

Case Study of a Community Stewardship Success:
The White Mountain Stewardship Contract



NORTHERN
ARIZONA
UNIVERSITY

Ecological Restoration Institute

The Ecological Restoration Institute at Northern Arizona University is a pioneer in researching, implementing, and monitoring ecological restoration of southwestern ponderosa pine forests. These forests have been significantly altered over the last century, with decreased ecological and recreational values, near-elimination of natural low-intensity fire regimes, and greatly increased risk of large-scale fires. The ERI is working with public agencies and other partners to restore these forests to a more ecologically healthy condition and trajectory—in the process helping to significantly reduce the threat of catastrophic wildfire and its effects on human, animal, and plant communities.

Cover photo: A thinned ponderosa pine forest in a White Mountain Stewardship Contract treatment site west of Eagar, Arizona on the Apache-Sitgreaves National Forest, Springerville District.



**NORTHERN
ARIZONA
UNIVERSITY**

Ecological Restoration Institute

PO Box 15017
Flagstaff, AZ 86011-5017
928-523-7182
www.eri.nau.edu

Publication date: August 2007

Authors: Jesse Abrams and Sam Burns

Editor: Dave Egan

Reviewers: Ann Moote, Kathy Lynn, Robert Taylor, Dave Egan

Cover Photo: Jean Palumbo

Series Editor: Dave Egan

Please contact ERI for reproduction policies, 928-523-5697

All material copyright © 2007 ERI, NAU

Table of Contents

Executive Summary.....	2
What is Stewardship Contracting?.....	3
The White Mountains of Arizona.....	3
The Importance of Community Capacity.....	4
Rebuilding Markets and Workforce to Support Restoration.....	6
A New Approach to Agency-Community Relations.....	8
Situating Stewardship Within a Larger Context.....	9
Current and Future Challenges.....	11
Lessons Learned.....	13
Acknowledgments.....	16
Endnotes.....	16
References.....	17
Box 1. The White Mountain Stewardship Contract: Basic Facts.....	18
Box 2. Stewardship Contracting Authorities.....	18
Box 3. Chronology of Key Events in the White Mountains.....	19
Box 4. Capacity-building Community Forums in the White Mountains.....	19
Appendix 1. Methodology Used for This Case Study.....	20

Executive Summary

Stewardship contracting is a recent innovation in federal land management designed to address land stewardship needs through collaboration with local communities. The White Mountain Stewardship Contract (WMSC), which is focused on restoring ponderosa pine forests in Wildland-Urban Interface (WUI) areas of the Apache-Sitgreaves National Forests (ASNF) in east-central Arizona, is the nation's largest stewardship contract to date, and the first to commit to the maximum duration of ten years. After two-and-a-half years of implementation, the WMSC is credited with helping to restore forest health, protect vulnerable communities, and revitalize local wood products businesses, and has received strong support from a broad spectrum of local stakeholders. These accomplishments are particularly impressive given the fact that less than a decade ago the White Mountains region was mired in a "shut down" of forest activities, characterized by social division over forest management issues, local mill closures, and an inability to implement most forest management efforts. This case study examines how community members, business owners, and agency employees were able to transition from community gridlock to broad-based support for the most ambitious forest stewardship plan in the National Forest System. In particular, three factors emerged as the most important in facilitating this transition:

- **Community capacity:** Community leaders and relevant stakeholders played very active roles in the wake of the shut down to identify management approaches that were broadly supportable by all major stakeholders. These conversations led to the creation of inclusive collaborative forums that over time were able to build the social capacity necessary to move forward with active forest stewardship. The Natural Resources Working Group, in particular, has acted as the voice of community consensus on forest management issues, and has worked to craft a "zone of agreement" within which forest management activities could take place without provoking opposition.
- **Utilization capacity:** Other inclusive community forums were created specifically to support the re-tooling of the local wood products infrastructure to increase its capacity to process small-diameter material. Through a combination of business development assistance, technical assistance, grants and loans, these community-led forums supported the development of an integrated network of small- to medium-sized wood products businesses distributed throughout the White Mountains region. This allowed local businesses to successfully compete for the harvesting and processing of stewardship contract removals and provided local value-added markets for restoration by-products.
- **Agency capacity:** Apache-Sitgreaves National Forests staff has been instrumental in supporting the community transition to stewardship. This is due in large part to the initiative and foresight of key individuals within the agency who worked to define the approach to stewardship through close collaboration with the community, and by preparing administratively for restoration activities prior to the start of the stewardship contract. The agency has worked to maintain a responsive, accountable relationship to the community through the all-volunteer stewardship contract Multiparty Monitoring Board and through ongoing engagement with the Natural Resources Working Group.

While the situation in the White Mountains is clearly unique, lessons related to capacity-building and the development of constructive relationships between communities, businesses, and land management agencies may serve other locales well. Prominent among these lessons are the recognition of new and indispensable roles the community plays in preparing for stewardship, the need to build capacity prior to the initiation of stewardship activities, the need to structure work within a socially defined zone of agreement that can be expected to change with time, and the need for a collaborative community framework able to address new challenges and opportunities as they arise.

The WMSC, which officially began on August 10, 2004, is a plan to treat 150,000 acres of degraded federal forests over ten years using new stewardship end-results contracting authorities (see Box 1). Supported by quotes of various people involved in the process, this report details how the White Mountains community was able to transition from stalemate to stewardship through several years of intensive community-level collaboration and capacity building, ultimately setting the stage for an ambitious stewardship contract that is now seen as a model for "scaling up" restoration and stewardship of public forests.

What is Stewardship Contracting?

Stewardship end-results contracting, better known as stewardship contracting, is an approach to public land management that focuses on the ecological, social, and economic end results of management operations.¹ This is in contrast to traditional approaches to land management, usually accomplished through timber sale contracts, that focus on the value of commodities removed from the forest, or procurement contracts (also known as service contracts), which tend to focus on a single, identified need. Stewardship contracts are a means of integrating several objectives into a single plan. For example, the “goods for services” authority allows a single contractor to remove both merchantable and non-merchantable trees during a single operation, with the value of commercially valuable trees removed used as an offset against the costs of treating the smaller, non-merchantable trees. “Best value” and “multiyear contract” authorities support local economic development by considering local employment as an explicit forest management objective and providing long-term predictability of work in order to spur local investments (see Box 2 for a description of stewardship contracting authorities). Stewardship contracting, unlike traditional approaches to public land management, includes a focus on strong agency-community collaboration in designing, implementing, and monitoring management activities. This new approach is based on a vision of using the knowledge, skills, and resources of local communities to guide and support long-term integrated stewardship of publicly-administered lands.

The White Mountains of Arizona

The White Mountains region of eastern Arizona, roughly the area covered by the Apache-Sitgreaves National Forest (ASNF) and adjacent Fort Apache Reservation (White Mountain Apache Tribe), is a largely rural part of the state characterized by small towns and heavily wooded subdivisions separated by expanses of federal or Tribal forests. Ponderosa pine is the dominant forest type, and like ponderosa forests throughout much of the Southwest, these fire-adapted ecosystems suffer from the effects of a century or more of fire exclusion, logging, and historically unregulated grazing.² Current forest conditions are typified by overstocked stands containing 10 to 20 times the historic tree density, decreased tree vigor, a depauperate understory, and a susceptibility to uncharacteristic crown fire. This last point was made evident in 2002, when the Rodeo-Chediski fire burned intensely across nearly a half-million acres of tribal, federal, and private land, destroying 465 homes and forcing the evacuation of over 30,000 people.³

Many White Mountains communities within or near the ASNF trace their roots back to the area’s earliest Euro-American settlers: Mormon families sent by Brigham Young to settle the Little Colorado River Valley, non-Mormon Anglo cavalrymen and homesteaders, and early English- and Spanish-speaking shepherds and ranchers. Descendents of many of these original families still call the White Mountains home, although increasingly large proportions of these communities are made up of seasonal residents, retirees, and second-home owners. While much of the contemporary White Mountains economy is derived from tourism, real estate, and other amenity values,⁴ it was timber cutting and grazing that sustained the people and their communities for most of the last hundred years. Prior to the 1990s, the White Mountains economy relied heavily on its timber processing facilities, including sawmills, moulding operations, and large paper and containerboard plants. These facilities were highly dependent upon harvests of sawtimber and pulpwood from the ASNF for their continued operation. Timber harvesting also occurred at an accelerated pace on White Mountain Apache Tribal lands, supplying wood to mills in reservation communities, such as McNary and Whiteriver. From 1959 to 1989, the pulp and paper mill near Snowflake (now owned by Abitibi Consolidated Corporation) enjoyed a guaranteed pulpwood supply through the Colorado Plateau Pulpwood Contract, and, as recently as the 1990s, this local pulpwood market helped provide an economic driver for the harvest of smaller-diameter material on the ASNF.⁵

