

Engaging a Climate Ready Agency

From Dave Cleaves, Forest Service Climate Change Advisor



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This update on Forest Service climate change activities is brought to you by the Climate Change Advisor's office (part of the Chief's Office). Previous editions are available on [our new website](#). The purpose of these updates is to help us keep our eyes on the prize of healthy and functioning ecological, social, and economic systems as the climate around them changes. We are working to bring climate change knowledge into our organizational expectations and actions. We will be learning by doing and learning from each other as we work to connect the strong fibers of this vast organization.

MESSAGE FROM DAVE

"Building in" a balanced response to climate change ... and being accountable

On July 20, the Forest Service announced a new system for integrating consideration of climate change into agency operations. This system is based on our Strategic Framework for Responding to Climate Change, adopted by leadership in 2008, and tiers to the new [USDA strategic plan](#) that emphasizes forest resilience to climate change.

Our climate change performance system is anchored by three tools – a national [Roadmap](#), a [Performance Scorecard](#), and the [Climate Change Resource Center](#) (CCRC). Each of these tools has full leadership support and commitment. The Roadmap outlines sets of ongoing, short-term, and longer-term actions that will enhance the resiliency of our ecological and human systems to climate-driven changes. The Scorecard breaks our accountability into four dimensions – agency capacity, engagement (partnerships/education), adaptation, and mitigation/sustainable consumption. The CCRC, now a national resource, provides information and tools to support performance and innovation.

All National Forests and Grasslands will assess their response to climate change using the questions in the Scorecard. The national office is developing guidance that will be completed by the end of the calendar year. After the release of this guidance, forests and grasslands will complete a reference assessment for the FY 2010 Scorecard. Regions, research stations, and national program offices will also take stock of what they are already doing and what they plan to do, allowing us to develop a coherent national picture and to identify resource, technology, policy, or other gaps that we need to fill.

The Scorecard was built on three principles: balance, flexibility, and accountability. Balance in our climate change response – reflected in the four dimensions of the scorecard – means that the elements of the scorecard support one another and that we can't go off the deep end with a single emphasis. For example, we can't mitigate greenhouse gas emissions through forest management without also adapting to climate change. This is because the role of our nation's forests in the carbon cycle depends on sustained health and is intertwined with so many other ecosystem services. Another example is the balance and integration between agency capacity and engagement. We can't create enough impact unless we engage partners on a landscape scale around a shared vision. We also need to balance engagement, adaptation, and mitigation with agency capacity. The success with which we

adapt to climate change and help mitigate emissions depends on employee awareness, a strong connection between science and forest management, and actions based on well-informed judgment.

Flexibility means that this system was not meant to be one-size-fits-all. The impacts of climate change and the options for responding vary regionally and across the rural to urban spectrum. Forests must be able to respond to these unique patterns and problems. The flexibility to operate at the most effective scales and across traditional boundaries will be vital. Some of the tools for dealing with the pervasive influence of climate change may be better developed at the regional or even national level. It may be inefficient and inconsistent for each forest to devise vulnerability assessments, adaptation and carbon management strategies, and landscape-level partnerships. These foundational actions are probably better done at the multi-forest or regional level. This will take coordination and a strong partnership between the national forest system, state and private forestry, and the research stations.

Accountability is just as important when dealing with climate change as any other issue faced by government. Because of limited financial resources, every aspect of government operations will be scrutinized by the Administration, Congress, and the American public. We in the Forest Service believe that what we do makes a difference in climate change response just as in the other facets of our mission pursuit. But we need to create compelling evidence to array alongside other agencies that are vying for increasingly scarce resources. We must continue to show that our programs have impact as a national effort; they are not just a collection of noble, individual actions. A recurring question will be how well our agency accomplishments are aligned with our stated goals. By linking field accomplishments directly with the USDA Strategic plan, which devotes one of its four goals to our nation's forests, our climate change performance system allows us to more fully describe and justify the total impact of our actions.

Our performance system is an opportunity for the Forest Service to step out on one of the major issues of our time. We can show that what we do is relevant to the lives of today's and tomorrow's citizens. Does this mean we are about to turn the whole national forest system upside down, chasing climate change? No. Instead, we are incorporating climate change considerations into what we already do in our many programs. We will need to reshape the appropriate elements, mixes, and locations of those activities based on the best predictions we have about where climate change is taking us. As we do this, our major functions – restoration, fire, fuels, forest health, recreation, public affairs, and many others – will be better positioned for the future.

