



## New data on rare, protected and newly found spiders (Araneae) in the fauna of Poland

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**Abstract:** This study includes 70 new records for 22 rare species in Poland. Two species are new to Poland (*Macaroeris nidicolens*, *Segestria bavarica*) and another three are protected (*Atypus affinis*, *Philaeus chrysops*, *Yllenus arenarius*). Another locality of *Uloborus walckenaerius* was detected, which is the second site of occurrence for Poland (the first in a synanthropic environment). The work provides new data showing that climate change is influencing the spread of southern European species. It has also been shown that anthropogenic activities and technical procedures (consisting of power line maintenance) may have a beneficial effect on the preservation of suitable habitats and the rare species of spiders living there. The obtained results complement the data on the distribution of rare species. For some rapidly spreading species, literature data are incomplete and out of date. This work will partially fill these gaps.

**Key words:** *Macaroeris nidicolens*, *Segestria bavarica*, synanthropic habitats, expansion, anthropopressure

### INTRODUCTION

Climate change and anthropogenic pressure disturb the natural balance and cause changes in species composition, as well as the disappearance or shrink the ranges of populations. Natural habitats are consequently replaced by agricultural or industrialized areas (Gierlasiński et al. 2022a).

Over the past decades, many spiders have been shown to have spread from warmer regions to new areas (Řezáč et al. 2021). Many tropical species reach new places through international transport and trade, appearing in building materials, plants and fruits (Kobelt & Nentwig 2008). However, these are single observations (*Latrodectus mactans*, *Phoneutria depilata*) (Jäger 2009, Rozwałka et al. 2013, 2016b). Small number of animals are able to create isolated populations in favorable places (*Hasarius adansoni*, *Uloborus plumipes*). Synanthropic environments are particularly attractive to them, offering footholds for further expansion (Rozwałka et al. 2013, 2016b).

A significant number of species colonize new areas naturally, gradually overcoming environmental barriers, such as mountains or rivers. These species come from places with a similar climate and are much better adapted to the environment they occupy, creating populations that spread more easily (Řezáč et al. 2021, Szymański et al. 2022b).

The obtained results will help to complement the dynamics of the spread of southern European species in Poland. Some of them (e.g. *Pseudeuophrys lanigera*, *Steatoda triangulosa*) were found in Poland years ago and this work provides further locations illustrating how they adapt to our climate. The first observations concerned the interiors of buildings and

supermarkets, and now these are locations outside homes (Wesołowska & Rozwałka 2008, Rozwałka 2011, Rozwałka et al. 2013, Rozwałka & Szymański 2023).

#### MATERIAL AND METHODS

Spiders were searched for in western and south-western Poland using the hand sampling by scooping spider individuals in 2022–2024. Typical habitats for the sought spiders were searched (mainly in synanthropic habitats). The specimens that could be identified in the field were photographed, and those that required examination under a microscope were taken and identified using the key of Nentwig et al. (2024). The material was preserved in 70–99% alcohol.

The abbreviations used below refer to the authors: Dawid Szymański – DS, Dominik M. Szymański – DMS, Kamil Hurna – KH, Hubert Szymański – HS, Hanna Białas – HB, Sebastian Czczor – SC, Andrzej Pukacz – AP.

Maps of occurrence of the species discussed were generated with MapaUTM ver.6 (Gerlasiński 2024), where red dots mark new records and black dots – records from literature.

#### RESULTS

As a result of the research, 22 species from 10 families were collected. 2 species are new to Poland, 3 protected species, 12 rare species and 5 species of foreign origin increasing the range of occurrence in Poland.

Agelenidae C. L. Koch, 1837

#### ***Textrix denticulata* (Olivier, 1789)**

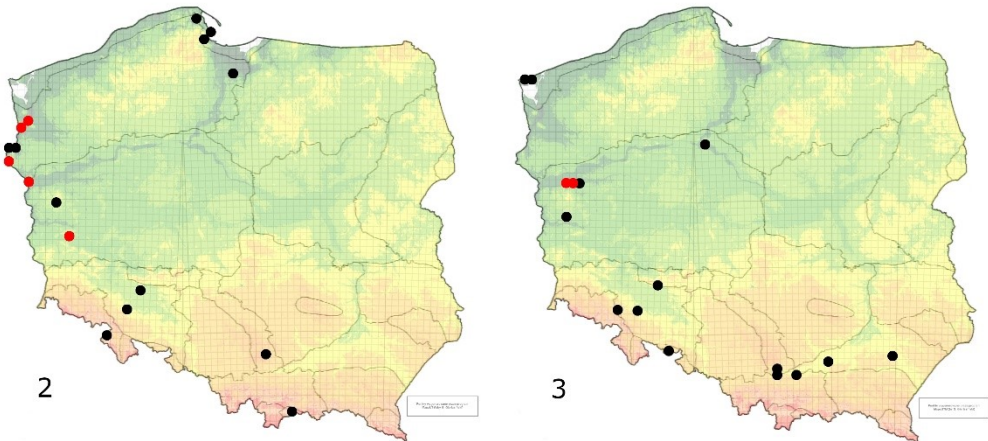
(Figs 1 & 2)



Fig. 1. *Textrix denticulata* (photo DMS).

- Gryfino, Bańska Gate [VV60], many individuals found on nearby streets, garbage shelter, wooden structures of information boards, walls of the buildings in the old town, bark of trees in the city park: chestnut trees and maple-leaved plane trees, 4♀♀, 1♂, 4 juv., 21–22 Jul 2022, leg. HS, DS, DMS;
- Cedynia, Fryderyka Chopina St. [VU45], many nests in shaded walls and in cracks in the bark of trees, 2♀♀, 6 juv., 22 Jul 2022, leg. HS, DS, DMS;
- Kołbaskowo [VV60], walls surrounding the building of the Roman Catholic Church of the Holy Trinity, 2♀♀, 1♂, 11 juv., 30 Oct 2022, leg. HS;
- Szczecin, Radosna St. and Ostowa St. [VV71], remains of fence walls, a wild garbage dump and the bark of old oak trees, 1♀, 4 juv., 31 Nov 2022, leg. HS;
- Zatonie, Zielona Góra, Prince's Park Zatonie [WT34], many individuals sitting on nets in the ruins of the palace, 21 Jun 2023, leg. KH;
- Kostrzyn nad Odrą, Gorzowska St. [VU72], walls separating the railway network, 2 juv., 17 Sept 2023, leg. HS;
- Kostrzyn nad Odrą, Wodna St. [VU72], wild dumps of rubble and garbage, 1♀, 2 juv., 17 Sept 2023, leg. HS;

The species in Poland is recorded from only a dozen or so localities (Gierlasiński & Rutkowski 2023). It inhabits low vegetation, shrubs and also hides under bark, stones, in crevices of rocks, rubble and sometimes in buildings (Prószyński & Staręga 1971, Dziabaszewski 1978).