The timber economy underwent dramatic changes beginning in the 1990s, when a combination of decreased availability of local timber and national and international competition began to take a toll on existing mills.⁶ After the listing of the Mexican spotted owl as a threatened species in 1993, local and regional environmental groups became more active in challenging timber operations on the ASNF. Environmental organizations, wildlife agencies, and others were concerned about the effects of the Forest Service timber program on old-growth and late-successional forests and associated wildlife species. In 1995, Judge Carl Muencke ordered an injunction on all timber harvesting activities in spotted owl habitat until the U.S. Forest Service (USFS) met its consultation obligations under the Endangered Species Act. During the next several years, White Mountains communities grew increasingly divided over forest management issues as mills shut down and local

harvesters, haulers, and processors went out of work. Spotted owls were hung in effigy outside local businesses and elected officials at town and county levels worked to try to revise the Endangered Species Act to lessen its effect on their communities. Meanwhile, environmental organizations continued to be successful in slowing or stopping commercial timber harvesting activities. White Mountains residents refer to this as a time when the forests were “shut down” due to administrative appeals, decisions by the courts, and the disappearance of viable markets for wood products. See Box 3 for a chronology of recent key events in the White Mountains.

Given this as a backdrop, it may seem unlikely that within a decade White Mountains residents and stakeholders would come together so successfully in support of a long-term, large-scale contract focused on mechanical treatment of the region’s overstocked forests, and that White Mountains communities would see investments in new and expanded wood processing infrastructure. The story of the White Mountains’ transition from gridlock to stewardship provides a number of valuable lessons for land managers, place-based organizations, and others faced with social and economic obstacles to achieving sustainable community-based forest stewardship. Throughout the pages that follow, the focus is on how the WMSC was able to occur where and how it did, and what lessons can be taken from the first two-and-a-half years of implementation.

The Importance of Community Capacity

Central to forest stewardship efforts in White Mountain communities was the building of community capacity, defined by Kusel as “the collective ability of residents in a community to respond...to external and internal stresses; to create and take advantage of opportunities; and to meet the needs of residents, diversely defined.”⁷ One of the most important tasks for the community in the wake of the shut-down was finding a way to reconcile the conflicting interests of the various individuals, agencies, organizations, and businesses that had a stake in the management of local forests. Through a combination of collaborative forums (see Box 4), mutual learning through shared experiences and the leadership of key individuals, the community built up a level of social capacity over a number of years that allowed it to move forward with the ambitious plan contained in the stewardship contract.

The Natural Resources Working Group

Among the most important entities working to build community capacity in the White Mountains is the Natural Resources Working Group⁸ (NRWG), which started in the mid-1990s as a series of discussions between various elected officials, agency leaders, and environmental representatives. It has since grown into a multi-stakeholder collaborative forum that helped foster a cohesive community vision among disparate interests. The NRWG was (and continues to be) based on the concepts of inclusiveness, respectful interactions between members, and a focus on working within existing laws and regulations rather than on trying to change them.

...we started with the idea of, okay, number one...there are rules out there. There has to be a commitment to follow the rules. We are a nation that believes in the rule of law, so let’s quit trying to change the law. Follow the law, and see what we can get done. Out of that developed the idea of how can a community thrive complementarily with the Endangered Species Act, and that grew into NEPAs, EIS, the whole process, EAs. How can the community use that to their advantage versus always looking at it as an impediment to progress? That was where we began the Natural Resources Working Group process.
(Community member)

The community capacity that was painstakingly built over several years through venues like the NRWG was perhaps the most important factor in the success of the stewardship contract concept, according to those most closely involved in contract creation, implementation, and monitoring. The collaboration that occurred in this forum allowed the community to recognize areas of common concern, build constructive working relationships, and experiment with new land management approaches on the ground. The NRWG has changed somewhat in composition over the years as individuals have come and gone, but throughout it has worked to keep the major stakeholder interests engaged, and has had a strong emphasis on the inclusion of community leaders including elected officials, heads of local agency units, and non-governmental organization representatives empowered to make decisions for their respective entities.

The Blue Ridge Demonstration Project

Another aspect of the NRWG that was critical in setting the stage for the stewardship contract was the group's emphasis on building both social trust and broader scientific and economic understanding through on-the-ground work. To this end, one of the NRWG's first significant projects was a demonstration of various approaches to restoration and fuel reduction in a Wildland-Urban Interface (WUI) area known as Blue Ridge. The development of a demonstration site on Blue Ridge, as well as design and layout of treatment alternatives, was conducted in close collaboration between ASNF staff and the various stakeholders of the NRWG. Particular attention was paid to engaging the environmental activist community by implementing one treatment alternative based on guidelines developed by a consortium of regional environmental groups. The agency also signaled a willingness to compromise with environmental groups by instituting a 16-inch diameter cap on treatments within the Blue Ridge demonstration.

...it was just a vehicle to get the whole process started, and it was ready to roll. [The district ranger] was cooperative, we certainly were behind it...nobody was opposed to it that I know of, for any reason at all. It had a 16-inch cap, so that wasn't an issue...everybody supported it is all I can say.

Interviewer: And was that pretty rare? Was that one of the first projects that the community could be brought together on?

Oh, absolutely! Are you kidding? ... I think you have to bite off just a little bit at a time, I mean that's sort of what Blue Ridge was...it was not a significant area, it was all even-aged, there were no big trees to argue about, just all of those factors. (Environmental group representative)

While some individuals both within and outside the agency were personally opposed to including diameter caps in silvicultural treatments, the group decided to start within the narrow zone of agreement that existed in hopes that with time, through monitoring and continued dialogue, the zone of agreement would expand. The demonstration also illustrated for many NRWG members the connections between utilization capacity and the ability to get restoration work done. Because of diminished local markets for small-diameter material, two initial offerings on the Blue Ridge projects received no bids. Treatments were implemented only after the project was scaled back and outside funds were obtained to conduct the thinning activities.

Building and Maintaining the Zone of Agreement

Continued public support for the contract is due in large part to the fact that it met most stakeholders' major interests. From the perspective of local businesses, it provided a guaranteed level of supply and sufficient predictability to spur investments in infrastructure. Environmental and wildlife interests were satisfied by focusing on the WUI, limiting most harvests to trees under 16 inches in diameter, and including a strong monitoring component. A consortium of local government entities that had bid on the contract with plans to bring in a large, corporate wood processor were understandably disappointed by the decision to choose a local business venture as the contractor, but other government representatives were pleased to see progress toward protecting communities and stimulating the local economy. Underlying the response to the contract announcement was a deep sense of concern for community well-being.

We had a lot of discussions with the County and some of the local politicians...that regardless of how this thing came out, regardless of how it was awarded, there are some real important things that had to be sustained and one was that local involvement...We have to be supportive to whoever the successful bidder is to and make sure it works. (Community member)

Another way in which the contract reflected community values and priorities was by focusing on areas identified and prioritized through Community Wildfire Protection Plans (CWPPs). Community leaders, working with a local consultant (Logan Simpson Design), developed the Sitgreaves CWPP in May 2004 and the Apache CWPP in August 2004. From the perspective of the communities, the stewardship contract's focus on these areas was an indication that the ASNF took community values seriously. From the ASNF's perspective, the CWPPs helped provide strategic direction for the sequencing and prioritization of treatments.

The Importance of Individuals

In addition to the formal and informal avenues of communication and collaboration, the stewardship contract process was consistently supported by the contributions of individual members of the White Mountains community. In this sense, the community's capacity to support a large-scale, long-term stewardship contract was a function not only of having the right organizations (e.g., NRWG), but having the right people.

