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Project Title: Learning Together: Great Basin Science Delivery

Project Location: The floristic Great Basin, USA

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SUMMARY OF PROJECT

The purpose of this project was to assess the fuels and fire science technical information needs of Great Basin agency land managers and to plan a Great Basin regional consortium to address these needs through delivery methods most preferred by agency personnel. Eleven focus groups were convened throughout the Great Basin, with a total of 111 participants from the BLM, USFS, NPS, FWS, Tribes, IDL, BIA, and USGS. Fuels and fire science information needs data, as well as desired information delivery modes, were collected and analyzed. The coordination team used these findings to develop a model for science delivery in the Great Basin and planned science delivery activities to meet the information needs of Great Basin agency personnel. These activities are: information syntheses, online training, a web-based clearinghouse of information, a network of restoration cadres, field workshops, and project evaluations. This project information was compiled and utilized to create an implementation proposal, which was selected for funding on 23 March 2010. This project has also helped to start many of the proposed implementation activities.

INTRODUCTION

In two generations, some 2 million ha (7,720 mi^2) of land managed largely by the BLM in the Great Basin have been transformed from native shrublands to a near-monoculture of cheatgrass (Bradley and Mustard 2005). The increase in the exotic annual grass has resulted in more continuous fuels and a cheatgrass-wildfire cycle that is characterized by a much shorter fire return interval than these ecosystems experienced historically (Brooks and Pyke 2001). Farther upslope, in mid to upper-elevation shrublands, expansion and progressive infilling of pinyon and juniper trees in sagebrush communities is causing loss of native understory, increases in woody fuels, and fires of greater frequency, size and intensity (Miller et al. 2008). Many sagebrush-associated species are declining, and approximately 20 percent of native sagebrush flora and fauna is at risk (Center for Science, Economics and Environment 2002). Countless communities across the Great Basin are facing increased risk to human life and property, high fire management costs, and loss of the resources upon which their economy is based. BLM is the largest, but not the only land management agency trying to cope with the altered fire regimes that now characterize much of the Great Basin.

Improving the effectiveness of fire, fuels, and post-fire management in the fire-ruled sagebrush biome is essential to protecting Great Basin resources. Fire and fuels-related research in the Great Basin is providing much of the information needed to improve management (e.g., http://www.firescience.gov). However, the penetration of this information to public land managers and its application on the ground is uneven and often limited. Fire frequency and size are increasing and the invasive species are gaining ground. Agency employees feel besieged. They cannot do everything they are asked to do, and many report low job satisfaction because they are unable to provide the quality of work that they believe is needed to be successful land managers (Rosenberg 2008).

METHODS

In July 2009, a science needs assessment was initiated to determine the types of science information and technical assistance sought by Great Basin managers and the delivery mechanisms they prefer to use. The science needs assessment targeted technical specialists in the BLM, USFS, NPS and FWS who design and implement land management treatments related to fire, fuels, emergency stabilization and rehabilitation, hydrology and soils, range management, invasive species and wildlife. The assessment began with a training workshop to develop facilitators for focus groups that were held across the region. An experienced participatory processes specialist led the workshop, and a structured interview process was developed for the focus groups. Eleven focus groups then met in Salt Lake City, Boise, Reno, Burns, Cedar City, Winnemucca, Ely and Great Basin National Park. Phone conversations were held with individuals from FWS Ruby Marsh National Wildlife Refuge and the Nevada BLM Fuels Group. The agencies and number of participants included: BLM (64), USFS (27), NPS (10), Tribes (4), FWS (2), IDL (2), BIA (1), and USGS (1). Of these 111 participants, 77 were technical specialists and 34 were line managers. These questions were asked of each group:

1. What sources of information do you use and how are you now getting this information?
2. What are your critical unmet technical assistance needs for planning, implementation, and monitoring related to fire and fuels?
3. What are the best ways, places, or media for delivering technical information?

4. If you could spend a day with a technical expert, what topic would you discuss? What channels are needed to communicate with this expert?
5. What do you need in order to effectively collaborate with other offices/agencies?
6. What do you need to communicate with researchers?
7. What one institutional hurdle needs to be broken down to improve technology transfer?

