Working Together to Restore and Protect New Mexico's Forests

How Can We Improve the Health of Our Forests?

Most people generally agree that our forests are unhealthy—current conditions could lead to unnatural and severe fires, threatening human communities, wildlife, watersheds, and many of the other things we value. Most people also agree that our forests should be managed sustainably, so that they can continue to provide important economic, environmental, social, and cultural resources, while ensuring the long-term health of ecosystems and forest-dependent communities. The pressing challenge is to figure out how to work together effectively to improve the health of our forests and accomplish these goals. In northern New Mexico, through a series of collaborative workshops, we have learned that we can succeed with the help of sound information and the right tools.

Identifying Areas Most In Need Of Restoration

Restoring our forests to healthy conditions that can be sustained over the long-term, while allowing appropriate economic, recreational, and cultural uses, will require hands-on management, such as thinning out dense stands of trees, conducting prescribed fires, restoring native vegetation, and excluding specific activities when they are detrimental to forest health. However, because areas in need of attention are so large, and the funds available to accomplish restoration objectives are so limited, we have to think strategically about how to safeguard our productive forests. One strategy is to identify and prioritize those areas of forested landscapes that are of highest value and most threatened.

Using Local Knowledge and Sound Science in Collaborative Planning

Making decisions about what areas are most in need of our attention requires the participation and consensus of all people who have a stake in forested areas. Considering stakeholders' values and economic and social factors, and using local knowledge and sound science, will not only aid in building consensus but will result in collaborative planning and management efforts that can be sustained into the future.

Over the past 3 years, stakeholder workshops, stemming from the North-Central New Mexico Landscape Assessment described in this article, have brought together people from many communities and drawn on local knowledge and powerful scientific tools and information to aid in planning forest restoration. The results of this collaborative work has revealed a surprising level of agreement, considering the diverse ideas and values of the stakeholders.

A review of these community-based efforts has shown that collaborative techniques, combined with appropriate scientific tools, has contributed to successful, ongoing efforts through a process that
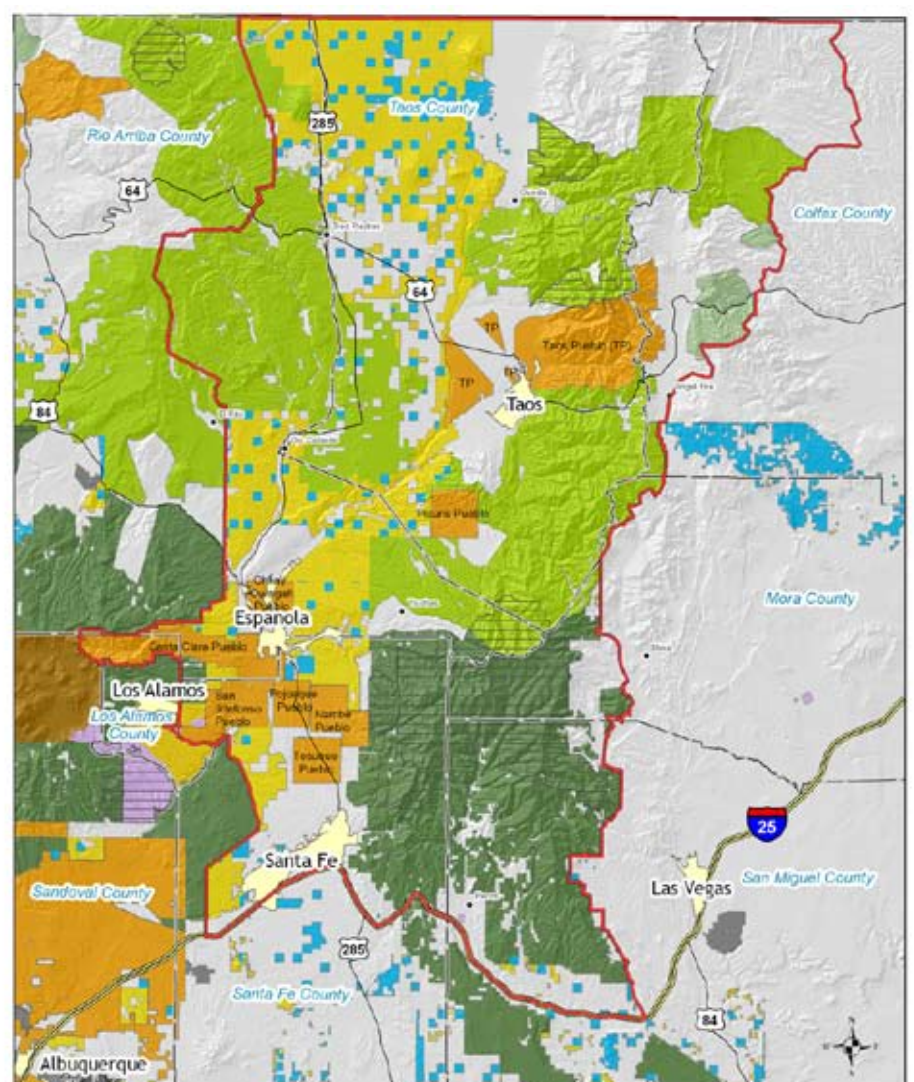
- helped to accomplish on-the-ground restoration activities in north-central New Mexico
- led to new and/or increased collaboration on forest restoration issues
- empowered stakeholders to participate in forest management planning more effectively
- educated stakeholders about the work that others were doing, and about what resources were available to help restore and protect our forests
- helped stakeholders to see how smaller projects fit into the larger landscape, and how coordinated plans can improve conditions across the larger landscape

