

The constant development of urban areas means that their role in the protection of biodiversity is becoming more and more significant. However, some of the important ecological processes are still poorly understood in urban areas. Weakening and dying of trees, are crucial ecological process in the zone of temperate forest, but is poorly understood in an urban environment. The presence of dead wood is associated with the high diversity of specialized insects and insectivorous vertebrates. In addition, dead and weakened trees promote occurrence of microhabitats (i.e. cavities, tree cracks and bark loses), which are important for cavity-nesters. The dieback of trees is therefore associated with high biodiversity. However, in an urban areas dead and weakened trees are dangerous for pedestrians and disturb the scenic values, thus they are successively removed in the process of greenery maintenance. However, dead wood removal (especially dead branches) is expensive. Therefore, some habitat patches in an urban matrix are abound in dead wood, tree microhabitats and probably play a role of local biodiversity hot-spots.

In this study, I will assess the role of dead wood (dead branches in tree crowns) and tree microhabitats in shaping spatial pattern of biodiversity in an urban areas. Model groups selected for this study are birds and bats, which contain many specialized insectivores and cavity nesters, and strongly react on changes in availability of dead wood and tree microhabitats. Next, I will examine whether estate price and human density have a negative impact on the quality of habitats (availability of dead wood and microhabitats). The final goal of this project is to explain the mechanism through which urbanization has a negatively impact on biodiversity, taking into account habitat quality as a proxy in this mechanism.

This project will answer the question, whether in urban areas the dieback of trees is important in shaping biodiversity. The effect of this project may be to find a new factor which disturbs natural ecological processes and drive to wildlife homogenization – estate price and human density.