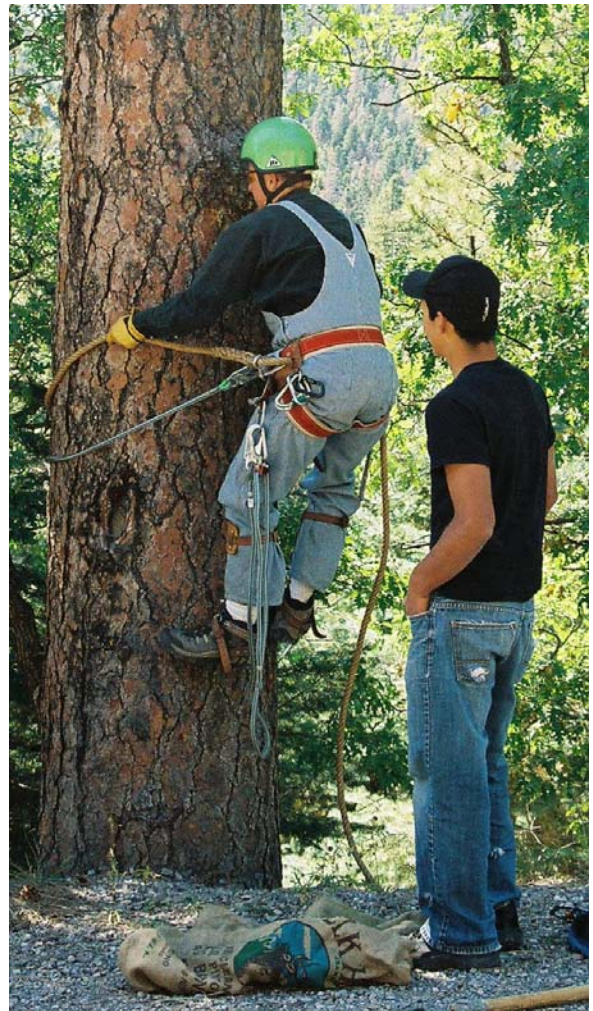


Restoring a New Mexico Pine Forest

A National Audubon Society Conservation Tool Kit Case Study



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National Audubon Society
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Case Study

Background:

The small town of Manzano, about 60 miles southeast of Albuquerque, New Mexico, is a Spanish land grant community where residents traditionally depend on the surrounding ponderosa pine forests for wood for heating and cooking, medicinal plants, water resources, and jobs. Torrance County is one of the poorest counties in the country. The Manzano Land Grant is located adjacent to the Mountainair Region District of the Cibola National Forest.

The 10,000-acre watershed faced high risk of catastrophic fire and endangered water resources. These risks were exacerbated by a court-ordered injunction in the 1980s against cutting trees to save critical habitat for the Mexican spotted owl. The resulting high density of trees in the forest, the number of communities near the forest, and a high incidence of lightning strikes in the area made the region particularly susceptible to uncharacteristically intense fires. National forest policies and court decisions created particular hardships for those in small forest-based communities, whose livelihoods depended on the forest.

George Ramirez, a community leader, testified in Washington, D.C. about these hardships and helped to create Las Humanas, a nonprofit cooperative representing five of the small communities in the area. In a pilot project, Las Humanas members were trained in Forest Service thinning practices. This crew helped to remove small-diameter trees on national forest land, which crewmembers could then use for firewood. However, the work was seasonal, with contracts lasting a couple of months at a time.

In 2001, Ramirez and the Las Humanas Cooperative applied for and received a grant through the Collaborative Forest Restoration Program (CFRP). These federally funded projects are intended to promote healthy watersheds and forest ecosystems and reduce the threat of wildfires by reducing the number and density of small diameter trees on public forest lands in New Mexico. The grant enabled Ramirez to create a paid workforce that included about 10 members of the Manzano community. The workers were trained in business administration and forestry thinning standards, and were able to receive thinning contracts from the Forest Service. Their work included thinning trees to create fuel breaks, establishing wildlife openings in the forest, and identifying and developing personal fuel wood areas. The projects provided much-needed wood along with sustainable forest-based jobs for local residents.

Ramirez also saw that local youth were losing their connection to the forest. As part of his vision, Ramirez wanted to find ways to reconnect youth to the resources so critical to their communities. Through New Mexico's Youth Conservation Corps program, local youth were hired to monitor the forest restoration efforts and collect data for the Forest Service. As part of this effort, youth learned about forest ecology, were exposed to forest-based careers, and studied medicinal plants with elders in their communities.

