Selena Connealy, NM EPSCoR, Connealy@unm.edu, 505-217-5605

Fire and Water Town Hall

Report on Accomplishments
As of June 10, 2013

PLANNING and RESEARCH
Town Hall Recommendation 1: Recognizing New Mexico's montane forests are the source for surface water supply and groundwater recharge and are at significant risk of wildfire damage, create and implement a water source protection plan.

The Nature Conservancy created a framework for a water source protection fund for the Middle Rio Grande and forested watersheds in December 2012. A Rio and Forest Advisory Board was convened by The Nature Conservancy in April 2013 to guide formation of a water fund. The water fund is expected to launch demonstration projects in summer of 2014 and to ramp up to full operations, estimated at as much as 30,000 acres of forest and stream restoration annually, by 2017. Contact: Laura McCarthy, The Nature Conservancy, lmccarthy@tnc.org

The Nature Conservancy formed nine working groups to address specific needs of water fund development. The monitoring working group will include BEMP and Intel as well as other partners. The wood supply working group will estimate wood and biomass volume to be available, economic development, and job creation. The structure and governance working group will recommend a selection process for projects to be funded out of the water fund and a long term plan for operation. Contact: Laura McCarthy, The Nature Conservancy, lmccarthy@tnc.org

Kara A. Walter and Janie M. Chermak conducted an economic valuation study to determine the true cost of wildfire in the West. While suppression costs are readily available, full costs associated with wildfire are not. As a first step, we developed a framework of costs for a western wildfire, differentiated spatially, temporally, and market verses non-market. For example, one-time costs include suppression and evacuation costs; recurring costs include increased seasonal flooding over time; and non-market costs include loss of cultural sites. This framework is applied to the Las Conchas Fire. Using estimating techniques from the literature, primary data where possible, and benefit-transfers we determine the full cost to the state of New Mexico. In the case of the Las Conchas, the suppression costs alone were over $48 million, but total costs estimated are at least three times that. Contact: Janie M. Chermak, Dept. of Economics, UNM, jchermak@unm.edu

Additional studies to inform water fund development were initiated, including the willingness of water users to pay for source protection, led by Dr. Jennifer Thacher. Other studies include debris flow modeling and prediction by the U.S. Geological Survey and a water yield assessment started by the Nature Conservancy. Many partners contributed funding these studies including: NM EPSCoR and the University of New Mexico, Bernalillo County, Santa Fe National Forest, Albuquerque Bernalillo County Water Utility Authority, U.S. Geological Survey, PNM Resources, and others. Contact: Laura McCarthy, The Nature Conservancy, lmccarthy@tnc.org

Town Hall Recommendation 1.3: Implement best management practices (e.g., science-based adaptive management) including monitoring, measurement, and feedback to protect water source regions.

UNM researchers, led by Cliff Dahm and Becky Bixby, conducted a series of studies on the effects of the summer 2011 Las Conchas forest fire on the streams of the Valles Grande National Preserve. Only one other study to date has documented the before and after impacts of forest fire on a specific stream ecosystem. The East Fork Jemez River study shows the storm events and water quality degradation of the stream with continuous real-time sensor data that has not been deployed before in the study of fire effects on streams and rivers. The Las Conchas fire had a dramatic impact on the East Fork Jemez River in the fall of 2011 when summer monsoonal rains brought large amounts of fire debris into the stream. Scour from the ash, charcoal, and sediment strongly altered the algal community, removing many of the less firmly attached forms of algae, but some resistant taxa persisted through the disturbances. Biomass was largely removed in August 2011 associated with four monsoon flow events. Scour, infilling of pools with sediments, and water quality degradation have had clear impacts on many species of aquatic invertebrates, although a few taxa survived the fire impacts reasonably well. Some recovery has occurred in 2012, but the biological communities and many biotic processes remain substantively different than pre-fire conditions. Contact: Cliff Dahm, cdahm@sevilleta.unm.edu.

Selena Connealy, NM EPSCoR, Connealy@unm.edu, 505-217-5605

EDUCATION
Town Hall Recommendation 9: Educate the next generation about wildland fire in New Mexico.

NM EPSCoR funded the development of an educational website to accompany the *Valles Caldera: The Science* documentary film with a significant focus on wildfire in New Mexico. Resources include science information, video clips, hands-on activities and links to other disciplines. Contact: Rhonda Spidell, spidellr@me.com

Twenty-four teachers participated in the first annual Fire Ecology Teacher Academy in El Rito on April 25-27. Staff from the Environmental Education Association of New Mexico, Northern New Mexico College and NM EPSCoR collaborated to fund the planning and implementation of the academy which is intended to become an annual event. Contact: Barbara Garrity, EEANM, garrity.barbara@gmail.com

A fire ecology and simulation laboratory was installed at the El Rito campus of Northern New Mexico College. Featuring state-of-the art simulation technology, this laboratory will be used by undergraduate students, teachers and the general public to increase understanding of the role of fire in healthy ecosystems and the relationships between climate change and fire regime change, and between fire and water quality and quantity. Contact: James Biggs, NNMC, jbiggs@nnmc.edu