Abstract

Factors determining plant species composition and species diversity of former fields in Slavkovský les

The secondary succesion is relatively thoroughly examined phenomenon, but quite little is known about wet secondary grasslands developed on the former farmland. There is a large number of abandoned fields in the Slavkovský les protected landscape area, western Bohemia, which occuring on mesic to wet soil. For this study an area surrounding Ovesné Kladruby hamlet was chosen.

The aim of this thesis is to explore, which plant species can occur on the former fields and how the species composition and species diversity is effected by environmental and historical factors, such as soil properties, distance from an old grassland and the age of the field.

I made 190 phytosociological relevés and noted 215 species of vascular plants. Some rare species were also present, e.g. an orchid *Dactylorhiza majalis* and state protected species *Triglochin palustre*. Species composition data were explored using multivariate analyses and species diversity data using linear regression.

Species composition was effected mainly by soil properties. The effect of soil nitrogen and phosphorus content was the strongest one. Soil nitrogen content was positively correlated with soil moisture and on such localities mainly wetland plants were present. Those fields ranked usually among the oldest ones, i.e. about sixty years old.

Phosphorus rich fields were much dryer and ruderal plants occurred there. Those fields were abandoned quite recently (about fifteen years ago) and had higher pH and potassium content as well, probably due to previous fertilization. Higher content of phosphorus also resulted in significantly decreasing species diversity.

Distance from an old grassland had significant effect on species composition of the youngest fields only.

Ellenberg's idicator values have only limited use in the studied old fields. Just the Ellenberg's value for moisture provided valuable information about soil water holding capacity.

Overall, most of the observed abiotic factors were influenced by the age of field and thus, through the years, abandoned fields in Slavkovský les are getting wetter, soil nitrogen content is increasing whereas the other nutrients tend to decrease. In correspondence with this, the species composition is gradually changing and species diversity is increasing.

Key words: former field, wet secondary grassland, Slavkovský les, species composition, species diversity, environmental conditions, history