

The First Five Years of the White Mountain Stewardship Project

Executive Summary



Examples of Monitoring Questions:

- ▶ How many jobs are associated with the Project?
- ▶ Are patches of dense forest connected?
- ▶ Did forest treatments significantly reduce potential crown fire?
- ▶ Have contractors become more efficient over time?

Communities Targeted by the Project:

Alpine	Nutrioso
Eagar	Pinetop-Lakeside
Forest Lakes	Show Low
Greer	Springerville
Heber-Overgaard	

In August, 2004, the Apache-Sitgreaves National Forests implemented the country's first ten-year stewardship contract. With this contract, the White Mountain Stewardship Project (Project) began as an experiment in collaboration with multiple stakeholders, the Apache-Sitgreaves National Forests, the contractor, and community members working together to resolve decades-long forest health issues. The Project's goals were to reduce the impact of wildfires to communities at risk, to improve wildlife habitat, and to restore forest health, while helping rural communities stimulate employment in the wood products industry. How will we know we've met these goals? With monitoring, we will measure changes that occurred to the resources of interest from these management actions. Determining the effects of these forest treatments in a systematic monitoring program will help inform and improve future management actions.

Monitoring the White Mountain Stewardship Project

Together, forest stakeholders ranging from businesses, conservation interests, county, state, and local governments, and interested individuals became integral partners with the Apache-Sitgreaves National Forests and the stewardship contractor under a Multi-Party Monitoring Board. The Monitoring Board recommended which aspects of the Project to monitor in four categories: project administration, ecological effects, economic impacts, and social support. Monitoring objectives and related questions were developed for each category. Information was gathered to answer these questions. Forest Service staff collected most of the monitoring data, with additional help from other collaborators, including the Arizona Game and Fish Department, The Nature Conservancy, the University of Arizona, and private consulting firms. Most funds were provided under the Project's budget, with additional grant monies awarded from the Eastern Arizona Resource Advisory Council and the All-Birds Conservation Initiative. The report is the culmination of monitoring the first five years of this ten-year project. It provides an analysis of all monitoring data, interpretation of results, and recommendations for the next five years. This Executive Summary reports key findings, lessons learned, and recommendations.

Project Administration

The Project tests the mechanism of stewardship contracting on a ten-year contract cycle. The contract guarantees wood for its duration to generate private business investment in wood product industries with the hope of eventually building a sustainable market, thereby reducing the need for further government assistance. Currently, 35,166 acres have been treated, with an additional 14,553 acres in progress. The exposure of the Project across the country has helped generate an atmosphere in which landscape-scale forest restoration projects can occur, such as the Four Forest Restoration Initiative across four National Forests in northern Arizona.



Findings and Lessons Learned

- ▶ While contract costs per ton have not changed, the contractor has provided additional services on treatment areas, such as conducting a total removal of all fiber for the cost associated with partial treatment (leaving piles of residue for future burning).
- ▶ The contractor has acted to improve marketability of the wood harvested, including

supporting 20 local businesses making products from small-diameter wood.

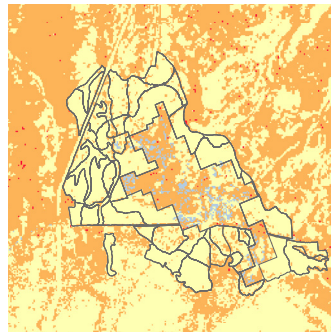
- The amount of expenditures and taxes generated by businesses and employees directly associated with the Project supersede contract costs. The Project has cost the federal government approximately \$30 million in its first five years, while businesses have generated approximately \$40 million in investments, expenditures, and tax revenue.
- A long-term stewardship contract can reduce administrative procedures for contract activities through the duration of the contract. A stewardship contract negates the need to undergo individual contract bids for each project area, which can take months, allowing multiple task orders to be bundled under one contract and completed in days. Use of a single contractor over multiple projects facilitates the use of descriptive treatment prescriptions rather than the labor-intensive task of marking each tree needing to be cut. As both parties become educated to each other's needs, treatment implementation becomes simplified, reducing internal Forest costs.
- Flexibility and open communication are keys to meeting the harvesting objectives set by the Apache-Sitgreaves and the wood fiber market needs determined by the contractor. By working closely together, wood harvest operations are designed to meet site-specific conditions, environmental requirements, and the type of materials purchased from the contractor by businesses.

