# CENTRAL REGIONAL WORKSHOP
# National Climate Change and Wildlife Science Center
# Workshop Summary
# June 10–11, 2009

Changes in the earth's climate will pose significant challenges to wildlife managers. Adaptive management of fish and wildlife resources will depend on scientific information about climate change at scales useful to managers. Working collaboratively with federal, state, academic, and NGO partners, the U.S. Geological Survey (USGS) National Climate Change and Wildlife Science Center (NCCWSC) will act as a conduit between science and management by linking physical climate models with ecological and biological responses. Providing this information at appropriate temporal and spatial scales will enable fish, wildlife, and land managers to design suitable adaptive management approaches for their programs.

The following priorities have been proposed for the NCCWSC:

- Analyses of climate information and derivative products
- Forecasts of fish and wildlife population and habitat change in response to climate change
- Integration of physical climate models with ecological and habitat response models
- Standardized approaches to facilitate linking existing monitoring to climate models and ecological/biological response models
- Communication — sharing of information across Regional Climate Science Hubs and making science products available to natural resource managers

The structure of the center has been envisioned as a collaborative system of NCCWSC Regional Climate Science Hubs working with a national headquarters and with external adaptive application partnerships jointly organized by willing partners. These partnerships would create feedback loops to inform science priorities and adaptive resource management at regional and finer scales.

To help develop the structure of the NCCWSC and partnership mechanisms needed to link climate science and national resource management in the United States, and to provide impetus to the establishment of the NCCWSC, the USGS is convening a series of regional workshops that build on the outcomes of a 2008 national workshop, bringing together a broad range of stakeholders (federal and state agencies, academic institutions, and NGOs).

The first regional meeting, for the USGS Eastern Region, was held on May 6–7, 2009 at Patuxent National Wildlife Refuge. A Western Regional Meeting was convened in Seattle on June 4–5, 2009. The final regional meeting, for the Central Region was held in Denver on June 10–11, 2009.

The Central Regional meeting began with plenary presentations about the NCCWSC and related climate activities of the USGS and the Department of the Interior. Following the plenary session, participants split into three groups to develop input on the priorities and structure of the NCCWSC and the Regional Climate Science Hubs. They were also asked to discuss the further the proposed hubs as they relate to the USGS Central Region, and consider existing partnerships that could become part of a regional hub and possible hub locations. Following the break out sessions, the participants regrouped and shared a summary of the discussions of each group.

## SUMMARY OF PARTICIPANT DISCUSSIONS

## Priorities of the NCCWSC

- **Focus of the center must be more that just downscaling.** Participants stressed the need for other decision-support tools for managers.
- **Focus should also be on resilience.** Many ongoing efforts are focused on restoration, which may be inadequate to address climate change.
- **Efforts of the center must avoid duplication.** The center should avoid duplicating research and recreating existing systems and expertise.
- **The science must be user-need driven** but the center should consult specialists as well as resource managers**.**
- **The niche of the NCCWSC** still needs to be more clearly articulated and communicated to the public and to potential partners.

## Regional Science Hubs

**Science focus and products**

- Additional decision-support tools include forecasts (including short-term climate change), scenario planning, and vulnerability and risk assessments.
- Uncertainty must be acknowledged and the center should help resources managers translate uncertainty into management decisions.
- Downscaled models must reflect variability – the "tails of the distribution" – that is, the extremes in expected climate changes and not just the averages - will provide important information on adaptability and change.
- The center should develop standardized monitoring protocols to enable integration of monitoring efforts across agencies. Monitoring is critical to sorting out the impacts of climate change from other drivers of change. Monitoring also provides a key opportunity for engaging a variety of stakeholders.
- Definition of ecological response must also include impacts on hydrology, plants, and soil composition, not just "fish and wildlife resources."
- Human demographics (not just population growth) and economic drivers need to be considered.

**Priority setting**

- Participants stressed the need for collaborative priority-setting with stakeholders.
- Priority setting at the hub level should be from the bottom up as well as the top down.
- Priority setting might be guided by where data density is sufficient for downscaling and for ground-truthing of the models.

**Location and structure**

- Establishing hub locations on a loose geographic basis is fine, with subgroups and partnerships on a bioregional, ecoregional, or landscape scale.
- "Fuzzy" hub boundaries are essential. This will facilitate relationships across international boundaries and ecosystem-based partnerships across geographic boundaries.
- Participants briefly discussed the need to have two hubs instead of one in the Central region; some issues in the southern area (e.g., lower Mississippi and coastal region) might fit more logically within the Southeast hub area.
- Participants concurred that basing hubs at universities was logical, but suggested that multi-institutional hubs might be desirable.
- Hubs should tap into existing partnerships in the region. Examples include national programs such as NOAA's Regional Integrated Sciences and Assessments (RISA) program, the Joint Fire Science Program, Cooperative Ecosystem Studies Units, the Fish and Wildlife Service's proposed Landscape Conservation Cooperatives, and the National Park Service's Inventory and Monitoring Network; regional and state programs such as the Rocky Mountain Climate Organization (comprising 42 NGOs) and the Colorado Climate Network; and other relationships with agencies, universities, NGOs, and other stakeholders.
- Cooperation among these landscape-scale activities will ensure that the needs of managers are communicated efficiently, without duplication of effort.
- Mechanisms for passing feedback among the partnerships, the hubs, and the national center must be established.
- Participation by state and local governments and by private landowners should be pursued.
- Hub advisory groups should include broad spectrum of partners; participants discussed whether it would be useful or necessary to have separate councils for science and for management.

**Issues of special concern to the Central Region**

- Water quantity and quality
- Forest health (e.g., fires, insect pests)
- Impacts of demographic shifts (e.g., land use changes)
- Impact of alternative energy use and development on wildlife
- Habitat shifts as they affect species of concern (e.g., sage grouse)