Abstract:

Abandoned industrial-waste deposits (incl. fly ash or tailings ponds) represent very specific and mostly extreme habitat conditions. They offer unique opportunity to study primary succession in cultural landscape. Substrate of the material deposited here shows extreme properties, such as low pH, overheating of the open surface, salinization etc. The aim of this work is to map the colonization of different successional stages of vegetation by ants after years of abandonment of ore-waste deposits in Chvaletice (Eastern Bohemia, CR) and to compare the present state with analogous study made in 2001. Particular aims of both studies (Jarešová 2001, and present study, 2011-12) is to test the influence of ants on vegetation succession.

During the years 2011-2012 several prospections were made to record species diversity of ants. On the surface plateau of the sedimentation basin two types of habitats were chosen – the areas with present ant nests and the other areas without them. Each of both types of habitats exhibits different plant species richness: separately the species-area curves were constructed and explained.

Three dominant ant species of different size categories present on sedimentation basin were selected for experimental offering of plant seeds, *Formica pratensis*, *Lasius niger*, *Tetramorium caespitum*. The offers of sets of seeds available in surroundings of experimental plots show high amount of seed was transported by all of the selected ant species, especially by *F.pratensis* and *T.caespitum*. In addition, *F.pratensis* was examined if the seed offer distance from its nest has an effect of seed removal.

In four types of vegetation the soil samples were analyzed for pH, conductivity, total carbon content and available phosphorus. The analysis shows persistence of soil toxicity in the examined places, nevertheless, there is higher number of microsites with lower degree of toxicity than the older study describes (Rauch 2004).

Keywords: industrial-waste deposits, abandoned tailings containment, primary vegetation succession, species diverzitiy, colonization by ants, myrmecochory