North-Central New Mexico Landscape Assessment

The North-Central New Mexico Landscape Assessment brought citizens together to identify and prioritize forested areas most in need of management attention. The goal of the project was to develop strategies for reducing the fire threat in the region, and for focusing limited fuel reduction funds on the highest priority areas. The assessment area covered 3.4 million acres in north-central New Mexico and included the southern Sangre de Cristo Mountains with elevations from 5,000-13,000 feet. A wide range of vegetation types occur in this region, including grassland and sagebrush, piñon-juniper, ponderosa pine, mixed conifer, spruce-fir, and alpine tundra. Land managers include eight northern Pueblos, the Bureau of Land Management, the Carson and Santa Fe National Forests, private land owners, state agencies, and several land grant communities. The area includes portions of six counties and extends from the Colorado-New Mexico border, south to Interstate 25. The extent of the study area was determined through consultation with stakeholders (Figure 1).

The Workshop Process

More than 50 local and regional stakeholders participated in a three-day workshop in October 2006. The workshop was organized by the Santa Fe-based Forest Guild, the Taos Field Office of the New Mexico BLM, and the Forest Ecological Restoration Analysis (ForestERA) Project from Northern Arizona University. For this assessment, ForestERA developed a database, which included over 50 maps illustrating key characteristics of the assessment area, such as vegetation, water features, human infrastructure, wildlife distribution and habitat suitability, soil conditions, and economic information.

Land Owners

Bandelier Natl. Monument-NPS	Private
Indian Land or Reservation	Santa Fe National Forest
Bureau of Land Management	State Lands
Carson National Forest	State Wildlife Area
Los Alamos Labs-DOE	Valles Caldera Natl. Preserve
Other	Wilderness Areas

North-Central New Mexico Landscape Assessment Area
Counties
Interstates
US Highways
Urban Areas
Cities, Towns

0 5 10   20   30   40 Miles
0 5 10   20   30   40 Km

Determining Priority Areas

Workshop participants first discussed community values and identified those characteristics of the forest that they valued most, such as healthy watersheds, safe communities, and abundant wildlife. Next, they identified the forces that threatened these values, such as destructive wildfire, land development, political barriers, and the risk of management inaction, or "doing nothing." Areas where important values and high risk overlapped were assigned the highest priority, and areas where values were lower and risks were fewer or less important were assigned a lower priority. Figure 2 shows the priority values that stakeholders assigned to different areas of the north-central New Mexico study area.
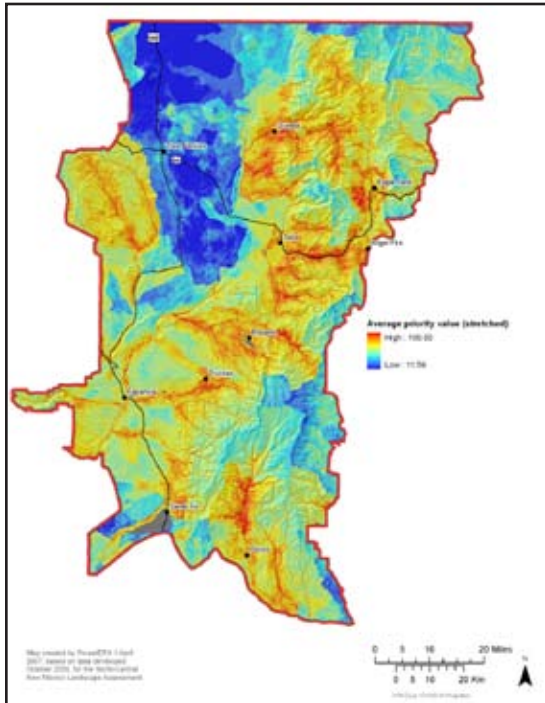

