Assessment of the impact of landscape structure on the dispersion of lynx in Posumavi

Abstract: The big predators are a traditional group of bioindicative species, whose presence shows the state of environment and landscape within a region. As these animals recolonize the cultural landscape of central Europe it´s needed to understand their space requirements and habitat preferences. The lynx (*Lynx lynx*) has been one of the Sumava forest species since the 70´s. After almost 40 years the population of lynx has spread from Sumava and Bavarian Forest to forested parts of Cesky Les, Smrcina and Novohradske hory and to both sides of state borders. However today´s state of lynx population, stable number of animals or genetic variability is endangered by many factors. Long term viability of the lynx population is – besides poaching or illegal hunting − affected by the loss of suitable habitats and ongoing fragmentation of the landscape. One of the possible solutions of negative impacts is delineation and protection of landscape permeability of habitat corridors. They might have provide supply of new individuals to small, extinction prone population and at the same time they could reinforce overall fitness population. This thesis has three main objectives:1) evaluation of landscape fragmentation and connectivity in Sumava region and other patches of suitable habitat with emphasis on spreading lynx population, 2) preparation of migration corridors and 3) evaluation of one-year monitoring of lynx in location Na Skalce. With the help of ecological niche factor analysis (ENFA) and tools for modeling migration corridors (Corridor Designer) we identified 24 patches of very high-quality habitat, but only 18 of them is currently used by lynx. The migration of lynx among these locations is rather impossible because of areal and linear migration barriers. As the most problematic places were assessed: highway D5 blocking corridors at four places and highways R6 and R4. Another possible critical places for migration of lynx was the intersection of corridors with roads I/3, I/20, I/34, and I/39. Final connectivity of every corridor was evaluated from complex analysis with following variables − the corridor length, average width of the corridor, habitat type, forest coverage, distance between suitable locations and traffic. There were 34 evaluated migration corridors and 7 of them were assessed as less passable.

Keywords: *Lynx lynx*, landscape fragmentation, ecological niche factor analysis (ENFA), Corridor Designer, camera trapping