

North Central Climate Science Center 2012 Annual Report

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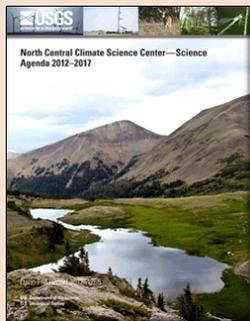
THIS YEAR'S HIGHLIGHTS

- Hosted two strategic science planning workshops
- Published a five year science agenda
- Joint pilot study with the NOAA National Climate Prediction and Projections platform
- Contributed to the National Climate Assessment
- Official "open for business" ribbon cutting on October 2, 2012.

The mission of the NC CSC is to provide the best available climate science and tools to inform natural resource management within the North Central Domain. To support our mission, in conjunction with the North Central University Consortium (NCUC), the NC CSC is focusing on three foundational science areas: (1) Regional Extreme Climate Events: Gaining Understanding Through Past and Present Observations and Modeling; (2) Vulnerability Assessment of Ecological Systems and Species to Climate and Land Use Change within the North Central Climate Science Center and Partner Landscape Conservation Cooperatives; and (3) Adaptive Capacity and Decision Making Framework.

The North Central Climate Science Center (NC CSC) was established in 2011 by the U.S. Department of the Interior (DOI) and is part of a network of eight CSCs created to provide scientific information, tools, and techniques that managers and other parties interested in land, water, wildlife and cultural resources can use to anticipate, monitor, and adapt to climate change. These Centers are part of the National Climate Change and Wildlife Science Center (NCCWSC).

The NC CSC is hosted at Colorado State University and includes a consortium of eight other institutions: Colorado School of Mines; Iowa State University; Kansas State University; Montana State University; University of Colorado; University of Montana; University of Nebraska – Lincoln; and University of Wyoming. In addition to the university consortium, the NC CSC includes important partner institutions, all of which provide expertise in climate science, ecology, impacts assessment, modeling, urban environments, and advanced information technology and a connection to the land management community. This expertise is needed to deal with climate issues in the North Central US, where changes in temperature and precipitation have significant effects on streams, forests, agricultural lands, and mountain ecosystems, in addition to the fish, wildlife, and human communities supported by these environments. The NC CSC Science Agenda 2012-2017 (Morisette 2012) provides a “high-level guide that describes the spatial context of the center, the primary partners and stakeholders, and the strategic framework the center will use in applying climate science to inform management.”



View the Science Agenda at: <http://pubs.usgs.gov/of/2012/1265/>

MEETINGS AND WORKSHOPS

Strategic Planning Meeting

April 30-May 2, 2012, Montana State University, Bozeman, MT, hosted the North Central Climate Science Center's strategic planning meeting. The meeting brought together for the first time the North Central University Consortium (NCUC), members of the Stakeholder Advisory Committee (SAC), USGS centers within the NC CSC domain, other select and relevant federal research groups, and NC CSC staff. This workshop provided the foundation for the five year science agenda. To view the meeting report, visit:

<http://www.revampclimate.colostate.edu/2012-strategic-planning-meeting>

Science Implementation Workshop

October 2-3, 2012, we held a two day workshop in Fort Collins, CO, to bring together NC CSC and USGS NCCWSC Staff, lead investigators from the University Consortium, and the SAC to: (1) review the 5 year strategic science plan, (2) provide an update of funded projects, and (3) discuss conservation target priorities for 2013 and 2014. Products from the workshop included: (1) a strategy and schedule for the development of detailed work plans for the three research areas of the NCUC and (2) NCUC and SAC input on regional and national priorities for 2013 and 2014 NC CSC & NCCWSC funding. To view the Landscape Conservation Cooperative (LCC) presentations, visit:

<http://www.revampclimate.colostate.edu/science-implementation-workshop>

Photo courtesy of Mary Willson, CSU.



