

ASSESSING THE SOCIOECONOMIC BENEFITS OF NEW MEXICO'S COLLABORATIVE FOREST RESTORATION PROGRAM: Issues, Indicators, and Recommendations



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January 2009

New Mexico Forest Restoration Series
WORKING PAPER

8

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Publication Date:
January 2009

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Reviewers:

The authors thank the following reviewers for
comments that greatly improved this document:
Tori Derr (Crane Collaboration), Kathie Mattor (Colorado State
University), Gordon West (Restoration Technologies), Ken Smith
(NMFWRI), Naomi Engelman (New Mexico Forest Industry
Association), Dee Tarr (Claunch Pinto Soil & Water Conservation
District), and David Old (Old Wood LLC)

Photo Credits:

Frederic Moras (Professional Photographer), Lynette Baldwin (SBS
Plant Operations Manager), Colleen Hill (Professional Photographer),
Cibola National Forest, and CFRP Monitoring Team

Produced with funding from the
Collaborative Forest Restoration Program

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Assessing the Socioeconomic Benefits of New Mexico's Collaborative Forest Restoration Program: Issues, Indicators, and Recommendations

Executive Summary

The Collaborative Forest Restoration Program (CFRP) was established in 2001 to promote ecosystem health through forest restoration, develop local capacity for small diameter wood utilization and encourage sustainable rural communities. Building local capacity for forest restoration requires a trained workforce, businesses that utilize small diameter wood, and sustained economic development. Long term project monitoring of meaningful socioeconomic indicators is an essential, yet sometimes overlooked, tool for assessing the benefits of forest restoration to participating stakeholders. We examine the first seven years of the CFRP to assess the socioeconomic benefits derived from the program to date. In the context of two project case examples, we outline key factors affecting socioeconomic project outcomes, including (i) workforce sustainability, (ii) sustainable business operations, (iii) integrated land management, and (iv) small wood utilization, and we also examine how current monitoring indicators address these socioeconomic factors.

In general, training and maintaining a skilled local workforce, identifying and marketing value-added wood products and sustaining a constant supply of wood material to meet market demand are issues faced by CFRP grantees. For example, some projects have successfully developed innovative wood product markets, but encounter difficulties procuring a steady stream of raw material to meet demand for the product. Grantees lacking entrepreneurial and administrative experience may have greater success if they obtain training and receive outside technical assistance. Most issues faced by grantees are likely to be more readily addressed if project partners develop and maintain constant and regular communication with all stakeholders. The four most used socioeconomic indicators currently recommended in the Short Guide for all projects (jobs created, skills gained, wood product value, educational outreach) provide basic information about the socioeconomic effects of a project. Current Short Guide indicators, if monitored consistently across projects, could effectively demonstrate project impact on jobs created and skills gained. However, project impact on sustainable business operations and integrated land management are not currently tracked using the Short Guide indicators, and small wood utilization indicators provide limited information. We recommend selecting other socioeconomic indicators that address the factors of sustainable business operations, integrated land management and small wood utilization. Depending on the objective of the project, we recommend that the grantee select the factor(s) and associated indicators that best measure socioeconomic progress for their project. Effectively targeted monitoring is essential for measuring progress towards project-specific socioeconomic goals and assessing CFRP program-wide impacts of community-based forest restoration.

Introduction

The Collaborative Forest Restoration Program (CFRP) was created by the Community Forest Restoration Act of 2000 (Title VI, Public Law 106-393) to promote ecosystem health through forest restoration, encourage sustainable communities and develop local capacity for small-diameter wood utilization (Moote et al. 2007). Specific socioeconomic goals of the Community Forestry Restoration Act include (i) improving communication and joint problem-solving among groups engaged in restoring the diversity and productivity of forested watersheds, (ii) encouraging sustainable communities and sustainable forests through collaborative partnerships, and (iii) improving the use of, or adding value to, small diameter trees. To achieve these goals, the CFRP offers cost-share grants to collaborative groups of diverse stakeholders restoring public lands. Diverse stakeholder participation increases the likelihood of successful restoration efforts and stewardship. To date, CFRP has funded 116 projects aimed at improving forest health and reducing fire risk in ponderosa pine, piñon-juniper, mixed conifer and riparian ecosystems. In addition to restoration and fuel reduction goals, most CFRP projects include socioeconomic objectives, such as providing local employment and skills training, creating new markets for small wood and educating the community about forest health. The ecological and socioeconomic goals of CFRP are interdependent. Building local capacity for forest restoration often requires training a local workforce, fostering businesses that utilize and add value to small diameter wood, and stimulating sustained economic development so that restoration efforts can be undertaken without outside financial support (Derr and Krasilovsky 2008).