Figs 2–3. Distribution in Poland: 2 – *Tetrax denticulata*, 3 – *Atypus affinis*.

Atypidae Thorell, 1870

***Atypus affinis* Eichwald, 1830**

(Fig. 3)

- Międzyrzecz District, Krzeszyce-Skwierzyna route [WU12, WU22], a light pine forest with hills, covered with moss, along national road 24 (DK24), many nests with characteristic tubular canals under moss and heather, 22–24 Jul 2023, 19 Aug 2023, 25 Sept 2023, leg. DS, DMS;

A rare and protected species in Poland (Dz. U. 2016, poz. 2183), included in the Red List of endangered and threatened species in Poland (EN category) (Staręga et al. 2002). It is recorded from only a dozen or so locations in the country (Gierlasiński & Rutkowski 2023).

The described site is known for the occurrence of this species. Data from the literature mention a single adult male wandering under a high-voltage power line (Rozwałka et al. 2016a). Monitoring of the surrounding forests along the route along DK24 confirms the presence of a large colony, often with several nests per m<sup>2</sup>.

Gnaphosidae Banks, 1982

***Berlandina cinerea* (Menge, 1872)**

(Figs 4 & 5)

– Bojadła, Cmentarna St. [WT55], inland dune (CYPEL Ecological Site), 1♂, 08 Aug 2023, leg. KH;

A rare species in Poland, recorded from only a few localities (Gierlasiński et al. 2022a). It inhabits dry and sandy habitats, mainly forests, gravel pits and dunes, hiding among lichens and stones (Szymański et al. 2021).



Fig. 4. *Berlandina cinerea* (photo KH).

Pholcidae C. L. Koch, 1850

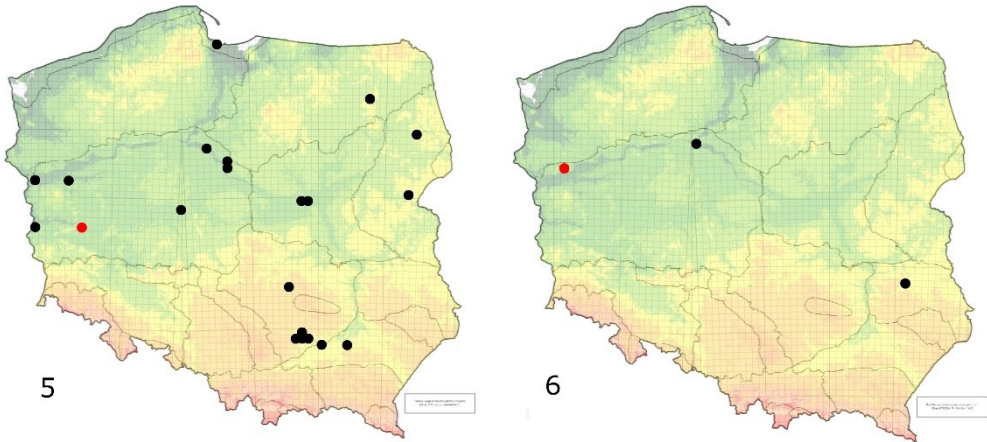
***Holocnemus pluchei* (Scopoli, 1763)**

(Figs 6 & 8)

– Gorzów Wielkopolski, 11 Listopada Av. [WU14], in window recesses, in gutter recesses, under window sills, under roofs at staircase entrances, in the elements of garbage pergolas, between garbage containers and between pallets with paving stones, numerous population (Fig. 4), 16 Sep 2023, leg. HS;



A species originating from the Mediterranean region, which, as a synanthropic species, was introduced to Western and Central Europe. In Poland, it has so far been recorded from several positions inside buildings (Rozwałka & Stachowicz 2010, 2021, Rozwałka et al. 2016b). Due to the prevailing climate in Poland, the survival of the population in this site is uncertain. It is the first example in our country of this species acclimatizing to life outside buildings.



Figs 5–6. Distribution in Poland: 5 – *Berlandina cinerea*, 6 – *Holocnemus pluchei*.

***Psilochorus simoni* (Berland, 1911)**  
(Figs 7, 8 & 9)



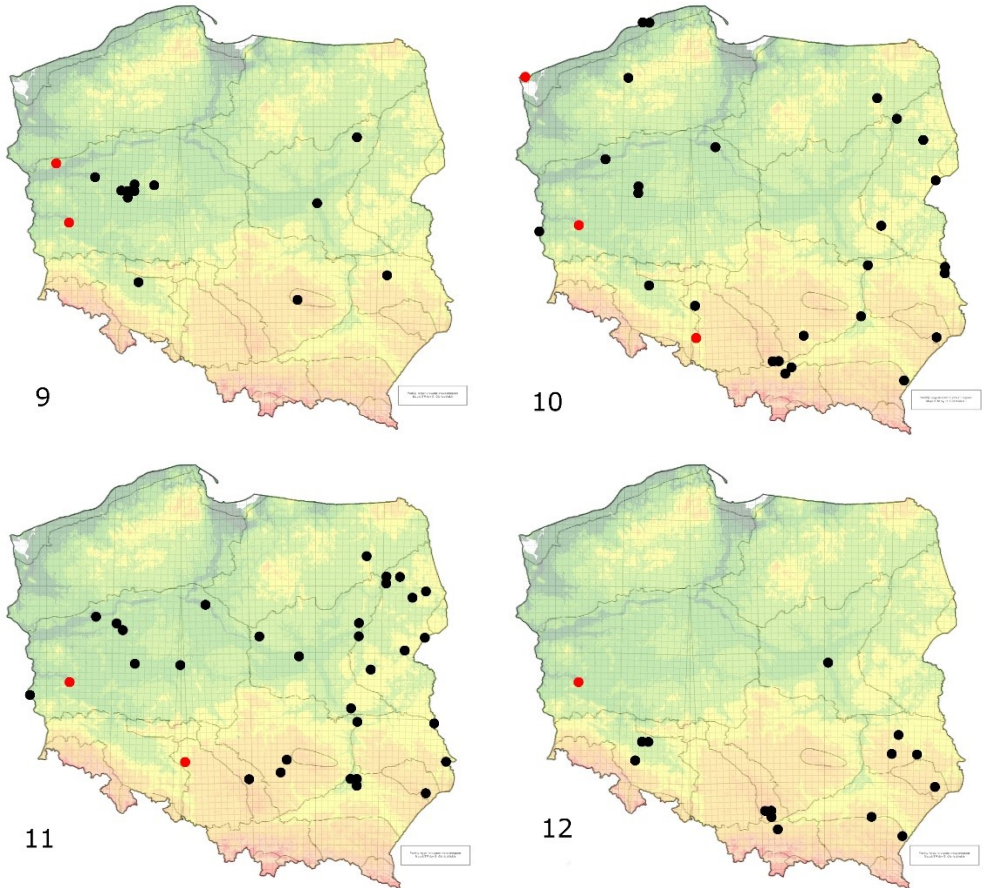
Fig. 7. *Psilochorus simoni* (photo HS).



