



## New data on distribution of *Micaria nivosa* L. Koch (Araneae: Gnaphosidae) in Poland

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**Abstract:** *Micaria nivosa* L. Koch is a rare spider belonging to the Gnaphosidae family. The paper presents an analysis of historical data, synonyms, diagnostic features and a number of new localities of *M. nivosa* in Poland.

**Key words:** rare species, new localities, spider

### INTRODUCTION

*Micaria nivosa* L. Koch, 1866 (Fig. 1) is a rare spider species living in dry and open habitats or in well-lit forests and brushwood at the foothills and lower mountains zone (Almquist 2006). The range of this species includes the mountainous regions of Central Europe, Southern Scandinavia (Almquist 2006, Nentwig et al. 2022), the Southern Ural Mountains (Tuneva 2007), Kazakhstan (Mikhailov 1988) as well as southern regions of Central Siberia (Marusik et al. 2000). *Micaria nivosa* was also recorded from Poland (e.g., Prószyński & Staręga 1971, Blick et al. 2004, Kupryjanowicz 2008, Rozwółka & Stańska 2008), however, a number of issues regarding this species seem unclear. This study presents a summary of information on the distribution of *M. nivosa* in Poland and a number of new localities, which is complementary to the data concerning the distribution and habitat preferences of this poorly known spider species.

The first records of *Micaria nivosa* from Poland were listed by Prószyński and Staręga (1971) on the basis of unpublished notes of Władysław Kulczyński from the turn of the 19th and 20th centuries. The same species, under the synonym of *Micaria decorata* Tullgren, was recorded again by Staręga from the Bieszczady Mountains (Staręga 1971). Later the same author presented further localities from the Pieniny Mountains (Staręga 1972, 1976) as well as from the Baltic coast (1978). At the same time, Woźny (1973) published the description of female *Micaria nivosa* on the basis of a specimen collected in the Opawskie Mountains (the Eastern Sudetes). This locality was also mentioned in the subsequent publication by Woźny (1975). In “Wykaz krytyczny pajaków (Aranei) Polski” published in 1983, Staręga presented the opinion that *Micaria nivosa* and *Micaria decorata* are synonyms to *Micaria similis* Boesenberg (Staręga 1983, Prószyński & Staręga 1997). However, this interpretation was incorrect because the synonym of “*M. similis* Boesenberg” refers to *M. pulicaria* (Sundevall) (Wunderlich 1980, Muster & Michalik 2020, World Spider Catalog 2022) and it was in such a context that it was used in publications (Dziabaszewski 1990, Staręga 2000). This causes problems with the proper interpretations of various localities of “*Micaria similis*” in Poland. The analysis of the description by Woźny carried out by Muster and Michalik (2020) showed that it is erroneous. In the study by Woźny (1973: p. 53, fig. 1) is the anatomy of female reproductive organs of *Micaria micans* (Blackwall) that was presented and not that of *Micaria nivosa* (Muster & Michalik 2020). The extensive publications of spiders of the Polish Sudetes (Woźny et al. 1988) lack the information on *Micaria nivosa*, although both works by Woźny (1973, 1975) are mentioned in

the bibliography. The most recent locality of *M. nivos*a comes from the work by Bosmans and Blick (2000). The above authors mention this species from the Prełuki-Dusztatyn area in the Eastern Beskids, which was misspelt as “Prełuky Duszczodyn”.

To sum up the findings contained in subject literature so far, *Micaria nivos*a was recorded in Poland in nine localities (Prószyński & Staręga 1971, Bosmans & Blick 2000 as *M. nivos*a; Staręga 1971, 1972, 1976, 1978 as *M. decorata*), whereas the information from the study by Woźny (1973, 1975) is erroneous and refers to *M. micans*.

