

Abstract

Spruce forest is an important production ecosystem for our civilization. Its development can be affected by three main types of disturbances: forest fire, windstorms and spruce bark beetle attack. Experiences with a massive and long-term attack of spruce bark beetle in the Šumava mountains and a strong windstorm in 2004 in the spruce forest in the High Tatra provoke questions, how natural are such severe disturbances. To understand the current development of forest ecosystems, it is necessary to study past structure of these forests and frequency of forest disturbances.

This work is about locality Tatranská Lomnice located in the High Tatra mountains, in the belt of mountain spruce forest. In my work, I used mainly pollen and plant macro-fossils analyses. I compared my data with disturbance information originating from dendroecology for windstorms and from charcoal analysis for fires.

My research found that according to the pollen assemblages, most of the disturbances did not have strong influence on the forest composition, and most likely they only caused the forest thinning. The most significant fire occurred around 1420. The most significant wind disturbance probably occurred in 1890. There was not found any effect of spruce bark beetle.

In the past millennium disturbances affected spruce forest in the High Tatra Mountains but most of them were not very strong.