In the winter and spring of 2007-2008, there were three large fires within the watershed. The fires started in the national forest and spread to land grant property. Tree mortality was high, changing the ecological picture and requiring a major shift in management practices. The Forest Service's early response included spreading non-native seeds by helicopter and building "trash rack" structures to keep debris from the first rains out of the area, since post-fire debris in waterways can escalate the effects of the fire itself on soil and water resources. After fires, erosion can fill canyons and inhibit water flow. Zeedyk Consulting and Four Corners Institute, experts in ecological restoration, had some concerns about the chosen management practices.

Three hundred acres along one steep canyon were of critical concern to water flow in the region. These acres were targeted for a special restoration effort where education strategies were integral to creating ecologically appropriate responses to the fires. The goal of the project was to preserve soil and water resources and protect against erosion while educating the affected community about post-fire restoration.

Approach:

Four Corners Institute, in partnership with Cibola National Forest (Mountainair Ranger District); Claunch-Pinto Soil and Conservation District; Crane Collaborations; Mexicano Land, Education and Conservation Trust; Mountainair School System; The Nature Conservancy; Town of Mountainair; and Zeedyk Ecological Consulting LLC, applied for and received a Collaborative Forest Restoration Program grant to create a restoration program that involved local youth and educated local communities about and implemented best practices in post-fire restoration.

The particular strategies employed were driven by the ecology of the situation. Forest restoration experts looked to minimize risk from invasive weed seed and to use rocks and natural materials to try to hold the natural course of water flow with minimum siltation.

Youth participation was a required component of the CFRP grant. The project targeted local youth that had been involved in forest restoration efforts for several years but now needed help to process their personal responses to major fires in the area. Project leaders planned classroom and field instruction about fire ecology and fire modeling, collecting native seeds, replanting of trees, and types of structures that could reduce debris and siltation and protect the watershed. Because the cause of the fires was never determined, the project chose to focus on appropriate responses to fire rather than prevention of human-caused fires. This included examining potentially negative consequences of the early and emergency responses by the Forest Service. Safety was also a driving concern; project leaders developed activities that did not put students at risk from falling trees.

As part of the project, students visited sites where rock dams were successfully built after fires to learn how such structures allow water to follow a more natural course and allow debris to be pushed to the sides. They looked at areas where helicopters had previously dropped seeds and discussed different approaches to erosion control and the ecological risks of seeding with non-native, invasive species. Students collected and processed tree seeds at the New Mexico State

University's Mora Research Center¹ nursery and learned the complex process of propagating seeds.

As the project progressed, an additional goal emerged. It quickly became evident that most of the students' families earned income cutting trees and collecting and selling firewood, and were dependent on a forest that, essentially, was no longer there. Project leaders saw an opportunity to open the door to a variety of forest-based careers, such as forest management, ecological restoration, and wildlife biology. Field trips to introduce careers and college to the students (traditionally likely to enter military service) were incorporated into the project.

A core group of eight students from the Manzano community participated in this project, with some field trips attended by as many as 15 students. (The population of the village is 54 people.) Most of the core group had been involved in forest restoration monitoring for several years and had learned a small amount about fire as an abstract concept. They now faced the effects of fires first hand on land they felt connected to, and their concern and interest were at a peak.

Together, restoration and education experts turned the devastating fires into an opportunity to significantly enrich an existing program and increase both its ecological and educational effectiveness. The aim was to address the fire in a productive way and use it as a way to teach new things and maintain students interest in forest restoration as a practice and as an introduction to forest-based careers.

Results:

CFRP grants require monitoring of soil, water, and vegetation. Three project partners, including the youth team and the Soil and Water Conservation District, will implement the monitoring plans, but it is too early to know results of the restoration efforts.

In January 2009, students gave a presentation about their experience and what they learned at the annual CFRP workshop, which draws participation from about 75 grantee organizations involved in forest restoration throughout New Mexico. The audience includes a broad mix of different partners, including local community groups, conservation and environmental organizations, and Forest Service personnel. Project leaders watched the students move from learners to experts in post-fire restoration as they worked on their presentation, accumulating the scientific vocabulary necessary to share their new knowledge and skills with others.

Students were asked to share personal stories about the work and how it felt to be part of the project. The stories attested to the success of connecting youth to the local forest and the effectiveness of the career exposure. At the start of the project, most students said they would never consider a forest-based career option; after their presentation, seven of nine students said they would.

Project partners received additional CFRP funding in 2009 to continue involving students in the restoration efforts and have developed two internships (one working with the native tree nursery

¹ The Mora Research Center is part of New Mexico State University. The Research Center focuses on restoration ecology, forest biology, and forest genetics with a strong emphasis on information decimation and youth and landowner education.

and one with the Soil and Water Conservation District working with professional consultants on data collection and monitoring)

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