

Summary

The thesis presents how the use of molecular markers (AFLPs and microsatellites) can help when studying plant dispersal in river systems. Analysis and interpretation of the spatial pattern of genetic variation allowed to address and discuss following aspects of long-distance dispersal in these linearly structured systems: (1) the extent of long-distance dispersal, (2) the intensity of vegetative long-distance dispersal, (3) unidirectional transport along the streams, and (4) dispersal among rivers.

The first part of the PhD. thesis presents several general aspects of plant dispersal, methodological approaches used to detect dispersal, and possibilities of analysis and interpretation of the molecular data. It also gives a short introduction to the methodology used in the particular studies, summarizes the results of all studies, and discusses how differences detected by molecular markers correspond to dispersal possibility (*e.g.*, by water, by wind) of the selected species.

The second part contains a set of four papers, each focusing on a detailed survey of dispersal possibilities of one of four plant species within the river system of the Cidlina, the Mrlina and partly also the Labe Rivers (Czech Republic). Above-mentioned aspects of dispersal in river systems are further discussed in the light of the reproduction strategy and dispersal traits of the species under study.

Paper I presents the application of AFLPs to trace within and among river dispersal of *Sparganium erectum* L. in the river system of the Cidlina and the Mrlina Rivers. A spatial genetic structure has been found, and the dispersal seems to be restricted to within a distance of 30 km. Certain genotypes were detected in both rivers, indicating past inter-river dispersal.

In paper II, a very low intensity of vegetative long-distance dispersal of *Nuphar lutea* (L.) Smith. was detected using microsatellite markers, Although the seeds of this species are unable to float in water, repeated dispersal over tens of kilometers was detected.

Microsatellite markers revealed dispersal both within and among rivers in *Phragmites australis* (Cav.) Trin. ex Steud and *Typha latifolia* L. (papers III and IV), which is in agreement with their easy spread by seeds. Paper IV also addresses the detection of insufficient marker variability to distinguish all possible genotypes in *T. latifolia*.