Joint Pilot project with NOAA's National Climate Projection and Predictions platform

In 2012, NC CSC and the NOAA/National Center for Atmospheric Research (NCAR) - National Climate Predictions and Projections (NCP) Platform initiated a pilot study to leverage the activities of USGS and NOAA. The mission of NCP is to support state-of-the-art approaches to develop and deliver comprehensive regional climate information and facilitate its use in decision making. The goal of this pilot is to connect USGS scientists and DOI land managers with the NCP program. The NC CSC is funding four projects within the pilot:

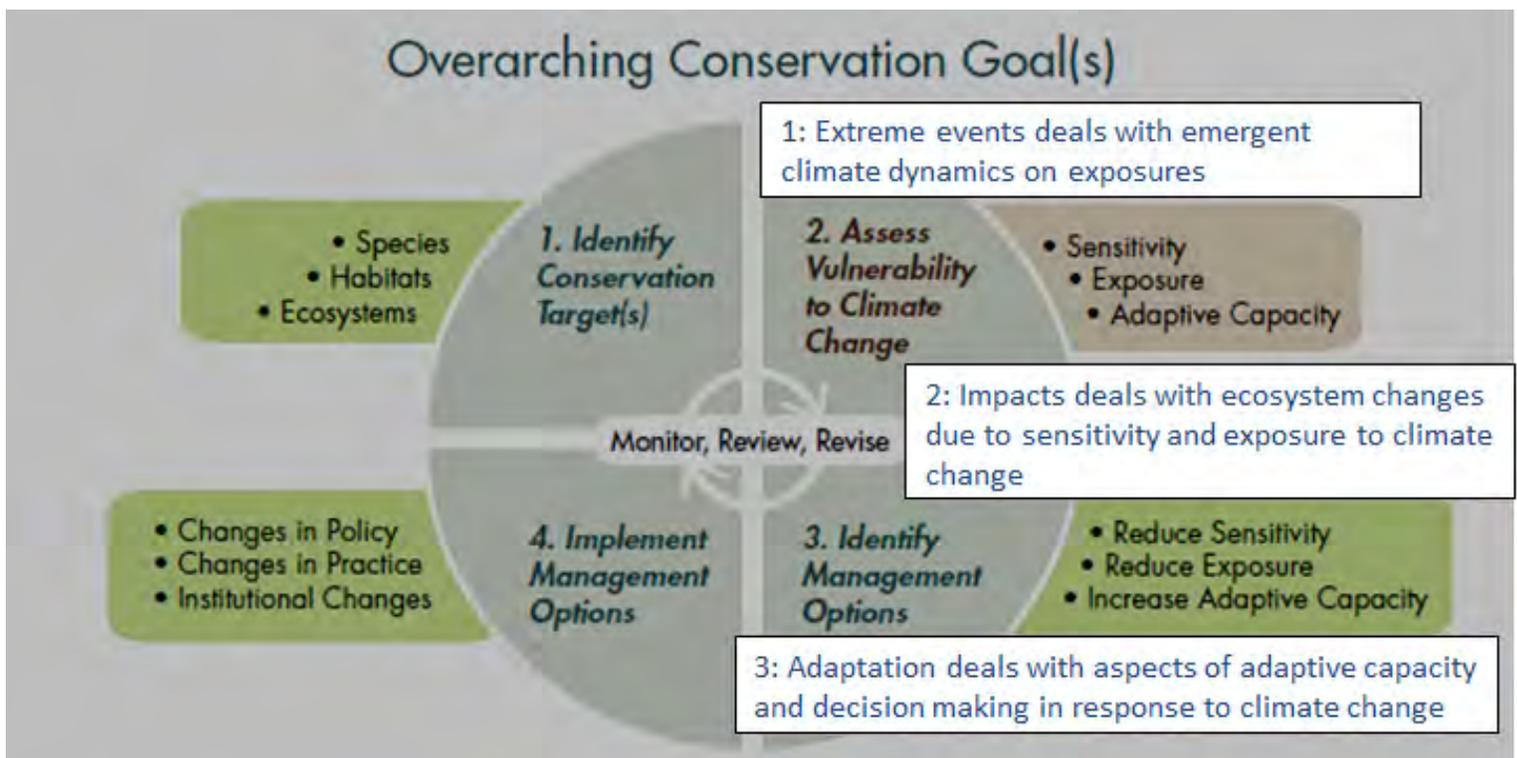
1. The value of climate information for supporting management decisions within the Plains and Prairie Potholes LCC
2. Projecting climate change effects on cottonwood and willow seed dispersal phenology, flood timing, and seedling recruitment in western riparian forests
3. Integrating climate and biological data into land management decision models to assess species and habitat vulnerability: A collaboration for Greater Sage-Grouse and their habitats
4. Projecting future effects of land management, natural disturbance, and CO2 on woody encroachment in the northern Great Plains in a changing climate