Key response phrases were recorded on flip charts under each question. Questions 2-6 were used in a prioritization exercise, in which participants indicated their top three priorities for technical assistance. An "unpacking exercise" was used to detail what was meant by the phrases that received the most priority votes. Responses were categorized as Technical Assistance Needs, Desired Delivery Modes, or Institutional Hurdles. Transcripts of the focus group sessions were used in a content analysis (Weber 1990). The most frequent phrases were grouped into broad categories (Figures 1, 2 and 3).

FINDINGS

Fuels and fire management was mentioned most frequently and included sub-topics like fire effects information and system-specific burn prescriptions (Figure 1). A close second was standardized and long-term monitoring of vegetation and wildlife responses to management treatments that could be used in adaptive management. A highly ranked issue was increasing understanding of ecosystem resilience, or the capacity of ecosystems to return to the initial condition following perturbations like fire or management treatments. A closely related item was developing state-and-transition models for all Great Basin ecosystems and incorporating resilience information into those models. Closely linked topics were species conservation, invasive species management and adaptation to climate change, and information needs regarding restoration/rehabilitation, watersheds and soils, and grazing management. The need for more readily available spatial data, and for information on archaeology in general and fire effects on archaeological resources were also mentioned.

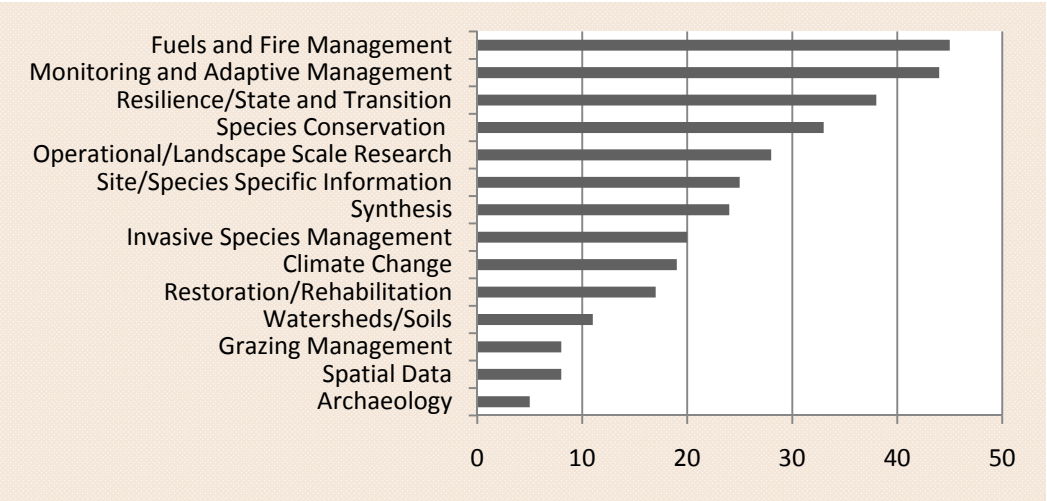

Figure 1. Technical assistance needs responses from focus groups.

