VULNERABILITY ASSESSMENT OF MAINE'S FOREST INDUSTRY TO CLIMATE CHANGE

THE UNIVERSITY OF MAINE

Contributors:
Alyssa Soucy -- Parinaz Rahimzadeh-Bajgiran
Sandra De Urioste-Stone -- Aaron Weiskittel
Matthew Duveneck -- Bridie McGreavy

The state of Maine is particularly sensitive to climatic changes given its high percentage of forested lands and socio-economic dependence on natural resources. Using various data sources, we created a series of map to understand the vulnerability of Maine's forest industry to climate change.

Methods

We used both social and ecological variables to describe 1) exposure to negative climate change impacts, 2) forest industry sensitivities to those impacts, and 3) the capacity for the forest industry to adapt to change (Table 1). Variables were selected based on forest professional opinions and a literature review. All variables were analyzed at the county-level and normalized to allow for comparisons across the state. As part of these efforts, last year we conducted a survey of forest stakeholders to assess measures of adaptive capacity.

Table 1. Vulnerability assessment variables

Component	Indicators
Exposure	Extreme precipitation events
	Change in winter conditions
	Change in mud season
	Pest and insect related tree mortality
	Deer browsing
	Changes in forest composition
Sensitivity	Market accessibility
	Density of transportation networks
	Ability to meet employment needs
	Dependency on forestry
	Proportion of county land forested
	Employee health
Adaptive Capacity	Social factors
	Cultural
	Human factors
	Political factors
	Agency
	Collective action

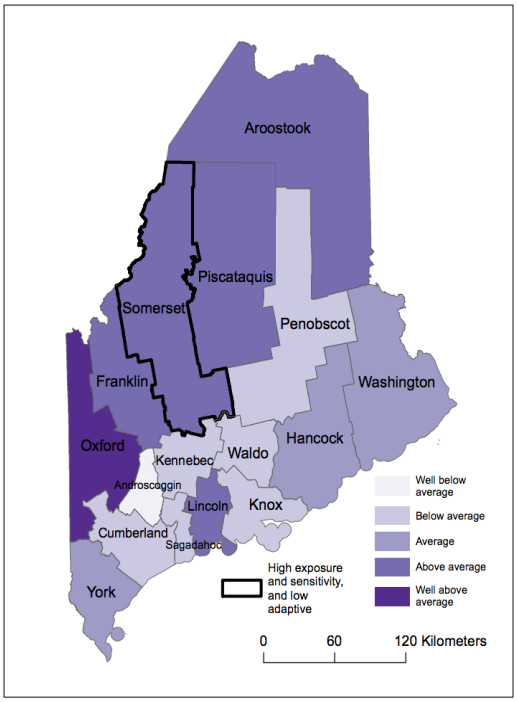

Figure 1. Overall vulnerability assessment map

Overall Vulnerability Results

Putting all three components together, we mapped overall vulnerability to climate change (Figure 1). Overall vulnerability is above average in five counties, primarily in northern and western Maine. Adaptation actions, especially those that increase capacity to respond to change, can be linked to certain regions of Maine based on those impacts and sensitivities.

Additional information can be found about the stakeholder survey here. This work was supported USDA National Institute of Food and Agriculture; AFRI Agriculture and Natural Resources Science for Climate Variability and Change; and the AVANGRID Foundation

Contact: Alyssa.r.soucy@maine.edu