Northern Institute of Applied Climate Science

NIACS is a multi-institutional partnership

Forest Service
- Northern Research Station
- Eastern Region
- Northeastern Area S&PF

Non-FS partners
- Michigan Technological University
- National Council for Air & Stream Improvement
- Trust for Public Land
- College of Food, Agriculture and Natural Resource Sciences

www.nrs.fs.fed.us/niacs/
The region’s forests are a national asset; they contain:

- 42% of U.S. forests
- 32% of U.S. timberland
- 41% of U.S. population

The climate is changing

The climate has changed and will continue to change. Forest ecosystems are directly impacted by changes in temperature and precipitation, and forests play a key role in mitigating and adapting to climate change.

Science delivery

The USDA Climate Sub Hub delivers science-based tools and information to land managers so they can make climate-informed decisions now.

The Sub Hub is a collaborative effort between agencies, universities, states, tribes and other groups. Connecting land managers to the right climate information speeds decision making.

The Sub Hub assists

- Professional Resource Managers
- Cooperative Extension agents
- Private Landowners
- USDA Technical Service Providers
April 14 – Agenda

9:30    West Virginia’s Changing Climate
10:15   Climate Change Effects on Forest Ecosystems
10:00   Break
11:00   Climate Change Effects on Hydrology and Wildlife
12:00   Lunch
1:00    Adapting Forests to Climate Change
1:30    Real-world Examples of Forest Adaptation
2:15    Break
2:30    Activity: Integrating Climate Change Into Your Work
4:00    Adjourn
April 15– Hands-on Training

An active, hands-on training, to assist natural resource professionals in incorporating climate change considerations and identifying actions for adaptation into their own real-world management and conservation projects.

1. DEFINE area of interest, management objectives, and time frames.
2. ASSESS climate change impacts and vulnerabilities for the area of interest.
3. EVALUATE management objectives given projected impacts and vulnerabilities.
4. IDENTIFY and implement adaptation approaches and tactics.
5. MONITOR and evaluate effectiveness of implemented actions.

Adaptation Strategies and Approaches

Vulnerability assessments, scientific literature, and other resources
CLIMATE CHANGE RESPONSE FRAMEWORK

6 Project Areas
246 Million Acres
14 National Forests
75+ Partners
(Federal, State, Tribal, Private)

Northwoods
64 million acres

New England
52 million acres

Mid-Atlantic
60 million acres

Central Hardwoods
42 million acres

Central Appalachians
28 million acres

Urban

Climate-Informed Conservation and Forest Management

forestadaptation.org
When we started...
Responding to Climate Change

There is not a single “answer”

Critical to start with:

- The place
- Management goals & objectives
Climate Change Response Framework

Structured, process oriented, works on multiple scales

Components:
- Partnerships
- Vulnerability Assessment
- Forest Adaptation Resources
- Adaptation Demonstrations
Vulnerability Assessments

- High-quality information about future change in climate and potential effects on forest ecosystems
- In New England, synthesizing current state and regional assessments to highlight greatest risks
Forest Adaptation Resources

- Designed for a variety of land managers
- Does not make recommendations
- Menu of strategies & approaches for climate change adaptation
- Adaptation workbook process for implementation

Swanston and Janowiak 2012; www.treesearch.fs.fed.us/pubs/40543
Provides **structured process** to integrate climate change considerations into management planning and activities

1. **DEFINE** area of interest, management objectives, and time frames.

2. **ASSESS** climate change impacts and vulnerabilities for the area of interest.

3. **EVALUATE** management objectives given projected impacts and vulnerabilities.

4. **IDENTIFY** and implement adaptation approaches and tactics.

5. **MONITOR** and evaluate effectiveness of implemented actions.

Vulnerability assessments, scientific literature, and other resources

**Adaptation Strategies and Approaches**
Forest Adaptation Resources

Step-by-step *Adaptation Workbook* for planning

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<th>Management Objectives</th>
<th>Challenges</th>
<th>Opportunities</th>
<th>Feasibility</th>
<th>Other Considerations</th>
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<th>Adaptation Actions</th>
<th>Approach (From Chapter 2)</th>
<th>Tactic</th>
<th>Time Frame</th>
<th>Benefits</th>
<th>Drawbacks/Barriers</th>
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Ways the Adaptation Workbook can be used:

- Coordinator facilitates individual or small group
- Forest Adaptation Planning and Practices workshop
  - General (West Virginia)
  - Public agencies (NRCS, DNR)
  - Conservation (WCS; DU; TNC)
- Managers use the workbook independently
  - NEW Online version!!
  - www.adaptationworkbook.org
Adaptation Demonstrations

- 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
- Illustrate **diverse goals** and approaches

[www.forestadaptation.org](http://www.forestadaptation.org) Click ‘Demonstration Projects’
Adaptation Demonstrations

www.forestadaptation.org
Click ‘Demonstration Projects’
Climate informed conservation and forest management.

**CLIMATE CHANGE RESPONSE FRAMEWORK**

- **6 Project Areas**
  - 246 Million Acres
  - 14 National Forests
  - 75+ Partners (Federal, State, Tribal, Private)

**Areas**

- **Northwoods** 64 million acres
- **New England** 52 million acres
- **Mid-Atlantic** 60 million acres
- **Central Hardwoods** 42 million acres
- **Central Appalachians** 28 million acres

- **Urban**

64 million acres

- **Central Appalachians** 28 million acres

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