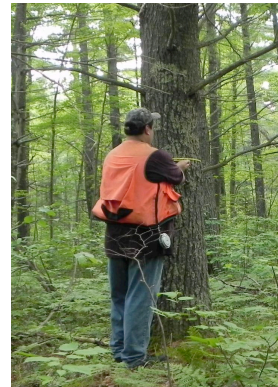




## NAWPA COMMITTEE CLIMATE CHANGE WORKING GROUP

### CASE STUDY OF CLIMATE CHANGE IMPACTS AND SOLUTIONS

#### FOREST SERVICE: COLLABORATIVE RESPONSE IN NORTHERN WISCONSIN



#### KEY MESSAGE

*The US Forest Service works with public, tribal, and private partners to help ecosystems and communities adapt to changing conditions.*

#### IMPLICATIONS FOR PROTECTED AREA MANAGERS RESULTING FROM CHANGES IN FORESTS

- Extreme weather events, such as severe precipitation events and drought, are expected become more frequent or severe, increasing disturbance in and damage to forests.
- Fire risk may increase, especially where warmer temperatures are combined with increased disturbance or forest stress.
- Soil moisture conditions are likely to change, with an increased risk of drier soil conditions later in the growing season that may reduce tree growth and productivity.
- Longer growing seasons could help improve tree growth where adequate moisture is also available.
- Many nonnative species, insect pests, and pathogens will increase or become more damaging.
- Tree species will respond differently to these changes, with some species responding favorably and others poorly, which will alter forest ecosystems.
- Ecosystem benefits and services provided by forests, including recreation, wildlife habitats, revenue, or cultural values may be disrupted or diminished by these changes.

#### CRITICAL STRATEGIES AND ACTIONS TO MITIGATE OR ADAPT TO IMPACTS

The Forest Service is leading the design and implementation of a comprehensive response to climate change in northern Wisconsin. The Climate Change Response Framework ([www.forestadaptation.org](http://www.forestadaptation.org)) is a collaborative, cross-boundary effort among scientists, managers, and land owners to incorporate climate change considerations into natural resource management. Currently covering 132 million acres, 9 states, 11 national forests, and more than 60 partner organizations, this approach is built around four key components:

1. **Partnerships:** Climate change is a cross-boundary issue because all lands will be affected in some way. Collaborative partnerships are the foundation for all activities.
2. **Vulnerability Assessments:** High-quality information about future changes in climate and the potential effects on forest ecosystems helps to identify the forest communities at greatest risk.
3. **Adaptation Resources:** A suite of information, ideas, and tools help managers integrate climate change information into land management planning and decision making.
4. **Adaptation Demonstrations:** Demonstration projects test new ideas and actions, grow partnerships, and provide real-world examples of climate change adaptation in forest ecosystems.

The Forest Service led the development of the pilot for the Climate Change Response Framework in northern Wisconsin, which has since been applied across millions of acres of public, tribal, and private lands in the Midwest and Northeast.

- Northern Wisconsin covers over 18.5 million acres, most of which is a rural landscape of forest and wetland ecosystems, farm lands, and hundreds of lakes and streams. Forests cover nearly half of the land and are an important driver of the local economy for providing both forest products and diverse recreational opportunities.
- Landownership in the region is complex, with half of forests being owned privately by individuals and families, and another 10% owned by private companies. Tribes also have significant forest landholdings. Federal, state, and local governmental organizations own only about one-third of forest lands.
- Given the varied landownership, a collaborative response to climate change was critical. The Shared Landscapes Initiative was developed to provide a forum for natural resource managers, landowners, and other interested parties to learn about and discuss responses for a changing climate.

Examples of how this collaborative effort has helped natural resource managers respond to climate change include:

- An *Ecosystem Vulnerability Assessment and Synthesis* ([www.nrs.fs.fed.us/pubs/38255](http://www.nrs.fs.fed.us/pubs/38255)) was developed to summarize the best available scientific information on climate change impacts and evaluate key ecosystem vulnerabilities under a range of future climate scenarios.
- The Shared Landscapes Initiative has brought together more than a hundred members of the forest resources community to increase awareness and practical discussion of the potential ecological and management challenges associated with climate change.
- The *Forest Adaptation Resources* guidebook ([www.nrs.fs.fed.us/pubs/40543](http://www.nrs.fs.fed.us/pubs/40543)) provided tools and resources for integrating new information into forest management planning and activities.
- Several adaptation demonstrations are underway, providing tangible examples of climate change adaptation. These include:
  - The Chequamegon-Nicolet National Forest has several demonstration areas, including projects that help respond to the impacts of climate change on priority watersheds, invasive species, forest management, and community wildfire protection.

- Friends of the Lincoln Community Forest updated their forest's management plan to enhance resilience to projected changes to forests.
  - Foresters at the Menominee Indian Reservation are restoring sites impacted by oak wilt infestation, and using scientific information to identify future-adapted tree species.
- Lessons learned from all aspects of this effort are being used to make improvement to the tools and resources developed through this project and are also being used as models and examples of climate-informed conservation and management in other places across the United States.