Figure 2. Map identifying the priority values that stakeholders assigned to different areas of the north-central New Mexico study area.

Recommending Management Actions

Once the areas most in need of management attention were identified, participants turned to deciding what types of forest management would achieve the desired restoration goals in high-priority areas. They recommended different actions, such as light burning, heavy burning, and light-, intermediate-and high-intensity thinning, to different areas, based on their c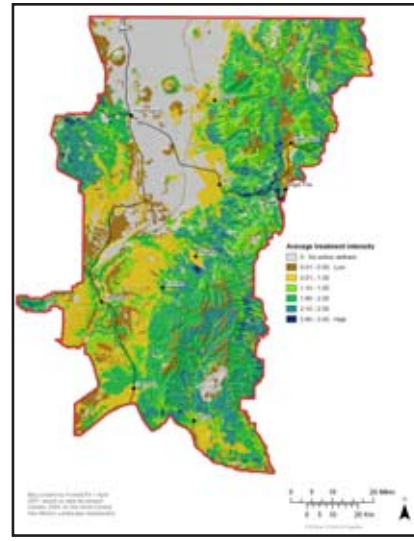urrent conditions. For example, thinning was recommended for many areas where tree density is very high, on slopes where fires would tend to race uphill, and in areas where fires are likely to ignite. Management actions were classified into one of four treatment intensities: low, intermediate, high, and "no action". These intensities roughly represented the effect a treatment would have on forest characteristics, such as canopy cover and tree density. Figure 3 represents the average recommended treatment intensity across the assessment study area.

Figure 3. Average intensity values of stakeholder-defined management actions.

Predicting the Effects of Management Actions

The scientific tools developed by the ForestERA Project were used to predict how forest structure would change if the treatments recommended by the workshop participants were to be applied. These tools also allowed workshop participants to examine the effects these changes might have on wildlife, fire behavior, and other issues. For example, Figure 4 depicts the predicted effects of the proposed treatments on fire hazard across the 3.4 million-acre assessment area.

Using these scientific tools, citizens and professional managers can work together to see if the proposed treatments are likely to have the desired effects. If not, they can be used to revise the recommendations and reassess the predicted effects, a process that can be repeated at low cost and no risk until the appropriate forest treatments are devised. The *New Mexico Final Report* and the *North-Central New Mexico Landscape Assessment Data Atlas* with full-size versions of the maps presented here and all other maps from the workshop are available for download from http://www.forestera.nau.edu/overview_docs.htm.
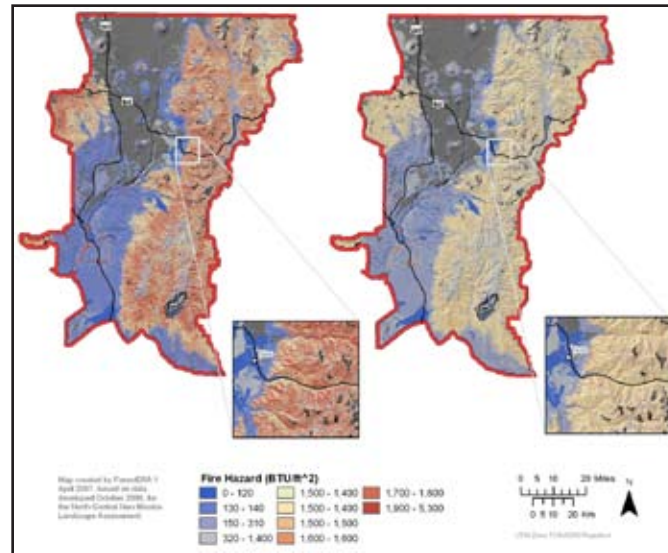

Figure 4. Predicted level of fire hazard before (left) and after (right) recommended management actions.