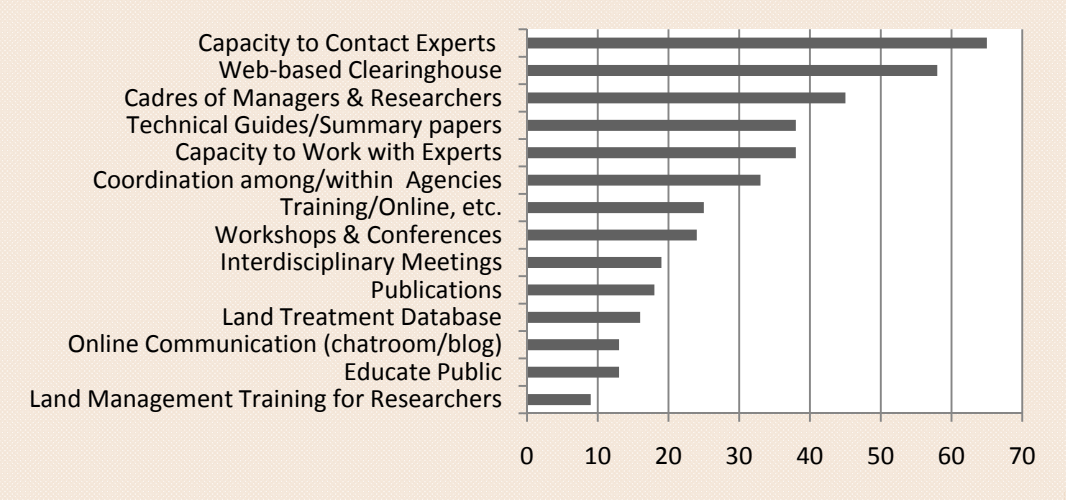

Figure 2. Desired delivery mode responses from focus groups

The most-mentioned mechanism for delivering science was the capacity to contact and work with experts on specific management issues (Figure 2). Next, participants sought technical information that could be easily accessed and downloaded from the web. A web-based clearinghouse that includes a directory of experts, science locator, bibliography, and information about regional conferences was requested. A related topic, online communication, was frequently mentioned. Many participants were interested in developing cadres of experts that the agencies could draw upon to provide technical training and assistance in specific areas like fire and fuels management and post-fire rehabilitation and restoration. A cross-cutting need identified by the participants was an interdisciplinary focus and coordination both among and within agencies. Frequently identified tools were technical guides, summary papers and publications as well as a land treatment database that could be used to access and track the results of vegetation management projects. Commonly identified delivery modes included training courses, field workshops and conferences. Two distinct items included the need to educate both the public and researchers about land management activities.

Responses to question seven (Figure 3) revealed that the greatest perceived institutional hurdle to science delivery is limited funding. Excessive workloads and communication hurdles came in second. Bureaucracy and IT security/internet policy limitations followed. These responses made up 64% of the perceived institutional hurdles. Other obstacles to technology transfer included lack of information credibility, NEPA processes, attrition, managers, and the time it takes for research findings to trickle out to managers who need this information quickly in order to make science-based decisions. The last group of responses relate to difficulties in obtaining needed research and with communicating research findings to all who need them.

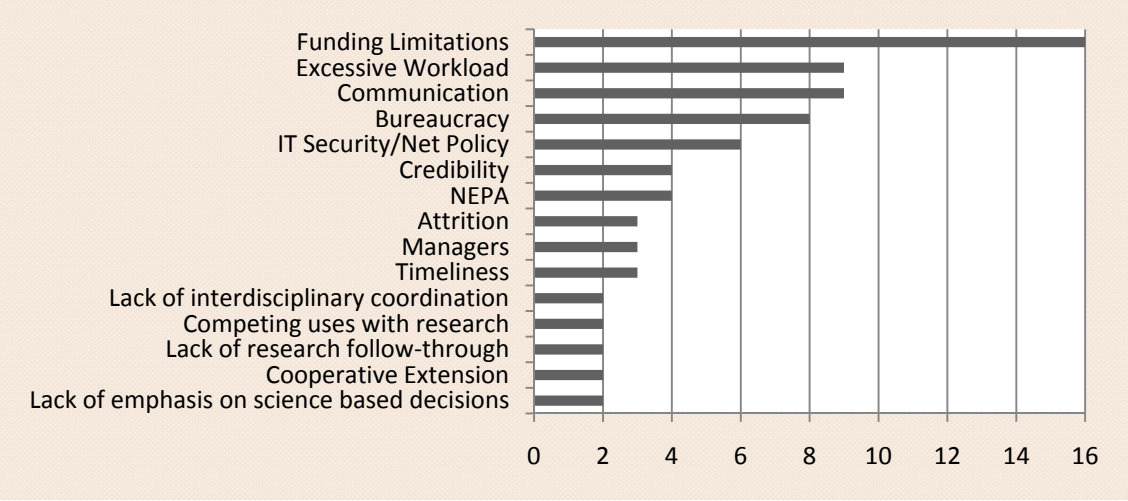

Figure 3. Institutional hurdles to technology transfer responses from focus groups.

