Summary

Past extensive changes in land use have resulted in fragmentation of species habitats. Changes in landscape structure have provoked discussion about the prospects of species of fragmented habitats in the future agricultural landscape. Landscape dynamics of plant species is basically a result of extinction and colonization rates. Many studies have confirmed the former expectation that a number of habitats suitable for a plant species in a landscape stay unoccupied. The differences in species distribution and proportion of suitable habitats occupied by a given species are hypothesized to be due to the area and isolation of suitable habitats and colonization and survival ability of a given species. To understand species dynamics in a changing landscape, first we have to reveal the relationships between the distribution of species and their proportion of occupied habitats, habitat age, habitat configuration and species colonization and survival ability. After the complete understanding of the determinants of species dynamics we will be able to predict reliably species prospect in the future. The very basic aim of this thesis was to reveal the determinants of landscape dynamics of dry grassland species in terms of their distribution and frequency in the landscape.

The importance of correct identification of habitats suitable for a species in studies exploring determinants of species dynamics and distribution is obvious. There is, however, no single approach that would guarantee correct identification of habitats suitable for a species. In the **Chapter 1** I demonstrated a potential advantage of parameters derived from species composition and recommended their inclusion among habitat characteristics commonly used in species distribution models.

In **Chapter 2** I confirmed the hypothesis that isolation based on the number of target species in source habitats can explain colonization of focal abandoned fields by dry grassland species better than isolation based on the area of the habitats. I also confirmed that abandoned fields in the study landscape were successfully colonized by a large set of dry grassland species that are frequent in the dry grasslands. However, the rare species that are the object of interest in conservation biology occupied abandoned fields rarely. It suggests that abandoned fields can serve as potential habitats to only a part of the grassland species.

I also revealed that the presence of about 30% of tested dry grassland species is still affected by habitat configuration in the past (**Chapter 3**). Different species life-history traits relate to species dependence on historical vs. present habitat configuration. I consequently identified that the number of available suitable habitats is the major factor determining proportional habitat occupancy of these species (**Chapter 4**). The results also suggest differences in the quality of old and young habitats. The lack of suitable habitats is the main constraint in the dynamics of rare species. I assume that the only effective way to support the dynamics and distribution of rare species is to establish new grasslands with habitat quality similar to the quality of the old dry grasslands or to restore the quality of existing unsuitable habitats by introducing the appropriate management.

In **Chapter 5** I also found that factors affecting local species dynamics such as browsing by large herbivores can be very important for landscape-level dynamics of species with slow response to landscape changes. I suppose that these species can be potentially threatened by increasing number of large herbivores in the landscape.

Although I revealed some processes driving dynamics and distribution of dry grassland species in the landscape, there is still room for further research regarding the dominance of some species in dry grasslands and the prediction of future prospect of dry grassland species.