COMPARISON OF ECOLOGICAL REQUIREMENTS OF GROUND-DWELLING AND GRASS-DWELLING SPIDERS IN THE APŠUCIEMS FEN

Maija Štokmane, Voldemārs Spuņģis
University of Latvia, Faculty of Biology
Address: Kronvalda blvd. 4, LV–1586, Riga, Latvia
E-mails: hidra4@inbox.lv; voldemars.spungis@lu.lv

Calcareous fens are Annex I priority habitats in the Habitats Directive (EC 1992). These fens are habitats of outstanding conservation value, because they are characterized by the presence of many rare and threatened species. Unfortunately, calcareous fens are becoming increasingly rare in Europe. As a result, many wetland plant and animal species are nowadays considered endangered which is also true for spiders (Koponen 2003).

Currently, only a small amount of published literature exists on spider ecology in fen ecosystems. Thus in the present study we aimed to investigate ground-dwelling and grass-dwelling spider ecology in the Apšuciems calcareous fen. We also tried to compare both these spider groups, because the comparison between ecological demands of different habitat layer spiders is especially lacking.

The study was carried out in fen Apšuciems in 2012. The sample plots were laid out regularly in the whole fen, and in total 57 plots were established. Since our aim was to gather both ground-dwelling and grass-dwelling spiders, we used two different spider collection methods – sweep netting and pitfall trapping, respectively. The vegetation was also described in each sample plot.

Altogether 2,937 spider specimens were collected, representing 80 spider species. Among them, 55 species were ground-dwellers, but 25 – grass-dwellers. Diversity indices showed that ground-dwelling spider species diversity in the Apšuciems fen was higher than that of grass-dwelling spiders. In the ground-layer the most abundant spider family was Lycosidae, but in the grass-layer – Pisauridae. In turn, the dominant spider family in terms of species in the ground-layer was Linyphiidae, but in the grass-layer – Araneidae. Throughout both the ground-layer and the grass-layer the numerically dominant foraging guild was the sit-and-wait ambushers, while the web spinners were a guild with the largest number of species. The most abundant ground-dwelling spider species were *Trochosa terricola*, *Antistea elegans*, *Piratula hygrophilus*, *Zora spinimana* and *Hygrolycosa rubrofasciata*, but the most abundant grass-dwelling spider species were *Dolomedes fimbriatus*, *Evarcha arcuata* and *Oxyopes ramosus*. The vast majority of spiders were positively correlated with the plant species richness and plant diversity in the fen, while vegetation height had a negative impact on spiders. Generally, the vegetation characteristics were more influential on grass-dwelling spiders.

References

EC, 1992. European Community Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Official Journal of the European Communities, Brussels.

Koponen S. 2003 Ground-living spider communities (Araneae) on boreal and hemiboreal peatbogs. Biodiversity and conservation of boreal nature. Proceedings of the 10 years anniversary symposium of the Nature Reserve Friendship. – The Finnish Environment 485: 212–215.