

FOREST ADAPTATION IN ACTION:

THE NEXT PHASE OF THE CLIMATE CHANGE RESPONSE FRAMEWORK

Maria Janowiak

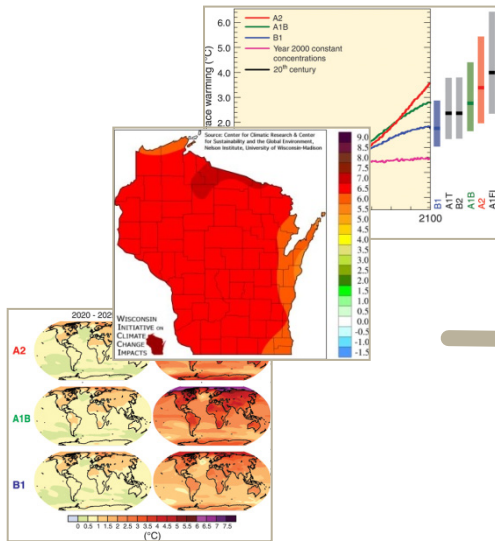
Chris Swanston, Leslie Brandt, Patricia Butler,
Stephen Handler, and Danielle Shannon



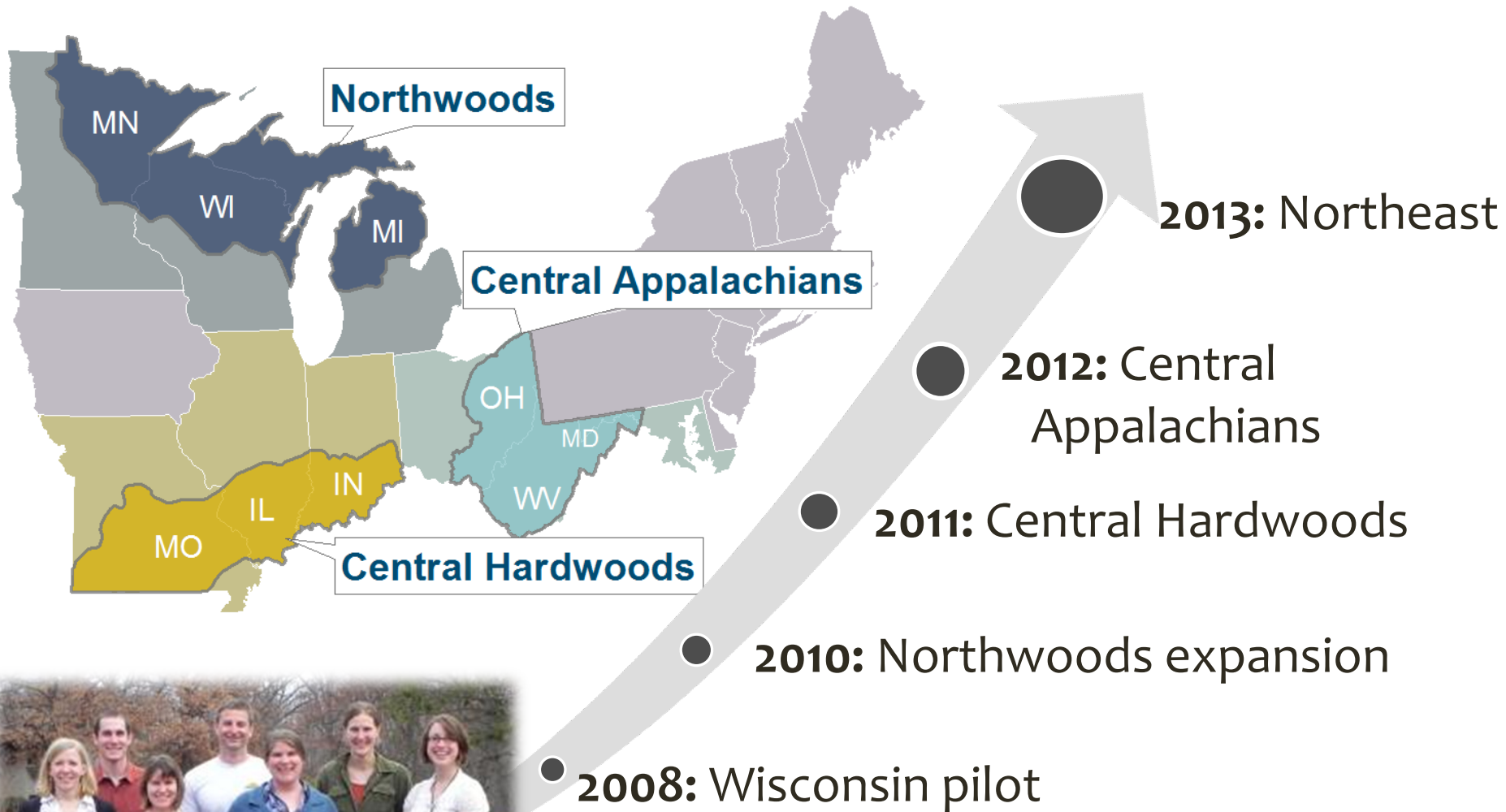
www.climateframework.org

Climate Change Response Framework

A collaborative approach among scientists, managers, and landowners to incorporate climate change considerations into forest management and support climate-smart conservation.



Climate Change Response Framework



Framework Approach:

1. Identify location, ecosystems and time frame.

2. Establish partnerships.

3. Assess ecosystem vulnerabilities.

4. Compile adaptation strategies and approaches.

5. Plan and implement at appropriate scales.

6. Integrate monitoring and evaluate effectiveness.

Project Components:

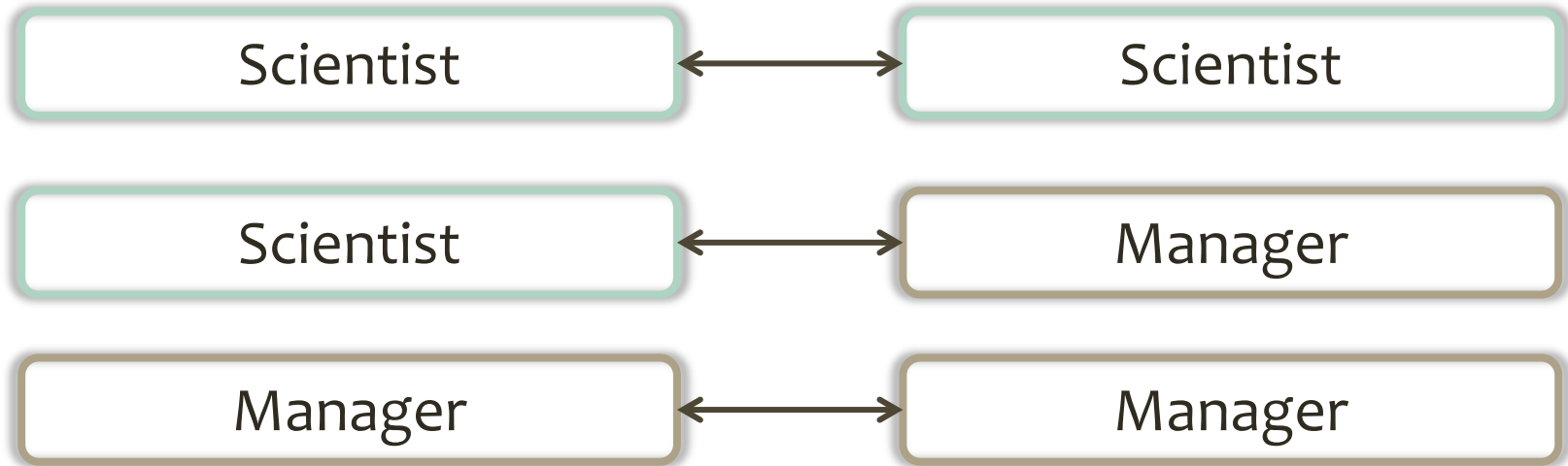
Partnerships

Vulnerability Assessment

Forest Adaptation Resources

Demonstration Projects

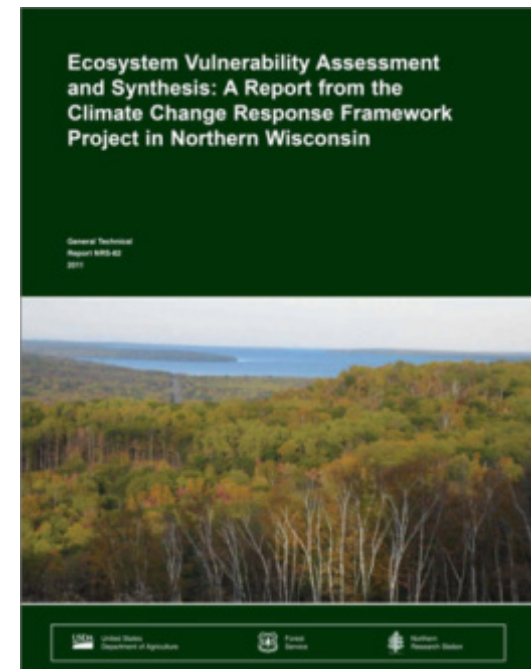
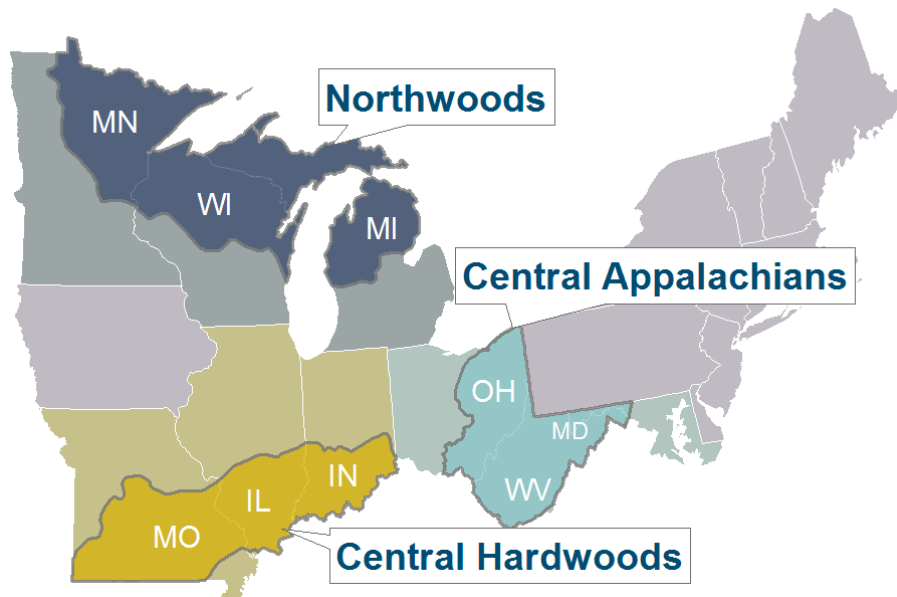
Partnerships