Recommendations

- Stewardship contracts require long-term commitments of funding, available stock of wood (with completed environmental analyses), and a calculated amount of funds set aside to cover U.S. Forest Service liability in case of contract cancellation. Regional U.S. Forest Service offices must work closely with their contracting National Forests on budgets associated with stewardship contracting to effectively plan for these encumbrances.
- Analyze which business niches, such as uses for biomass (which comprises 40% of the overall wood fiber resulting from treatments), would be helpful to improve markets and reduce costs further.
- Use descriptive treatment prescriptions where appropriate, reducing site preparation costs.
- Review contract language to determine if adjustments can be made to adapt to improved methods of calculating costs and to better reflect cost reductions.



Predicted fire behavior before and after treatments; lighter color indicates a reduced fire severity



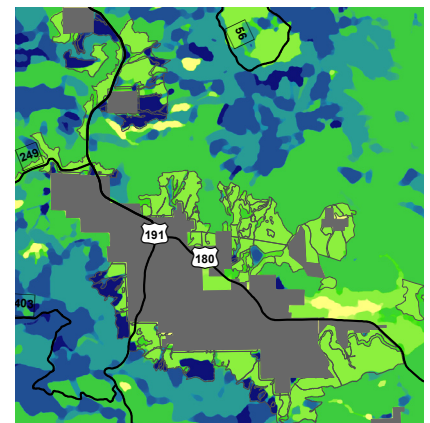
Ecological Effects

Monitoring ecological impacts was the most complex and challenging aspect of Project monitoring. Obtaining sample sizes adequate to make inferences on changes and effectiveness of treatments becomes difficult when there are multiple treatment prescriptions, each having different results on the ground. Additionally, modifying only parts of a landscape

generally incurs gradual changes at various scales; inferring impacts after a few years of treatments does not indicate what may transpire in the long-term, as forests grow and change over time.

Findings and Lessons Learned

- A variety of treatments based upon different objectives has created a mosaic of diverse forest conditions across the forest. In all cases, the potential for active or passive crown fire has been reduced in forests surrounding the communities targeted for protection. Monitoring data have indicated that multiple objectives for fire behavior, forest structure, and wildlife habitat can be integrated together in developing treatment prescriptions.
- Habitat connectivity for the suite of species modeled was altered by the implementation of forest treatments and the resulting vegetation characteristics and forest structure. Connectivity of patches of dense forest was largely a result of the exclusion of such areas from treatment due to topographic features, slope, sensitive soils, or other factors. As treatments continue to increase across the landscape, maintaining connectivity of dense forest patches may become challenging unless addressed in the planning stage.
- Songbird surveys indicate an increase in density among the five most common breeding forest songbirds in post-treatment areas. Composition and diversity indices are varied; more post-treatment surveys will be conducted in future years to increase sample size.
- Preliminary data suggest that black bears are generally not



Habitat connectivity for wild turkey; blue areas indicate high levels of connectivity

affected by treatments in ponderosa pine. However, for future treatments that occur in mixed-conifer vegetation, the ability to maintain movement corridors and denser forest structure near preferred feeding areas may warrant additional monitoring.

- ▶ Understory herbaceous cover increased after treatments at several project areas.
- ▶ Soil compaction from equipment operating across the landscape was minimal; compaction does occur at landings and on roads and skid trails, particularly in wet soil conditions.

Recommendations

- ▶ Forest managers could implement prescriptions that meet multiple resource objectives more frequently where appropriate site conditions exist.
- ▶ Developing treatment scenarios and modeling impacts to wildlife species in the planning phases may help maintain or increase wildlife habitat connectivity in future treatments.
- ▶ Maintaining songbird surveys over the life of the Project will be important to understand if the initial changes observed in density, diversity, and composition persist over time.
- ▶ Increase contract oversight in wet soil conditions.
- ▶ Ecological monitoring protocols should be evaluated and improved to reduce uncertainty in monitoring results and to better define quantitative-based objectives.

Economic Impacts

One of the goals of the Project was to use a long-term contract mechanism to facilitate private business investment in the management of public land resources, with the end result being an ecologically and economically sustainable system of resource extraction and benefits. Evaluating how the Project impacted local economies and employment, as well as how economic benefits compared to administrative costs, were priority monitoring objectives for the Monitoring Board.

Products Created from Project Wood:

- ▶ Wood Pellets
- ▶ Biomass Electricity
- ▶ Pallets
- ▶ Lumber
- ▶ Furniture
- ▶ Moulding
- ▶ Soil Fertilizer
- ▶ Animal Bedding

Findings and Lessons Learned

- ▶ Twenty businesses, representing diverse industries, purchased material from the contractor. Materials produced, including wood pellets, pallets, moulding, and small-diameter lumber, have helped the Project weather national market demands and fluctuations, particularly in the context of a national decrease in demand for housing materials, which has affected the

lumber industry nationwide.