Fig. 8. Locality of *Holocnemus pluchei* and *Psilochorus simoni* in Gorzów Wielkopolski (photo HS),

- Gorzów Wielkopolski, 11 Listopada Av. [WU14], in window recesses, in gutter recesses, under window sills, under roofs at staircase entrances, in the elements of garbage pergolas, between garbage containers and between pallets with paving stones, large population (Fig. 4), 16 Sep 2023, leg. HS;
- Zielona Góra, Budziszzyńska St. [WT35], inside a block of flats, 1♂, 27 Apr 2024, leg. KH;

Known from several locations in the country (Gierlasiński & Rutkowski 2023). Found mainly in warm basements, where it can form large populations. The species is becoming more and more common, but rarely observed due to its small size (Dziabaszewski 1967, Rozwałka et al. 2016b). Due to the prevailing climate, the observed site does not guarantee population continuity.



Figs 9–12. Distribution in Poland: 9 – *Psilochorus simoni*, 10 – *Attulus saltator*, 11 – *Attulus zimmermanni*, 12 – *Carrhotus xanthogramma*.

Salticidae Blackwall, 1841

***Attulus saltator* (O. Pickard-Cambridge, 1868)**

(Fig. 10)

- Świnoujście [VV57], city beach, coastal dunes, 1♀, 19 Jul 2022, leg. HS, DS, DMS;
- Zielona Góra, Gen. Władysław Sikorski St. [WT35], on the metal railing of the pedestrian and bicycle viaduct, 1 ex., 29 Jun 2023, leg. KH;
- Władysławowo [CF37], coastal dune, 1♀, 4 juv., 2 Aug 2023, leg. KH;
- Raszowa [BA98], railway embankment, 5♂♂, 3♀♀, 22 Apr 2023 12 Apr 2024, leg. SC;
- Kosowce [BB93], inland dune, 1♀, 11 May 2024, leg. SC;

A rare species occurring among sparse vegetation on sandy substrates, often on xerothermic grasslands and on forest edges (Szymkowiak et al. 2022).

***Attulus zimmermanni* (Simon, 1877)**

(Fig. 11)

- Zielona Góra, Gen. Władysław Sikorski St. [WT35], on the metal railing of the pedestrian and bicycle viaduct, 1♂, 09 Jun 2023, leg. KH;
- Kosowce [BB93], inland dune, 2♂♂, 11 May 2024, leg. SC;

A relatively rare species that prefers psammophilous grasslands, dunes and heathlands. Under favorable conditions, it may be one of the most numerous jumping spider (Żabka 1997, Rozwałka & Stachowicz 2021).

***Carrhotus xanthogramma* (Latreille, 1819)**

(Figs 12 & 13)



Fig. 13. – *Carrhotus xanthogramma* (photo KH).

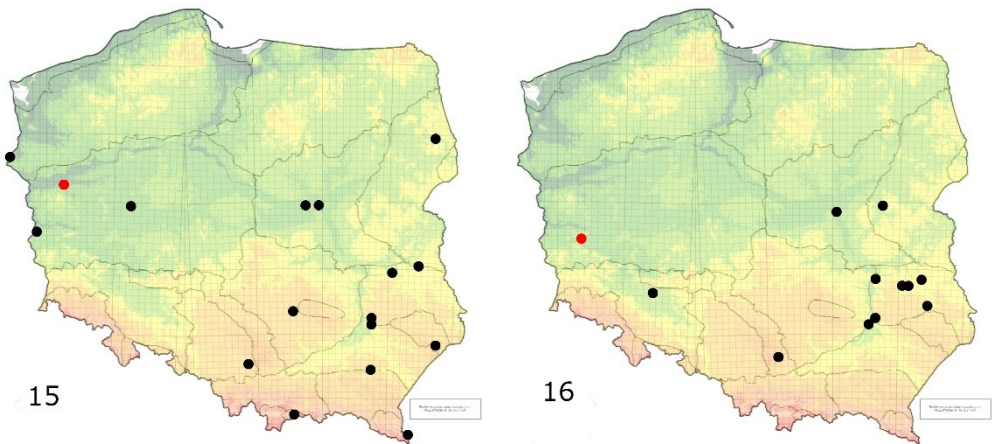
- Zielona Góra, Saint Cyril and Methodius St. [WT35], on a metal railing, 1♀, 21 Oct 2023, leg. KH;
- Zielona Góra, Łużycka St. [WT35], on a steel fence post, 1♀, 30 Mar 2024, leg. KH;
- Zielona Góra, Kraljevska St. [WT35], on a steel fence post, 1♂, 30 Apr 2024, leg. KH;

A thermophilic species recorded in Poland from several locations (Gierlasiński & Rutkowski 2023). Found in warm places among shrubs and on tree trunks (Prószyński & Starega 1971, Żabka 1997, Nentwig et al. 2024).





Fig. 14 – *Leptorchestes berolinensis* (photo KH).



Figs 15–16. Distribution in Poland: 15 – *Evarcha laetabunda*, 16 – *Leptorchestes berolinensis*.