I think we were blessed with really, the right people at the right time...I guess a fear, if I have any, is will enough good people like this, and a good mix of people be around the full [ten years], because you know [the Forest Supervisor] is retiring at the end of the year. So if we got the wrong person in there, it literally would be all over, overnight. That's a key position—hers. But you know the wrong person in any of several of these positions could really doom the experiment. (Business representative)

Despite the proliferation of formalized place-based and interest-based organizations working on forest issues in the White Mountains, one of the most active and effective entities has been an informal collection of individuals known as the STP, meaning the “same ten people.” This title has been bestowed on the most engaged agency and non-agency stakeholders for their consistent efforts in support of the stewardship contract and other community initiatives. Community “champions” such as these played critical roles in building community and political support, coordinating utilization capacity with anticipated stewardship work, and building the kinds of constructive relationships that made the stewardship contract possible.

Rebuilding Markets and Workforce to Support Restoration

In addition to playing a vital role in building the social license to move forward with stewardship activities, community organizations took the lead in preparing for long-term stewardship by building or rebuilding an economic support system. This required transitioning from a focus on milling larger trees and pulping small-diameter material to a focus on finding value-added applications for mostly smaller trees (only 15% of the material harvested as part of the WMSC is sawtimber, the rest is roundwood-size or smaller).

Adapting Existing Local Knowledge and Commitment

During a period of years beginning in about 1997, a series of activities coalesced into a revitalized economic infrastructure that made it possible to engage with forest restoration and stewardship work on a large scale. These activities included the support of local entrepreneurship through Regional Economic Assistance Program funding; the creation of the Four Corners Sustainable Forests Partnership, a 5.5-million dollar, five-year effort in four states; the return of Walker Brothers Contracting, one of the region's most experienced harvesting companies that had moved its primary operations to New Mexico when local work disappeared; and increased coordination, marketing and business support, grant and loan opportunities, and access to processing equipment coordinated through community organizations such as the Arizona Sustainable Forests Partnership (ASFP) and the Northern Arizona Wood Products Association (NAWPA). See Box 4 for more information on these community organizations.

Making Infrastructure Investments that Reduce Treatment Costs

This expansion in utilization capacity continued as the WMSC came on line. Forest Energy, the heating pellet manufacturer, increased its capacity by 50%. One of the community's long-standing saw mills continued to adapt to small-diameter materials. Initiatives were begun to develop biomass power generation options. The demonstrated successes of these more efficient harvesting techniques and value-added utilization options drew the interest of the USFS Forest Products Laboratory, which led to a series of grants. These technical assistance projects have led to even higher-value products.

These infrastructure investments have been made strategically, through community business forums like NAWPA and the ASFP, with the ultimate goal of fostering an integrated array of utilization options distributed throughout the White Mountains.

...we need consumption in the Alpine-Springerville-Eagar area, we need consumption in the Show Low area, we need consumption over in the Heber area. We're talking to a small sawmill about coming in on the west side. We're talking to larger sawmills. Part of this resource evaluation is trying to say, well, can we put a 50-million-board-foot sawmill in some place that could use the big stuff, and still not steal wood from [another mill owner]...It's a juggling act. It's not necessarily run the way you would normally run a business. The intent is to make the stewardship contract successful. (Business representative)

This is an example of the active role community-based organizations have played and continue to play in preparing for, and helping to ensure, the success of the stewardship contract. The approach has been not to simply increase the number of wood processors in the White Mountains, but to support business ventures in a strategic manner that maximizes the contribution of each wood processor to overall regional capacity. These capacity improvements have accomplished a number of important results:

- Stretching across 100 miles throughout the White Mountains, wood products businesses are coalesced into a collaborative fiber utilization and distribution network;
- Business infrastructure investments were made during a ten-year period (1997-2007) that have been estimated by one business representative to be 5-6 million dollars;
- Gradually over a decade, cost and revenue efficiencies were made, which in turn lowered the cost of forest restoration and thinning operations, and upon which a more affordable long-term stewardship contract could be anchored; and
- The ten-year WMSC made possible a predictable supply of wood fiber, which in turn made additional investments in harvesting, product development, and expanding markets much more feasible.

Continuing to Improve the Forest Restoration Business Model

As the WMSC has been implemented during the past two-and-a-half years, it has become increasingly clear how important the previous ten years of step-by-step economic development has been. At the same time, many wood products business leaders and supporters are fully cognizant of the vagaries of being shut out of the woods due to weather or wildfires, of depressed wood products markets due to international market forces, of limited biomass utilization options that constrain the potential value of wood chips, and imbalances in federal and state tax policies that undervalue biomass-generated thermal energy. Major challenges at present include a lack of higher-value markets that would raise raw material values, for example, from \$20 to \$30 or more per ton. This could come in the form of increased markets for existing products (e.g., commercial-grade heating pellets) or the entry of a new wood user capable of paying more for raw material.

Additionally, business leaders believe that a collaborative business environment needs to be sustained, through which new entrepreneurs enter the regional wood production marketplace in northern Arizona in a cooperative rather than solitary or overtly independent manner. The consistent economic and local voices for working together, building primarily from a grassroots community perspective, continue to strongly believe this has been the basis of their success thus far. While they remain open to large-scale utilization activities that would enable the region to expand up to the 15,000-acre-per-year level, they are strongly committed to a coherent sustainable forest restoration model that continues to drive down the costs of forest stewardship and strengthens long-standing, family-owned businesses.

This is about forest health. When you have communities that identify with the forest, then they need something like a stewardship contract in order to bring the holistic approach to fixing that problem... Nobody's going to get wealthy off of this, but a lot of people will sleep better at night. A few firefighters' lives might be saved. Certainly properties will be saved, and certainly those creatures in the forest that

we're all concerned about could be saved as well.... This is about forest health. I think the community, by having a visible contract, material being moved, processed—the threat to their communities posed has been reduced marginally, significantly, measurably, over the years. I think a lot of people are paying attention to that. (Business representative)

A New Approach to Agency-Community Relations

The Agency is Part of the Community

Even while White Mountains communities continued to make sustained investments in building community capacity (through collaborative forums, demonstrations, and monitoring) and expanding utilization capacity (through business assistance, grants, loans, and networking opportunities), it was clear that achieving a vision of long-term stewardship would take the commitment of the public land managers themselves. Agency cultures, policies, and procedures can often act as stumbling blocks to collaborative resource management,⁹ but the White Mountains region was blessed with a number of ASNF staff committed to building constructive relationships with the community.

Significantly, a number of ASNF staff perceived the agency's role as being a participant in community decision-making processes, rather than as an independent decision-making entity insulated from community concerns. Both agency and non-agency community members saw the stewardship contract as a community effort rather than merely an agreement between the ASNF and a contractor.

I think it's all about relationships. It's not about the Forest Service offering a contract. It's all about the community banding together to decide this is what they want and then everybody taking a role and making it work. (Agency representative)

This level of agency-community engagement was clearly important to the development of the contract, but just as important are the ongoing relationships between the ASNF and collaborative groups (such as the NRWG and the multiparty monitoring board) and individual stakeholders, including contractors, local government, and environmental advocates. This requires agency staff to be highly attentive to community developments, place-based and interest-based community forums, and emerging social and political issues. It also requires the agency to be both responsive and adaptive as new issues and needs arise. These investments of time and energy have paid off in terms of community support and the ability to initiate and sustain long-term forest stewardship.

Beginning with writing the initial contract, and continuing through site selection, prescription design and implementation, ASNF staff has shown a willingness to adapt to the needs of local stakeholders. Perhaps this is best illustrated by the constructive relationship between the ASNF and the contractor, Future Forests.

The relationship between the contractor and the Forest Service throughout the entire analysis, preparation, and implementation is very important...Any time we have questions while we're going through NEPA--Could White Mountain stewardship do this? Is your equipment set up to do this or is this something that we better plan on it being done by some other contract, some other grant funds?--we'll get them out in the field and ask them: What kind of equipment would you use in this particular location? Can you get material off the slope with what you've got, or is that something that we just better defer? When it comes to the actual implementation, a lot depends on the market that he has available at the time. If he's got a very active market for chips down to some of his mulchers, for instance, he may want to have a larger size landing to treat that so he can store some of that on site for a later haul...Somebody who takes the approach that it's going to be done the "Forest Service's way," can lead to significant additional costs to the contractor, which is putting us on a path that's in the wrong direction than we want to be. (Agency representative)

While this kind of adaptive relationship might be cause for concern in some settings, the social capacity that has been built in the community creates space for the contract to undergo minor adjustments. Even environmental advocates, who normally play a “watchdog” function, express comfort with allowing implementation to proceed without constant oversight. Said one environmental representative, “To a large degree we’re operating on faith, and on trust of the people involved.” For many community members (environmental representatives in particular), the monitoring and accountability functions of the multiparty monitoring board are of great importance. The board provides an accountability mechanism by tracking any changes that were made at the close-out of each task order. It is also responsible for independently investigating the ecological, economic, and social effects of the contract. The Forest Supervisor personally attends nearly every board meeting, and she has dedicated a small, but significant, percentage of the stewardship budget to funding monitoring activities recommended by the all-volunteer board.

