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New data on the distribution of *Pellenes nigrociliatus* (L. KOCH, 1875)
(*Araneae: Salticidae*) in Poland

SUMMARY

This paper presents the known from literature and newly discovered sites of *Pellenes nigrociliatus* (L. KOCH) in Poland. On the basis of its distribution the author suggests that Polish sites of *P. nigrociliatus* confirm different tracks through which this species reached the area of Poland.

STRESZCZENIE

Pellenes nigrociliatus (L.KOCH) (*Araneae: Salticidae*) jest bardzo rzadkim gatunkiem ksero- i termofilnym występującym w Polsce na izolowanych stanowiskach. W pracy przedstawiono rozmieszczenie tego gatunku na terenie Polski, zanalizowano i sprecyzowano informacje o jego preferencjach siedliskowo-środowiskowych oraz przedstawiono hipotezę, że rozmieszczenie krajowych stanowisk *P. nigrociliatus* świadczy o odrębnych szlakach migracyjnych, jakimi ten gatunek wkroczył na teren Polski.

K e y w o r d s: *Pellenes nigrociliatus*, distribution, Poland

Pellenes nigrociliatus (L. KOCH) is a xerophilous and thermophilous species with Southern-Euroasian distribution. It is recorded from Canary Islands in the west, through the lands of the Mediterranean Sea and Black Sea, southern Russia, Tajikistan, to China in the east (FUHN & GHERASIM 1995; METZNER 1999). In Western and Middle Europe it is rarely recorded and from isolated sites (BUCHAR, RŮŽIČKA 2002; GAJDOŚ et al. 1999; PRÓSZYŃSKI & STAREGA 1971; STAUDT 2007; ŻABKA 1997).

In Poland *Pellenes nigrociliatus* (L. KOCH) was recorded for the first time in Toruń (DENIS & MIKULSKA 1960; MIKULSKA 1961). That locality has disappeared due to progressive urban development (oral inf. of W. STAREGA). In the 80's of the past century, this species was still found in Toruń, in the areas strongly destroyed by industrial emissions (STAREGA 1984). In the *Critical List of Spiders of Poland* STAREGA (1983) gave unspecified information about the occurrence of this rare species in the Lublin Upland. In another paper of STAREGA (1996), *P. nigrociliatus* was mentioned from Smolnica near Gliwice, among spiders inhabiting mine dumps in the initial stages of ecological succession. In the same paper STAREGA (1996) reconsidered the occurrence of this species in the vicinity of Puławy in the Lublin Upland adducing the paper of PUSZKAR. This paper (PUSZKAR 1983b) was meant to be the basis for including this species among species recorded from the Lublin Upland in the *Critical List of Spiders of Poland* (Starega 1983). Unfortunately, in PUSZKAR's paper (1983b) which was used by STAREGA (1983, 1996) there is no information about *P. nigrociliatus*. There is also no data about occurrence of this spider species in larger compilation treating invertebrates of the areas polluted by industrial emissions (PUSZKAR 1983a). The last paper which mentioned about the record of *P. nigrociliatus* in Poland was the compilation of ŻABKA (1997). The locality from Machnowska Góra near Tomaszów Lubelski (ŻABKA 1997) was included based on the accessible data of the author of this paper. It can be concluded that *P. nigrociliatus* had been given from Poland

