Executive Summary of the Workshop:

The multi-agency workshop, *Bridging Boundaries: Adaptation Planning for Grasslands & Forests in the Black Hills & Plains*, was held April 20-21, 2011 in Rapid City, South Dakota. More than 90 participants attended, representing numerous federal agencies including USFS-Rocky Mountain Research Station, Black Hills National Forest, Nebraska National Forests and Grasslands, Buffalo Gap National Grassland, Fort Pierre National Grassland, NPS-Northern Great Plains I&M Network, Wind Cave National Park, Mount Rushmore National Memorial, Jewel Cave National Monument, Badlands National Park, Devils Tower National Monument, Theodore Roosevelt National Park, USGS, BLM, USFWS, USDA-NRCS. Numerous local universities, businesses and agencies including Custer State Park, Spearfish Forest Products, and South Dakota State University attended. National NGOs and their local representatives from The Nature Conservancy, the World Wildlife Fund, and Sierra Club joined the two-day event. Most importantly, there was representation from the Pine Ridge Reservation's Oglala Sioux Parks & Recreation Authority. The entire workshop was facilitated by a team from Colorado State University and graduate students in the new Conservation Leadership through Learning program.

The objectives of the workshop were to: (1) Increase awareness of the extent of observed and projected climate change impacts in southwestern South Dakota and eastern Wyoming. (2) Provide the opportunity for practitioners and managers to network and see examples of multi-agency climate change adaptation planning efforts. (3) Increase and reinforce trust and willingness to work across jurisdictional boundaries. (4) Begin to develop a shared vision and set of common action items for managing shared resources that will help build resilience to climate change. The workshop involved presentations on climate change impacts in the local ecosystem, natural resource management under climate change, agency tools for climate change adaptation planning, including scenario planning and vulnerability assessments, and a multi-agency adaptation case study from the Olympic Peninsula in Washington. The workshop included several facilitated breakout sessions, charging participants to identify what climate change effects related to (1) vegetation, (2) wildlife, (3) water, (4) human dimensions/people-related issues, (5) cultural resource issues, and (6) geologic issues related to caves and climate change that cross the boundaries they manage. During breakout discussions, participants also identified what adaptation options might be feasible and through real-time audience polling (iClicker voting), they identified top priorities most ready for collaboration across neighboring jurisdictions (see next page).

More information about the workshop, all of the workshop presentations, a complete list of participants and supplemental climate change information materials are available at: *https://sites.google.com/site/bordercrossingworkshop/*

Top Concerns & Priorities for Multi-agency Collaboration on Climate Change Adaptation:

The percentage in parentheses indicates the percent of all workshop participants (an average of 70 participants) who voted each concern or action item as the number one priority to be addressed/enacted:

Vegetation Working Group

Top Concerns about Vegetation:

1. Sustainability and Resilience of the Species on the Landscape (30%)
2. Water Quality and Quantity Available for Vegetation (19%)
3. Biodiversity Loss (18%)
4. Invasive Species (18%)
5. The Changing Composition of Native Plant Species (15%)

Top Priorities for Collaborative Action:

1. Conduct Multi-agency Vulnerability Assessments – broader than any one Park or Forest (46%)
2. Develop and implement a communication plan to build internal agency and public awareness about vegetation impacts (29%)
3. Develop a coordinated drought management plan (14%)
4. Create a seed bank (11%)

Wildlife Working Group

Top Concerns about Wildlife:

1. Habitat Fragmentation (56%)
2. Changes in Vegetation Type & Cover (19%)
3. Water Quantity and Quality Available for Wildlife (14%)
4. Spread of Disease (6%)
5. Effects to Endangered Species & ESA Conflicts (6%)

Top Priorities for Collaborative Action:

1. Develop more infrastructure for strategically planned land purchases and increase conservation easement opportunities (43%)
2. Facilitate interagency agreement on keystone and least resilient species through a scientific process to identify climate vulnerable species and corridors (27%)
3. Alter current agency grazing management protocol and policy to promote more natural processes (20%)
4. Develop a communication strategy to increase public awareness about fire threats to wildlife (7%)
5. Increase and promote genetic banking and captive breeding to maintain certain species' health and existence (4%)

Water Working Group

Top Concerns about Water:

1. Drought and the impacts of climate change in the region (30%)
2. Water quantity and changes in annual precipitation (28%)
3. Population growth and the impacts on available water supply (17%)
4. Changes in water quality (16%)
5. The impacts of groundwater pumping (9%)

Top Priorities for Collaborative Action:

1. Develop a multi-agency protocol for monitoring and assessing changing water trends (41%)
2. Increase communication and collaborative planning among agencies and stakeholders about/for improved water quality (36%)
3. Develop an education plan based on shared science and make it very location-specific (20%)
4. Identify other opportunities for education and community outreach about water quantity and quality (4%)

People Working Group

Top Human Dimensions Concerns:

1. The need to optimize wise use of scarce resources (37%)
2. Changing economic dynamics and stresses on local livelihoods (31%)
3. The disconnect or tension between agencies and ranchers (21%)
4. The need for more youth engagement in climate change and landscape issues (10%)

Top Priorities for Collaborative Action:

1. Creation of policy and economic incentives for conservation (65%)
2. Create new/different mediums and channels for communicating about climate change and adaptation in the region (21%)
3. Develop opportunities for alternative income generation (7%)
4. Facilitate more community-based outdoor activities to inspire a connection to place and desire to participate in conservation (5%)

Cultural Resources Working Group

Top Cultural Resource Concerns:

1. Impacts on traditional subsistence activities (41%)
2. Increased pest and disease disturbances (20%)
3. Impacts to archaeological sites (16%)
4. Impacts to historic sites (12%)
5. Impacts to sacred sites (12%)

Top Priorities for Collaborative Action:

1. Develop a protocol for sharing data, perspective, experiences, processes and lessons learned across agencies (32%)
2. Develop a prioritization process for vulnerable cultural resources (32%)
3. Develop interpretation and education programs related to the climate change impacts on cultural resources (21%)
4. Strive to be more inclusive in scope; in respect to multi-agency collaboration (12%)

Caves & Geology Working Group

Top Concerns about Caves & Geology in a Changing Climate:

1. Changes in groundwater and surface water (54%)
2. Run-off, erosion and flooding events (17%)
3. Changes to cave ecosystems, for example changing bat habitats (14%)
4. Extreme weather events (7%)
5. Changes in erosion rates (7%)

Top Priorities for Collaborative Action:

1. Create a mechanism for multi-agency water quality monitoring (44%)
2. Develop better/new infrastructure for a changing climate; use eco-mimicry and promote more flexible system design in facilities and structures (35%)
3. Promote the use of natural, biodegradable alternatives for fertilizers and pest control (19%)