



The first records of the cave isopod *Mesoniscus graniger* (Frivaldszky, 1865) (Crustacea, Isopoda, Oniscidea) in Poland

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Abstract: The first records of *Mesoniscus graniger* (Frivaldszky, 1865) in Poland are presented. They slightly extend the known distribution range of the species up to the northernmost edge of the Carpathians.

Key words: *Mesoniscus graniger*, Oniscidea, cave isopod, first record, Poland

INTRODUCTION

Mesoniscus graniger (Frivaldszky, 1865) is one of the two known species of the genus *Mesoniscus* Carl, 1906 (Gruner & Tabacaru 1963, Schmalfuss 2003, Schmidt & Leistikow 2004). This species is spread all over the Carpathian Mountain Range from the north of the Western Carpathians (Tatra Mts) in Slovakia to Bihor and the Banat Mountains in Romania. Beyond the Carpathians, it has been recorded in the Dinaric and Julian Alps (Gruner & Tabacaru 1963, Forró & Farkas 1998, Giurginca 2000–2001, Mlejnek & Ducháč 2001, 2003). This terrestrial isopod has been reported primarily from caves, sometimes from endogeic habitats as well (moist and isothermal surface habitats) (Forró & Farkas 1998, Giurginca 2000–2001, Mlejnek & Ducháč 2001, 2003). Morphologically, like other subterranean animals, this species is characterised by tegument depigmentation and the absence of eyes (Fig. 1). In differentiating *M. graniger* from other terrestrial isopods, the following combination of morphological characters has to be taken into account: dimensions – maximum body length 9 mm; body shape – elongated, never oval; outline of pereion and pleon not continuous; cuticular structures – heavily tuberculate on pereion as well as head, on tergites 2–7 tubercles in three transverse rows, large tubercles at hind margin of tergites, tubercles on tergite 1 in four transversal rows, on pleon, eight tubercles in one row at hind margin of pleonites; head morphology – frontal margin slightly concave, lateral lobes missing, eyes absent; antenna – flagellum with eight indistinct sections; pleopods without pseudotracheae; telson – rounded, with a pointed tip; uropods – exopodites tubular, end elongate, projecting well beyond tip of telson (Schmölzer 1965). There are three aesthetascs on the tip of the distal article of the first antenna. All these features allow to distinguish this species from the similar *M. alpicola* (Heller, 1858).

M. graniger is well adapted to living on potentially limited supplies of energy and essential compounds, as well as in stenothermal environments (Gere 1964, Šustr et al. 2005).

METHODS

Bait traps (plastic or glass cups partly filled with a 50% ethylene glycol solution) were used to collect cave fauna. Traps were baited with rotten meat and buried in the cave floor. Some of the specimens were also collected by hand sampling from the cave floor since they were frequently found near rotten bats. Samples were collected irregularly between November and September in the years 2003 through 2007. Voucher material is stored in the collections of the authors.



Fig. 1. Specimen of *Mesoniscus graniger* from Zbójecka in Łopień Cave – dorsal view.

RESULTS AND DISCUSSION

Specimens of *M. graniger* were collected at the following localities:

1. Zbójecka in Łopień Cave (20° 17'E, 40° 42'N). Three entrances of this cave are situated at about 880 m a.s.l. The length of the discovered cave passage is about 430 m, denivelation 16 m. Forty-two specimens were collected from different parts of this cave.
2. Czarci Dół Cave (20° 17'E, 40° 42'N). The entrance is situated at an altitude of about 770 m a.s.l. The length of the known corridors is about 140 m, depth 14 m. Seven specimens of *M. graniger* were captured here.
3. Złotopieńska Dziura Cave (20° 17'E, 40° 42'N). The entrance is situated at an altitude of about 770 m a.s.l. The length of the known corridors is about 105 m, depth 10 m. Two specimens were captured here.
4. Wietrzna Dziura Cave (20° 17'E, 40° 42'N). The entrance is situated at an altitude of about 770 m a.s.l. The length of the discovered cave passage is 25 m, depth 5 m. One specimen was collected here.

All above localities are situated in southern Poland, within the Beskid Wyspowy Mountain Range of the Flysch Carpathians, on the northern slope of Mt. Łopień. These are typical pseudokarst caves. The climatic conditions in the caves are stable (relative humidity above 90%, air temperature 7–12°C). Bats stayed in Zbójecka in Łopień Cave and Czarci Dół Cave all year round, in Złotopieńska Cave and Wietrzna Studnia Cave during hibernation. Organic matter (small amounts of guano) is observed in all places.

M. graniger has hitherto remained unknown from Poland (cf. Jażdżewski 1997). Thus, the above records of this species are the first in Poland. They also represent the northernmost localities of this species both in the Carpathians and Europe. In addition, the known range limit has thus been moved about 50 km to the north. The previous northernmost records of this species came from Cave Brestovská (western Tatra Mts) (Mlejnek & Ducháč 2003) and, endogeically, on the slope of Mount Muráň in the Belianske Tatry Mts, northern Slovakia (Frankenberger 1959). Until now, this species has not been observed in the Polish Tatra Mountains (Wołoszyn 1996, Dumnicka & Skalski 1999). Furthermore, this is not only the first cave-dwelling isopod recorded in the Polish Flysch Carpathians, but also in the whole of Poland (cf. Jażdżewski 1997).

It is difficult to establish an exact distribution of this species in Poland. The distribution range of this species in this country can be suggested to actually be larger (Mlejnek & Ducháč 2001), i.e. covering other caves of the Polish Flysch Carpathians, because the abiotic and biotic conditions of the caves in that area are similar to those in the four places where *M. graniger* has already been recorded.

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STRESZCZENIE

[Pierwsze stwierdzenia jaskiniowego równonoga *Mesoniscus graniger* (Crustacea: Isopoda: Oniscidea) w Polsce]

W trakcie badań nad fauną troglu jaskiń Karpat Polskich po raz pierwszy w Polsce odnotowano obecność przedstawiciela równonogów lądowych *Mesoniscus graniger* (Frivaldszky 1865). Kilkadziesiąt osobników tego gatunku zostało odłowionych w przynętowe pułapki Barbera i zebranych bezpośrednio ze ścian w czterech jaskiniach położonych w Beskidzie Wyspowym: Zbójeckiej w Łopieniu, Czarcim Dole, Wietrznej Studni i Złotopieńskiej Dziurze. Są to najdalej na północ wysunięte stanowiska tego gatunku w centralnej Europie.

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