

The Impact of Climate Change on the RURAL ENVIRONMENTS OF THE NORTHEAST



Increasing stress will be placed on the forests of the Northeast through:

- an increase in severe storms and droughts.
- a northern shift in suitable habitats. Under a high emissions scenario this shift may be as extreme as 500 miles over the next century.¹
- a potential increase in forest fire risk due to periods of long drought.
- an increased threat from invasive species.
- a change in insect and pathogen exposure. One specific threat is the Hemlock wooly adelgid. Infestations of this invasive insect are expected to move north with milder winters and threaten forests.²

A GLANCE AT WHAT IS AT RISK

- Forestry in the Northeast is a multibillion dollar operation that employs more than 300,000 workers in New York and New England alone. The expected decline in spruce/fir forests may significantly hurt the paper and pulp industry.³
- The forests of the Northeast are a valuable resource to help fight climate change. They are estimated to sequester 12-20% of the annual CO₂ emissions from the region.⁴
- Changes in the climate will be faster than the tree species can “migrate,” meaning existing trees will be highly stressed in inhospitable environments.

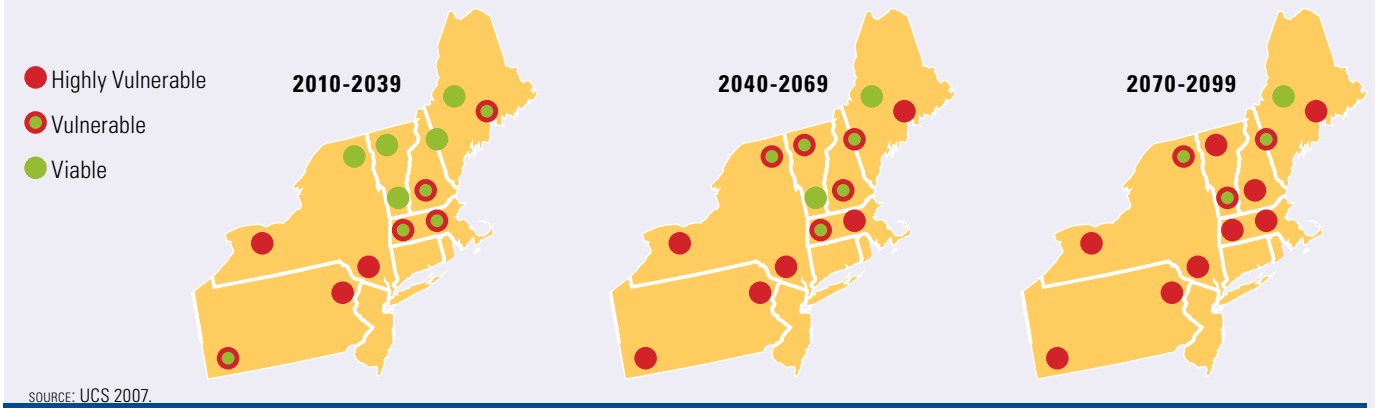
Farmers will face increasing risk and uncertainty—with the most severe impacts expected in the production of dairy, fruit and maple syrup.

- Higher temperatures in the summer will cause livestock to suffer from heat stress, which will result in significant decreases in milk production and birthing rates in dairy cows.⁵
- Many traditional fruit crops such as apples, blueberries and cranberries are especially vulnerable because they require a long winter-chill period. Expected changes in climate may result in the Northeast becoming unsuitable for growing these crops.⁶
- The flow of sap in maple trees is highly dependent on climate. Warmer, shorter winters will threaten the already struggling maple syrup industry, as syrup producers are forced to cope with shorter syrup seasons and lower quality sap. Over the last few decades, climate change has, in part, shifted maple syrup production north, a trend that will increase.⁷
- More frequent and intense storms and floods will jeopardize crop yields, while more frequent and intense droughts will increase the need for irrigation.
- It is expected that a warmer climate will encourage the spread of southern pests and invasive weeds to farms in the Northeast that are unaccustomed to dealing with these threats.⁸

A GLANCE AT WHAT IS AT RISK

- The dairy industry in the Northeast U.S. has an annual production value of \$3.6 billion, making it the most important sector of agriculture in the region. Depending on future emissions, the production in the southern part of the region could decrease by as much as 20%.⁹
- Farms in the Northeast U.S. already spend about \$200 million on herbicides and pesticides.¹⁰ The increasing threat of pests and weeds together with the need for more irrigation will result in agricultural practices that are less sustainable and more costly.

Most Ski Resorts in the Northeast are Vulnerable to the Impacts of Climate Change under a High Emissions Scenario



Milder winters and less snow cover will threaten winter recreation.

- Warm winters will shorten the ski season, increase the demand for artificial snowmaking and increase the overall operating costs of maintaining a ski slope. The figure above shows how most ski resorts in the Northeast are vulnerable or will become vulnerable to the impacts of climate change.
- The snowmobile industry is expected to be even more vulnerable because of the impracticality of relying on snowmaking. The snowmobile season in many areas in the Northeast may decrease by more than 50% by the end of the century depending on future emissions.¹¹
- Other winter activities that are embedded in the Northeast's winter culture—such as ice skating, ice fishing and cross-country skiing—are also in jeopardy.¹²

A GLANCE AT WHAT IS AT RISK

In the Northeast U.S., winter recreation is an important tourist attraction and is worth an annual \$7.6 billion to the regional economy.¹³



Most ski resorts in the Northeast are highly vulnerable to the impacts of climate change under a high emissions scenario.

Endnotes

1. Union of Concerned Scientists, *Confronting Climate Change in the U.S. Northeast*, 2007, <http://www.northeastclimateimpacts.org/pdf/confronting-climate-change-in-the-u-s-northeast.pdf>.
2. Forest Guild, *Climate Change, Carbon and the Forests of the Northeast*, 2007 http://www.forestguild.org/publications/research/2007/ForestGuild_climate_carbon_forests.pdf.
3. UCS 2007.
4. See pages 7 and 8 of Forest Guild 2007.
5. In New York State, it is estimated that by the 2080s, heat stress will result in the economic loss of \$37 to \$66 per cow per year. See NYSERDA, *Responding to Climate Change in New York State*, 2011 <http://www.nyserda.ny.gov/Publications/Research-and-Development/Environmental/EMEP-Publications/Response-to-Climate-Change-in-New-York.aspx>.
6. UCS 2007.
7. UCS 2007.
8. UCS 2007.
9. UCS 2007.
10. UCS 2007.
11. The figure is taken from page 88 of UCS 2007.
12. UCS 2007.
13. UCS 2007.

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