

Abstract

Thermophilous oak forests are a habitat characterized by a large diversity of vascular plants. In the case of open canopy woodlands, the diversity of the herb undergrowth is enhanced by the significant heterogeneity of the environment. It can be demonstrated for example at the Dětaň Chlum in neighborhood of the Doupovské hory Mts. However, it has not yet been fully known which natural characteristics have the most significant influence on the formation of such a diverse vegetation. One of the possible causes can be found in historical management. Therefore, this work provides some insight into the history of forest management in the Podbořany region based on archival materials such as Historical Forest Survey, Management Plans or Archive Maps. The obtained information is to a large extent surprising. It has been shown that coniferous stands with a long time of timber extraction have dominated the Dětaň chlum in the past. However, this contradicts the assumption that it is an ancient oak coppice, as suggested by the current appearance of vegetation with a high incidence of polycormones in the local nature reserve.

To find out the environmental causes of the current heterogeneity of vegetation, I used the CANOCO statistical program to analyze the dependence of my own phytosociological data on selected environmental characteristics on different spatial scales. To increase the informative value, I included Ellenberg's indication values in the resulting graphs. The results show that the heterogeneity of vegetation is to some extent conditioned by light, both direct and diffuse. The absence of an explanatory soil nitrogen content is surprising. All measured soil variability is made by phosphorus.

Another outcome of this work is the comparison of species recorded by me with the findings of other authors who have been focusing on the main area of interest in more detail floristic way. The comparison suggests the disappearance of some protected species such as *Orchis mascula* subsp. *speciosa* or *Cornus mas*. On the other hand, it is possible to read the spread of invasive *Impatiens parviflora* from the data. It can be described as a success that the endangered species *Antennaria dioica* and *Polygala chamaebuxus* were found again after some time and *Galeopsis laudanum* was found for the first time in this area.

Keywords: Podbořansko region, Dětaňský chlum, thermophilous oak forests, woodland-steppe, heterogeneity of vegetation, soils, phosphorus, nitrogen, historical management