***Evarcha laetabunda* (C. L. Koch, 1846)**

(Fig. 15)

– Międzyrzecz District, Krzeszyce-Skwierzyna route [WU 22], a strip of land located under high voltage power lines, consisting mainly of sand heaths and a nearby pine thicket; 1♂, 1♀, 1 juv., 19 Aug 2023, leg. DS, DMS; 1♂, 25 Sept 2023, leg. DS, DMS;

A relatively rare species (Rozwałka & Stachowicz 2021), recorded in several locations in Poland (Gierłasiński & Rutkowski 2023).

***Leptorchestes berolinensis* (C. L. Koch, 1846)**

(Figs 14 &amp; 16)

– Zatonie, Zielona Góra, Prince's Park Zatonie [WT34], in the ruins of the palace, 1♂, 14 Jun 2023, leg. KH;

A heliophilic species from southern Europe that lives on rocks. It occurs on strongly sunlit building walls or tree trunks near buildings, e.g. in city center parks, cemeteries, or orchards (Rozwałka & Stachowicz 2021). In Poland, known from several locations (Gierłasiński & Rutkowski 2023).

***Macaroeris nidicolens* (Walckenaer, 1802)**

(Figs 17–20 &amp; 23)

– Kędzierzyn-Koźle [BA98], a sunny slope at the bank of the Gliwice Canal, sandy and sparsely vegetated, 1♂, 19 Jun 2023, leg. SC (Fig. 20, 21);

– Kędzierzyn-Koźle [BA98], near the viaduct over the railway crossing, 1♂, 24 Jun 2023, leg. SC (Fig. 22);

– Raszowa, Lipowa St. [BA98], garden near houses, 1♀, 16 Sept 2023; leg. SC;

– Połomia [CA39], forest nursery in the forest, 1♀, 26 Sept 2023; leg. SC;

– Rybnik, Żużłowa St. [CA25], home garden, on young coniferous trees and on a wooden fence, 1♂, 1♀, 3 juv., 27 Apr 2023, 29 Apr 2023 and 11 May 2023, leg. Natalia Fejklowicz, det. HS;

– Utrata [BB90], lake shore, 1♀, 11 May 2024, leg. SC;

– Warszawa, Bukszanowa St. [EC08], garden next to a single-family house near allotment gardens, 1♂, 7 May 2024, leg. Przemysław Jarmoszko, det. KH;

A species of European origin, showing a tendency to spread to new areas in recent years. Its actual range of occurrence is much wider than reported in the literature (Nentwig et al. 2024). The species mainly inhabits tree crowns, but also hedges, shrubs and garden trees. It is possible that in the northern limits of its range is limited to occurrence of trees, mainly pines, providing more places to build shelters (Merrett & Milner 2004). This is the first record of the species in Poland. The presented sites are currently locations constituting the north-eastern border of the species (Arachnologische Gesellschaft 2023, Nentwig et al. 2024).

***Pellenes nigrociliatus* (Simon, 1875)**

(Fig. 24)

– Zielona Góra, Lwowska St. [WT35], the outer wall of the Kaufland supermarket exposed to sunlight, 2♀♀, 25 Sept 2022 and 21 May 2023, leg. KH; 1 juv., 14 May 2023, leg. KH;

– Zielona Góra, A. Mickiewicz St. [WT35], external wall of the Church of Our Lady of Częstochowa exposed to sunlight, 1 juv., 13 May 2023, leg. KH;

– Zielona Góra, Piastowski Forest [WT35], on a scots pine trunk, 1 juv., 19 Jul 2023, leg. KH;

– Bojadła, Cmentarna St. [WT55], inland dune (CYPEL Ecological Site), 1 juv., 22 Jul 2023, leg. KH;

– Gogolin [BA89], biodiversity park, 1 ♀, 9 Sep 2023, leg. SC;

In Central Europe, this species occurs in isolated, warm places, such as xerothermic environments and dunes (Gierlasiński et al. 2022b). In Poland, it is recorded in dozens of locations (Gierlasiński & Rutkowski 2023).



Figs 17–20. *Macaroeris nidicolens*: 17 – male (photo Przemysław Jarmoszko), 18 – ventral side of palp (photo DMS), 19 – habitat of occurrence of *M. nidicolens* on the Gliwice Canal (photo SC), 20 – site of occurrence of *M. nidicolens* near the viaduct over the railway crossing (photo SC),

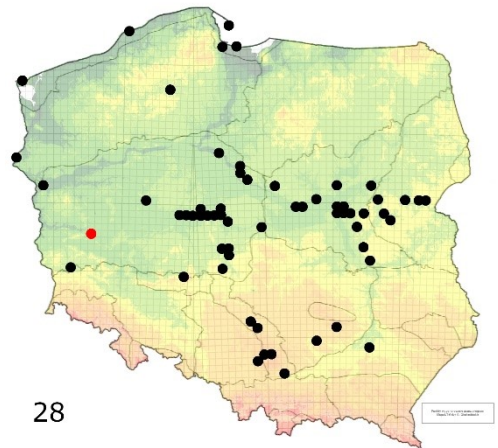
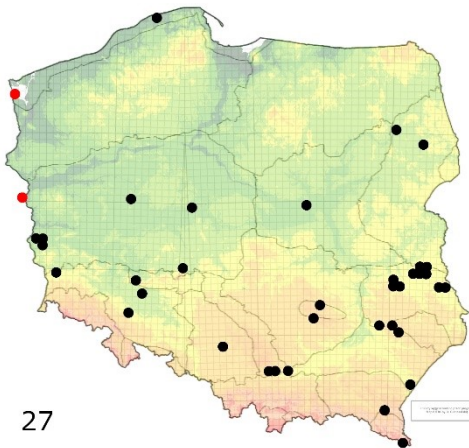
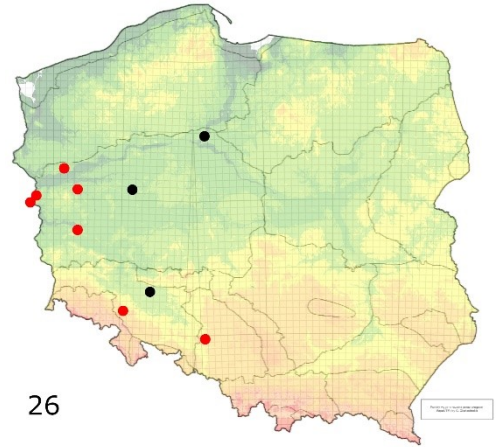
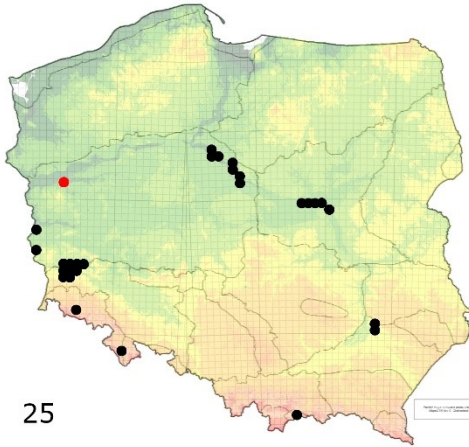
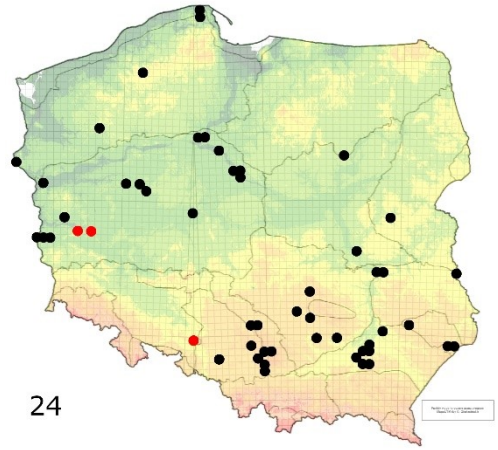
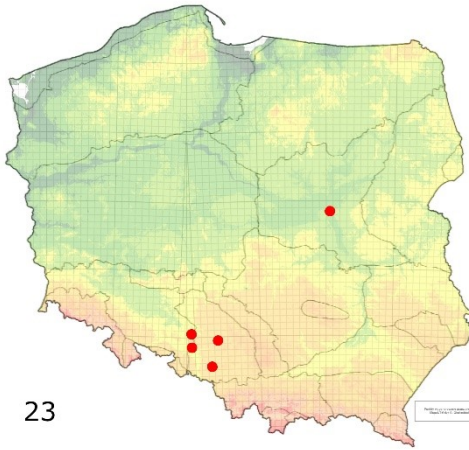