Vulnerability Assessment

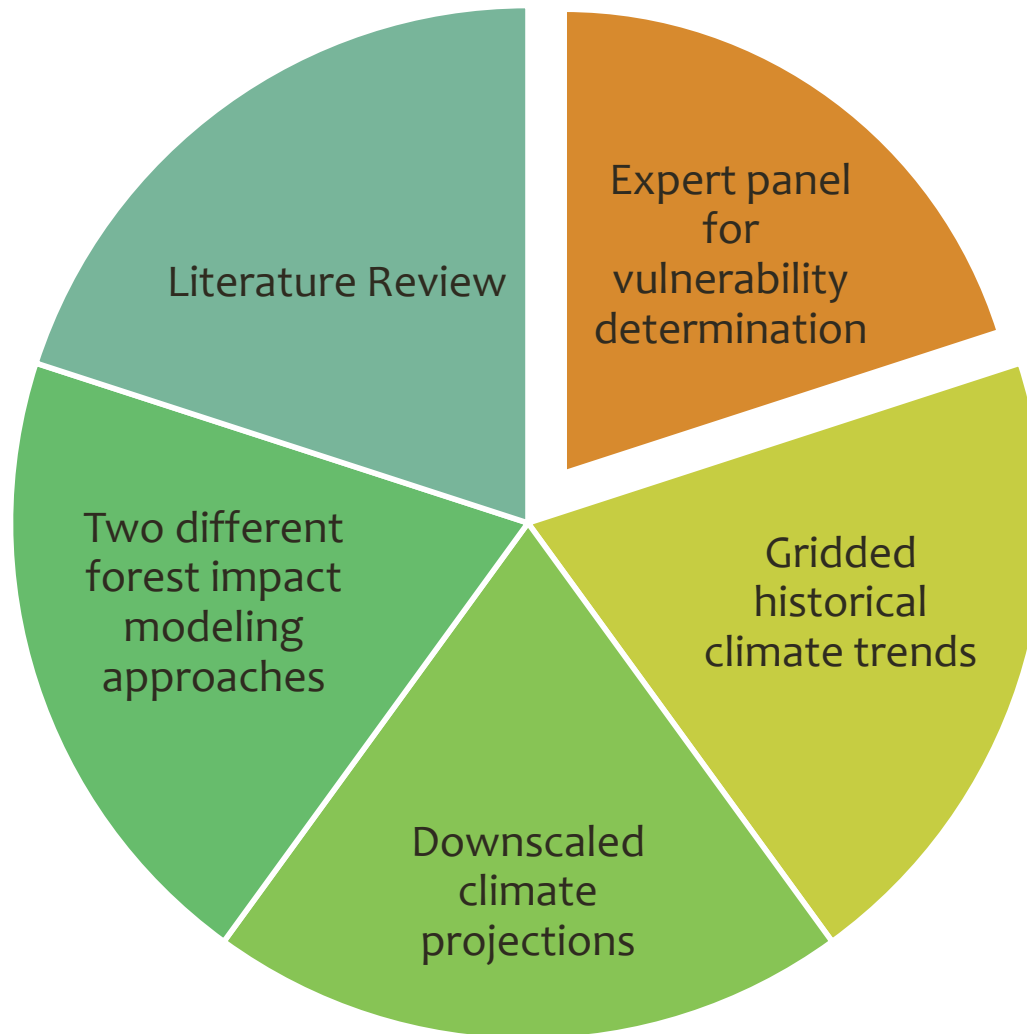
- **Audience:** land managers
- **Scope:** forest ecosystems
- **Scale:** ecoregion
- **Vulnerability of:**
 - tree species
 - Forest/natural community types

**Five assessments
in progress!!**



www.nrs.fs.fed.us/pubs/38255

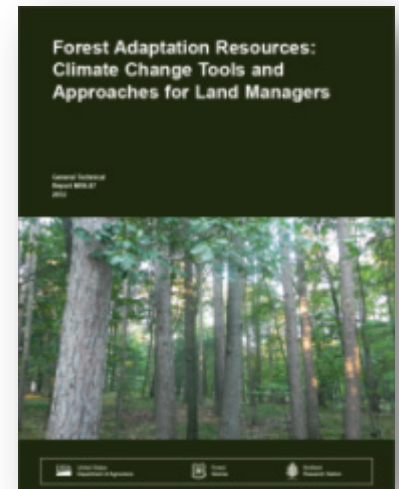