- ▶ While this diversity has helped increase the value of small-diameter wood, government investment in the Project remains necessary to offset treatment costs.
- ▶ An average of 319 jobs per year have been attributed to the Project (226 direct and 93 indirect). The Project is one of the largest economic development programs in the White Mountains.
- ▶ Over \$13 million has been spent in local communities each year, on average, by businesses purchasing wood fiber from the Project and by contractor operations.
- ▶ An average of over \$600,000 is generated every year over the lifespan of the Project in tax revenue for Navajo and Apache county governments by business purchases and employee residency.
- ▶ The Project offers mid-level wages for heavy equipment operators, loggers/sawyers, mill operators, and manufacturing jobs. This economic sector diversifies employment opportunities in this rural region by adding other sectors to the current primary employers, such as government, health care, and tourist-based industries.

Recommendations

- ▶ The contractor, or locally-based economic development programs, should continue to research and promote new markets to improve the likelihood of continuing a diverse wood-product network beyond the ten-year timeline of the stewardship contract.
- ▶ Annual economic monitoring should continue to track employment and users of the Project's wood fiber, and be broadened to include effects of the product sales and other factors.
- ▶ Non-local expenditures by wood-product businesses should be evaluated to determine if a local business could fill needs.

Social Support

When the Project was initiated, the 2002 Rodeo-Chediski wildfire was still fresh in most residents' minds. A social assessment undertaken after the fire indicated that most residents supported the need for forest management, including both thinning and managed fire. This assessment was used by the Monitoring Board as a baseline to gauge social support for the Project. Several outreach projects were implemented, such as newspaper inserts, highway signage, and brief bulletins and annual reports.

Findings and Lessons Learned

- ▶ The social assessment conducted in 2005-2006 in Navajo and Apache counties found that of 722 households, 94% supported mechanical treatment in our forests and 92% indicated their support of using prescribed fire.
- ▶ This assessment also found that Navajo and Apache county

residents have a good basic knowledge of the ecological benefits of fuel treatments, forest restoration, and prescribed fire, with relatively less knowledge of the ecological role of fire in ponderosa pine ecosystems. Respondents answered correctly on various forest ecology questions 80% of the time.

- In 2007, the Northern Arizona University's Ecological Restoration Institute commissioned a study to evaluate the collaboration effort of the Project and its monitoring and management approaches. Key findings include:

1) communities can play indispensable roles in preparing National Forests for stewardship projects; 2) there may be a need to structure stewardship contracts on a socially-defined "zone of agreement;" and 3) a collaborative framework can address challenges and opportunities as they arise. The report found that forest stakeholders in the White Mountains region were able to "transition from stalemate to stewardship," providing a model for increasing the scale of forest restoration.

Recommendations

- Develop a social assessment for the latter half of the Project period (2013-2014) using the baseline assessment questions for comparative purposes and including questions specific to the Project to obtain some level of understanding of public perception of the Project.

What Have We Learned?

The first five years of the Project have been a time of learning, experimenting, and building trust among stakeholders, businesses, and forest managers. The Project illustrates how a National Forest can receive input from stakeholders and incorporate changes into future projects; this is exemplified by the incorporation of a wildlife habitat-based prescription to test its ability to meet ecologically-based objectives while simultaneously reducing the potential for active or passive crown fire in treated areas. While the Project demonstrates adaptive management, monitoring should be improved to include a better level of specificity to measure outcomes and to trigger management changes.

The White Mountain Stewardship Project has demonstrated that an investment by the federal government to provide a ten-year supply of wood fiber to the private market has encouraged

investment by businesses in the wood products industry. This public-private partnership has helped to add value to small-diameter wood products, increase employment opportunities in rural communities, and boost local economies. More work is needed, however, to develop a sustainable forest-based economy, particularly for currently under-utilized fiber, such as biomass.

The White Mountain Stewardship Project has confirmed the hope held by many that by working together, those with different perspectives can find common ground, achieve shared goals, and ensure that their efforts benefit the communities and wildlife that depend on a healthy forest environment.



Bruce Taubert

The Next Five Years

In the next five years, the Multi-Party Monitoring Board will evaluate and refine its monitoring program and tailor data collection to meet specific information needs and to fill data gaps. We will continue to build on the use of monitoring data to improve planning and treatment designs and project layout. Lastly, we will share lessons learned with other collaborative projects to further forest restoration across the nation.



The Nature Conservancy



Protecting nature. Preserving life.™

This report, and additional supporting documents, can be found on the following websites:

www.azconservation.org

and

www.fs.fed.us/r3/asnf/stewardship/multi-party-monitoring.shtml