Long term project monitoring of meaningful socioeconomic indicators is essential for assessing the benefits of forest restoration to participating communities, although, it generally receives less attention and rigor than ecological monitoring (Moote et al. 2007). CFRP has required that grantees monitor, at a minimum, the number of jobs created and skills gained as a result of project implementation (Moote et al. 2008). Projects have also monitored a variety of other indicators, although the methods used to measure them have varied considerably among projects.

In this paper, we examine the first seven years of the CFRP to assess the socioeconomic benefits derived to date. Because individual project success is critical to community-based forest restoration, we also draw lessons from project experiences and review challenges and opportunities for improving program monitoring and impact. In Section 1, we examine past projects to identify socioeconomic issues that strongly influence project implementation and success. We begin by outlining key factors contributing to successful project implementation, including (i) workforce sustainability, (ii) sustainable business operations, (iii) problem-solving in integrated land management, and (iv) small wood utilization. We then study these factors more comprehensively in two case studies that demonstrate different facets of community-based forest restoration. In Section 2, we conduct an analysis of past socioeconomic monitoring efforts. Based upon this analysis, we offer recommendations for monitoring indicators that will track issues discussed in Section 1. We conclude by summarizing some of the challenges still facing grantees and project partners and provide some socioeconomic monitoring recommendations to help improve future project planning and implementation, which will ultimately strengthen and broaden the socioeconomic impact of collaborative forest restoration on communities.

1. Socioeconomic Issues Affecting CFRP Project Outcomes

1.1 Factors Contributing to Project Success

Based upon experience working directly with CFRP projects, we identified four factors that appear to contribute significantly to successful project implementation: (i) workforce sustainability, (ii) business operations, (iii) integrated land management, and (iv) small diameter wood utilization. For each of these factors, we discuss primary issues that strongly affect project outcomes (Table 1.1). For the purpose of this paper, we define success to mean that the grantee accomplished the objectives set forth in their project proposal.

Table 1.1 Summary of socioeconomic factors and associated issues influencing CFRP project outcomes.

Socioeconomic factor	Issues associated with factor
Workforce Sustainability	Durability of work Availability of training and advancement opportunities General pay for work and benefits received Commute time to project site Youth involvement
Sustainable Business Operations	Access to and participation in training Involvement of consultants and others with ability to assist where needed Time for future financial and organization planning
Integrated Land Management	Frequent and open communication between partners Payment reimbursement and understanding of the process Adjustments to project work and schedule of progress Changes in personnel involved in project
Small Diameter Wood Utilization	Variation of cost per acre for treatment and removal Workers' compensation Availability of technical assistance related to harvesting and removal Identification of value-added product markets Effective marketing of wood product Reliability of wood supply

1.1.1 Workforce Sustainability

One of the goals of the CFRP is to encourage sustainable communities and sustainable forests. Sustaining a workforce is clearly a major component of community sustainability. Factors affecting workforce sustainability include the (i) seasonality of work associated with most restoration and thinning projects, (ii) number or training and advancement opportunities, (iii) amount paid for work, (iv) benefits received, and (v) commute time to project sites (Moseley 2006). These factors also affect the small businesses or organizations that hire and train workers in CFRP projects.

Issues of particular concern to business owners include sustaining a pool of workers available for contracting, employee turnover due to the seasonality of work, and lost time and money training new workers each season. Because some businesses cannot offer year-round, full-time employment, many crewmembers leave thinning crews for other jobs. Many CFRP grantees are frustrated by the need to hire and train new workers both within a season and at the beginning of each new season. The recent establishment of the worker safety certification program has helped address the challenge of keeping crews trained as personnel change. These trainings are critical to maintaining a skilled local workforce.

For example, H.R. Vigil Small Products has slowly built a sustainable workforce for his crew based out of Guadalupita, New Mexico. By contracting on several different CFRP projects since 2002, the company has generated a profit and maintained a trained crew. Vigil keeps the cost per acre down in most thinning contracts by hand thinning using low-impact techniques. In 2008, Vigil's business received a CFRP grant for restoration of Black Lake, a location less than 30 miles from most crew members' homes. This was a significant step for Vigil's business, both in becoming a grant recipient and in reducing the travel time to the work site. For other projects, Vigil's crew traveled more than 2 hours to a work site, often camping to reduce travel time and costs. Long commutes to work sites is an issue frequently cited as affecting quality of life, and therefore community sustainability among forest workers nationwide (Moseley 2006).