While land management agencies are often characterized as being risk-averse,¹⁰ key ASNF staff were willing to take risks by committing to a long-term, large-acreage contract. Many stewardship contracts had been implemented previously under pilot authorities, but these were largely short-term and relatively small acreages. Being the first forest to use the maximum contract length (ten years) and to apply stewardship contracting to a large area meant having to work through turf battles within the Forest Service bureaucracy and devoting a large portion of the forest’s base budget to stewardship activities. However, the strong community collaboration in support of a stewardship vision and the many years of work building stewardship capacity gave the ASNF confidence that the project would be a success.

Navigating NEPA

The high level of social capacity built by White Mountains stakeholders, and the fact that the stewardship contract is focused on operating within the social “zone of agreement” has also allowed the ASNF to complete NEPA requirements on tens of thousands of acres (as of May 2007 about 188,000 acres associated with the stewardship contract have been analyzed and more than 54,000 treatable acres were considered NEPA-ready). The NEPA process is often cited as a major institutional barrier to implementing land management,¹¹ yet in the case of the ASNF, this potential obstacle was avoided by taking an approach that focused on areas of broadest agreement. As one agency representative characterized it, “We’re not going to spend a lot of time and effort arguing about 5 or 10% of the areas or trees out there, let’s focus on getting the 90% or 95% that needs to be done, done.”

The ASNF staff made the completion of NEPA requirements for restoration and fuel reduction projects a top priority, even during the late 1990s and early 2000s when little actual treatment was occurring on the forest.

Even though by the early 1990s the big timber programs had shut down, which meant the thinning programs had shut down, which meant a lot of the brush disposal work shut down, and a lot of the road stuff went down, [the forest supervisor at the time] continued to emphasize that we needed to put projects on the shelf because one of these days, and we didn’t have a concept of stewardship at the time, we just knew that one of these days, if the money was going to break available, we’d be able to get some work done. (Community representative)

Situating Stewardship Within a Larger Context

The capacity for long-term forest stewardship is in many ways a reflection of community capacity, utilization capacity, and the capacity of the forest management agency itself. At the same time, other more contextual factors can be important contributors to the stewardship process. In the case of the WMSC, these included the close proximity of White Mountain Apache Tribal lands, the recent history of large and destructive fires, and the changing policy context that is slowly evolving to support stewardship activities.

The Role of the White Mountain Apache Tribe

While the White Mountain Apache Tribe has been involved in stewardship contract deliberations only peripherally, it has, nevertheless, played an important role in contributing to the contract’s success. First, the Tribe continued forest management on Tribal lands, including experimenting with thinning prescriptions, during the “shut down” on national forest land. This

provided an economic buffer to local wood products businesses that helped some of them survive the lean years. It also helped local contractors build up their skill set in the years prior to the stewardship contract. Second, because Tribal lands border several White Mountains communities, and some of the major highways linking these communities traverse Tribal land, the non-Tribal public was able to see the effects of fuel reduction activities before they started to be applied on the ASNF. According to one community member, “I think it helps being right next [to] the Apaches, because the people here are used to burning and logging and it’s not like something foreign.” Previous thinning and prescribed fire treatments on Tribal land also illustrated the effects of fuel treatments on fire behavior during the Rodeo-Chediski Fire, with treated areas showing reduced fire intensity and lower tree mortality rates.¹² These documented effects served as validation of the concepts contained in the WMSC plan to many in the White Mountains.

The Rodeo-Chediski and Other Large Fires

The Rodeo-Chediski and other large fires that have affected the White Mountains in recent years were important contributing factors to the stewardship contract, in the sense that they may have motivated the community into action and helped to build support from the Washington, D.C. office of the Forest Service. Some community members felt that the Rodeo-Chediski Fire, in particular, may have changed the political calculus of some of the region’s more litigious environmental groups, making them less inclined to object to fuel reduction treatments in the WUI. One environmental representative emphasized that it was the specifics of the stewardship contract, rather than political considerations related to the fire, that formed the basis of support:

I won’t say we were completely insensitive to the whole fire thing, but it really didn’t drive the decision [to support the stewardship contract]. Once it kind of came together the way it did, we really wanted it to work. I can understand why people would have that perspective...But no, it was definitely much more positive from our standpoint. (Environmental group representative)

There was broad agreement among stakeholders in the White Mountains that wildfires by themselves would not have led the community to adopt the stewardship contract concept, but rather that they added momentum to efforts that were already taking place.

We were already on the path of knowing that something needed to be done. Obviously, Rodeo-Chediski had an impact as well, but if the collaborative efforts hadn’t been in place I don’t think Rodeo-Chediski by itself would have gotten us where we needed to be. (Agency representative)

Experience with these fires may have also helped to spur action on Community Wildfire Protection Plans, which ultimately provided support and direction to treatments conducted under the stewardship contract.

The Policy Context

Another factor that contributed to the contract’s success was the changing policy context for federal forest management. While the stewardship contract could not have existed in its current form without the semi-permanent authorization granted by Congress in 2003, other recently enacted federal policies played important roles as well. The Healthy Forests Restoration Act of 2003 (HFRA) authorized locally led CWPPs—the very community-based plan that formed the basis for WUI treatments under the stewardship contract. The HFRA also expedited the NEPA processes for fuel reduction treatments in WUI areas, and these processes were used widely and successfully to plan stewardship contract treatments. Some smaller treatment areas on the ASNF were planned using categorical exclusions created through administrative actions under the Healthy Forests Initiative (HFI). Policies such as these gave the ASNF and the community the ability to implement treatments quickly once agreements had been made. While HFRA and HFI have been the subjects of a great deal of controversy at a national level since their introduction onto the political stage, they appear to have been used in the White Mountains without generating significant discord. Other recent policy changes designed to support place-based collaboration among various agency and non-agency entities have also contributed to increased capacity in the White Mountains. For example, the Economic Assistance Program supported the Four Corners Sustainable Forest Partnership and provided grant funds and technical assistance from the Forest Service Southwestern Region for the re-tooling of wood processing equipment to handle small-diameter materials, small business planning, marketing through the NAWPA, and new product development, such as modular log cabin packages.

Current and Future Challenges

The ASNF, contractors, and other members of the White Mountains community had to contend with a number of obstacles in both the development and implementation stages of the stewardship contract. Some of these challenges were related to the WMSC's status as the first large-scale, ten-year stewardship contract, while others are more systemic, ongoing challenges. In addition, issues related to treatment prescriptions and the role of large industry in the contract may arise as issues of contention in the coming years.

Navigating the Forest Service Bureaucracy

I think there were, and continue to be, large personalities who are creating very strong forces against stewardship contracting in the Forest Service. You have to get past the dinosaurs and their unwillingness to change. (Business representative)

Some of the most significant challenges faced in the development of the WMSC occurred before the contract was officially announced, and were found primarily within the USFS bureaucracy. Challenges arose from various levels of the agency with turf battles between the agency's timber management and procurement divisions being particularly acute. Some in the agency opposed the concept of stewardship contracting either because they felt traditional contracts were better tools or due to legal and policy concerns. It took the persistence of stewardship contract supporters at the forest, regional, and national office levels during what one agency representative described as "seven months of fighting" to break impasses associated with contracting language (including guarantees of acreage) and the responsibility for contract administration. According to many within the ASNF, commitment and buy-in to the stewardship concept by agency staff at district, forest, and higher levels is needed for successful implementation.

