



# The Eastern Region's Approach to Climate Change Response and the Performance Scorecard

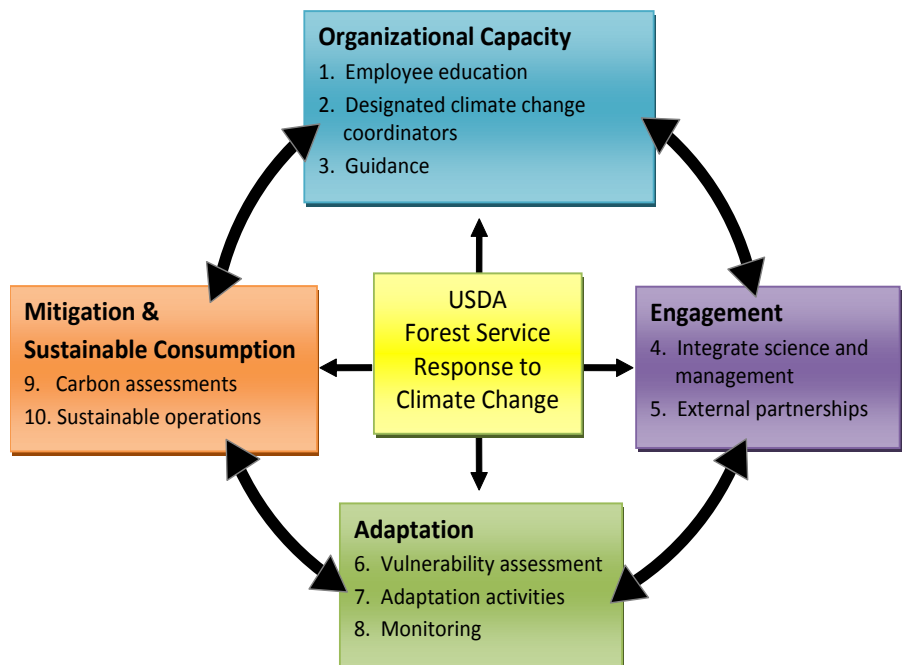
September 2011

The mission of the Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. In many places, climate change may challenge the ability of the Forest Service to achieve its mission. Changes in climate can have direct and indirect impacts on ecological, social, and economic systems. Understanding these threats is critical to achieving our Agency's mission over the long term. Responding to climate change requires an integrated response, where knowledge and information about current and future threats and opportunities are incorporated into all aspects of our Agency's operations.

In summer 2010, the Forest Service released the National Roadmap for Responding to Climate Change, which outlines ongoing activities, near-term actions, and long-term goals for assessing impacts and policies, engaging with partners, and managing National Forests and Grasslands. Performance on achieving the goals in the Roadmap is measured through the Climate Change Performance Scorecard, which addresses 10 elements for responding to climate change in 4 dimensions (Fig. 1). All National Forests and Grasslands are assessed annually