Fig. 21. *Philaenus chrysops* (photo DMS).



Fig. 22. *Yllenus arenarius* (photo KH).





Figs 23–28. Distribution in Poland. 23 – *Macaroteris nidicolens* (new member of Polish fauna), 24 – *Pellenes nigrociliatus*, 25 – *Philaeus chrysops*, 26 – *Pseudeuophrys lanigera*, 27 – *Synageles venator*, 28 – *Yllenus arenarius*.

***Philaeus chrysops* (Poda, 1761)**  
(Figs 21 & 25)

– Międzyrzecz District, Krzeszyce-Skwierzyna route [WU22], a strip of land located under high voltage power lines, consisting mainly of sand heaths and a nearby pine thicket; 5♀♀, 2 juv., 19 Aug 2023, leg. DS, DMS;

It is a thermophilic species inhabiting warm, sunny places and sandy places with psammophilous vegetation, as well as heathlands and wildfire areas (Staręga 1976, Żabka 1997, Stańska 2004, Szymański et al. 2020). In Poland, it is recorded from several isolated locations (Gierłasiński & Rutkowski 2023).

*Atypus affinis* and *Eresus kollari* was recorded at this site (Rozwałka et al. 2016a, 2019). This is an example that even environments heavily transformed by humans guarantee the preservation of rare species. All works related to the maintenance of the power line and measures to prevent increased plant succession along the technical belt play an important element in maintaining an appropriate habitat. A similar beneficial effect of such treatments was observed in Włocławek (Szymański et al. 2022a), in Bobrowniki and in Brzezińskie Holendry (Szymański et al. 2023).

***Pseudeuophrys lanigera* (Simon, 1871)**  
(Fig. 26)

– Słubice, A. Mickiewicz St. [VU70], external wall of the exposed to sunlight, 1♂, 28 May 2023, leg. DS, DMS;

– Słubice, T. Kościuszko St. [VT69], observation deck and the outer wall of the Collegium Pollonicum exposed to sunlight, 10 juv., 29 May 2023, leg. DS, DMS, HB, AP;

– Wrocław, Kotlarska St. [XS46], external wall exposed to sunlight, 1♀, 15 Jul 2023, leg. & doc. phot. Agnieszka Golanowska, det. DMS;

– Zielona Góra, Powstańców Wielkopolskich Square [WT35], external wall exposed to sunlight, 2♂♂, 13 May 2023 and 20 May 2023, leg. KH;

– Międzyrzecz, Ogrodowa St. [WU31], stairs that are part of the platform at the entrance to one of the tenement houses, 1 juv., 18 Sept 2023, leg. HS;

– Gorzów Wielkopolski, 11 Listopada Av. and Szpitalna St. [WU14], a coal chute of one of the tenement houses and the facade of one of the buildings, 1♂, 1 juv., 16 Sept 2023, leg. HS;

– Leśnica [CA09], wall in the city park, 1♂, 8 Jun 2023, leg. SC;

– Świdnica, Kościelna St. [XS03], wall of the church square, 1♀, 10 Jun 2023, leg. SC;

– Świdnica, Market Square [XS03], building wall, 1♀, 10 Jun 2023, leg. SC;

A species originating from the south and west of Europe, spreading northwards. In Poland, it is reported from single observations inside buildings (Wesołowska & Rozwałka 2008, Rozwałka et al. 2013, 2016b). It is much widespread than the literature suggests.

***Synageles venator* (Lucas, 1836)**  
(Fig. 27)

– Nowe Warpno [VV55], shore on Lake Nowowarpieńskie, among vegetation, 2♀♀, 1 juv., 20 Jul 2022, leg. DS, DMS, HS;

– Słubice [VU60], on wooden posts on the banks of the Odra River, 2♀♀, 1♂, 1 juv., 19 Aug 2023, leg. DS, DSM, HB;

A relatively rare hygrophilous species that usually inhabits higher herbaceous vegetation near water and reeds. Also found in wet meadows, sedge areas and various types of peat bogs (Rozwałka & Stachowicz 2021).

***Yllenus arenarius* Simon, 1868**

(Figs 22 & 28)

– Bojadła, Cmentarna St. [WT55], inland dune (CYPEL Ecological Site), 2♀♀, 08 Jun 2023 and 22 Jul 2023, leg. KH;

A species that prefers sandy and dry areas. Found on sand dunes and psammophilous grasslands with sparse vegetation (Bartos & Szczepko 2011, Gierlasiński et al. 2021, Szymański et al. 2021, 2023). It occurs in central and eastern Europe (WSC 2024). In Poland, it is a partially protected species.

