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Good afternoon. My name is Sally Stockwell. I am a wildlife ecologist and Director of Conservation at Maine Audubon. Our mission is to conserve wildlife and wildlife habitat by engaging people of all ages in conservation, education and action.

We are very concerned about how climate change will affect Maine's wildlife and habitat, including some of our most iconic species. Some species may move up in elevation, north in latitude or shift behaviors in response to a changing climate but others may not be able to adapt.

#### Climate Changes

As you've already heard, winters in Maine are likely to have more snow, but fewer days with snow cover, and more heavy rain falling on snow, leading to widespread flooding. This has a variety of implications for our wildlife.

#### 1. Iconic Maine Species Will Decline or Disappear

Warmer winters mean we could see populations of moose, lynx, and pine marten all decline, as these species are adapted to cold temperatures and heavy snowfall. UMaine scientists also predict populations of our state bird, the black-capped chickadee, will become less common or even disappear from much of the state except western and northern Maine.

Moose and lynx both have long legs and thick fur that allows them to travel, feed, or hunt in deep snow, which presents problems for both deer and bobcat. Pine marten hunt small mammals by diving under the snow. The spruce-fir coniferous cover that provides shade, food, nesting sites and habitat for these species and their prey is likely to decline and be replaced by more oaks, pines and red maple.

We all know how popular moose hunting and moose watching are in the state and how economically important these activities are to some of our northern communities. But with warmer winters and less snow we may be seeing far fewer of them. In northwestern Minnesota the moose population has dropped precipitously in the past two decades from 4,000 to 100 moose. After 7 years of study, biologists from the Minnesota Department of Natural Resources suspect the ultimate cause of the decline is climate change.

Biologists documented lower survival rates following hot summers and warm winters. Moose become stressed from the hot weather and die from diseases like brainworm or from heavy winter tick

infestations. Warmer winters increased deer populations, which carry a brain worm that is harmless to whitetails but fatal to moose. Warmer weather also increases winter ticks that bother moose so much they rub off both the ticks and their thick protective hair, leaving them vulnerable to death from exposure.

## 2. Wildlife-associated diseases may expand

Warmer weather along with healthy populations of deer in southern Maine is already leading to a rapid spread of the deer tick and Lyme's disease throughout Maine.

## 3. New species will arrive from the south

More southern species like the Carolina wren and opossum are moving into Maine and surviving our winters where they never could before. Other species that are more common south of the border will likely expand north into Maine.

## 4. Aquatic Species will Struggle

Heavy rainfall on top of snow, such as we saw earlier this week, will lead to increased problems with ice jams and flooding, and washouts of culverts that can't handle the increased flow, interfering with travel of fish and other aquatic animals up and downstream. This could be especially problematic for our prized wild native brook trout and salmon.

## What can we do?

We should expect to see changes in our wildlife species and populations. But we can minimize these changes and loss of populations or species by taking a few important steps right now.

- **Pass federal legislation** to reduce carbon emissions and improve energy efficiency, thereby lessening the impacts of climate change.
- **Conserve large interconnected blocks of habitat.** This should protect our native species and provide opportunities for them to move across the landscape as habitat changes.
- **Safeguard streams and wetlands** by ensuring culverts are sized appropriately to handle winter storm runoff so species can move up and downstream and along riparian habitat.
- **Evaluate which species are most vulnerable** to climate change and develop strategies to help them adapt. Incorporate recommendations into the state Wildlife Action Plan, Beginning with Habitat maps and materials, and decisions about which lands to develop and which to conserve.