Funding, Markets, and the Pace of Treatments

A dynamic relationship exists between the level of funding available to the ASNF, the existing markets for small-diameter material, and the rate at which acres can be treated under the WMSC. Future Forests is paid for the tonnage of sub-merchantable timber (the smallest, least-valuable material) they remove, and in turn they pay for the larger material for which local markets exist (generally 12- to 16-inch-diameter ponderosa pine). Under the WMSC, sub-merchantable removal expenses have consistently been higher than the value of merchantable timber removed. Using "goods for services" authority, the difference between the two is the cost to the ASNF to treat a parcel of ground, which has averaged around \$550 an acre during the first few years of implementation. The ASNF is given a limited budget each year for all forest operations, including implementing the stewardship contract, and is sometimes able to direct additional funding to the contract through agreements with other national forest units.

Because of the success of ASNF districts completing NEPA analyses, the primary constraints on treating acres are levels of available funding and the pace of the contractor in implementing treatments. If local markets expand (e.g., if a greater premium can be paid for merchantable material or if previously sub-merchantable material gains value), per-acre costs will decline, and the ASNF can treat a greater area for the same amount of money. The expansion of markets, in turn, is affected by local factors (such as private investments and grants) as well as non-local factors, such as state and federal policies and incentives. In effect, the pace of treatments is dependent on a combination of the funding available to the ASNF and existing markets for small-diameter material, although treatments can also be limited by weather and forest conditions (e.g., extreme fire danger, excessive snow, or muddy conditions).

Besides seasonal concerns about weather-related forest closures (which can be significant), there are some concerns about the pace of treatments and the possibility of declining ASNF implementation funds over time. Issues such as these bring up questions of whether the government should continue to pay for stewardship activities or whether local wood products businesses should be expected to compete in a global marketplace when their supply consists of low-value restoration byproducts. While community organizations continue to work toward expanding local markets for small-diameter material, there is a recognition that implementation in the near future will continue to depend on the availability of federal dollars.

In a similar vein, the capacity of the regional wood products industry in the past was significantly strengthened by a variety of Forest Service Economic Assistance Program (EAP) grants funded through the Arizona Sustainable Forests Partnership and the Four Corners Sustainable Forests Partnership. Because the EAP is no longer functioning, this gap could well affect future business development in the White Mountains and other communities seeking to replicate this scale of stewardship contracting.

The Cluster Effect vs. the Big-box

In grappling with the issue of expanding local markets in an attempt to make restoration and fuel reduction treatments economically sustainable, there is some disagreement within the community about the role of large-volume wood users in the White Mountains. Many of the local capacity building organizations, such as the Arizona and Southwest Sustainable Forests Partnerships and NAWPA, have focused on building an integrated “cluster” of small- to medium-sized wood users distributed throughout the White Mountains, with each business filling a particular niche in terms of location and type of wood used. Likewise, the WMSC was awarded to a joint venture of local businesses working in close concert with other local users.

However, the continued expense of forest treatments and concerns about the pace of implementation has led some to advocate for the inclusion of a larger wood user (some refer to this as a “big box” plant) that would be able to pay a higher premium for small-diameter material. Said one community member “I think they’re going to need some type of bigger user, like an OSB or a paper plant...There’s just so many acres to do.” Some in the community feel that with a big box user, the ASNF will no longer have to pay for treatments, and the capacity building that has tended to focus on the smaller users will no longer be necessary. Others in the community believe the cluster approach will ultimately drive prices down if given enough time:

If we do this small cluster like everybody likes--a long, scary thing--it’ll take five to seven years to rebuild it to where it’ll pay for itself. It’s just economics. We’d just come out of the worst market they’ve seen in 30 years in the wood industry. So we’re doing well, given the atmosphere we’re in. (Business representative)

Expanding the Range of Prescriptions

Another challenge confronting the community is whether--and how--to evolve the kinds of treatment prescriptions being implemented as part of the contract. Most work to date has involved fairly simple prescriptions focusing on thinning from below in the smallest size classes as a means of breaking up fuel continuity. Some refer to the outcome of these treatments as “the jailbar effect,” because the resulting stand often contains evenly-spaced, similar-sized trees. While most stakeholders see fuel reduction in the WUI as the top priority in these treatments, there are additional concerns about the need to meet other objectives such as maintaining or enhancing wildlife habitat, re-creating historic openings, and creating a more heterogeneous landscape. To this end, the ASNF has engaged members of the NRWG and the multiparty monitoring board in creating a collaborative interdisciplinary team, composed of both agency and non-agency stakeholders, to explore ways of implementing more integrated restoration and fuel reduction treatments, largely based on guidelines originally created to provide for northern goshawk habitat. While this approach is largely supported within the NRWG and multiparty monitoring board, it is causing some concern, particularly among those who see it as a way for the USFS to avoid including diameter caps in future prescriptions. Issues of this sort are likely to pose future challenges as the White Mountains community attempts to move away from simple fuel reduction prescriptions to more integrated restoration treatments.

Lessons Learned

While the new provisions inherent in stewardship contracting (goods for services, end-results, flexibility, etc.) have been acknowledged quite widely as important additional tools that can facilitate forest restoration objectives, the WMSC, because of its large landscape scope and ten-year time frame, offers an unusually rich situation from which to reflect on some of the more far-reaching lessons learned. By and large, the stewardship contract authority has previously been used on a demonstration scale to address forest health needs on projects of 500 to 5,000 acres. The magnitude and duration of this stewardship contract offers a unique opportunity to look much further ahead to the next generation of larger, more complex forest restoration work. As one community member said shortly after the WMSC was announced, “This is a whole different ball game.”

One way to frame the lessons learned from this “whole new ball game” is to start with a perspective expressed by a business person involved with the WMSC:

We've had a lot of people visit us from other areas, wanting a stewardship contract, and what we've decided is most of them don't understand that a stewardship contract itself is not going to solve their problem. If they haven't put the time and effort into rebuilding their infrastructure, the collaboration, a stewardship contract isn't the magic answer. There had been a lot of work done prior to the stewardship contract ever coming here, Four Corners [Sustainable Forests Partnership], and we've seen that. Even with the stewardship contract, a guaranteed amount of wood, things are still slow. So when we've got people who come and say, “Well if we have a stewardship contract, things are going to be great.” Well, yes and no. It's going to take some time. (Business representative)

In examining both the years leading up to the WMSC and several years of implementation, the importance of capacity building, community-based collaboration, expanded Forest Service organizational capacity and leadership, and economic infrastructure re-development have been emphasized. Each of these areas offers a series of take-home messages or key discoveries that clearly demonstrate that the wider community, business organizations, economic development and environmental entities, local governments, and land management agencies must build a state of preparedness or readiness in order to have a reasonable chance at success.

Lesson 1. The White Mountain Stewardship Contract represents a new approach to land management in which the community plays a variety of important roles.

Perhaps the most important lesson to emerge from this study of the WMSC is that it represents a different approach to public land management than is found under the traditional model. The traditional expectation is that land management is carried out under the narrow terms of a legal contract between the agency and a contractor who either pays to harvest valuable forest products or is paid to perform a needed service. While the WMSC does contain a legal agreement between the agency and contractor, it is in many respects a social contract to which all major stakeholders are signatories. What is novel is not only that these stakeholders play active roles (above and beyond the nominal role non-agency players are allowed in the NEPA process), but that to a great extent the contract would not be possible without them. In particular, building a cohesive social vision through ongoing collaboration and rebuilding the kind of economic infrastructure needed to perform restorative forest work were two functions the agency could not have executed in isolation. By adopting a more engaged and adaptive position within the community, the agency was able to capitalize on the potential created by these sustained community efforts. Building from a broadly inclusive collaborative base also provides some level of security that stewardship activities will be sustainable in the sense that they will be less vulnerable to being thwarted by outside entities.

The WMSC is certainly not the first example of innovative, agency-community institutional arrangements, nor is it the first multi-year stewardship contract. Because of its long time frame and large spatial scale, however, it illustrates the necessary ingredients for land stewardship beyond a demonstration scale.

A key lesson for land managers in other parts of the country is that embarking on stewardship activities on a large scale and long time frame will require some kind of partnership between the agency, private business, and the community. The roles of the agency in preparing administratively for stewardship, and of private business in providing an economic outlet for restoration by-products, are well understood. Perhaps less obvious is the vital role played by the community in working with the agency, businesses, and key stakeholders in providing collaborative forums to build the social license for stewardship, and in supporting the transition from an extractive to a stewardship-based economic infrastructure.

Lesson 2. Community capacity, wood utilization capacity, and agency organizational capacity had to be built in order to prepare for large-scale forest restoration work.