Vulnerability Assessment



Forest Adaptation Resources

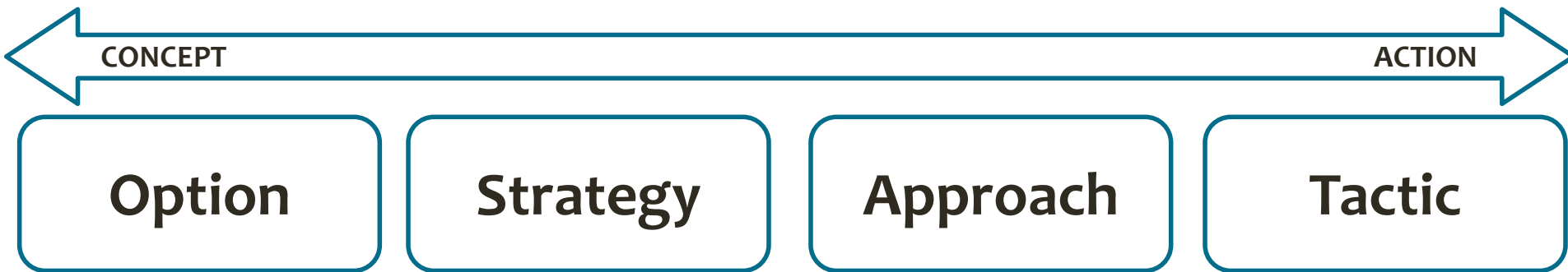
- Menu of **strategies & approaches** for climate change adaptation
- **Workbook process** for implementation
- **Illustrations** to show how it works
- Designed for a variety of land managers
- Tailored to local forest types
- **Does not make recommendations**