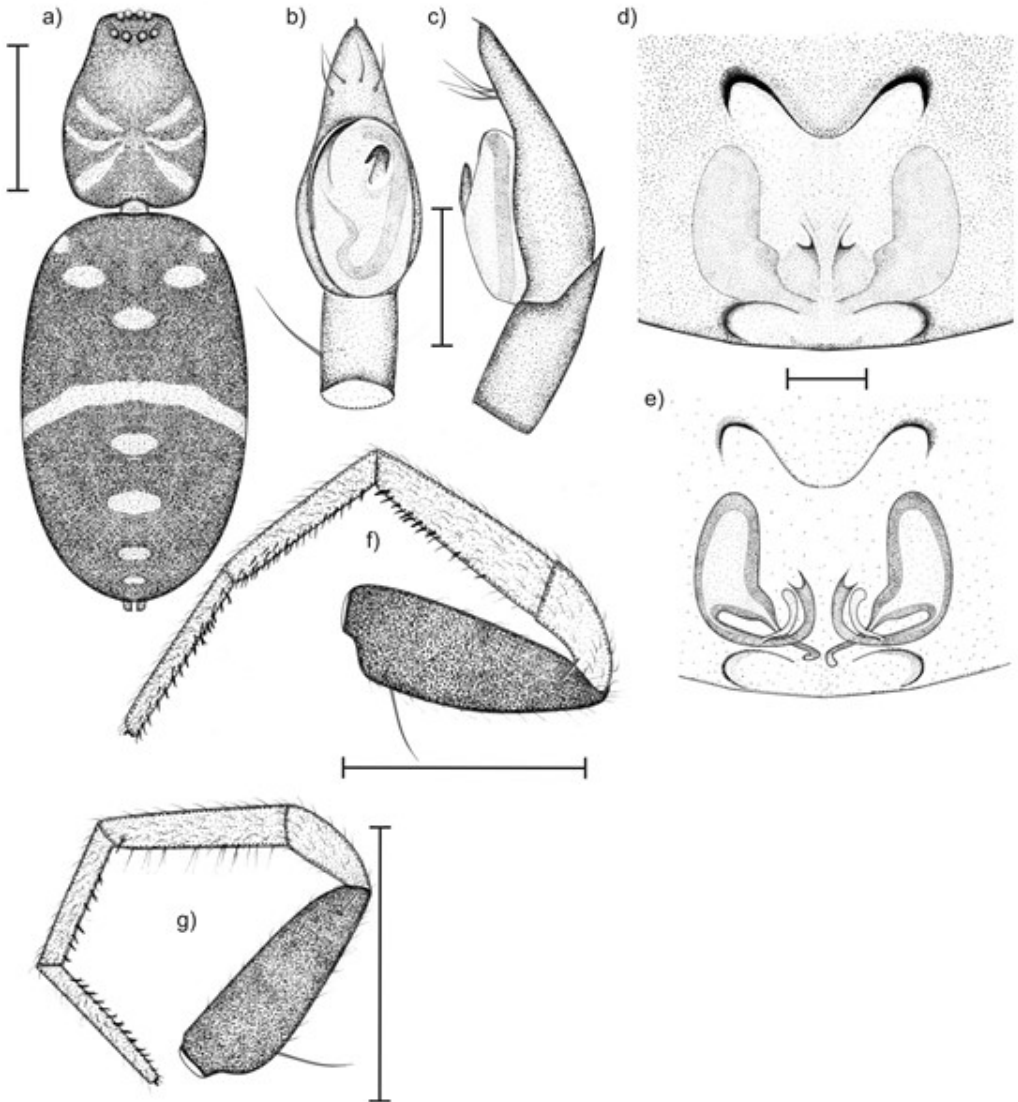


Figure. 1. *Micaria nivos*a: a) – female, total view; b) – male palp, ventral view, c) – male palp, lateral view, d) – epigyne, e) – vulva dorsal, f) – female first leg, medial view, g) – male first leg, medial view. Scale bar: a, g = 1.0 mm, b–e = 0.20 mm.

## MATERIALS AND METHODS

The observations of *Micaria nivosa* were carried out in Carpathian foothill, southern Poland. The specimens were collected from pitfall traps and sweep net.

All samples are stored in the author's private spider collection in Lublin.

## RESULTS

Unless it was stated otherwise, the material was collected by the author.

