

Megafauna has been interested humans since historical times. In the Anthropocene, large mammals attract attention both as those most vulnerable to increasing pressure and at the same time crucial in maintaining the functioning of ecosystems. The presence of animals in the landscape is influenced by the search for resources necessary for life and avoiding the predation risk. In the background of negative changes in the landscapes and ecosystems, a spontaneous restoration of natural systems is currently observed. One spectacular example is the dynamic expansion of the population of beavers, which are widely appreciated as ecosystem engineers. By adapting the existing environment to their own needs, beavers create new, diverse mosaics of aquatic and terrestrial habitats. This ability to modify habitats, makes beavers an extremely valuable element of ecosystems, which facilitate the existence of a wide range of living organisms. Nevertheless, despite the fact that the beaver has become a common and widespread element of ecosystems throughout the northern hemisphere, we still know surprisingly little about its importance in nature. Several findings suggest, that the influence of the beaver activity goes well beyond the pond created by it. Due to the change in the moisture content of the land, combined with the modification of vegetation, the beaver also creates a variety of terrestrial habitats, potentially constituting refuges, offering attractive feeding base, shelters and resting places for terrestrial animals. It should be noted that, apart from the role of habitat engineer, beaver also has its place in the trophic web, where it is becoming an increasingly important component of the diet of large carnivores. Hypothetically, the diverse habitats and resources offered by beavers in the landscape are attractive to different species and groups of mammals. On the one hand, complex ecosystems formed by beavers can act as refuges for mammalian activity in the landscape. On the other hand, the concentration of potential prey may be associated with greater predation pressure in these areas, creating a system called "death trap" where both the abundance of resources (food, water) and predation are high. This suggests that the presence of animals at beaver sites should be the result of a trade-off between the quality of the habitat and predation pressure, making beaver sites extremely interesting structures in the landscape, influencing the distribution of animals and the interactions between them.

The aim of the planned research is to understand the influence of the beaver on the distribution and activity of megafauna of the temperate zone, represented by large carnivores, ungulates and medium-sized carnivores. The research was designed in such a way as to compare the species diversity and activity of the mammalian community at the beaver site and in the area without beaver occurrence history. Beaver sites selected for the research constitute wetlands formed by beavers as a result of water damming. The selected research plots cover the spectrum of diverse areas typical of the temperate zone, including mountainous, upland and lowland areas. This approach provides an overview of the entire spectrum of habitats and their mammalian community. The main part of the data will be collected using camera traps that will be placed in the field throughout the year. The locations of the wildlife camera traps will be randomly selected at different distances from the shoreline of the beaver pond and the reference watercourse, which will provide additional information about distance zone at which the beaver presence effect is still reflected in species composition and activity. To test the impact of environmental features, habitat parameters related to the composition and structure of vegetation and landscape factors will be examined. In turn, obtaining detailed data on the activity of different species of mammals will allow the comparison of their activity patterns, which are a source of information on interspecies interactions.

The results of this project will provide a comprehensive information of the undefined role of the beaver in the recently rewilded terrestrial ecosystems. The study of the spatial scale will shed new light on the engineering activity of the beaver, which so far has been identified directly with the created pond. Knowledge about the activity of beavers, which are becoming an increasingly common element of the landscape and ecosystems, will make a significant contribution to the constantly developing field of landscape restoration and ecology.