SUMMARY

New localities of Atypus muralis Bertkau, 1890 in the Vistula valley

Eleven colonies of *Atypus muralis* – a rare and endangered spider species – were found along a 45-km section of the Vistula valley between Koprzywnica and Annopol (E Poland). Only two of these sites had previously been mentioned in literature. All the localities of *A. muralis* have similar flora and habitat conditions, i.e. xerothermic vegetation (*Potentillo-Stipetum capillatae, Sisymbrio-Stipetum capillatae, Koelerio-Festucetum sulcatae, Adonio-Brachypodietum pinnati*) located on loess exposed to the south. An additional factor, which positively influenced the number of colonies, was a small concentration of turf. The invasion of high perennials (e.g. *Solidago, Tanacetum*) or creation a compact turf (*Calamagrostis*) resulted in decrease in colony density and a visible weakness of the silk tubes. Also the overgrowth of xerothermic grasses by a bushy vegetation of *Rhamno-Prunetea* class is leading the colonies to die out quickly as a result of excessive shading of the ground.

The largest colony (an area of ca 8–10 ha and population over 1 mln ind.) was located in the S- and SSW facing loess slopes in the "Góry Pieprzowe" reserve near Sandomierz (50°41' N, 21°45' E). Remaining colonies were considerably smaller. Four of them should be regarded as strongly endangered on account of the small area, small population density, and serious threat due to anthropogenic alteration or succession of woodland vegetation. The smallest and most endangered colony was found in the Złota village south of Sandomierz. It barely encompassed 15 m² of a steep slope and less than 30 silk tubes of adult A. muralis were found there. The remaining endangered colonies were located in Samborzec (<300 ind.), and on slopes between Winiarki and Pogórze (<100 ind.) and between Dwikozy and Winiarki (3000-5000 ind.). Investigations carried out south of Sandomierz let one assume that significantly more populations of A. muralis had existed there earlier. They were destroyed during management of hillsides in suburban areas (i.e. when slopes were converted into orchards, also by the building of driveways, by exploitation of gravel deposits, etc.). Also north of Sandomierz there were surely more populations in the not so distant past. They became extinct as a result of plant succession leading to the overgrowth of xerothermic grasslands by bushy vegetation. Robinia pseudaccacia, a strongly expansive alien species is especially dangerous in this region. Therefore, an effective protection

of *A. muralis* needs monitoring of their habitats and application of some procedures necessary to limit plant succession (e.g. removal of shrubs, controlled grass burning).

The current knowledge of the occurrence of *A. muralis* in Poland seems to be not enough. Probably there are some undiscovered localities of this species, e.g. in the valleys of the lower Vistula and Oder. More inventory research on population density, distribution, and age composition is also needed to develop more effective methods of protection. This is important, because *A. muralis* (as well as other *Atypus* species) may be helpful in protection of xerothermic grasslands as an umbrella species.