Getting Restoration Projects Off the Ground

The 2006 workshop not only empowered stakeholders and strengthened collaborative efforts in the region, it also helped to get real on-the-ground restoration accomplished. Data, including the prioritization of the 300,000 acres most in need of restoration, were used by various communities, conservation groups, and other stakeholders to acquire grant funding for restoration work, support Community Wildfire Protection Plans, and assist stakeholders in identifying critical areas for forest management. For example, the two case studies outlined below show how citizens, using local knowledge and sound science, can find creative solutions to forest management challenges in New Mexico.

Case Study: *Vallecitos Federal Sustained Yield Collaborative Forest Restoration Project*

The Vallecitos Federal Sustained Yield Unit (VFSYU) is a unique area of northern New Mexico that was once part of a large Spanish Land Grants and is currently managed by the Carson National Forest, in cooperation with local communities. Congress established the 73,400-acre unit in 1948, with the stated purpose of providing "the maximum feasible, permanent support to the Vallecitos community and nearby areas." Today, that support comes through a multitude of uses, from timber and fuel wood harvest, to watershed protection and wildlife habitat.

Since the mid-1990s, local businesses and communities have attempted to develop a sustainable wood-based industry in the area. In 2006, the U.S. Forest Service awarded a four-year Collaborative Forest Restoration Program Grant to Las Comunidades, a community group representing local resource-based land grant communities and the Vallecitos Mill. The grant was awarded to establish economically viable and environmentally sound opportunities for using forest restoration byproducts for economic development.

Working closely with NAU researchers, Las Comunidades adapted the landscape analysis process described above to create a community GIS system and used that information to identify the areas most in need of treatment in the VFSYU. Fire risk and wildlife habitat models guided the development of management recommendations to reduce risk from fire and preserve the habitat of the Northern Goshawk and other wildlife species.

Case Study: *Santa Cruz/Embudo Creek Project*

In 2007, the Collaborative Forest Restoration Program funded a proposal that drew upon results from the North-Central New Mexico Landscape Assessment and focused on the Santa Cruz and Embudo Creek watersheds. The project is led by the Forest Guild, a professional organization of forest stewards, associated natural resource professionals, and affiliates who practice community-based forestry. The Santa Cruz and Embudo Creek watersheds were deemed high priority areas, due to their current ecological conditions and their close proximity to a number of small, forest-dependent communities, including Truchas, Ojo Sarco, Chamisal, Ojito, Chimayo, and the Pueblo of Nambe. The purpose of the project is to reduce the threat of catastrophic wildfire faced by these communities, while restoring

nearby watersheds upon which acequias, local agriculture, and municipal water supplies depend.

In identifying specific treatment sites, the Forest Guild collaborated with various land management agencies in the area, including the Taos Field Office of the BLM, the Camino Real District of the Carson National Forest, and the Board of the Truchas Land Grant. Restoration services have been contracted to local forestry crews. Restoration treatments are generating fuel wood, vigas, and latillas for use by local residents (including the elderly and disabled), and treatment residue is being used in watershed restoration activities, such as slope stabilization and erosion mitigation.

Moving Forward with Forest Restoration

Now is the time for citizens to work with forest managers to address the need to reduce fire threat, identify appropriate and sustainable uses for forests, and protect our forests and the values that they provide for all New Mexicans. A number of agencies and organizations are involved in restoration efforts throughout New Mexico. A few of the programs and organizations involved in northern New Mexico are listed below.

Restore New Mexico is a partnership launched by the BLM in 2005 to restore New Mexico's grasslands, woodlands and riparian areas to a healthy and productive condition. For more information see: www.blm.gov/nm/st/en/prog/restore_new_mexico.html.

The *Forest Guild* is a national organization of foresters and natural resource professionals, based in Santa Fe, NM, that provides technical assistance to communities and organizations involved in forest restoration and management. To learn how the data and resources can help you or your community plan forest restoration activities, please visit the Forest Guild's website www.forestguild/Southwest.html.

The *New Mexico Forest and Watershed Restoration Institute* is a statewide effort that engages government agencies, academic and research institutions, land managers, and the interested public in the areas of forest and watershed management. For more information see http://www.nmfwri.org.