Segestriidae Simon, 1893

***Segestria bavarica* C. L. Koch, 1843**

(Figs 29–32 & 37)

– Zielona Góra, Independence Av. [WT35], in a nest on a shaded wall of a tenement house, 1♀, 12 May 2023, leg. KH;

– Zielona Góra, Powstańców Wielkopolskich Square [WT35], in the nest between the external windowsill and the shaded wall of the building, 1 juv., 13 May 2023, leg. KH;

– Zielona Góra, Lwowska St. [WT35], the outer wall of the Kaufland supermarket exposed to sunlight, 1♀, 28 May 2023, leg. KH;

– Zielona Góra, Priest Bishop Wilhelm Pluta Square [WT35], cracks in the shaded exterior walls of buildings and walls, many females and juveniles, 01 Jun 2023 and 10 Aug 2023, leg. KH;

– Rzepin, T. Kościuszko St. [VT89], gap in a brick fence post, 1 juv., 10 Jun 2023, leg. KH;

– Słubice, J. Piłsudski St. [VU70], cracks in the external walls of buildings, 2♀♀, 28 May 2023, leg. DS, DMS (Fig. 25);

– Słubice, A. Mickiewicz St. [VU70], among the cracks in the shadowy walls of buildings, 10 exx, 28 May 2023, leg. DS, DMS; nests among joints and cracks in walls, 16 Jun 2023, leg. HB; nests in cracks and nooks in walls, 22 Jul 2023, leg. DS, DMS, HB;

– Świdnica, Bohaterów Getta St. [XS03], in the cracks of the wall surrounding the parking lot, 2 exx, Jul 2023, leg. SC;

– Ośno Lubuskie, Basztowa Av. [VU91], nests in the cracks of the shaded wall, 09 Jul 2023, leg. HB (Fig. 24);

– Ośno Lubuskie, Różana St. [VU91], nests in the walls of the church of St. James the Apostle, 09 Jun 2023 and 13 Jul 2023, leg. HB;

– Połęczko [VT96], nests among the cracks in an old brick stable, 29 Jun 2023, leg. HB;

– Sulęcín, Młynarska St. [WU01], nests among the cracks of the city walls, 28 Jul 2023, leg. HB;

– Skwierzyna, R. Traugutta St. [WU32], in old, brick, eroding walls in shade and partial shade, 3 juv., 16 Sept 2023, leg. HS;

– Skwierzyna, Stefana Batorego St. [WU32], within the brick walls of the school, 1♀, 16 Sept 2023, leg. HS;

– Skwierzyna, Ratuszowa St. [WU32], in the brick walls and crevices of the concrete fence slabs of the Sanctuary of Our Lady of Klewańska, 2♀♀, 1♂, 4 juv., 16 Sept 2023, leg. HS;



- Skwierzyna, Dworcowa St. [WU32], in the brick walls of the railway station, 2 juv., 16 Sept 2023, leg. HS;
- Skwierzyna, Międzyrzecka St. [WU32], area of the main cemetery, in the cracks of the monument slabs, in the rubble and wooden structures, in the stone wall, 3♀, 11 juv., 16 Sept 2023, leg. HS;
- Międzyrzecz, Poznańska St. [WU32], in the ruins of a building (probably a former railway station), 1 juv., 16 Sept 2023, leg. HS;
- Międzyrzecz, Młyńska St. and Chłodna St. [WU31], in the walls of tenement houses, in gutter recesses, in crumbling facades, in the bricks of a building being dismantled or demolished, under roofing felt and under building window sills, 4♀, 1♂, 4 juv., 16 Sept 2023, leg. HS;
- Międzyrzecz Kazimierz Wielki St. and Głowacki St. [WU31], in eroding brick walls of tenement houses, under wooden elements and in the boards of component structures (shelters, warehouses, extensions), 1♂, 5 juv., 16 Sept 2023, leg. HS (Fig. 30);
- Międzyrzecz, Garncarska St. [WU31], brick walls and elements of the Church of St. Saint John the Baptist, in the decorative elements of the church plot, i.e. wooden crosses, stone embankments, 2♀, 2 juv., 16 Sept 2023, leg. HS;



Fig. 29. Female of *Segestria bavarica* (photo KH).

*Segestria bavarica* C. L. Koch, 1843 is a species found in Europe, Turkey and the Caucasus (WSC 2024). It inhabits rock crevices, stone walls, pine forests, hiding in cracks in the bark, under stones, on semi-arid grasslands, and in synanthropic environments in residential buildings (Nentwig et al. 2024). In Poland, the species was previously recorded from one site (Czajka

1966, 1985), which was considered a misidentifications (Rozwałka in litt., Nentwig et al. 2024). Although this is the first records for Poland, the data obtained and the large number of sites suggest that the species has been present in the national araneofauna for a long time.



Figs 30–32. Site of occurrence of *Segestria bavarica*: 30 – Eroding brick walls (photo HS), 31 – Cracks in the external walls of buildings (photo DMS), 32 – Nests of *S. bavarica* in the walls (photo HB).

Theridiidae Sundevall, 1833

***Dipoena torva* (Thorell, 1875)**

(Figs 33 & 38)

– Zielona Góra, Pionierów St. [WT35], on the shaded external wall of the staircase entrance, 1♂, 31 May 2022, leg. KH;

– Zielona Góra, E. Plater St. [WT35], on the metal railing, 1♂, 13 Jul 2023, leg. KH;

A rare species, known in Poland from about twenty localities (Gierlasiński et al. 2023). Not yet recorded in the Lubuskie Voivodeship. Found mainly on tree trunks, less on the walls of buildings (Stańska et al. 2010). The cephalothorax of males is strongly erect, resembling a cylinder with a characteristic depression on the dorsal side (Nentwig et al. 2024). *D. torva* appears to be a more abundant species than literature evidence would suggest. The small number of caught individuals is due to their close attachment to tree bark.



Fig. 33. *Dipoena torva* (photo Adrian Truchta).