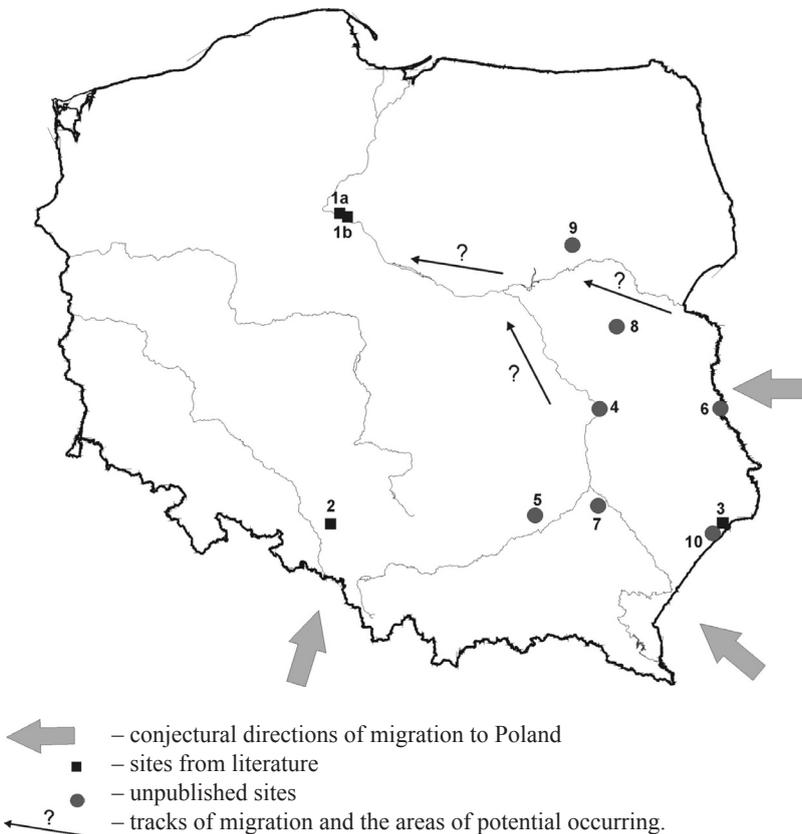


Figure 1. Sites of *Pellenes nigrociliatus* (L. KOCH) in Poland and conjectural ways and directions of migration

from 3 sites (Toruń, Smolnica, Machnowska Góra (Fig. 1, sites 1–3) because the site in the vicinity of Puławy was not confirmed by literature.

Thanks to the courtesy of T. PUSZKAR, the author of this paper got the card file with identifications of materials from the polluted by industrial emissions areas of SE Poland. The identifications by W. Starega and partly saved evidence materials showed that *P. nigrociliatus* occurred in the areas destroyed by the emissions from Nitrogen Plants in Puławy. In the obtained card file there was also one more unpublished site, situated in the area of sulphur mine in Dobrów near Busko-Zdrój (Tab. 1). For no particular reasons PUSZKAR (1983a,b) did not include this species in his papers. By implication the information by STAREGA (1983, 1996) about the occurrence of *P. nigrociliatus* in the vicinity of Puławy was confirmed. Moreover, during studies conducted in the area of southern and eastern Poland, the author of this paper has found new sites of the described species. While making the compilation of the sites known until now, unpublished information given by Prof. W. STAREGA was also included (Tab. 1, Fig. 1).

During analysing the map of distribution *P. nigrociliatus* it can be presumed that this species inhabited Poland by three tracks (Fig. 1). The site from the vicinity of Gliwice (STAREGA 1996) (Fig. 1, site 2) shows that *P. nigrociliatus* could pass through the Moravian Gate and then move along the River Odra valley and its tributaries. However, the remaining information from eastern Poland pinpoints the migration from the Ukraine. Sites from Bełżec, Machnowska Góra, Stulno by the River Liwiec (Fig. 1, sites 3, 6, 8, 10) and Kałęczyn probably (Fig. 1, site 9) suggest Wołyń track connected with the River Bug and its tributaries. However, the occurrence of *P. nigrociliatus* in the vicinity of Rozwadów and Dobrów show the track along Precarpathian crucibles – the basins of the River Dniestr and San (Fig. 1, sites 5, 7). Situated between Wołyń and Precarpathian tracks, woody Roztocze is a natural barrier which speaks for the acceptance of such hypothesis. Moreover, the existence of two different tracks from the area of the Ukraine is also associated with the distribution of watercourses. Rivers and river valleys facilitate directly (passive water transport, air currents?) or indirectly (the occurrence of suitable, in this case – xerothermic, habitats on slopes of valleys) the distribution of many southern species (STAREGA 1984). The lack of information about the occurrence of *P. nigrociliatus* in the studied area with respect to arachnology area of the upper River Wisła speaks for the migration along the Carpathian arch (PRÓSZYŃSKI, STAREGA 1971; STAREGA 1976, 1983).