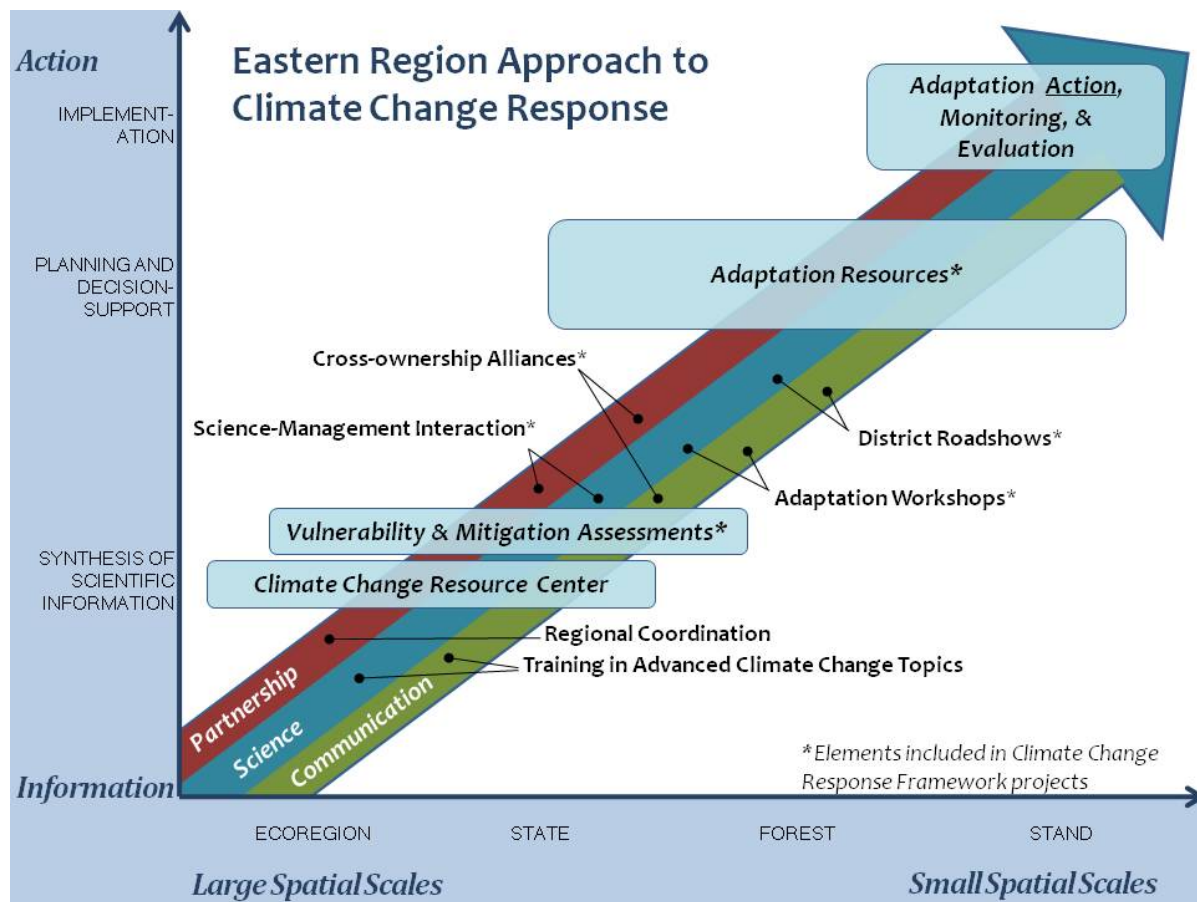
on their progress toward satisfying the Scorecard elements through 2015, with an ultimate goal of fully integrating climate change considerations into Agency operations.

A strategic approach to addressing climate change centered on the scorecard elements has been launched regionally through the Eastern Region's leadership and support, coupled with the science and coordination expertise of the Northern Research Station, Northeastern Area State and Private Forestry, and the Northern Institute of Applied Climate Science (NIACS). These programs work collectively to



ensure a successful response to climate change needs. A large portion of the Region’s approach to climate change is carried out through its charter with NIACS.

By strategically addressing each element in the Climate Change Scorecard on a regional level, **we will help ensure that each National Forest and Prairie in the Region is able to meet or exceed the national goal of completing 7 out of 10 Scorecard elements by 2015.** In the long-term, achieving these Scorecard elements will ensure that considerations of climate change are incorporated into land management plans and finally on-the-ground actions (Fig. 2).



**Fig. 2.** The Eastern Region’s Approach to Climate Change Response works from large ecoregional scales down to the stand level by moving information to action through partnerships, science, and communication. Many components of the Eastern Region’s Approach are accomplished using the Climate Change Response Framework.

### The Eastern Region’s Approach by Scorecard Element

- 1 Education:** Educational programming at many levels is coordinated through NIACS, including:
  - Forest-level workshops and “road shows” for employees.
  - Integration of climate change into other specialized training programs such as the National Advanced Silviculture Program.

