

Abstract

In this thesis I deal with various aspects of influence of clearings on plant communities in NP Podyjí. Special space is dedicated to light-demanding, threatened and alien plant species, and their response to light improvement. The area of the Podyjí NP has been used by people continuously for a very long time. There is therefore a whole range of plant species, linked to a certain anthropogenic disturbance regime.

I observed the development of plant communities using phytocenological relevés on six pairs of clearings (isolated and connected with open habitats), created in 2011 and 2012. At the same time, I also investigated the adjacent closed-canopy forests and open forests on the edge of the canyon. During the first year after cutting, there was a significant increase in diversity and species cover in the clearings. In the following years, significant changes took place on isolated clearings, as the zone of closed-canopy forest delayed low colonization by new individuals in first years. In the clearings, diversity and abundance of plants were significantly higher than in the closed-canopy forest and open forest. The number of endangered plant species was the highest in open forest. Several unique species of endangered plants have been recorded on clearings. These species have not been found in any other biotope. At the same time, however, there was a significant increase in the number of alien (including invasive) plant species in the clearings compared to other studied biotopes. Due to the increased availability of nutrients after cutting, higher number of nitrophilic, strongly competitive species was also found on the clearings.

The species composition of the open forests differed significantly from the other three studied habitats. So we can reject the hypothesis that the species of open forests will be the main colonizers of the newly created clearings. The communities in the clearings included both closed-canopy forest species and light-demanding species of plants. I suppose that composition of plant species on both types of clearings will change significantly in the following years. The communities of the clearings isolated in the closed-canopy forest and the clearings connected with the open habitats have been distinctly different. Isolation of the clearings has a significant influence on the development of the community; zone of closed-canopy forest operate as a barrier to species spread.

Soil samples were taken from the clearings and from the closed-canopy forests to determine composition of the seed bank. The seed bank in the clearings does not resemble either

of the four studied habitats. Similarly, the seed bank of the closed-canopy forest contains a large number of unique species not found in the other habitats. I suppose that both seed banks contain seeds from other communities. We can also speculate about the survival of seeds from the time of active management in these forests.

The results of this work show that increase of light availability in the preserved coppice-woodland in NP Podyjí had a positive influence on the plant communities. If we will introduce suitable management to remove the excess nutrients from the system, we can suppose that the diversity of both endangered and light-demanding species will also be encouraged in the future.

key words: clearings, NP Podyjí, diversity, protected plant species, alien plant species, vegetation development, light, lowland forests, management