

From forest dweller to suburb tenant - wolf adaptations to human-dominated landscapes

Humans drastically reduced and changed natural habitats, therefore nowadays many wild species have to adapt to human-dominated landscapes. An understanding of how wild animals function in a mosaic of natural and modified by humans areas as well as how they adapt to human disturbance and how they take advantage of the opportunities created by human activity is crucial to the proper allocation of resources for their conservation. This problem is especially crucial for the protection of large carnivores such as wolves (*Canis lupus*).

Nowadays wolves recolonize even habitats heavily altered by humans. In such areas the availability of human-provided waste food may have profound effects on wolf's movement, activity, feeding behavior, habitat selection but also on level of wolf-human conflicts. My preliminary data from GPS/GSM collared wolves in lowland Poland revealed that wolves are not exclusive forest dwellers, and some of them live in landscapes significantly changed by humans. European lowlands are dominated by large agricultural and industrial lands, extensive suburbs and densely inhabited urban areas, with much lower share of managed forests. Thus it is crucial to find out how wolves adapt to the permanent presence of people within core-areas of their territories.

Within my project I intend to determine how habitat selection by wolves vary with human density, availability of anthropogenic food source and the man-made infrastructure. I will validate predictions of several scientific hypothesis explaining mechanisms which govern adaptations of wild species to human-dominated landscapes. I will implement modern field and laboratory methods. GPS/GSM telemetry and camera trapping will allow me to track wolves in the human-altered habitats and observe their behavior and interactions with humans and other species. Analyses of prey remains in collected wolf scats will report the diet of wolves living within the study area, while stable isotopes analyses of hair samples will reveal the diet of particular individuals from which the hair samples were taken. Genetic analyses of non-invasive samples will reveal genotypes, origin and relationship of individual wolves. I will also estimate the level of their stress hormones. Using these methods will allow me to investigate a diet of particular wolves and their behavioral and physiological response to living in the human dominated-landscape. Adding analyses of copy numbers of the gene connected with starch digestion in these wolves should shed light on possible adaptations to anthropogenic food. There were no such comprehensive studies on wolves in the human-dominated landscape before.