- *Training in Advanced Climate Change Topics (TACCT)*, a 40-hour intensive training offered annually to Forest and Prairie climate change coordinators and resource specialists. Participants develop educational workshops, posters, and other materials for all employees on their respective units.
- The Climate Change Resource Center (<http://www.fs.fed.us/ccrc/>) provides training and credible information on climate change adaptation to specialists.

**2 Climate Change Coordinators:** The Region has a well-developed network of unit-level climate change coordinators. Coordinators:

- Meet quarterly via virtual town-hall meetings to share successes and discuss ways to overcome challenges.
- Receive regular emails and a monthly newsletter from NIACS, which features climate change tools and project updates.
- Participate in training, such as Training in Advanced Climate Change Topics (see Element 1).

**3 Guidance:** The Regional Office provides guidance for incorporating climate change into daily activities.

- A Regional climate change steering committee will be launched to provide overall leadership, coordination, and guidance for the Region on climate change response.
- Regional Office directors, program managers, and climate change coordinators provide guidance and support to individual units through various mechanisms, including assistance in partnership development, developing educational programming, and serving on Climate Change Response Framework project committees.
- Each unit is best able to incorporate climate change considerations into their specific work plans based on their individual needs, constraints, and opportunities. The Region will provide support as individual units develop place-based guidance.

**4 Science-Management Partnerships:** Regional science-management coordination in response to climate change is delivered programmatically through NIACS and the Eastern Forest Environmental Threat Assessment Center (EFETAC), but individual units are encouraged to work with local universities, USFS scientists, and other researchers.

- NIACS coordinates Climate Change Response Framework projects that bring scientists and managers together to assess vulnerabilities and identify adaptation options (see below).
- EFETAC organizes monthly East-wide webinars for the Forest Service research and management communities to share ideas.
- Both NIACS and EFETAC work as part of a national team to deliver the latest science to land managers through the Climate Change Resource Center website.

**5 Other Partnerships:** Landscape-scale conservation (LSC) is a focal point of the Region.

- A fundamental approach to LSC is defined in a jointly written position paper by the Region, Northern Research Station, Northeastern Area, and Northeastern Area Association of State Foresters.
- The Region is involved with many landscape-scale collaborations, including Fish Habitat Partnerships, Landscape Conservation Cooperatives, Climate Science Centers, and Joint Ventures.

- The assistant director for LSC provides overall leadership in establishing regional partnerships with organizations with a shared interest in managing ecosystems in a changing climate, including federal, tribal, state, county, private, and non-governmental organizations.
- Memoranda of Understanding have been established with The Nature Conservancy and the Trust for Public Land to work jointly on climate change issues.
- Individual units build on these partnerships and seek out additional state-wide and sub-regional organizations with common interests through mechanisms such as Climate Change Response Framework projects (see below).

**6 Assessing Vulnerability:** The Region has taken an ecoregional approach to addressing climate change vulnerabilities on National Forest System units and the surrounding landscape.

- The majority of units (currently 11 of 15) are assessing vulnerabilities to a changing climate through Climate Change Response Framework projects (below).
- The Green and White Mountain National Forests have partnered with the North Atlantic LCC to assess regional vulnerabilities. The Green Mountain is also working with the state of Vermont to assess vulnerabilities at smaller scales.
- The Midewin National Tallgrass Prairie is assessing vulnerability with Chicago Wilderness.
- Other approaches to assessing vulnerability may take place at local scales, such as the Chequamegon-Nicolet climate change watershed vulnerability assessment.

**7 Adaptation Actions:** Climate change adaptation actions build upon knowledge gained through vulnerability assessments.

- A process for incorporating adaptation strategies and approaches into decision-making and actions at multiple scales was developed as part of the Climate Change Response Framework.
- Similar efforts will be undertaken for the White and Green Mountain National Forests and Midewin National Tallgrass Prairie through their respective partnerships, or possibly through engagement with NIACS and Framework tools.
- The Region is working to coordinate these activities with other management and restoration goals, such as those identified in the Watershed Condition Framework.