The WMSC represents one approach for making the transition from a resource-extractive paradigm for public land management to a stewardship-based paradigm. The transition did not occur overnight, however, nor did it occur without sustained effort by the community. The success of the contract is in many ways the result of years of community investments in capacity-building in three key areas:

- **Community capacity:** The White Mountains community was able to move from a state of social, political, and managerial gridlock to establishing broad-based commitment to a large, long-term contract largely through the building of trust and working relationships among historically polarized stakeholders. This required inclusive forums (such as the NRWG) that appeared to progress very slowly at times but were eventually able to foster agreement on initial, demonstration-scale projects. As the community learned from these projects and continued to build constructive relationships, the community's capacity to take on larger, more ambitious projects increased.
- **Utilization capacity:** Wood products businesses, non-governmental business support organizations, and the USFS invested a great deal of time and resources building utilization capacity in the White Mountains in advance of the initiation of the stewardship contract. One of the more significant parts of this period of getting ready was re-tooling and revitalizing existing components of the forest-based economy. While the White Mountains region benefited from the existence of some remnants of the past wood products industry, it took the combined support of business owners, the ASNF, and organizations like the Four Corners/Southwest Sustainable Forests Partnership, the ASFP, and NAWPA to rebuild and restructure these "remnants" into an integrated array of businesses capable of supporting restoration and fuel reduction practices on federal lands.
- **Agency capacity:** As the manager of nearly all non-tribal forests in the White Mountains, the role of the ASNF in the success of the stewardship contract is obviously paramount. Largely due to the personal skills, the willingness to innovate and the collective foresight of individuals within the ASNF, the agency was able to move beyond the usual fits and starts in management to creating a sustained program of work that was supported by all major stakeholders. This momentum has been sustained through ongoing engagement with the local community, a willingness on the part of the agency to adapt to emerging needs and changes, and establishing mechanisms for accountability, largely through the multiparty monitoring board.

Stewardship capacity may ultimately represent the sum total of other capacities—community, utilization, and agency capacity in the case of the White Mountains—and these will often need to be built or re-built over time. Investments in community-based collaborative processes and community based infrastructure development may be needed before the ground is prepared for long-term, large-scale stewardship. Collaborative and business support organizations in the White Mountains provide models of successful community-based forums for building capacity, just as the ASNF provides a model of how a land management agency can successfully engage the local community to leverage existing momentum.

Lesson 3. The White Mountain Stewardship Contract, and the work leading up to it, have focused on the “zone of agreement” created and maintained by relevant stakeholders.

Achieving a workable “zone of agreement” in the White Mountains in preparation for developing a large-scale stewardship contract has been noted as a key ingredient for sustaining commitment and trust generated among active stewardship contract stakeholders. The zone of agreement was quite small at times, but it has clearly expanded with time through the relationships built in collaborative forums and the mutual learning that arose from shared experiences working at smaller scales. While there is often pressure in forest management to push the boundaries of social acceptance (or to discount the importance of social acceptance altogether), the approach taken in the White Mountains was to build agreement through collaborative forums and focus work on areas of broadest agreement, with the expectation that ongoing learning would help to increase the level of agreement as time passed. As one agency representative described this approach, “Let’s continue with the education and do what society allows us to do right now.” It should be noted that the zone of agreement relates to all aspects of the contract. The community was clearly concerned about issues regarding the types and placements of forest treatments. Just as important, however, were questions of who would be awarded the contract, how jobs would be created and sustained, and how non-agency stakeholders would continue to be involved in monitoring and influencing contract outcomes.

The various informal and formal social structures from personal relationships, to meetings of several partnerships and associations, to implementation of the Community Wildfire Protection Plans, to collaborative agency-community interdisciplinary teams, are all aiding an evolving zone of agreement. As the stewardship contract continues to evolve, for example through changing restoration prescriptions, this zone of agreement will be challenged from time to time. While there is no guarantee of particular outcomes, the community does have existing collaborative forums (e.g., NRWG and the multi-party monitoring board) and existing social capacity to provide a framework for dealing with these challenges.

Although it might be in a sense obvious that this zone needs to be maintained, more attention needs to be paid to this outcome with longer-term and larger-scale stewardship contracts. As implementation begins, economic, ecological, and social conditions and issues evolve, sometimes in predictable ways and sometimes in unforeseen directions. Because the WMSC ultimately depends on a number of outside players for its success (e.g., wood products businesses, local government officials, community leaders, environmental organizations, regulatory agencies), maintaining the zone of agreement helps to ensure the process won’t get derailed by local interests or outside forces.

Achieving stewardship capacity will often be difficult, if not impossible, without the support of all major stakeholders. If proposed actions do not take place within the zone of agreement as defined by these stakeholders, a variety of forms of resistance can be expected, some of which may ultimately doom prospects for long-term stewardship. Even if projects start out with broad support, unforeseen challenges may arise later. This highlights the necessity of community forums for dealing with challenges constructively.

Lesson 4. The White Mountain Stewardship Contract is a part of a larger community vision of achieving social, economic, and ecological sustainability.

In achieving a stewardship contract of the scale of the WMSC, a reasonable response might be to simply declare a huge victory. By its nature, the WMSC provides a long-term supply of wood fiber; businesses can expand to address the higher biomass volumes; the Forest Service is doing fairly well in coming up with annual funds to offer task orders as rapidly as the contractor, Future Forests, can implement them; and the community and local governments remain highly supportive of the economic and ecological benefits being derived. However, this stewardship contract is neither a “beginning” (in the sense that previous work was necessary to prepare for it) nor an “end”—it is the next step in a long-term process of realizing a community vision of integrated economic, social, and environmental sustainability.

Even with all the successes that the White Mountains community has experienced, it is still only in the initial stages of achieving their vision. Economically, there remains the challenge of expanding local markets to the point that restoration and fuel reduction treatments can pay for themselves through utilization of small-diameter by-products. While this challenge continues to be addressed through grants, technical assistance, and business development at the local level, it is at least partially a function of distinctly non-local forces as national and international competition along with state- and federal-level

energy, tax, and forest policies continue to affect the viability of locally produced sawtimber, heating pellets, and other products. More work needs to be done to level the playing field so that local products have a chance at competing in a national and international marketplace where incentives and disincentives are unequally distributed.

The social component of sustainability, while clearly strong in the White Mountains region is, nevertheless, vulnerable to changes at local and higher levels. Challenges at the local level include continuing to build trust and common understanding to the point that consistent treatments can begin across the hundreds of thousands of acres of degraded forests outside the WUI. There is also the possibility of non-local factors influencing the social agreements that have been forged. Examples could include legal challenges to forest management by outside organizations or directives from higher political or managerial levels to change the approach to land management that has so far characterized the contract.

Ecologically, the WMSC is continuing to undergo changes. Shifting from relatively simple fuel reduction prescriptions to more complex, integrated restoration prescriptions will have implications for both wood utilization and social acceptability. While the multiparty monitoring board is taking an active role in evaluating the effect of these treatments on a number of key variables, there is a sense that it may not be until the end of the contract—or later—before the effects of these treatments become clear.

A lesson learned from the White Mountains is that even given strong local leadership, rural communities—and the public lands to which they are proximate—are inevitably situated within larger political, social, and ecological contexts over which they may have little influence. However, the WMSC provides one model of how local stewardship can flourish even in the face of outside challenges, given sufficient investment and dedication by the agency and community.

Acknowledgments

The authors would like to thank the many White Mountains residents and community members who took time to share their thoughts, experiences, and observations with us. Special thanks to the White Mountain Stewardship Contract Multiparty Monitoring Board and the staff of the Apache-Sitgreaves National Forests for providing feedback on preliminary findings and drafts. Thanks to James Motichek, Austin Lyons, and Justy Leppert for help with interview transcriptions.

Endnotes

¹Moseley 2002, General Accounting Office 2004, Daly et al. 2006

²Cooper 1960, Covington et al. 1994, Johnson 1994, Covington 2003

³Wilmes et al. 2002, Lenart 2006

⁴Arizona Department of Commerce 2007

⁵Barnett and Hawkins 2002

⁶Baeza 1995, Stone 1995, Lenart 2006

⁷Kusel 1996, p. 369

⁸See Lenart (2006) for a more thorough discussion of the Natural Resources Working Group.

