CAYUGA NATURE CENTER

Animals and Climate Change

White-tailed deer. Photo: Craig Lewis/US Fish and Wildlife Service

You may have heard about climate change: our planet is warming, precipitation patterns are changing, and we're having more extreme weather. This is affecting humans in our daily lives and in planning for the future. But we're not alone—other animal species are feeling the impact of climate change, too.

Some land and ocean creatures in the Northern Hemisphere are moving northward to cooler environments. For example, you might have to go to Maine to catch lobster, whiting, and other species that used to be found off the coast of Rhode Island. The range of many bird species is shifting northward, and bird migrations for some species are taking place over a week earlier than they did in the early 20th century. As climate change progresses, some animals may not be able to adapt fast enough, threatening them with extinction.

Our local climate is already changing

Central New York's climate has changed from what it was in our grandparents' time, and it is expected to continue changing.

- Air and water temperatures are rising due to increased carbon dioxide, methane, and other greenhouse gases in the atmosphere. Average temperatures in New York State have increased by about 0.6° F per decade since 1970.
- We are likely to experience more days of extreme heat (days with temperature over 90° F) in coming decades.
- The Northeastern U.S. has had a 71% increase in heavy precipitation from 1958 to 2012.
- Summer drought is expected to increase.
- Winter snow cover is expected to decline, as winter temperatures increase and more winter precipitation falls as rain instead of snow.

Change affects local animals, both domesticated and wild

Both domesticated and wild animals are affected by climate change. Dairy cows produce less milk in extreme heat (agricultural researchers are working on designing livestock barns to help keep cows cool). Potential changes in the yields of hay, corn, and grain which farmers use to feed their livestock are uncertain—crop yields may increase with longer growing seasons brought on by climate change, but they may decline with increased drought, heat stress, and heavy rainfalls. This uncertainty makes planning more difficult for farmers.

With less winter snow, small mammals likes voles and snowshoe hare that depend on snow for insulation and protection will be at risk. Predators such as fox, mink, and bobcats depend on these small mammals for food in the winter, so they will be affected, too. On the other hand, with less snow cover white-tailed deer are having an easier time finding food and surviving the winter. This can have a ripple effect in spreading deer ticks that carry Lyme disease.

Warmer temperatures have allowed some bird, insect, and other species to expand their ranges northward. This includes some invasive and pest species, like the hemlock wooly adelgid that kills hemlock trees. Warmer water temperatures will stress brook trout, Atlantic salmon, and other native coldwater fish species. Bass, on the other hand, may benefit from warmer water.

Brook trout. Photo: Jaime Masterson/US Fish and Wildlife Service

A study of frogs in Ithaca showed that four species are starting their spring mating calls between one and two weeks earlier than they did in the early 20th century. Earlier breeding could be an advantage, but amphibians may also be faced with reduced habitat as vernal pools dry out earlier due to increased evaporation from warmer air.

What can people do?

You can help to reduce future warming by **using less energy**, for example, by using modern, efficient heat pumps for heating and cooling, and **using low-carbon energy** such as solar and wind power for electricity. Energy production through burning fossil fuels is the main source of carbon dioxide in the atmosphere, which warms our planet.

You can help animals adapt to climate change by **maintaining a healthy habitat** for them in your backyard. To do this, you can provide water, food such as native flowers for butterflies and other insects, and areas where birds can nest and animals can find

shelter. Providing food and shelter will help wildlife thrive in the face of threats from loss of habitat, pollution, and climate change.

You can help prevent animal habitats from being fragmented by using your land in a way that **maintains connections between ecosystems**, so animals can travel without barriers. If your land contains areas where roads or paths cross streams, work with your local municipality to make sure culverts are maintained and allow fish and other aquatic life to pass. This allows these animals to find cooler water.

Sources of more information

Much of the information in this leaflet was derived from Wolfe, D. W., J. Comstock, H. Menninger, D. Weinstein, K. Sullivan, C. Kraft, B. Chabot, P. Curtis, R. Leichenko, P. Vancura (2011) . Chapter 6: Ecosystems in Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation. Technical Report. New York State Energy Research and Development Authority (NYSERDA), Albany, New York.

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1420 Taughannock Blvd. (NY Rt 89), Ithaca, New York 14850
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