**8 Monitoring:** Monitoring needs are identified through vulnerability assessments and the process of selecting adaptation actions.

- The Regional Office and NIACS help individual units identify when new monitoring may need to be undertaken or in finding existing sources of information.
- The Regional Office is identifying collaborative, regionally-coordinated monitoring approaches to address additional needs.

**9 Carbon Assessment and Stewardship:** The Eastern and Southern Region are working jointly with the Northern Research Station to develop baseline estimates of carbon stocks and stock change.

- Baseline data will be available for all Eastern National Forests using the latest Forest Inventory and Analysis data.

- Estimates will be available publicly via a new add-on package to the Forest Inventory and Analysis's Evaluator tool.

**10 Sustainable Operations:** The Region is working toward achieving agency-wide, department-wide and federal government-wide goals for reducing our environmental footprint through a variety of mechanisms.

- The Region is developing a document outlining its current and planned approach to sustainable operations.
- The regional sustainable operations coordinator in the engineering staff coordinates with Washington Office, Regional Office, and unit-level counterparts that deal with sustainable operations issues, such as fleet managers, environmental engineers, EMS coordinators, energy managers, water/waste water engineers, forest engineers, facilities engineers, purchasing, property management, INFRA coordinators, and green teams to provide them with the latest information related to reducing our agency's environmental footprint.
- Training on sustainable operations is provided from several sources, including National Renewable Energy Laboratory training for energy managers, Energy Audit workshops available through regional technical services team, and National Sustainable Operations webinars and virtual conferences.

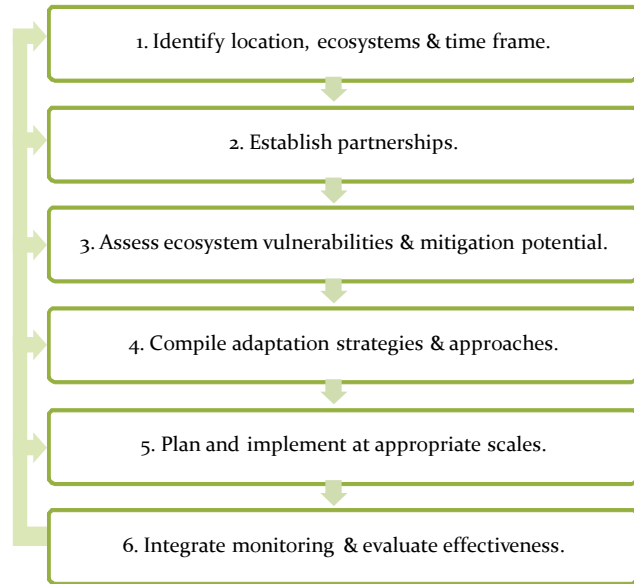
## Regional Coordination

Climate change activities in the Eastern Region are coordinated through the Planning, Appeals, Litigation, and Landscape-Scale Conservation (PAL/LSC) staff area. The PAL/LSC director provides overall leadership and serves as the regional representative to the national climate change Field Team. The assistant director of PAL/LSC coordinates regional partnerships, working closely with NIACS and Regional staff areas. The regional climate change specialist, serving on the staffs of both NIACS and PAL/LSC, serves as a liaison between the Region and research community on climate change issues. Members of other staff areas involved with climate change, including AWLSM, Renewable Resources, PAL/LSC, and Engineering, serve on the Regional Steering Committee and provide expertise on particular climate change issues. Bi-weekly coordination calls with the Region and NIACS help ensure progress is communicated and that climate change activities are integrated with other initiatives, such as the Terrestrial Condition Framework and the Watershed Condition Framework.

