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BIODIVERSITY
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# DEALING WITH WILD NEIGHBORS

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Even though neighborhoods are built for people, lots of wild animals also call these places home. You might have seen a squirrel, a fox, or a deer munching on your garden or running down your street. Living near people gives some animals food and places to live, but it can also cause problems for both animals and people. Sometimes people do not agree about what to do about the animals that live near them. We were curious about how people and wild animals live together and decided to investigate. We studied how people make decisions about deer in the suburbs of Massachusetts, where some people think there are too many deer and others are not so sure. We discovered that people often disagree, and politics matters. Paying attention to this disagreement can help people work together and make choices that let wild animals and people to live together with fewer problems.

YOUNG REVIEWERS:

BECKETT
AGE: 9

SOPHIE
AGE: 13

**SUBURBS**

Towns that are near cities and usually have lots of houses with yards and gardens.

## WHEN WILD ANIMALS AND PEOPLE ARE NEIGHBORS

Across the world, the spread of cities and nearby **suburbs** into forests and fields is a threat to many wild animals—especially animals

that need large areas of undisturbed land to survive, like leopards, wolves, or bison. But some animals, like raccoons, foxes, coyotes, and deer, can thrive in places where a lot of humans live [1, 2]. Some people enjoy sharing their neighborhoods with these animals, but others do not. Sharing space can sometimes be frustrating or even dangerous for both humans and animals. When animals and people live near each other, people often need to behave differently to avoid problems like car crashes, trash disasters, or damage to their yards.

**BIODIVERSITY**

The mix of all the different kinds of life found in a certain place.

In cities and suburbs, scientists study how to protect **biodiversity** in ways that allow animals and humans to live together without harming each other. Natural scientists study animals themselves: where they live, how they get food, and how they interact with other plants and animals (Figure 1).

**SOCIAL SCIENTISTS**

People who study human societies and the ways people live.

Some scientists also study how people interact with wild animals and pay attention to what people think and feel about these animals. The work of these **social scientists** is important because the spread of cities and suburbs, called urbanization, is changing how humans and wild animals interact. As cities and suburbs grow, more and more animals are finding ways to live in them. People have to make choices about how to live with these animals.

To learn how people decide how to live with wild animals in cities and suburbs, our team of social scientists studied how humans interact with white-tailed deer in Massachusetts, a state in the northeastern United States. The number of deer is increasing in the Massachusetts suburbs and people sometimes argue about what to do about them [3]. Some want to let the deer roam freely, while others want to hunt the deer to lower their numbers. In our research, we wanted to understand which concerns about deer are most important to people making decisions about these animals, and why some cities and towns decided to hunt deer while others did not. We aimed to answer the questions: how do people react to deer? Why might people not agree about living with deer? And who decides what to do about deer in the suburbs?

**SURVEY**

A list of questions sent to many people.

**INTERVIEWS**

One-on-one conversations in which the interviewer asks questions to obtain certain information.

**TOWN OFFICIALS**

People who work for town governments and make decisions about local laws and what happens in the town. They can be elected leaders, paid workers, or volunteers.

We used scientific methods from social science, like **surveys** and **interviews**, to answer these questions. We sent a survey to **town officials** in all 351 towns in Massachusetts. The survey had questions about problems caused by deer and any actions towns have taken to deal with these problems. We read reports about deer and deer hunting in many towns to understand the reasons behind these choices. We also conducted interviews with people who live and work in the suburbs, scientists who study deer, town officials, and hunters.

**Figure 1**

Pictures of wild animals in the forests of the Northeastern United States, taken by camera traps as part of an ecological study. **(A)** A white-tailed deer walking in the snow, **(B)** a red fox hunting, **(C)** a bobcat with prey in its mouth, **(D)** a raccoon walking on a fallen tree, and **(E)** two black bear cubs. **(F)** A camera trap in a suburban forest in Massachusetts. The movement of animals triggers camera traps to take pictures. This gives scientists a way of studying animals in the wild. Hunters, animal-watchers, and other people use camera traps too.


Figure 1

## HOW DO PEOPLE REACT TO DEER?

In Massachusetts, white-tailed deer really like the suburbs. Deer can find plenty of food there. They munch on grass, flowers, and bushes people plant in their yards (Figure 2). The deer also love young trees growing in the small forests in between people's houses and in parks. In Massachusetts (and many other places in the eastern United States), deer in the suburbs do not have to worry about predators, like mountain lions or wolves. Many towns have rules against hunting, too [4], so deer have few risks in the suburbs.

**Figure 2**

Deer in the suburbs. **(A)** White-tailed deer feeding on a family's lawn. **(B)** Cedar trees that have been eaten by deer.


Figure 2

Sounds like a deer paradise, right? Well, sort of. Suburbs can attract a lot of deer, which can lead to problems for the people who live there and sometimes for the deer, too. In our research, we found that many people in Massachusetts think that there are too many deer in their towns, and they worry about the problems deer can cause. People may crash into deer with their cars or get angry at deer for eating the flowers they plant in their gardens. Some get worried that deer are eating too many young trees in the forests. If deer eat too many young trees, the forest can change because there will not be many trees available to replace older, dying trees. Other people fear that, if there are too many deer, there will not be enough food and the deer will go hungry. Many people in Massachusetts are worried about diseases, especially diseases that spread to people from ticks—small bugs that feed and reproduce on deer. Concerns about deer can be very different from one person to another, and from one town to another. We found that towns with more forest patches—small areas covered in forest

and surrounded by other areas such as gardens, fields, or houses—or more people with diseases from ticks tend to be more concerned about deer.