***Steatoda triangulosa* (Walckenaer, 1802)**  
(Fig. 39)

- Opole, Bielska St. [YS01], building wall, 1♂, 24 Aug 2023, leg. SC;
- Strzelce Opolskie, 1 Maja St. [CA09], city wall, 5♀♀, 2 Sept 2023, leg. SC;
- Zielona Góra, S. Wyszyńskiego St. [WT35], building wall, 1 juv., 30 Aug 2023, leg. KH;
- Gorzów Wielkopolski, E. Jancarza St. and F. Chopina St. [WU14], loading ramp and gaps in the walls surrounding the buildings belonging to the Main Railway Station and among fallen bricks and remains of the facade of a building being demolished, 1♀, 6 juv., 16 Sept 2023, leg. HS;
- Kostrzyn nad Odrą, Gorzowska St. and Piastowska St. [VU72], walls separating the railway traction network and gutter depressions and gaps under the window sills of local tenement houses, 3♀♀, 4 juv., 17 Sept 2023, leg. HS;
- Skwierzyna, 2 Lutego St. and Plebańska St. [WU32], the outer wall of the farm building, in the recesses under the window sill and the brick walls and joints of the facades of local tenement houses, 3♀♀, 1♂, 4 juv., 16 and 19 Sept 2023, leg. HS;
- Brynek [CA39], dormitory, building interior, 1 juv., 26 Nov 2023, leg. SC;
- Gogolin [BA89], biodiversity park, 1♀, 9 Aug 2023, leg. SC;



Cosmopolitan species, originating from the Mediterranean region. In southern Europe, it mainly inhabits warm, natural biotopes, also living among stones and cave inlets. In Poland, the species was initially found in supermarket chains (Rozwałka 2011, Rozwałka et al. 2013). Currently also observed in the natural environment, which is confirmed by Rozwałka & Szymański (2023) and the presented data.

Thomisidae Sundevall, 1833

***Synema globosum* (Fabricius, 1775)**

(Figs 34 & 40)

- Zatonie, Zielona Góra, Prince's Park Zatonie [WT34], 1♀, 14 Jun 2023, leg. KH;
- Brynek, Parkowa St. [CA39], meadow, 1♀, 11 May 2023, leg. SC;
- Brynek [CA39], sunny forest road, 1♀, 29 May 2023, leg. SC;
- Turowa, Marszałki [BB92], drainage ditch, 1♀, 24 Aug 2023, leg. SC;
- Nowa Sól, Freedom Ave. [WT43], on a plastic garden statue, 1♂, 29 Apr 2024, leg. KH;

In Poland, the species is considered as rare, recorded from several dozen localities, and in the Lubuskie Voivodeship so far only from one (Gierłasiński & Rutkowski 2023). It inhabits warm and dry biotopes, actively hunting on the surface of flowers and leaves of low plants (Gierłasiński et al. 2023).



Fig. 34. *Synema globosum* (photo KH).

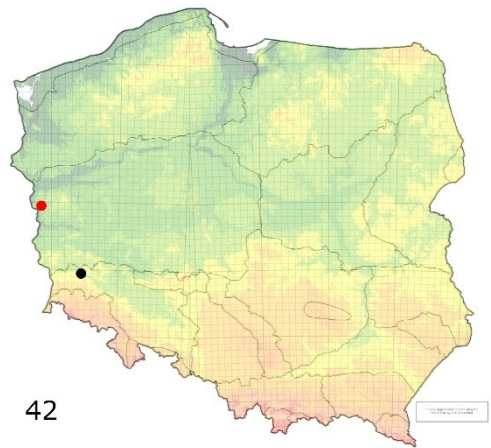
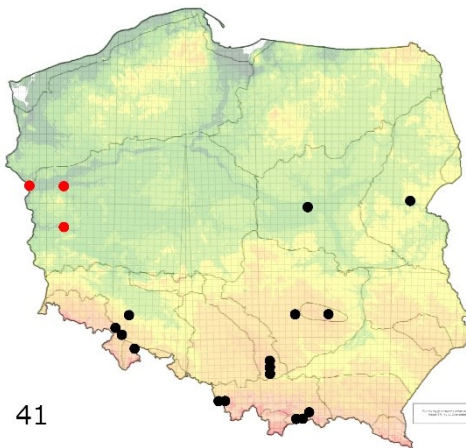
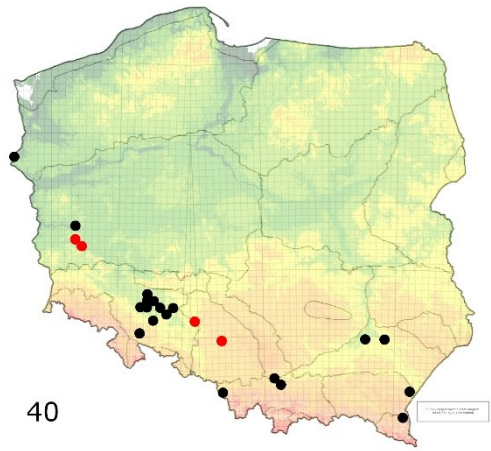
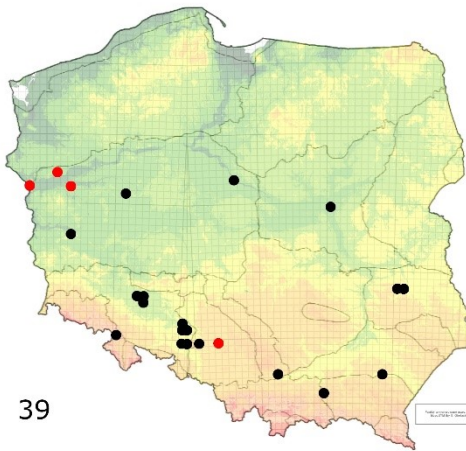
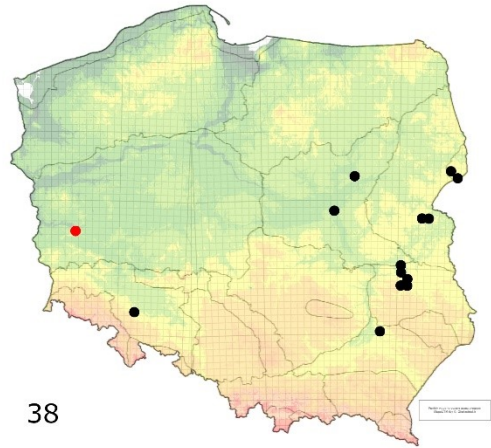
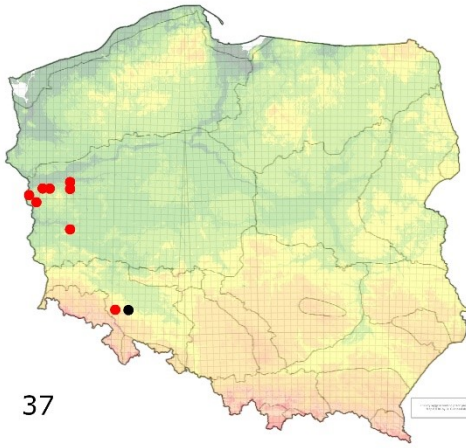


Fig. 35. *Titanoeca quadriguttata* (photo KH).