Additional information for each project is given at <http://www.doi.gov/csc/northcentral/NCP-Pilot-Project.cfm>

Contribution to the National Climate Assessment

The Great Plains Regional Climate Assessment (GPRCA) is a component of the National Climate Assessment (Ojima et al 2012) and will provide further background for climate science needs for part of the area we serve. A key finding from the GPRCA is that multiple climatic and non-climatic stressors put wildlife, multiple sectors, livelihoods and communities at risk, and the most vulnerable are agriculture, water, ecosystems and rural and tribal communities. Overall the Great Plains climate is warming and climate projections indicate that extreme hot temperatures will increase the most in the summer, which has significant, negative implications for water availability for conservation efforts, energy production, and agriculture, with other sectors also being impacted (Ojima et al 2012). As identified by the GPRCA, adapting to changing climate will require coordination in the research and observation capabilities of multiple organizations, institutions, and government programs. The NC CSC is positioning itself to be an active participant in meeting the fundamental needs of society in the face of climate change by following the framework of Glick and others (2011), shown below with an overlay of the NCUC foundational science area (listed on the cover).

To view the United States Global Change Research Program National Climate Assessment, visit: <http://www.globalchange.gov/what-we-do/assessment>





The NC CSC officially opened October 2, 2012, with a ribbon cutting ceremony and reception attended by Colorado State University leaders, DOI Deputy Director David Hayes and USGS Associate Director Matt Larsen. USGS NC CSC Director Dr. Jeffrey Morisette and NCUC Director Dr. Dennis Ojima hold the ribbon.

Photo courtesy of Mary Willson, CSU.

North Central Climate Science Center on the web:
<http://www.doi.gov/csc/northcentral/>
<http://www.revampclimate.colostate.edu/>

OUR STAFF:

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Geneva Chong, Program manager

University Staff:

Tom Hilinski, High throughput computing
Paul Evangelista, NASA DEVELOP
Bob Flynn, Data management specialist

North Central University Consortium Directors:

Reed Maxwell, Colorado School of Mines
Christopher Anderson, Iowa State University
John Briggs, Kansas and Arizona State Universities
Cathy Whitlock, Montana State University
Bob Oglesby, University of Nebraska
William Lauenroth, University of Wyoming
Kristen Averyt, NOAA Consortium Leader

Citations:

Glick, P., Stein, B.A., and Edelson, N.A., eds., 2011, Scanning the conservation horizon: A guide to climate change vulnerability assessment: Washington, D.C., National Wildlife Federation, 176 p.

Morisette, J.T., ed., 2012, North Central Climate Science Center—Science agenda 2012–2017: U.S. Geological Survey Open-File Report 2012–1265, 19 p.

Ojima, D. S., Steiner, J., McNeeley, S., Cozzetto, K., and Childress, A. 2012. Great Plains Regional Climate Assessment Technical Report, National Climate Assessment 2013.



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EXPANDING OUR ENGAGEMENT

In a number of critical areas in the region and across agency partnerships the NC CSC staff has been active in further developing joint activities and participating in climate science input into sectoral discussions. These have included a number of workshops and planning meetings with Native American communities; continued involvement with the Missouri River Climate Change interagency working group; active participation with the High Plains State Climatologists' working group; and growing linkages with the NASA graduate training program, DEVELOP.