## Climate Change Response Framework

The Climate Change Response Framework is an approach to climate change response that has been adopted widely throughout the Region. **Three ecoregional Climate Change Response Framework projects are coordinated by NIACS, and currently serve 11 of the 15 units in the Region.** Climate Change Response Framework projects are collaborative efforts among scientists, managers, and landowners to inform, communicate and apply the results of climate change assessments. The Framework addresses multiple scorecard elements through an integrated process.

The Framework works at multiple spatial and temporal scales. In the broadest sense, it is applied conceptually throughout the region. This general process is then adapted to individual ecoregions, Forests, and finally at the project level. This process is flexible enough to be adapted to a wide variety of ownership types, so it allows for a coordinated “All Lands” response to climate change. The Framework does not make recommendations, but enables units to make informed decisions based on their specific needs and constraints. The Response Framework can broadly be summarized in a process diagram by a series of 6 steps (Fig. 2):



**Fig. 2.** The Response Framework.

**1. Identify location, ecosystems and time frame**

- Defines the geographic scale of the analysis area, the ecosystems of interest, and relevant timelines.
- Geographic scale is chosen to provide an adequate level of detail in the assessment stage for later use in management decisions.
- These parameters can be refined throughout the process as needed.

**2. Establish partnerships**

**Scorecard elements:** 1 4 5

- Increases the amount and accessibility of information and ideas.
- Key partners are brought into the process as early as possible at both local and regional levels.
- Builds upon established relationships and creates new partnerships when appropriate.
- Workshops ensure a shared level of climate change understanding and establish and energize partnerships.

**3. Assess ecosystem vulnerabilities and mitigation potential**

**Scorecard elements:** 1 4 6 9

- Assessments address vulnerabilities and mitigation opportunities of individual tree species and forest or plant community types within a larger ecoregion.
- A panel of scientists and managers put scientific results in context.
- Scientists and outreach specialists present new information to resource managers and others at “road shows” or other events, linking potential impacts to the on-the-ground activities.

**4. Compile adaptation strategies and approaches**

**Scorecard element:** 7

- Re-examines the breadth of adaptation strategies being discussed in scientific and management communities within the specific context of the analysis area and its ecosystems to help identify an array of strategies that are the most relevant for local land managers.
- This comprehensive array of strategies and approaches serves as a “menu” from which managers can select actions based on their management needs for a particular situation.

**5. Plan and implement at appropriate scales**

**Scorecard elements:** 1 3 7

- Works with land owners and managers to devise adaptation tactics that are best suited to their needs and constraints.
- The implementation of tactics will vary widely across ownerships and through time, just as there is currently a wide variety of tactics applied in forest management.
- Works at multiple temporal and spatial scales, from short-term projects to long-term planning.
- Integrates focused educational efforts at the District level regarding climate, adaptation, and use of tools.

#### 6. Integrate monitoring and evaluate effectiveness

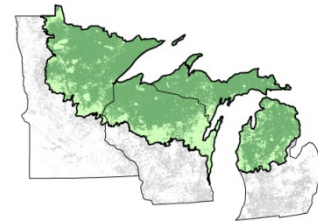
Scorecard elements: **4** **8**

- Evaluates whether management actions are effective in responding to climate change and reducing the vulnerability of ecosystems to changes that are occurring.
- Monitoring implementation and management response to monitoring results will depend upon land managers' particular decision-making processes and plans.
- Results from monitoring can be integrated throughout this framework to refine individual steps.
- Monitoring is conducted at scales appropriate to the questions asked.

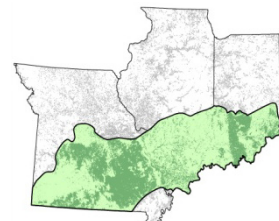
### Framework Project Locations

- **Northwoods:** Ecological Province 212 in Northern WI, MN, and MI. Northern WI portion launched 2009, expanded to MI and MN in 2011. Forests covered: Chippewa, Superior, Chequamegon-Nicolet, Ottawa, Hiawatha, and Huron-Manistee.
- **Central Hardwoods:** Ecological Province 222 in Southern IL, IN, and MO. Launched spring 2011. Forests covered: Mark Twain, Shawnee, and Hoosier.
- **Central Appalachians:** Ecological Province 221 in OH and WV. To be launched fall 2011. Forests covered: Wayne, Monongahela.