Being improved and expanded!!



Forest Adaptation Resources

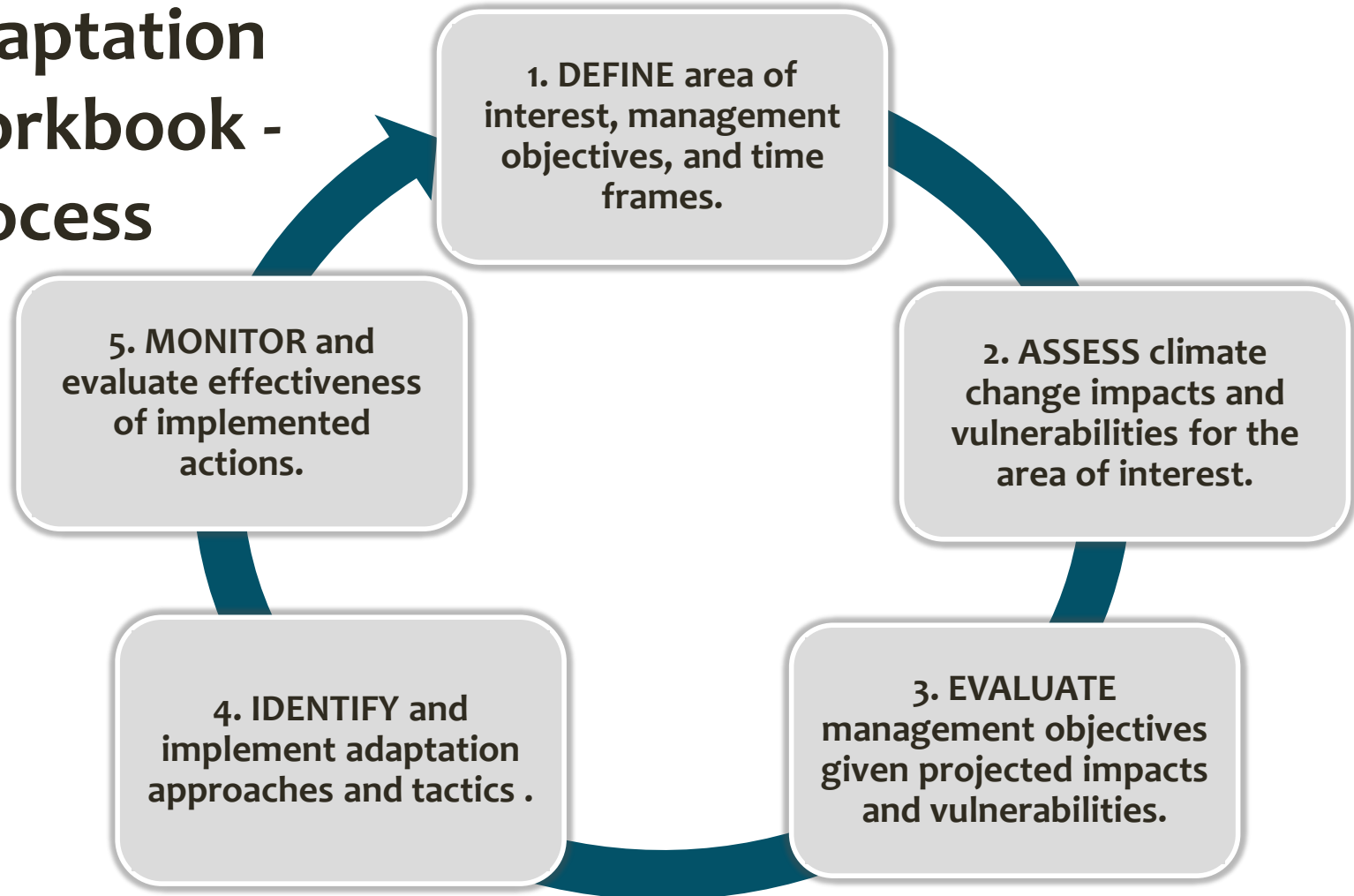
Adaptation Strategies and Approaches



- Reviewed adaptation literature
- Developed 10 strategies and 40+ approaches
- Refined based on reviewer comments

Forest Adaptation Resources

Adaptation Workbook - Process



Forest Adaptation Resources

Adaptation Workbook - Worksheets

Management Objectives	Challenges	Opportunities	Feasibility	Other Considerations

Adaptation Actions			Benefits	Drawbacks/ Barriers	Practicability	Recommend Tactic?
Approach (From Chapter 2)	Tactic	Time Frame				

Demonstration Projects

- Provide **real-world examples** of forest management activities that:
 - Enhance the ability of forests to cope with changing conditions
 - Achieve land owner management goals
- Foster **cross-ownership** dialogue and learning

Demonstration Projects

Chequamegon-Nicolet NF

- Priority Watersheds
- Black Torch (NEPA)
- Silvicultural Prescriptions
- Invasives Program
- Community Wildfire Plan

The Nature Conservancy

- Caroline Lake Plan
- Adaptation Forestry Plantings

• **Lincoln Community Forest Plan**

• **Bad River Natural Resources Dept.**

• **Ottawa National Forest**

• **Menominee Tribal Enterprises**

• **Others...**

Adaptation Demonstration Projects

Minnesota's North Shore (TNC)

Bad River Natural Resources Dept.


Ottawa National Forest

Lincoln Community Forest

Caroline Lake (TNC)

Chequamegon-Nicolet National Forest (Multiple)

Menominee Tribal Enterprises (start-up)

-  Federal Land
-  Local Government Land
-  Native American Land
-  Non-Governmental Organization
-  State Land

Summaries online at: www.climateframework.org

Demonstration Projects

Short Example:

Mature aspen stand on the Chequamegon-Nicolet National Forest



Aspen

Management Goals/Objectives:

- Regenerate mature aspen to
 - Enhance stand vigor
 - Achieve age class distribution
 - Provide wood
- Provide scenic integrity

Climate Change Challenges:

- Warmer temps, altered precipitation, drier summers
- Projected declines in many common northern species



Aspen

Actions already being done (win-win)

Practice	Current Purpose	Adaptation Benefits
Reserve trees and islands	Stand diversity, underrepresented species	Hedge against decline of one species; opportunity to favor future-adapted species
Stand regeneration	Meet management objectives; provide wood	Maintains aspen on site for longer; buys time

Aspen



Aspen

Easiest

- Plantings to increase the component of local, native species that are expected to fare better under warmer and drier conditions (red oak, white pine)



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More Difficult

- Use planting stock from populations that are better adapted to anticipated future conditions.
 - Local populations that survived drought
 - Populations outside seed zone

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Most Difficult/Expert Only

- Large-scale conversion of aspen to other forest types.

Demonstration Projects

Caroline Lake Preserve (TNC)



Caroline Lake Preserve (TNC)

Management Goals & Objectives:

- Maintain/restore forests that were historically characteristic
- Mid-to-late successional forests
 - Natural disturbances
 - Under-represented species

Climate Change Challenges:

- Warmer temps, altered precipitation, drier summers
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Caroline Lake Preserve (TNC)

Project Activities

- New, comprehensive forest inventory
- Adaptation actions will be identified and incorporated into a revised forest management plan
- Develop metrics for monitoring effectiveness of adaptation actions
- Feedback from managers to improve CCRF tools and resources
- Outreach to forest managers, land owners, and others

CCRF Next Steps

- Continue to grow and expand partnerships
- Work more in the Northeast
- Five vulnerability assessments
- Improved and expanded Forest Adaptation Resources
- Training and outreach
- Additional demonstration projects