New data:

Baligówka near Czarny Dunajec [DV 18], overdried raised bog, pitfall traps, 9 Apr – 9 May 2009 – 1♂, leg. W. Cichocki;

Białowodzka Góra Reserve [DA 70], between and under stones on the rock-steppe xerothermic grassland, 2 May 2007 – 1♀;

Bóbrka [FV 07], under stones in the old quarry, 7 Jun 2012 – 2♂♂;

Ciechania (Magura National Park) [EV 37], very dry heaths, 1 Jun 2013 – 1♀;

Cisowa [FA 10], dry pebbly road between fields and wasteland, 23 May 2014 – 1♀;

„Góra Filipa” near Makowa, near Przemyśl [FA 20], xerothermic grasslands, pitfall traps, 2–9 May 2013 – 4♂♂; 9–16 May 2013 – 1♂, leg. A. Melke;

Grab (Magura National Park) [EV 37], among the sparse vegetation on the edge of a gravel road, 14 Aug 2013 – 1♀;

Męcina-Kłodne [DA 60], under stones in the old quarry, 2 May 2007 – 2♂♂;

Niezajowa-Rozstajne (Magura National Park) [EV 28/38], under stones on the stony riverbank of the Wisłoka River, 30 May – 3 Jun 2013 – 1♂, 3♀♀; 13 Aug 2013 – 1♀;

Białka River Gorge [DV 37], under stones of xerothermic rock grassland, 10 May 2009 – 1♀;

Rybotycze [FA 10], xerothermic grassland, 23 May 2014 – 1♀, 1 sub♂;

Smerek [FV 04], approach to Smerek Peak, trampled tourist trail, 20 Aug 2011 – 1♀;

Stuposiany [FV 24], stony riverbank of Wołosaty River, under stone, 2 Aug 2014 – 1♀;

Szopczański Gorge (tourist trail to Trzy Korony Mts.) [DV 57], xerothermic rock grassland, on the stone, 20 May 2011 – 1♀, leg. unknown;

Zagórz [EV 98], xerothermic grasslands and ruins of an old monastery, 10 Jun 2011 – 2♂♂, 1♀, 8 Jun 2012 – 1♂;

Żmiąca [DA 61], under stones of xerothermic grassland, 1 May 2007 – 1♀; under stones on the stony riverbank of the Łososina River, 1 May 2007 – 2♂♂, 1♀; stony square and walkways around the school, 2–4 May 2007 – 13♂♂, 7♀♀, 2 juv.

## DISCUSSION

While analysing the distribution of *Micaria nivosa* (Fig. 2), it can be seen that this species occurs in two disjunctive ranges in Poland. The main range encompasses the Carpathians area including the foothills, where the majority of domestic ranges is grouped (Fig. 2). Most probably, this species can be also found in the Sudetes area, which is suggested by the localities located on the Czech side of this mountain range (Staręga et al. 2001, Buchar & Růžička 2002). The locality at the Baltic coast (Staręga 1978) refers most probably to the boreal part of the range of this spider, which includes Southern Sweden and Norway (Almqvist 2006, Johannessen 1968), Russia, Finland and Estonia (Palmgren 1943, Mikhailov 1988, Rølys & Dapkus 2002, Nentwig et al. 2022).

*Micaria nivosa* is a rare species (Nentwig et al. 2022) and the data on environmental preferences of this spider are fragmentary and scattered. According to the information that can

be found in literature this species has been trapped in the open, sunny habitats with scarce herbaceous plants and rocky subsoil (Palmgren 1943, Miller 1967, Johannessen 1968) or in well-lit and dry forests (Almqvist 2006). It is proved by the data and observations of new localities. *Micaria nivosa* has been most frequently trapped in the open, sun-lit biotopes with a large number of stones, mainly on various types of xerothermic grasslands. The cases of finding this species on stony edges of small mountain rivers can be also of interest. These are well-lit habitats with almost no vegetation, but they are flooded with water a few times throughout a year.

The presented data on distribution (Fig. 2) double the number of known localities of this species in Poland. Moreover, the results of research and observations suggest that *Micaria nivosa* area is a relatively rare species at the Carpathian foothill, but it is fairly easy to spot during the penetration of the relevant habitats. It is possible that a small number of known localities results from scarce research relevant to this type of habitats.

