

Abstract

This work mainly aims to study the factors determining species distribution along railways. I chose a railway in Eastern Bohemia leading from Týniště nad Orlicí to Meziměstí. Vegetation data have been collected on the lap of the railway in a distance 4,7 km long. About 3,9 km of it was placed in the forest, 0,8 km in a forest-free area. I recorded species in 7 transects 100 m long along the railway. One transect was on a ballast bed between rails, two transects on embankments, two transects in vicinity to 2 m from embankments and two transects in vicinity to 12 m from embankments. In the second vicinity I recorded only wood species in the second neighbourhood. In total I detected 329 samples. I analyzed species composition of these habitats and tried to interpret it with some characteristics like the type of habitat (a ballast bed between rails, embankments, a neighbour area 2 m wide), a position along the railroad, a location on a mound or in a cutting. I found that some species are characteristic for a ballast bed and embankments. These species are termophilic, xerophilic, prefer higher values of light and more basic reaction than the other species in the surroundings. These species are also lower than the other species in the surroundings. The ballast bed and embankments hosts more therophytes than the neighbour sectors. The type of habitat (a ballast bed between rails, embankments, a neighbour area 2 m wide) influences the species composition ($p = 0,001$; $F = 13,288$ for all habitats, $p = 0,001$; $F = 3,362$ just for a ballast bed between rails and embankments), a position along the railway was used as a covariable. The position along the railway influences the species composition ($p = 0,001$; $F = 13,288$), the type of habitat was used as a covariable. I counted it for samples recorded only in the forest section too, the results was similar. The vegetation in neighbourhood influences the species composition on ballast bed between rails ($p = 0,01$; $F = 4,944$) and on embankments ($p = 0,01$; $F = 7,893$). I counted it for samples recorded only in the forest section too, the results was similar. A location on a mound or in a cutting doesn't influence the composition of vegetation on a ballast bed between rails and on embankments.

I found some non-indigenous species along the railway, for example *Senecio inaequidens*. This species has been found just in two localities in Eastern Bohemia in the past. It uses mainly railways and roads for its distribution in the Czech Republic.

Some endangered and uncommon species were also found along observed railway, for example *Rosa sherardii*, *Hottonia palustris*.

The railways can serve as dispersal corridors in the landscape mainly for termophilous and xerophilous species. Some non-indigenous species use this corridor for their distribution and

can present a problem for habitats in its neighbourhood. However we can find some uncommon species along railways and in some cities railways represent a piece of nature with its characteristic vegetation.

key words: a railway, a transect, a ballast bed, embankments, a position along a railway, a mound, a cutting, thermophilous, xerophilous