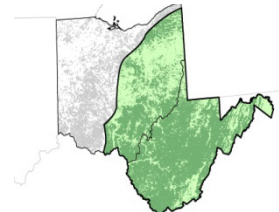
#### Northwoods



#### Central Hardwoods



#### Central Appalachians



### Key Framework Contacts

Chris Swanston (NIACS director, [cswanston@fs.fed.us](mailto:cswanston@fs.fed.us))

Maria Janowiak (Northwoods: northern WI and Ottawa, [mjanowiak02@fs.fed.us](mailto:mjanowiak02@fs.fed.us))

Stephen Handler (Northwoods: MN and MI, [sdhandler@fs.fed.us](mailto:sdhandler@fs.fed.us))

Leslie Brandt (Central Hardwoods: IN, IL, and MO, [lbrandt@fs.fed.us](mailto:lbrandt@fs.fed.us))

Patricia Butler (Central Appalachians: OH, WV, [prbutler@mtu.edu](mailto:prbutler@mtu.edu))

### Regional Program of Work FY 2012

Training in Advanced Climate Change Topics **1**

- Host training in spring of 2012 for regional employees.
- Expand to a national model by inviting other regions and agencies.

Climate Change Resource Center Website **1** **4**

- Provide a directory of resources to support each element of the climate change scorecard.
- Publish an on online short course on carbon science, management, assessments, and markets.

- Release a video lecture series on climate change impacts on vegetation.

#### Regional Coordination and Guidance 3

- Launch Regional Steering Committee.
- Increase the frequency of Town Hall meetings and other outreach events for unit coordinators.
- Integrate with Watershed Condition Framework and Terrestrial Ecosystem Condition Framework.

#### Partnerships 4 5

- Expand engagement with the Department of Interior’s Landscape Conservation Cooperatives and Climate Science Centers.
- Identify opportunities for engagement with forestry councils, conservation groups, tribes, and others around climate change issues from local to regional scales.
- Coordinate internally with other USDA agencies, particularly NRCS.

#### Framework Projects 1 3 4 5 6 7 8 9

- Launch Central Appalachians Climate Change Response Framework.
- Complete vulnerability assessments for Northwoods and Central Hardwoods Framework projects.
- Establish Cross-Ownership Alliances and Science Roundtables for Northwoods and Central Hardwoods Framework Projects through a series of workshops.
- Identify appropriate implementation and monitoring activities for the northern WI Framework.
- Support modeling of climate change impacts on tree species and forest ecosystems through partnerships with the Northern Research Station, academic research communities, and LCCs.
- Look for ways to incorporate additional information about social and economic impacts of climate change into vulnerability assessments.

#### Carbon Assessment 9

- Deliver estimates of carbon stocks by forest type, age, and productivity for all National Forests in the Region.
- Provide a publicly available tool for carbon stock estimates through Forest Inventory and Analysis.

## Current Regional Support and Needs

Through its charter with and ongoing financial support from the Region, NIACS coordinates Climate Change Response Frameworks, Training in Advanced Climate Change Topics, and a large portion of the Climate Change Resource Center. Continued support from the Region ensures that NIACS is able to help the Region achieve its goals. As the Framework Projects expand to other parts of the Region, additional financial support may be needed for climate change impact modeling and social and economic modeling and information that feeds into the vulnerability assessments. This support will leverage funding from other sources such as the Northern Research Station, Northeastern Area, EFETAC, USGS, and the LCCs.

With additional support, the Region will be able to make progress in other climate change programs, such as FIA carbon baseline assessments, vulnerability assessment projects with other organizations, assessments of social and economic impacts of climate change, sustainable operations coordination and goal attainment, and regional partnership building, particularly with tribes and groups representing underserved populations.