The presented data shows that there is a big chance of discovering next localities of *Pellenes nigrociliatus* in Poland. The valleys of the middle River Wisła and the lower River Bug should be penetrated in detail due to the occurrence of the suitable xerothermic habitats for this species. The indirect evidence of the occurrence of other unknown habitats of *P. nigrociliatus* in Poland can be the occurrence of this species in the areas of strong anthropopressure. Four from nine mentioned in this paper sites come from strongly changed areas by activity of man: Toruń (STAREGA 1984), Dobrów and Puławy (unpublished data of T. PUSZKAR) and Smolnica near Gliwice (STAREGA 1996) (Tab. 1, sites 1, 2, 4, 5). The occurrence of *P. nigrociliatus* in strongly degraded areas by industrial emissions or in newly created man-made habitats (fresh dumps of mine wastes, deforested areas, gravel-pits) would be less probable if there were no other populations of this spider in adjacent areas. Moreover, the fact that the occurrence of *P. nigrociliatus* in above mentioned newly created ecological niches shows that this species can be regarded as a pioneer species. At the same time this fact suggested high immunity and high adaptative abilities of this species for variable habitat conditions.

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Table 1. Evidence of sites of *Pellenes nigrociliatus* (L.K.) in Poland, number of site corresponds with Figure 1

No	Sites from literature	Locality	Habitat of occurrence	UTM localization
1a	Denis and Mikulska 1960; Mikulska 1961	Toruń suburbs	– sandy, strongly insulated, poorly covered with vegetation scarp with southern exposition	CD 37
1b	Starega 1984	Toruń suburbs	– lawn within „Polchem” Chemical Plant – degraded by industrial emissions mentioned above mentioned xerothermic lawn – recultivation zone within „Polchem” Chemical Plant poorly covered with <i>Dactylis glomerata</i> and other grasses	CD 37
2	Starega 1996	Smolnica near Gliwice	– ca. 5-year-old dump with mine wastes in the initial stages of succession	CA 37
3	Żabka 1997 (according to leg. et det. R. Rozwałka)	Machnowska Góra near Tomaszów Lubelski	– calcareous xerothermic lawn (<i>Brachypodio-Teucrietum</i>) on initial rendzina	FA 88
	New and unpublished sites			
4	leg. T. Puszkak, det. W. Starega	Rudy-Puławy	– pine forest degraded by industrial emissions – deforested areas due to industrial dust fall-out – the areas of early recultivation stages – on sandy bottom	EB 79
5	leg. T. Puszkak, det. W. Starega	Dobrow near Busko-Zdrój	– areas degraded by sulphur output	EA 09
6	leg. et det. R. Rozwałka	Stulno by the River Bug	– psammophilous lawn (<i>Spergulo vernalis-Corynephorretum</i>) on inland dune near the River Bug	FB 89
7	leg. T. Hufleit et M. Łuszczak; det. R. Rozwałka	Vicinity of Rozwadów; arboretum, section 88	– young pine cultivation on sand	EB 60
8	leg. J. Jankowska det. M. Żabka; (oral inf. of W. Starega)	Reserve Gołobórz near Siedlce	– dunes and psammophilous lawns situated in the valley of the River Lwicz	EC 87
9	leg. A. Chodkowski, det. W. Starega (oral inf. of W. Starega)	Kałęczyn near Maków Mazowiecki	– dry, strongly insulated slope of a gravel-pit with southern exposition	ED 16
10	leg. et det. R. Rozwałka	Bełżec near Tomaszów Lubelski	1–2 year young pine cultivation on sand (recultivation of old sand-mine)	FA 68

cerning the Sandomierz Forest. Moreover, exceptional thanks are given to Prof. W. Staręga for obtained information and the access to unpublished data.

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