The information collected from the focus groups was used to develop a model for science delivery that was included in the implementation proposal (Figure 4). The model includes using the focus group results and periodic reassessments to identify priority issues and technical needs, and synthesizing scientific and agency information that will be used to provide content for delivery activities. Web-based training will be developed that specifically addresses Great Basin fire science needs, and a web-based clearing house of information is already being developed in cooperation between the Great Basin Research and Management Partnership and the USGS National Biological Information Initiative, Great Basin Information Project: *http://greatbasin.wr.usgs.gov/GBRMP/index.html*. Services provided by the website include directories of experts and collaborative organizations, a bibliography, a science and management project locator, metadata server, upcoming meetings and links, and a list server. Field workshops will be organized by the project coordinator to connect training and syntheses to local issues and solutions. They will supplement and be an integral part of the web-based training for the Great Basin. And finally, networks of experts will be developed that include (1) cadres of vegetation restoration and management specialists to provide technical support for their home offices and on an interagency/regional basis, and (2) experienced agency specialists, academic and federal scientists and extension specialists who will serve as technical experts for and with the agencies. Program effectiveness will be evaluated for structure and content.

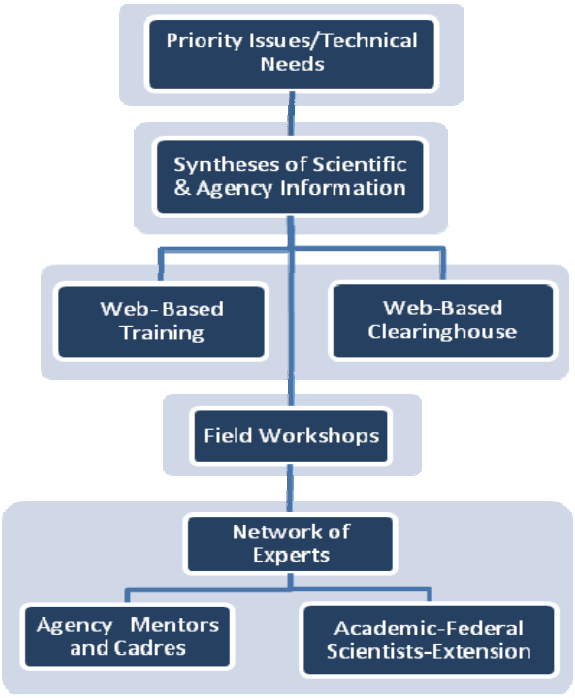

Figure 4. Model for science delivery.

DELIVERABLES

Proposed	**Delivered**	**Status**
Conduct needs assessments of Great Basin agency land managers	Eleven focus groups were conducted throughout the Great Basin with a total of 111 participants	Completed
Employ a research assistant to help with needs assessments of agency land managers	A research assistant was employed and she helped conduct needs assessment focus groups, analyze data, and prepare results	Completed
Roundtable partners meeting	Meeting held on 14 Jan 2010 in Reno, NV	Completed
Development of a two-year proposal for the implementation of Science Delivery in the Great Basin	Proposal was developed and selected for funding on 23 March 2010 by the Joint Fire Science Program	Completed
Summary report	Summary of Planning Phase research and Implementation plans distributed to focus group participants and other stakeholders	Completed
Phase I manuscript	Manuscript for publication in progress	In Progress
Jump Start on Phase II Deliverables		
Coordinating and Advisory Committees Meeting	Teleconference on 27 April 2010	Completed
Web-based clearinghouse Expertise Database, Science Locator, and Science Delivery homepage	The Expertise Database is running and currently being populated, the Science Locator is running and will soon be populated, the Science Delivery homepage is being constructed and is almost completed	In Progress Expected Completion – August 2010
Network of Restoration Cadres	Development of Restoration Cadres was initiated with a validation letter to BLM, USFS, NPS, and FWS personnel managers in late June/early July 2010. Identification of appropriate specialists will take place in August 2010.	In Progress Expected Completion-Fall 2010
Field Workshops	Plans are underway for a three day fire and fuels workshop in Winnemucca in Spring 2011, and for a series of one-day field workshops to be held in three of the Great Basin states in October of this year	Ongoing
Presentations	The Great Basin Science Delivery Project was introduced at the Great Basin Research and Management Partnership committee meeting in Las Vegas, NV on 20 April 2010 by Génie MontBlanc; at the SageSTEP annual meeting in Tooele, UT on 25 May 2010 by Génie MontBlanc; and at	Completed

	the Eastern Nevada Landscape Coalition annual meeting in Ely, NV on 11 June 2010 by Mike Pellant.	

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