



# Save a Species

PROTECTING WILDLIFE BY CONFRONTING CLIMATE CHANGE.



## New Hampshire: Help Save the Moose from a Changing Climate

### MOOSE: A NEW HAMPSHIRE WILDLIFE ICON AT RISK

Massive and majestic, moose are a cherished wildlife icon of North America. These big mammals require cool climates to thrive, and this aspect of moose biology places the animals in difficult straits as they face a warming climate.

### CLIMATE CHANGE

Carbon pollution from burning coal, oil, and gas is causing climate change that is threatening wildlife across the globe and here in New Hampshire.

In North America, climate change is leading to direct habitat loss, decreases in snowpack, and rising temperatures that could permanently alter wildlife communities. Many wildlife species are struggling to adapt. Some never will. Scientists predict that unless we tackle climate change and reduce the carbon pollution that causes it, rising global temperatures could move 30% of all plant and wildlife species toward extinction in the lifetime of a child born today.<sup>1</sup> If we don't make changes soon, New Hampshire will continue to have higher annual average temperatures, more frequent heavy precipitation events, and rising sea surface temperatures.<sup>2</sup>

**Taking action to reduce carbon pollution and confront our climate crisis will greatly benefit wildlife and our outdoor heritage.**

America has a choice: Clean air, clean water, and healthy wildlife populations, or a polluted future where the only winners are special interests. This nation's core of conservationists, hunters, and anglers has a proud legacy of working to protect wildlife and must continue to do so as our world warms.

### A DECLINING MOOSE POPULATION

The New Hampshire moose population has plummeted by more than 40 percent in the last decade from over 7,500 moose to just 4,500 today, and biologists attribute some of this decline to increasing parasite loads influenced by shorter winters caused by climate change.<sup>3</sup>

Heat affects moose directly, as summer heat stress leads to dropping weights, a fall in pregnancy rates, and increased vulnerability to predators and disease. When it gets too warm, moose typically seek shelter rather than foraging for nutritious foods needed to keep them healthy. Many New Hampshire cows have been under the weight necessary to successfully bear calves the last few years and are producing fewer calves than they did a decade ago. Many biologists are concerned that they will have a difficult time adapting to climatic variability.



*“Moose are facing a triple threat in our changing climate. Increasing temperatures, changing forest species, and increased mortality due to parasites may make it very hard to maintain a viable moose population in New Hampshire in the future.” – New Hampshire Fish and Game moose biologist Kristine Rines*



## TOO MANY TICKS

Warmer winters have also caused spikes in the tick populations, further devastating the moose population. Ticks leave moose weakened from blood loss, and many die of anemia.<sup>4</sup> Ticks also leave moose more vulnerable to exposure in the winter after their attempt to rub off the ticks leaves them with hairless patches. Individual moose infested with 150,000 ticks—five times more than normal—have been documented in New Hampshire. After the 2001 winter, of the collared moose in New Hampshire, 75 percent of the calves died along with 20 percent of the adult cows. Over a five year period, ticks accounted for 41 percent of all moose deaths in the state.<sup>5</sup>

## RECREATIONAL IMPLICATIONS

Changes in the earth’s climate directly threaten two treasured wildlife-associated pastimes in New Hampshire – wildlife watching and recreational hunting. In 2011, 56,000 individuals hunted on New Hampshire’s lands and 630,000 people participated in wildlife watching activities within the state. Wildlife watching and hunting are not just recreational pastimes; they are also a major contributor to the New Hampshire economy. In 2011 alone, wildlife-associated expenditures brought a total of \$556 million to the state of New Hampshire.<sup>6</sup>

However, this rich diversity of fish and game, and the economy that depends on it, is at risk from a warming world. Declining moose numbers have led to a 60 percent reduction in moose hunting permits, down from 675 in 2007 to just 275 in 2012.<sup>7</sup> As the moose population drops, the recreational activities and associated revenue surrounding the species is sure to follow.

## TAKE ACTION FOR MOOSE

### CLIMATE SOLUTIONS TO SECURE OUR FUTURE

Climate change is the single biggest threat to wildlife this century. Without significant new steps to reduce carbon pollution, our planet is projected to warm by 7 to 11 degrees Fahrenheit by the end of the century, with devastating consequences for wildlife.

To ensure the survival of cherished wildlife species like the moose, policies and practices are needed to address climate change. This includes reducing carbon pollution as well as adopting climate-smart approaches to wildlife conservation. We must make a serious effort to reduce carbon pollution at every level – from the choices we make in our households to the policies we adopt as a nation. America needs to embrace the development of responsible clean energy, such as wind and solar. And we must prepare for and manage the impacts of climate change to conserve our wildlife resources.

**America must be a global leader in taking swift, significant action by driving forward policies that reduce carbon pollution – the underlying cause of climate change – and by implementing climate adaptation strategies to enhance ecosystem resilience and reduce our climate vulnerabilities.**

Our effort to confront the climate crisis must include setting strong standards to limit carbon pollution from new and existing power plants and promoting a rapid transition to clean, responsibly-sited renewable energy sources.

**For more information on how you can speak up for moose, visit: <http://www.nwf.org/moose>**

**Contact: Carol Oldham** Northeast Regional Outreach Coordinator: 617-953-4954 / [oldhamc@nwf.org](mailto:oldhamc@nwf.org)

<sup>1</sup>Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC.

<sup>2</sup>Global Climate Change Impacts in the United States. <http://downloads.globalchange.gov/usimpacts/pdfs/northeast.pdf>.

<sup>3</sup>Interview with New Hampshire Fish and Game Wildlife Biologist and Moose Project Leader, Kristine Rines

<sup>4</sup>Samuel, Bill. 2004. White as a ghost: winter ticks and moose. Vol. 1. Federation of Alberta naturalists.

<sup>5</sup>Interview with New Hampshire Fish and Game Wildlife Biologist and Moose Project Leader, Kristine Rines, April 30, 2013.

<sup>6</sup>U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2011 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, State Overview. Accessed at: <http://digitalmedia.fws.gov/utills/getfile/collection/document/id/858/filename/859.pdf>

<sup>7</sup>New Hampshire Fish and Game Department. 2012. New Hampshire Wildlife Harvest Summary. Pg 36. <http://bit.ly/12PZ7uD>.