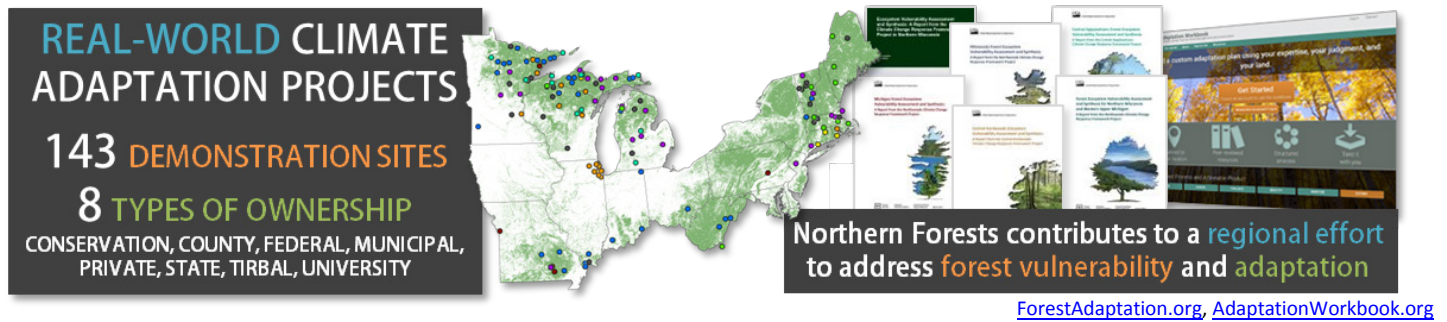




USDA Regional Climate Hubs: Northern Forests

Regional Vulnerability Assessment Summary



Climate Vulnerabilities in the Northern Forests

Regional Description:

Forests are a defining landscape feature across the footprint of the Northern Forests Climate Hub, which spans the Midwest and Northeast Regional Climate Hubs. Northern forests contain 42% of all US forests, 32% of US timberlands, and 41% of the US population, and are central to ecological, economic, and cultural values in the region. These ecosystems are already responding to changing conditions, and climate change is anticipated to have a pervasive influence on forests and wildlife over the coming decades.

Climate Related Hazards and Vulnerabilities:

- **Soil moisture patterns will change with drier soil conditions** later in the growing season (summer and fall). Seasonal changes in precipitation trend towards more frequent heavy rainfall events. Warmer winters may lead to earlier snowmelt in the spring, and longer growing seasons combined with warmer temperatures, may lead to more frequent moisture stress in the summer and fall.
- **Climate conditions will increase fire risks** by the end of the century, particularly for boreal forests, temperate coniferous forests, and temperate broadleaf forests. Increases in fuel loads from pest-induced mortality, blowdown events or other disturbances could increase fire risk.
- **Many invasive species, insect pests and pathogens will increase or become more severe and damaging.** Warmer temperatures may help invasive species and pests expand into new areas; and climate-related stress and disturbances in forest ecosystems can create more opportunities for non-native species and pests to invade.
- **Suitable habitat for northern species will decline**, and will become more suitable for southern tree species
- **Low diversity forest systems are at a greater risk.** Diverse systems are more resilient to disturbance with many more options to respond to change, reducing risk and increasing adaptability.

Adaptation and Mitigation Strategies:

- Employing applied approaches to adaptation through tools and resources such as the Forest Adaptation Resources publication (Swanston and Janowiak, 2012), which provides a structured process to integrate climate change considerations into natural resource management; drawing upon a **“menu” of 10 adaptation strategies and 40 adaptation approaches**, the Adaptation Workbook helps managers to devise actions for implementation. This approach has resulted in **~150 real-world examples of adaptation** (see image at top of page for project distribution).
- Fostering climate-informed management by leveraging the trainings, workshops, and the Online Adaptation Workbook tool training curriculum created by the Climate Change Response Framework.

Regional Priorities:

- Promoting **adaptation demonstrations**, leveraging these stories to advance climate change integration and adaptation in natural resource planning, particularly for owners and managers of woodlots, large forested areas, industrial lands, wildlife refuges, and watersheds.
- Focusing on **education and outreach** through the Climate Change Resource Center, Climate Change Response Framework, and Extension.
- Partnering with the Midwest and Northeast regional hubs on forest, and natural resource related projects

To learn more about this USDA Climate Hub visit: www.usda.gov/climatehubs

To read the full Vulnerability Assessment for this Hub visit: <http://go.usa.gov/3MJp4>