Abstract
Hybridization plays an important role in the evolution of vascular plants. It can have both positive and negative consequences, ranging from the origin of new species on the one hand to the extinction of taxa through introgression on the other. These effects may be pronounced in geographically restricted or rare species. The core of this thesis are three case studies addressing interspecific hybridization involving rare angiosperm species. Finally, the thesis is completed with a study considering hybridization as a source of variation and new species. The coexistence of frequent primary hybrids with their parental taxa was revealed in the system comprising the rare species *Cerastium alsinifolium* and its widespread counterpart *C. arvense*. The spatial distribution of the endemic species and its habitat preferences were elucidated. In contrast, comparatively rare hybridization events were found in the *Nymphaea alba – N. candida* complex. Although it has been assumed that water lilies hybridize freely, our karyological data do not support this hypothesis. Hybrids, therefore, do not present a serious risk to either of these rare species. The third study describes interspecific hybridization in the spore-bearing genus *Diphasiastrum*. Traditionally, three basic and three hybridogenous species are recognized in Central Europe. However, species boundaries are blurred through frequent introgressive hybridization. Introgression has been catalysed by human activities (disturbances), which facilitate spatial contact between originally partly allopatric species and subsequent interspecific hybridization. The origin of a new agamospermous lineage through interspecific hybridization was described in the genus *Sorbus*. Apomictic triploids most likely originated via hybridization between diploid and tetraploid taxa. Their mode of reproduction shifted from sexual to apomictic, which assured their long-term persistence.