

Animals have always interacted with each other. For millennia, the interactions between humans and other animals were governed by the need for food and for survival. Humans were prey, but also hunters, and consequently a threat to other animals who would defend themselves for survival. With changing environmental conditions, the frequency of interactions could increase. For instance, in times of drought, pre-agriculture humans would have higher chances of encountering other animals around points of water supply. With the onset of agriculture, humans started to modify the landscape and new types of interactions arrived; plantations and livestock had to be carefully protected. However, the intensity of these new negative interactions was still subjected to changes in the environment, and animals would attempt to use human foods more eagerly when natural resources failed.

After centuries of technological development and human population growth, our impact on the planet has acquired unprecedented dimensions. Our activity has substantially modified natural processes such as climate or landscape composition, and through these, also the interactions between different forms of life and their capacity to survive. Despite the growing body of scientific literature covering the impacts of humans on the environment, we remain largely ignorant about how our impacts on the Earth can amplify or diminish our negative interactions with other living creatures.

In this project, we aim to explore how human activities affecting the global environment contribute to conflicts between humans and wildlife. We will focus on the negative impacts of wildlife on humans in terrestrial ecosystems worldwide. That includes livestock losses, crop damage, attacks on humans, vehicle collisions, and many more. We plan to answer the following research questions: (1) What are the characteristics of human-wildlife conflict in the context of global environmental change? (2) Are conflicts increasing in time with increasing trends in human population and resource utilization? (3) In what ways is global change shaping human-wildlife conflicts?

To answer these questions, we will review the scientific literature about conflicts with terrestrial vertebrates such as mammals, reptiles, and birds. We will perform comparative analyses across taxa, ecosystems, and world regions to evaluate differences in the conflict occurrence as well as its impact on humans and fauna. Additionally, we will also address these questions utilizing an available extensive data set on brown bear damage to livestock and agricultural products in Europe. We will use advanced statistical methods to understand if bears damage more human properties in times or places when forests produce less food resources, or in landscapes that are heavily humanized. Furthermore, we will study if these conflicts increase over the years with altered climatic conditions. For example, we will try to answer questions such as: Do bears destroy more beehives in springtime after a warm winter with very little snow? How does this compare to severe winters with a lot of snow and very low temperatures?

Our double approach will help us combine the overall findings from large-scale analyses covering various species and global regions with more detailed insights obtained from studying the damage caused by brown bears in different European populations. Connecting the broader ecological and geographical factors with more specific details at the landscape level will surely provide new insights into why conflicts happen and how they vary in different places and times in our ever-changing world.