

## Abstract

Understanding plant species dynamics at the landscape level is important for predicting species response to potential landscape changes. However, studies describing landscape level dynamics of plants are still very rare, especially for medium-rare species.

Hence, the aim of this project was to create a model describing detailed dynamics of a medium-rare species, *Jasione montana* L., at the landscape level. Furthermore, I wanted to assess the importance of model parameters for the dynamics of *J. montana* in landscape.

Further I asked, which species' distribution was restricted in landscape to the habitats of *J. montana*, and whether the dynamics of such species was similar to *J. montana*.

In order to describe the landscape level dynamics of *J. montana*, I needed to collect data on local population dynamics of the species, its dispersal ability, current distribution in landscape, and on the distribution of all suitable habitats.

The data on local population dynamics have been sampled in 3 populations during two transition periods, resulting in 6 transition matrices.

The dispersal ability of the investigated species was estimated using two field experiments: a seed trap experiment and an experiment testing the attachment of seeds to animal skin (wild boar's and roe's). The dispersal was also estimated using a wind dispersal model.

Suitable habitats were determined using: Beals index based on information from phytosociological relevés, abiotic conditions of the sites, Ellenberg values, and a sowing experiment.

The effect of each method of determining dispersal ability and habitat suitability on the predictions of the landscape level model was estimated.

Using data on the occurrence of other species in habitats identified as suitable for *J. montana*, we selected species that were expected to perform similarly to *J. montana*.

A detailed analysis of the sensitivity of the landscape level model showed that the most important parameter of the model was the frequency of conditions unsuitable for germination. Dispersal ability and number of suitable habitats were much less important for the survival of the species in landscape.

There were several species restricted to the habitats suitable for *J. montana*. More data are, however, needed to decide, whether the dynamics of these species is similar to that of *J. montana*.

Keywords: *J. montana*, local dynamics, dispersion, suitable habitats, landscape dynamics