What kinds of accomplishments can be considered for the scorecard? They should be activities that are being directed in some demonstrated, justifiable way to dealing with the effects of a changing climate or the opportunities to reduce the net emission of greenhouse gases either in land management or consumption/operations. These activities could include moving facilities to prevent flood damage, treating stands to relieve water stress, responding rapidly to invasive species, increasing landscape connectivity, conserving genetic material, creating and expanding partnerships with scientists and stakeholders, monitoring for climate change impacts, raising climate change awareness among employees and the public, and reducing energy use.

As the effects of climate change begin to take a larger toll on our national forests, the public will ask us what is happening to their favorite forests, trees, recreation areas, water supplies, and wildlife species and what we are doing about it. We already have a good start on our answer, but we need to up the level of the game, reshape some of the ways we do things, adapt to changes around us that are already well underway, and build a track record. The climate change performance system will help keep us balanced, flexible, and accountable as we move together as an agency as leaders in the response to climate change.

FROM THE WASHINGTON OFFICE

National Roadmap for Responding to Climate Change

Forest Service Chief Tom Tidwell, in a message to all employees, emphasized that every program and unit in the Forest Service has a role to play in responding to climate change. In fact, the new USDA Strategic Plan for 2010-2015 sets a departmental goal to “Ensure our national forests and private working lands are conserved, restored, and made more resilient to climate change, while enhancing our water resources.” As a measure of this goal, all National Forests are to come into compliance with a climate change adaptation and mitigation strategy. To guide the Forest Service in achieving this goal, we have developed a [Roadmap for Responding to Climate Change](#). And, to measure our progress in moving toward this goal, we have implemented a [Performance Scorecard](#).

RMRS at the WO for a series of climate change seminars

RMRS visited the WO in August to present an overview of climate change science at the station. Scientists Mike Schwartz, Dan Isaak, Rachel Loehman, and Robin Tausch discussed their research on assisted migration, western watersheds, fire, and changes in Great Basin ecosystems.

FROM THE FIELD

Template for Assessing Climate Change Impacts and Management Options (TACCIMO)

The Eastern Forest Environmental Threat Assessment Center held their first webinar on July 15 for the newly released [TACCIMO](#) web tools. TACCIMO allows users to integrate current climate change science into land management planning decisions through an interactive web-based tool. The tool fits within the NEPA process and can be used in land management plan revision, environmental assessments and impact statements, and reasonable alternatives. Additional webinars will be conducted over the next few months; contact Steve McNulty at steve_mcnulty@ncsu.edu or Emrys Treasure at etresure@fs.fed.us for more information.

National adaptation workshop presentations now available online

“Adapting to Climate Change on National Forests: A Workshop for Resource Managers” was convened in April 2010 to provide a forum for Forest Service leadership and land managers to learn about climate change adaptation. Building on case studies of adaptation on national forests and national parks, the workshop focused on processes used to facilitate learning about climate change science, vulnerability assessment of resources to climate change, adaptation to climate change across diverse resource disciplines, and implementation of adaptation in planning. The workshop included extensive dialogue on how ecosystem resilience can be integrated in sustainable forest management. [Workshop presentations in a rich-media video format are now available online at the Climate Change Resource Center](#). These presentations provide a new source of information that can assist resource managers and planners with understanding and implementing climate change adaptation on national forests and other federal lands.

RMRS tool for exploring interactions of climate change and disturbance

RMRS's Fire, Fuel and Smoke Science Program (FFS) leads the development and implementation of the FireBGCv2 modeling platform, a tool for exploring interacting effects of climate change and disturbance (e.g. wildfires, pests, and pathogens) on forest composition, structure, carbon dynamics, hydrologic dynamics, and ecosystem processes. Research projects currently funded and underway at FFS include: effects of climate change and wildfires on wildlife habitat suitability; assessing and adaptively managing wildfire risk in the wildland-urban interface for future climate and land use changes; strategic role of large herbivore grazing on succession, fuels, and fire dynamics in a changing climate; fire and fish dynamics in changing climates; and exploration of critical climate-driven thresholds in landscape processes. Key results from the research include characterization of the significant, differential effects of varying future climate change scenarios on landscape patterns, processes, and species composition; projected substantial decreases in grizzly bear and Canada lynx habitat suitability in Glacier National Park as a consequence of changing climate and land cover; and identification of restoration factors for high elevation five-needle pines under changing climates. For more information on the FireBGCv2 modeling platform and associated research see the FFS website at www.firelab.org or contact Rachel Loehman at rloehman@fs.fed.us.