Youth involvement is included under the multiparty assessment requirement of creating local employment and training opportunities. The youth component contributes to the long-term success of restoration efforts by educating and hiring young employees to carry out forest restoration work within their communities. Many CFRP projects have hired and trained youth for ecological monitoring, and a few schools, including Mesa Vista High School, Jemez Independent Schools, and the Aldo Leopold High School, have also incorporated monitoring into their curriculum. The Rocky Mountain Youth Corps (RMYC) offers a model for building a local restoration workforce. The organization has been hiring and training crews for CFRP projects as well as implementing thinning contracts prior to and during the CFRP. RMYC also ran a woodshop apprenticeship program that provided training in wood craftsmanship using small diameter material. Despite the broad appeal of the program, it was eventually redesigned in 2002 because Corps members' learning goals were being compromised as production expectations increased to meet revenue needs. RMYC now provides fuel wood to elderly users, pueblos for traditional uses, and contractors for valued-added product development¹.

1.1.2 Sustainable Business Operations

One of the strengths of CFRP projects is that they bring together individuals and organizations that have different skills, all of which contribute to the success of a project. Often the grantee has the skills or connections to accomplish restoration treatments. However, many grantees have never been exposed to the business administration aspect of a project, including hiring and training of employees (e.g., safety training), completing payroll and completing the reporting and reim-

¹ Coleman Smith, Rocky Mountain Youth Corps, personal communication, September 2008.

bursement requirements of the grant. These skills are important not only to the success of the project but also of the business. For example, one grantee had difficulty supervising their thinning crew when a key employee with knowledge of the federal grant reimbursement process, left the project. As a result the project was not reimbursed at regular intervals and the business was forced to find cash for payroll, lay off the crew, or delay payments to the crew. The grantee, typically tasked with overseeing business operations, often requires training in this area.

Projects that have been most successful have identified other community members, consultants or businesses that can take on aspects of business administration that the grantee is not yet able to do. This enhancement of skill base has been accomplished by bringing in outside consultants or businesses, by training an organization's own members, or adding employees that have the needed skills. Typically, projects have identified these individuals in the grant proposal stage. Distributing project implementation and administrative tasks to multiple sources allows small businesses time to plan for future funding and to investigate investment opportunities and expenses.

1.1.3 Integrated Land Management

Many who are new to CFRP projects are surprised to find that it takes significant amounts of time to establish a working relationship with the principle partners. However, up front investment in communication is much more likely to increase project success. For example, encouraging multi-party collaboration during proposal development helps ensure that all partners understand the steps required for project implementation and helps side step future misunderstandings about roles and responsibilities.



Issues requiring joint problem solving that may arise include reimbursement delays, work schedule changes, and key personnel or partner changes. The latter may result in differing expectations or commitment(s) to a project and/or single partner driven projects, as opposed to an integrated approach among partners. Constant communication between partners helps ensure tracking of project accomplishments, more effective socioeconomic monitoring and avoids administrative obstacles.

Hiring outside contractors has also helped address unanticipated issues as they arise. For example, The Taos Business Alliance was awarded a grant to conduct wildland-urban interface hazardous fuel reduction near the residential areas of Taos Canyon. Although a monitoring plan was outlined in the initial proposal, the NEPA process took more time than anticipated, and the Business Alliance did not implement their monitoring plan. Following the award of a second CFRP grant, the Taos Business Alliance allocated project funds to hire a contractor who drafted and implemented a plan to monitor both ecological and socioeconomic indicators. The contractor held yearly multi-party meetings with the Taos Canyon Homeowners' Association annual picnic in which ecological data were presented. During these meetings, the contractor also conducted a survey of homeowners,

and provided education about forest restoration and hazardous fuel reduction projects on adjacent lands². Sharing of information among various stakeholders reduces the potential for problems as well increases the likelihood of achieving integrated land management.

1.1.4 Small Diameter Wood Utilization

a) Treatment and Removal Cost

Many restoration projects need to train crews or purchase mechanized machinery to do the cutting, loading or transporting of wood material. Most projects calculate an average cost per acre for the proposed treatment (e.g., thinning and burning, thinning and piling and/or thinning and removal). Most proposals also identify equipment



needs and associated costs for thinning and removal. However, many projects experience changes during the implementation of the grant, resulting in revisions to the budget or acreage treated. For example, P&M Plastics proposed the thinning of 1,000 acres using hand crews and the purchase of a feller-buncher to grind the material into chips. The project proposal included information on how the chipped material would be used, but did not address the intermediate issue of where to store the material prior to processing. The project was revised during the first year of funding to include the purchase of a log loader to transport wood to the processing plant for chipping. This revision in machinery, while better serving the needs of the project and business, dramatically increased the budget, while reducing the number of acres thinned, increasing the cost per acre for treatment and decreasing the quantity of material removed from the forest in this project.