⁹Carr et al. 1998, Moseley 2002, Moote and Becker 2003, McDermott et al. 2005

¹⁰Carr et al. 1998, Moseley 2002, McDermott et al. 2005

¹¹Moote and Becker 2003, McDermott et al. 2005

¹²Strom and Fulé 2007

References

- Arizona Department of Commerce. 2007. Community Profile Index. Available online at <http://www.azcommerce.com/SiteSel/Profiles/Community+Profile+Index.htm>.
- Baeza, J. 1995. Elk timber sale still on hold for court decision. *The White Mountain Independent – Navajo County Edition*. 41(36):1A-2A. Friday May 5, 1995.
- Barnett, L.O. and R.H. Hawkins. 2002. Reconnaissance watershed analysis on the upper and middle Verde watershed. Watershed Resources Program, School of Renewable Natural Resources, University of Arizona, Tucson, AZ. Available online at http://www.azwater.gov/dwr/Content/Find_by_Program/Rural_Programs/content/map/documents/ReconnaissanceVerdeWS_Analysis.pdf.
- Carr, D.S., S.W. Selin, and M.A. Schuett. 1998. Managing public forests: Understanding the role of collaborative planning. *Environmental Management* 22(5):767-776.
- Cooper, C.F. 1960. Changes in vegetation, structure, and growth of southwestern pine forest since white settlement. *Ecological Monographs* 30:129-164.
- Covington, W.W. 2003. The evolutionary and historical context. Pp. 26-47 in P. Friederici (ed.), *Ecological restoration of southwestern ponderosa pine forests*. Washington, D.C.: Island Press.
- Covington, W.W., R.L. Everett, R. Steele, L.L. Irwin, T.A. Daer, and A.N.D. Auclair. 1994. Historical and anticipated changes in forest ecosystems of the Inland West of the United States. Pp. 13-63 in R.N. Sampson, D.L. Adams, and M.J. Enzer, (eds.), *Assessing forest ecosystem health in the Inland West*. New York, NY: Food Products Press.
- Daly, C., C. Moseley, A. Moote, and M. Enzer. 2006. *Forest Service contracting: A basic guide for restoration practitioners*. Flagstaff, AZ: Ecological Restoration Institute, Ecosystem Workforce Program, Sustainable Northwest, and Flathead Economic Policy Center.
- General Accounting Office. 2004. Federal land management: Additional guidance on community involvement could enhance effectiveness of stewardship contracting. GAO-04-652. Washington, D.C.
- Johnson, M. 1994. Changes in southwestern forests: Stewardship implications. *Journal of Forestry* 92(12):16-19.
- Kusel, J. 1996. Well-being in forest-dependent communities, part 1: A new approach. Pp. 361-373 in *Sierra Nevada Ecosystem Project: Final report to Congress, Vol. II, Assessments and scientific basis for management options*. Davis, CA: University of California, Centers for Water and Wildland Resources.
- Lenart, M. 2006. Collaborative stewardship to prevent wildfires. *Environment* 48(7):9-21.
- McDermott, M.H., M.A. Moote, and C. Danks. 2005. *How community-based collaboratives overcome external institutional barriers to achieving their environmental goals*. Paper presented at the Fifth National Community-based Collaboratives Research Consortium, November 17-19, 2005, Sedona, AZ.
- Moote, A. and D. Becker. 2003. *Exploring barriers to collaborative forestry: Report from a workshop held at Hart Prairie, Flagstaff, Arizona, September 17-19, 2003*. Flagstaff, AZ: Ecological Restoration Institute.
- Moseley, C. 2002. A survey of innovative contracting for quality jobs and ecosystem management. U.S. Department of Agriculture, Pacific Northwest Research Station. General Technical Report PNW-GTR-552. Portland, OR.
- Stone, C. 1995. Logging injunction affects Stone Container. *The White Mountain Independent – Navajo County Edition*. 41(72):1A-2A. Friday September 1, 1995.
- Strom, B. and P.Z. Fulé. 2007. Pre-wildfire fuel treatments affect long-term ponderosa pine forest dynamics. *International Journal of Wildland Fire* 16:128-138.
- Wilmes, L., D. Martinez, L. Wadleigh, C. Denton, and D. Geisler. 2002. Apache-Sitgreaves National Forests Rodeo-Chediski Fire effects summary report. Springerville, AZ: Apache-Sitgreaves National Forests.

Box 1.

The White Mountain Stewardship Contract: Basic Facts?

Started: August 10, 2004.

Stewardship contracting authorities used: Goods for services, best value, designation by description, multi-year contracting.

Location: Can be applied to any national forest in Region 3 (the Southwest Region of the U.S. Forest Service). To date, all activities have occurred on the Apache-Sitgreaves National Forests, largely in Wildland-Urban Interface (WUI) areas.

Contractor: Future Forests, LLC, formed by Walker Brothers, Inc., a local logging contractor, and Forest Energy Corporation, a local heating pellet manufacturer.

Duration: Ten years. All task orders must be released by the end of the ten year period, but Future Forests has three years to complete task orders, so implementation may not be completed until 2017.

Size: The ten-year goal is to treat 150,000 acres, but the sum total could range from 50,000 to 250,000 acres.

Guaranteed acreage: The contract guarantees that a minimum of 5,000 acres will be released through task orders annually.

Payment method: Value of commercial removals (trees 12 inch diameter and greater) is offset against cost of non-commercial removals (under 12 inch diameter). Costs calculated by tons of non-commercial material removed. Per-acre costs have ranged from \$300 to \$800, averaging around \$550.

Treatment type: Treatments to date have focused on reducing tree density and modifying potential fire behavior in the WUI. Treatments are largely mechanical, using feller-bunchers, stroke delimiters, and rubber-tired skidders. Fifteen percent of the material removed is commercial sawtimber (12 inch diameter or greater), 40% is roundwood (9 to 12 inches), and 45% is less than 9 inches.

Local products manufactured from treatment byproducts: Commercial and residential heating pellets, biomass energy production, mulch, wood shavings, posts, poles, dimensional lumber.

Box 2.

Stewardship Contracting Authorities

With passage of semi-permanent stewardship contracting authority in 2003 (16 U.S.C. 2104 Note), the U.S. Forest Service and Bureau of Land Management received a number of new, innovative options for land management. The following is a brief description of new authorities that can be used, together or separately, in stewardship contracts.

Goods for services: Allows the administering agency (U.S. Forest Service or Bureau of Land Management) to apply the value of forest products removed as an offset against the cost of services rendered. Traditionally, timber sale (commercial) and service (non-commercial) contracts were administered separately.

Best value contracting: All stewardship contracts are required to be awarded on the basis of the best value to the government rather than lowest price. Considerations in determining best value can include “the contractor’s past performance, work quality, existing public or private agreements or contracts, on-time delivery, experience, technical approach, and benefits to the local community.” (FSH 2409.19, Ch. 63.1).

Designation without marking: This authority allows for the cutting of both merchantable and non-merchantable trees as part of stewardship activities, without requiring trees slated for removal to be marked. “Designation by description” describes trees to be removed by species, size class, and other factors (e.g. the removal of all ponderosa pine under nine inches). “Designation by prescription” uses silvicultural criteria to describe the desired stand condition following treatment (for example, thinning to a 60 basal area factor, or clustering leave trees in even-aged clumps of 2 to 10 trees per clump).

Multi-year contracts: Multi-year stewardship contracts may extend up to ten years in length and do not require a contract renewal option after the first year. Previously, service contracts were limited to five years in length.

Retention of receipts: Allows the administering agency to retain any receipts from the sale of timber or other forest products and apply these funds to service work on the same stewardship contract or transfer them to another stewardship contract. These funds can also be applied to project-level or programmatic multiparty monitoring processes or to certain U.S. Forest Service trust fund accounts (e.g. Knutson-Vanderberg, salvage sale funds and others).

Less than full and open competition: This authority can be used to provide opportunities to local contractors, when doing so would provide the best value to the government. Use of less than full and open contracting by the U.S. Forest Service must be justified on a case-by-case basis through reporting to the Regional Forester.

Non-Department of Agriculture administered contracts: The Chief of the U.S. Forest Service and Regional Foresters have the authority to delegate administration of stewardship contract timber harvesting activities to qualified individuals outside the Department of Agriculture.

