde Schwebfliegen (Diptera, Syrphidae) bei Ebstorf II. — *Volucella* **2** (1/2): 91-92.

Authors' address:

Libor DVOŘÁK
Municipal Museum Mariánské Lázně
Goethovo náměstí 11
CZ-35301 Mariánské Lázně, Czech Republic
E-mail: lib.dvorak@seznam.cz, dvorak@muzeum-ml.cz