Workers' compensation rates raised the cost of small wood treatment and removal for grantees during the early years of the program. Some grantees were not aware of the cost of workers' compensation, which was as high as 70% for some projects, and many did not include this item in the budget³. The work done by the Forest Guild, State Forestry, New Mexico Forest Industry Association (NMFIA), Forest Service, and other organizations to reclassify thinning positions and lower workers' compensation rates has greatly reduced rates thereby lowering thinning and removal costs. NMFIA now oversees the implementation of the Forest Worker Safety Certification Program, which enables businesses to pay reduced Workers' Compensation insurance premiums for employees that have completed the program.

b) Small Wood Product Marketing

Viable value-added product markets for small wood and thinning residues can potentially reduce forest restoration costs while contributing to sustainability of rural communities. Products derived

² Rachael Mondragon, Urban Interface Solutions, personal communications, September 2008.

³ George Ramirez, Manzano Land Grant, personal communication, October 2008.

from small wood (5-14 inches diameter) include fuel (pellets, firewood, chips), animal bedding, mulch, and construction materials such as vigas, latillas, posts and poles. The profit margin on these products is narrow, especially in the face of high handling and transportation costs, and local markets are easily saturated. Thus, the challenge for small businesses is to identify emerging value-added product opportunities, expand sales with effective marketing, and grow incrementally with rising demand. To strengthen small wood markets, the New Mexico Forest Industry Association recommends that entrepreneurs expand locally by displacing product imports, such as bundled firewood. To avoid saturating local markets, businesses can also expand outside of the region or state, when appropriate.

Many CFRP grantees have built successful businesses through creative marketing of innovative wood products. Old Wood Floors has marketed their product, in part, by educating consumers about the durability of Douglas-Fir (“the hardest of the softwoods”) floors, which the company now sells worldwide⁴. In addition, the company has tapped a niche market in replacement pieces for old hardwood floors. Creating niche markets for small wood has proven a successful strategy for a number of other CFRP grantees. P&M plastics developed “Atree,” a composite material made from recycled number 2 plastic and piñon-juniper chips. Currently the company sells this inexpensive durable alternative to wood and aluminum to the New Mexico Department of Transportation (DOT) for signage and is seeking other DOT contracts across the country⁵. Similarly, Silver Dollar Racing and Shavings, a family-owned animal bedding manufacturer, developed “Wood Worms,” an erosion control product made from wood shavings encased in

Table 1.1.4 Wood products produced by CFRP projects from 2001-2007.

Product	Number of projects producing product
Traditional	
Firewood	27
Construction materials (latillas, vigas, logs)	19
Posts, poles, chips	9
Furniture	7
Total traditional	62
Non-traditional:	
Animal bedding, composite wood, energy (biomass, charcoal, gasification), erosion control, flooring and paneling, hogan and log cabin kits, kiosks and benches, mushroom medium, mulch, pottery/wood kilns, wood carving, wood pallets	18
Total projects producing wood products	80

⁴ John McClelland, Old Wood Flooring, Las Vegas NM, personal communication, Nov 2008.

⁵ Phil Archuleta, Owner, P&M Plastics, Mountainair, NM, personal communication, Nov 3 2008.

photo-degradable plastic netting. Silver Dollar Racings cautiously invested in expanded Wood Worm production only after it determined that a large out-of-state market existed for the product⁶.

Some grantees have found it difficult to expand a business beyond the local market for more traditional wood products because of intense market flooding and competition. Broadening the marketing area, or expanding production and marketing to include less traditional wood products offer options to address this challenge. Table 1.1.4 summarizes both the traditional and nontraditional wood products produced by CFRP projects since 2001. As the table demonstrates, the majority of products (78%) to date have been traditional wood products.

Even when viable products are successfully marketed, maintaining a steady supply of raw wood material has proven a challenge to maintaining business operations. Multiple factors contribute to an unreliable resource supply, such as limited local capacity to treat forests and transport wood. Access to National Forest through grants or contracts also presents a significant obstacle for many businesses. In some regions, a limited capacity for long-term planning, few stewardship contracts and a lack of NEPA-ready areas means that there are few contracts available on Forest Service land⁷. The Forest Service often values small wood within a timber framework, resulting in over-valuation of the product and unaffordable bids for small wood businesses. For many companies, main-



taining a resource supply to meet consumer demand for their products has meant relying primarily on private lands for small wood. Silver Dollar Racing and Shavings pays a higher price to procure more than one semi load of logs per day, often from sites more distant than the conventional 50-mile “break even” radius. The lack of access to Forest Service land in some areas has produced tight competition for wood coming from private lands⁸. In addition, many businesses are reluctant to expand their market without a secure and steady resource supply beyond the life of the grant.