Workshop on web-based weather and climate tools

Staff at the Grand Mesa, Uncompahgre, and Gunnison National Forest participated in a workshop on web-based weather and climate tools in May in Gunnison, CO. Organized by the Rocky Mountain Research Station and Western Water Assessment, University of Colorado, the workshop objective was to increase staff facility with historical and current weather/climate information. Understanding the uncertainty of local weather/climate information and associated risks of weather/climate events may assist resource managers in describing and anticipating likely future changes in climate factors such as precipitation, temperature, and extreme events. Part of the workshop also explored the social network of how weather and climate information is communicated within the Forest and with stakeholders. A portal of existing weather, climate, and streamflow information relevant to the GMUG NF was developed and is accessible at the [GMUG Climate Portal](#). For more information, contact Linda Joyce at ljoyce@fs.fed.us

NATIONAL PROGRAMS AT WORK

Engineering our facilities for sustainable consumption

Reducing greenhouse gas emissions by reducing our energy use is an important component of our Engineering program. Reducing energy use also creates a savings to taxpayers. In the Los Prietos Ranger Station in the Santa Barbara Ranger District of Los Padres National Forest, Area Engineer Richard Nielsen installed a rotary vent system, salvaged from an abandoned cabin, and will be adding a solar-powered attic fan. These systems ventilate buildings efficiently, reducing power usage by lowering the need for air conditioning. The salvaged rotary vent saves approximately \$500 a year and the solar-powered fan is expected to generate enough savings to pay for itself in a few months. You can share your sustainability solutions and learn more about solutions used by other Forest Service employees at [Sustainability Solutions](#) and the [Sustainability Toolbox](#).

RECOMMENDED READING

Climate Q&A

NASA Earth Observatory

When it comes to climate change, the questions people have are limitless. Some of these questions are scientific, some are economic, some are political, and some are moral. Some questions have answers today, and some won't be answerable for decades. The [Climate Q&A](#) website offers answers to some of the questions people ask us about the science of global warming and climate change and about climate science topics that people often misunderstand. All posts are written or reviewed by Earth and climate scientists.

Climate Change in the Tahoe Basin: Regional Trends, Impacts and Drivers

Robert Coats

This [study](#) quantifies the decadal-scale time trends in air temperature, precipitation phase and intensity, spring snowmelt timing, and lake temperature in the Tahoe basin, and relates the trends to large-scale regional climatic trends in the western USA. The results for the Tahoe basin, which contrast somewhat with the surrounding region, indicate strong upward trends in air temperature, a shift from snow to rain, a shift in snowmelt timing to earlier dates, increased rainfall intensity, increased interannual variability, and continued increase in the temperature of Lake Tahoe. Two hypotheses are suggested that may explain why the basin could be warming faster than surrounding regions. Continued warming in the Tahoe basin has important implications for efforts to manage biodiversity and maintain clarity of the lake.

LINKS

Northern Institute of Applied Carbon Science (NIACS)

[NIACS](#) is a collaborative effort among the Forest Service, universities, and forest industry to provide ecological, economic, and social information on forest carbon management. [Fact sheets and briefing papers](#) can help you understand essential concepts and pivotal issues related to carbon management. NIACS has also designed tools and training to address the needs of land managers in the Lake States and the Northeast. [Forest Management for an Uncertain Climate Future](#) provides educational materials about climate change including archived [webcasts](#) about the interactions between carbon, climate, and forests. On the personal side, learn about making more environmentally friendly consumer choices at [Opportunities to Make a Difference](#).

NEWSLETTER SUBMISSIONS

Please send your submissions on Forest Service climate change related activities to Cathy Dowd: cdowd@fs.fed.us