Source: U.S. Forest Service Handbook 2409.19, Chapter 60; Red Lodge Clearinghouse, available online <http://www.redlodgeclearinghouse.org/legislation/stewardship2.html#semipermanent>

Box 3.

Chronology of Key Events in the White Mountains

1959-1989: Thirty-year guaranteed Colorado Plateau Pulpwood Contract is continued until 1999 through three-year contract extensions.

1993: Mexican spotted owl listed as threatened under the Endangered Species Act.

1995: Court-ordered injunction on all harvesting activities in Mexican spotted owl habitat until the U.S. Forest Service complies with Endangered Species Act obligations.

1995-1998: Several White Mountains area mills, including a Stone Industries sawmill in Eagar and Precision Pine sawmills in Eagar and Heber, go out of business.

1997: Members of the Natural Resources Working Group sign MOU agreeing to work together to develop options for forest restoration, initially focused on the Blue Ridge Demonstration.

1999: Stone Industries Pulp Mill in Snowflake stops receiving local wood and converts to 100% recycled materials.

1999: The Four Concerns Sustainable Forests Partnership begins to make US Forest Service Economic Assistance Program grant funds available.

2001-2004: Treatments are implemented on the Blue Ridge Demonstration Project by Walker Brothers Contracting, which has also been working on White Mountain Apache Tribal lands.

2002: The Rodeo-Chediski Wildfire burns 467,000 acres in east-central Arizona on the Apache-Sitgreaves National Forests and White Mountain Apache Tribal Lands.

2003: The Kinishba Wildfire burns 22,600 acres mostly in the White River drainage on White Mountain Apache Tribal lands.

2003: Congress grants semi-permanent authority to the U.S. Forest Service and BLM to engage in an unlimited number of stewardship end-result contracts. The maximum allowed length for stewardship contracts is extended to ten years.

2003: The Arizona Sustainable Forests partnership forms the Northern Arizona Wood Products Association.

2004: The White Mountain Stewardship Contract is awarded to Future Forests, LLC and officially begins on August 10. The Apache-Sitgreaves National Forests Supervisor also announces the creation of the White Mountain Stewardship Contract Multiparty Monitoring Board.

2007: About 17,000 acres of stewardship contract work is completed by the Future Forests by mid-year. Thirty-one thousand acres have been released through task orders and more than 54,000 treatable acres have been cleared through the NEPA process.

Box 4.

Capacity-building Community Forums in the White Mountains

The **Natural Resources Working Group** formed in the mid-1990s as a collaborative forum focused on forest, watershed, and wildlife issues. It has served as the primary collaborative community organization behind the White Mountain Stewardship Contract, and has had consistent support and engagement from key stakeholders, including local government (cities and counties), Apache-Sitgreaves National Forests leadership, environmental organizations, wood products businesses, state wildlife and lands agencies, fire districts, elected officials, and other community organizations. It operates on a volunteer basis with support from Navajo County and leadership through the University of Arizona Cooperative Extension.

The **Blue Ridge Demonstration Project** began as the 17,000-acre Blue Ridge–Morgan Ecosystem Management Area on the Lakeside Ranger District of the Apache-Sitgreaves National Forests. It served as a demonstration of forest restoration activities through the implementation of three different treatment approaches across 7,000 acres and was developed collaboratively between the Natural Resources Working Group and the Apache-Sitgreaves National Forests.

The **Southwest Sustainable Forests Partnership** grew out of the earlier **Four Corners Sustainable Forests Partnership**. Hosted by the Little Colorado River Plateau Resource Conservation and Development Area, the focus of the partnership is to build linkages between healthy forests and healthy communities. This is accomplished through technical assistance in marketing, product development, workforce training, and other key aspects of the new small-diameter forestry economy.

The **Arizona Sustainable Forests Partnership** serves as the Arizona component of the Southwest Sustainable Forests Partnership. It helps to increase utilization capacity by meeting key needs of local wood products businesses, such as assisting with re-tooling of infrastructure, providing technical assistance, and building linkages between various independent businesses in Arizona.

The **Northern Arizona Wood Products Association** was created as a trade organization for the variety of Northern Arizona businesses focused on utilization of small-diameter wood. NAWPA focuses on building utilization capacity through technical assistance, outreach, networking, and marketing.

The **White Mountain Stewardship Contract Multiparty Monitoring Board** was formed by the Apache-Sitgreaves National Forests as a citizen advisory board focused on monitoring the ecological, economic, and social effects of the stewardship contract. The board acts both to provide outside review of stewardship contract activities and to serve as a forum for ongoing agency-community dialogue.

The **Eastern Arizona Counties Resource Advisory Committee** is a formal collaborative body charged with distributing federal funds associated with the Secure Rural Schools and Community Self-Determination Act of 2000. These funds benefit the community by supporting projects such as Community Wildfire Protection Plans, land and watershed restoration activities, and projects associated with the White Mountain Stewardship Contract.

Appendix 1. Methodology Used for This Case Study

This study was conducted largely through the use of qualitative research methods, including a series of 20 semi-structured interviews with 21 key stakeholders involved in the development, implementation, or monitoring of the stewardship contract (one interview included two individuals) and a group discussion with the multiparty monitoring board tasked with tracking the impacts and results of the contract. Nineteen interviews and the monitoring board discussion were recorded (one interview was not recorded due to technical problems), and the recordings transcribed and analyzed. One interview was conducted by telephone and the rest were in person, mostly on-site in the White Mountains. Interviewees included five individuals whose primary role in the community is as a current or former officer with the ASNF, four whose primary role is as an advocate for environmental conservation, six whose primary role is as a supporter or manager of wood products businesses, and six who play a variety of roles in the community, and are referred to simply as community members. It should be noted that nearly all stakeholders, regardless of their primary role, play a variety of roles in the community. For example, several of the community members formerly worked for the USFS and even some environmental representatives assist with wood products business development. For the sake of clarity, interviewees are referred to by the primary role they currently play in the community. Other published and unpublished information about the stewardship contract and related issues was used as needed to fill information gaps and to verify factual information provided by interviewees. This secondary information came from a variety of sources including monitoring board reports, documents prepared by ASNF staff, and organizational documents, such as charters and memoranda of understanding.

Ecological restoration is a practice that seeks to heal degraded ecosystems by reestablishing native species, structural characteristics, and ecological processes. The Society for Ecological Restoration International defines ecological restoration as “an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability...Restoration attempts to return an ecosystem to its historic trajectory” (Society for Ecological Restoration International Science & Policy Working Group 2004).

In the southwestern United States, most ponderosa pine forests have been degraded during the last 150 years. Many ponderosa pine areas are now dominated by dense thickets of small trees, and lack their once diverse understory of grasses, sedges, and forbs. Forests in this condition are highly susceptible to damaging, stand-replacing fires and increased insect and disease epidemics. Restoration of these forests centers on reintroducing frequent, low-intensity surface fires—often after thinning dense stands—and reestablishing productive understory plant communities.

The Ecological Restoration Institute at Northern Arizona University is a pioneer in researching, implementing, and monitoring ecological restoration of southwestern ponderosa pine forests. By allowing natural processes, such as fire, to resume self-sustaining patterns, we hope to reestablish healthy forests that provide ecosystem services, wildlife habitat, and recreational opportunities.

The ERI White Papers series provides overviews and policy recommendations derived from research and observations by the ERI and its partner organizations. While the ERI staff recognizes that every forest restoration is site specific, we feel that the information provided in the ERI White Papers may help decisionmakers elsewhere.

This publication would not have been possible without funding from the USDA Forest Service. The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the United States Government. Mention of trade names or commercial products does not constitute their endorsement by the United States Government or ERI.

ERI White Papers: Issues in Forest Restoration

1. Forestlands Health and Carbon Sequestration: Strengthening the Case for Western Forest Restoration
2. Smoke from Prescribed Burning: Issues on Public Forestlands of the Western United States
3. Public Perceptions of Forest Restoration in the Southwest: A Synthesis of Selected Literature and Surveys
4. Integrating Ecological Restoration and Conservation Biology: A Case Study from Southwestern Ponderosa Pine Forests
5. Communications Between Forest Managers and Property Owners in Pine Flat, Arizona: A Case Study of Community Interactions in a High Fire Hazard Area
6. Wilderness Management and the Restoration of Fire: An Analysis of Laws and Regulations in Northern Arizona
7. Navigating the Motives and Mandates of Multiparty Monitoring