Fig. 36. *Uloborus walckenaerius* (photo KH).





Figs 37–42. Distribution in Poland: 37 – *Segestria bavarica* (new member of Polish fauna), 38 – *Dipoena torva*, 39 – *Steatoda triangulosa*, 40 – *Synema globosum*, 41 – *Titanoeca quadriguttata*, 42 – *Uloborus walckenaerius*.



Titanoecidae Lehtinen, 1967

***Titanoeca quadriguttata* (Hahn, 1833)**

(Figs 35 & 41)

- Brody [WT26], edge of the pine forest, on the underside of the stone, 1♂, 23 Sept 2023, leg. KH;
- Międzyrzecz District, Krzeszyce-Skwierzyna route [WU22], technical belt located under power lines, consisting mainly of sand heaths on the edge of a pine forest, 2♀♀, 4♂♂, 16 Sept 2023, leg. HS;
- Kostrzyn nad Odrą, Wodna St. [VU72], wild dumps of rubble and garbage, 2♀♀, 1♂, 17 Sept 2023, leg. HS;

The species is recorded from a few localities mainly in the south and a few localities in the east of Poland (Gierlasiński & Rutkowski 2023). It lives in dry, sunny places, hiding under stones (Prószyński & Staręga 1971).

Uloboridae Thorell, 1869

***Uloborus walckenaerius* Latreille, 1806**

(Figs 36 & 42)

- Rzepin, Bohaterów Westerplatte St. [VT89], a web with a spider in a recess in the outer wall of a residential house, 1♀, 10 Jun 2023, leg. KH;

In Central Europe, the species is rare, prefers warm and open locations, usually heathlands (Wiśniewski & Dawidowicz 2017, Nentwig et al. 2024). So far, it has been recorded only from one site in Poland (Wiśniewski & Dawidowicz 2017).

DISCUSSION

Climate change, warmer summers and milder winters mean that more species come to our country from warmer regions, usually from southern Europe. Species gradually adapt, able to change their physiology and, among other things, increase tolerance to low temperatures at higher latitudes (Kumschick et al. 2011, Krehenwinkel & Tautz 2013). The study provides data on the spread of several southern European species in Poland. Particularly many records were obtained for *P. lanigera* and *S. triangulosa*. The first populations outside buildings were detected for *H. pluche* and *P. simoni*. The results will allow us to understand the rate of spread and adaptive capabilities of such species.

Most likely they cross the border from the west - crossing the river and from the south - the mountains (as in the case of *M. nidicolens*, *S. bavarica*). Quick invasion of some species is obviously facilitated by a remarkable ability and tendency to disperse by ballooning (Řezáč et al. 2021). Over recent years, it was observed that a new species appeared every year (Wesołowska & Rozwałka 2008, Rozwałka et al. 2013, 2016, Wiśniewski & Dawidowicz 2017, Szymański et al. 2022b, Gierlasiński & Wrzoł 2023). Undoubtedly, human activities also play a large part in their spread (Jäger 2009, Rozwałka et al. 2013, 2016b).

An interesting aspect is the fact that areas subject to strong anthropopressure, such as technical strips under power lines, located in an appropriate environment, become refuges for rare and protected species. Technical treatments prevent overgrowth and plant succession, which helps maintain an appropriate habitat. Such relationships have also been demonstrated previously (Szymański et al. 2022a, 2023).

Data on the past and present distribution of the species presented may allow for a better understanding of their dispersal paths.

Many species may have become extinct in large parts of the Palearctic during the glaciation (Krehenwinkel et al. 2016). Their ranges were limited to warmer, southern areas and gradual climate changes favor their spread north. We have been observing the appearance of thermophilic species in Poland for years (Woźny & Siwek 1996, Wesołowska & Rozwałka 2008, Rozwałka & Czaja 2021, Gierłasiński & Wrzół 2023).

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The authors of the work would also like to honor the tragically deceased prof. UAM dr hab. Andrzej Pukacz, who, as a hydrobiologist, was actively involved in searching for spiders, learning about the local araneofauna and searching for locations where the discussed species occur. Rest in peace.

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## STRESZCZENIE

**[Nowe dane o rzadkich, chronionych oraz nowo stwierdzonych gatunkach pająków (Araneae) w faunie Polski]**

W pracy przedstawiono nowe stanowiska dla 22 rzadkich gatunków pająków w Polsce. Dwa gatunki pająków: *Macaroeris nidicolens* (Walckenaer, 1802) oraz *Segestria bavarica* C. L. Koch, 1843 są nowe w faunie Polski. Trzy gatunki pająków (*Atypus affinis*, *Philaeus chrysops*, *Yllenus arenarius*) podlegają ochronie. Dalszych 12 (*Textrix denticulata*, *Berlandina cinerea*, *Attulus saltator*, *Attulus zimmermanni*, *Carrhotus xanthogramma*, *Evarcha laetabunda*, *Pellenes nigrociliatus*, *Synageles venator*, *Dipoena torva*, *Synema globosum*, *Titanoeca quadriguttata*, *Uloborus walckenaerius*) zaliczanych jest do rzadkich w naszym kraju. Natomiast pięć gatunków (*Holocnemus pluchei*, *Psilochorus simoni*, *Leptorchestes berolinensis*, *Pseudeuophrys lanigera*, *Steatoda triangulosa*) jest obcego pochodzenia i rozszerza swój zasięg występowania w Polsce. Praca dostarcza nowych danych dotyczących oddziaływania zmian klimatu na rozprzestrzenianie się gatunków południowoeuropejskich. Uzyskane wyniki wskazują, że działalność antropogeniczna sprzyja tworzeniu nowych siedlisk dla wielu rzadkich gatunków pająków.

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