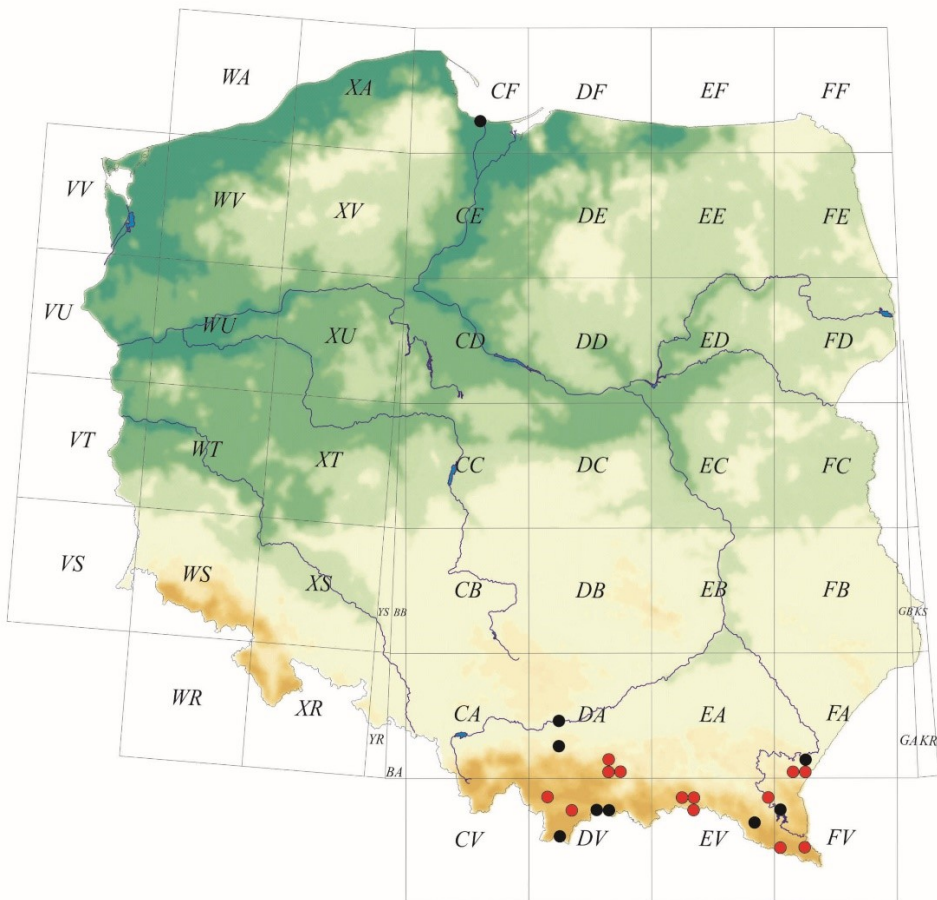


Figure 2. Distribution of *Micaria nivosa* in Poland: black dots – literature data, red dots – new data.

#### ACKNOWLEDGEMENTS

The author would like to thank Włodzimierz Cichocki, Andrzej Melke and Marian Szweczyk for submitted samples which have been used in this study.

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## STRESZCZENIE

**[Nowe dane na temat występowania *Micaria nivosa* (Araneae: Gnaphosidae) w Polsce]**

*Micaria nivosa* L. Koch jest rzadko spotykanym przedstawicielem rodziny Gnaphosidae występującym od Środkowej Europy po Azję Centralną. Ten gatunek był wymieniany w Polsce, ale wokół jego stanowisk oraz synonimiki nagromadziło się wiele niejasności. Przeanalizowane dane z piśmiennictwa wykazały, że w Polsce ten gatunek był wykazywany z Wybrzeża Bałtyku oraz nielicznych stanowisk w Karpatach, natomiast stanowisko z Sudetów jest pomyłką i dotyczy innego gatunku – *Micaria micans* (Blackwall). W pracy przedstawiono analizę danych historycznych, omówiono synonimikę, zilustrowano cechy diagnostyczne oraz przedstawiono szereg nowych stanowisk *M. nivosa* na terenie kraju.

*Accepted: 31 March 2022*