## WHY MIGHT PEOPLE NOT AGREE ABOUT LIVING WITH DEER?

Since having a lot of deer in one place can cause problems, humans sometimes want to control the number of deer living in suburbs. This is where **wildlife management** comes in. In Massachusetts, deer are managed by hunting them—but not everyone agrees that hunting is a good solution. Some hunters like to hunt to get food, and they eat the meat from deer. Some hunters think about hunting as a hobby or sport. Some people who do not hunt still think hunting is a good idea. However, others think we should not kill deer, or they think hunting is dangerous for hikers and other people in parks. Some opponents of hunting told us that they want to reduce the number of deer without killing them. Instead, they would prefer to feed the deer a medicine that stops them from having baby deer. Others told us they enjoy seeing deer in their gardens or in their towns and want people to leave the deer alone. Some of the people we talked to said deer have a right to live in the suburbs: it is as much their home as it is the people who live there. Others simply do not think deer cause any trouble for humans or the forest.

**WILDLIFE MANAGEMENT**

Things people do to care for and control wild animals, their habitats, and their interactions with people, with the goal of balancing the needs of both wild animals and people.

## WHO DECIDES WHAT TO DO ABOUT DEER IN THE SUBURBS?

With all these different opinions, who gets to decide how to manage deer in a town or neighborhood? There is no simple answer to this question. The decisions are often made by wildlife managers and town officials. Some people are happy to let wildlife managers and town officials make the decisions, but others want more of a say in those choices. After all, they are the ones living with deer, and the decisions will impact them, too. These people try to influence the decisions by expressing their opinions at meetings, by protesting, or by writing to newspapers.

In our study, we found that disagreement over these issues has made it difficult for town officials in Massachusetts to reach decisions about deer that everyone will support. Our research shows that decisions are not just based on the number of deer in a town or how deer impact the forest. **Politics** also matters for decisions about deer. Politics is like a big game about who gets to decide things that affect everyone. The politics of deer management is about who has power to make choices about deer and how people use their power together to solve problems. For example, some people's opinions are heard by decision-makers more than others. In our interviews, people who are

**POLITICS**

The study of and use of power. Politics includes how much power people have in making decisions and how they use that power.

opposed to hunting described feeling that their opinions are not valued by town officials as much as the hunters' opinions. When people feel ignored, they might not trust the wildlife managers or cooperate with management plans. For example, they might feed deer even if that is not allowed, or they might not follow other instructions about how to live with wild animals. When this happens, management plans might not work out and it may be harder to make new decisions in the future.

## WILDLIFE MANAGEMENT IS NOT ONLY ABOUT WILD ANIMALS

Wildlife management is as much about humans as it is about wild animals. Our research shows that wildlife management looks different in different places. People do not always agree about when deer are a problem and what to do about them. There is no easy way to make a decision when people disagree, but understanding the different goals and perspectives can make the process easier. This means that natural scientists, social scientists, and people involved in wildlife management need to work together. Everyone needs to combine their ideas and methods to better understand both the wild animals and the human politics. There is not a single right way to make decisions about wild animals and the protection of biodiversity. Understanding both the wild animals and the diverse ideas of people can help wildlife managers decide what to do about wild animals in areas where lots of people live.

The participation of people with different opinions helps make decisions that will both satisfy people and protect wild animals. This is an important discovery because decisions that are made by just one group of people often lead to failed wildlife management.

Our research also supports the idea that cities and suburbs can be spaces for both people and animals. Though natural areas designed specifically to protect wildlife are important for biodiversity conservation, cities and suburbs matter, too. Balancing the interests of many people and animals is tricky. If you live in these places, you can learn about living with these animals and help make your neighborhood a better place for wild animals.

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## YOUNG REVIEWERS

**BECKETT, AGE: 9**
My name is Beckett. I love reading, chess, swimming, turtles, and dogs (especially my dog, Rosco). I enjoy exploring the many ways we can learn about ourselves and our world, like science. I hope that we can learn better ways for humans to live in harmony with nature.

**SOPHIE, AGE: 13**

I am passionate about science, drawing, and painting. I like manga, anime, and penguins. I play violin since when I was 9 year old. At school, my favorite subjects are foreign languages, especially French. I can speak English, Italian, Russian, and I am studying French and Japanese.

## AUTHORS

**ÉMILIE EDELBLUTTE**

Dr. Émilie Edelblutte studied geography at Boston University (Massachusetts, United States) and at Lyon University (France). She has always been interested in understanding how people can better protect the environment. During her studies, she tried to understand how people and wild animals can live together without harming each other, especially deer in suburbs around Boston and leopards in urban places in India. She is now working in a firm in France where she gives advice on how to best adapt our cities to climate change while protecting nature.

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Dr. Robert Anderson is a research geographer at the U.S. Forest Service, Northern Research Station. He studied geography at the University of Washington (Seattle, United States). He studies how people respond to changes in the environment, such as the presence of animal species in places where they were not found before, and how people try to restore and repair environmental systems that have been damaged.

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