1.2 Two Case Studies Highlighting Key Issues Faced by CFRP Grantees

The following case studies exemplify issues of primary concern to project partners within the factors of workforce sustainability, business operations, integrated land management and small wood marketing. The first case, Las Humanas, examines workforce and business issues associated with hand thinning and removal of wood from the forest. The second case, the Ruidoso Interface Project, focuses on issues related to the processing and marketing of value-added small wood products.

⁶ Cody Deines, Owner, Silver Dollar Racing and Shavings, Maxwell, NM, personal communication Nov 2008.

⁷ Ken Smith, Director, New Mexico Forest and Watershed Restoration Institute, Las Vegas, NM, personal communication Nov 2008.

⁸ Naomi Engelman, Director of New Mexico Forest Industry Association, personal communication Nov 08.

1.2.1 *Las Humanas Forest and Watershed Rehabilitation Fire Reduction Project*

Project Description and Goals

Las Humanas was established as a multi-land grant organization to increase employment opportunities for local communities through greater involvement in natural resource management in the Manzano Mountains. Funded by a CFRP grant in 2001, the initial goals of this project were to:

- Offer sustainable employment for Manzano Mountain communities.
- Collaboratively address the need to reduce fire risk to forests on Forest Service land adjacent to land grant communities, through thinning of overstocked forests.
- Facilitate improved collaboration among land management agencies, land grants and organizations interested in management of the natural resources in the Manzano Mountains.
- Establish a youth monitoring program to encourage youth retention in the communities and to aid in reconnecting the youth to the land.
- Develop additional economic opportunities for these communities by expanding an existing value-added post and viga peeling facility.

In the early 1990's a court injunction prohibited tree harvesting on Forest Service lands within the states of Arizona and New Mexico, pending the resolution of a lawsuit related to the management of the Mexican Spotted Owl. This injunction curtailed tree cutting and removal activities on these federal lands. This action, combined with other factors, led to the closing or relocating of local mills in Arizona and New Mexico⁹. Individuals previously employed in community-based forestry were forced to seek employment away from the Manzano Mountains and some community members permanently relocated in search of employment. When the court injunction ended, the Forest Service was left with few options for restoration because a viable local forest industry and workforce no longer existed.



Local communities united to form the Las Humanas organization which committed to working with the Forest Service. During the span of the CFRP Las Humanas project many of the community members were trained in thinning and slash removal. This eventually led to the Las Humanas organization later being awarded thinning contracts. As an organization, Las Humanas is no longer active, however, individuals trained through this organization have established their own thinning crews and continue to work in forest restoration. Community youth were enlisted to conduct monitoring. Many of these youth continue to participate in regional monitoring projects. Las Humanas served as a model for future collaboration between the communities, Forest Service and other partners (e.g., Soil and Water Conservation Districts, State Forestry, Natural Resources Conservation Service, various nongovernmental organizations, and tribal groups) to address forest restoration on a watershed scale. For example, forest thinning operations across the Manzano watershed were conducted in conjunction with mapping of medicinal plants, development of a wildfire protection plan and establishment of local wood processing businesses.

⁹ Don DeLorenzo, Wildlife staff officer, Forest Service Southwestern Regional Office, personal communication, Dec 2008.

Workforce Sustainability

During CFRP grant implementation, Las Humanas employed from 5 to 50 employees depending on the availability of work. Maintaining employment for the trained thinning crew and ensuring that new employees received sufficient training were two challenges faced by the organization. Many community members, including youth, were interested in forest-related employment but had more reliable seasonal jobs elsewhere. To sustain long-term employment, Las Humanas had to estimate the crew size appropriate for present and potential future work. The organization recognized that sustaining a crew would require securing funding beyond the first grant. In response, Las Humanas actively pursued training to write thinning contracts, develop bids and negotiate timber sale purchases. Las Humanas provided a model for other forest businesses in the area doing similar work, although sustaining year round employment is a challenge still faced by many forest-based businesses in the area.

Monitoring was introduced to local youth through the Youth Conservation Corps (YCC) program. The Forest Guild provided training to YCC crews and conducted classroom field trips for seventh graders. These youth were trained in data collection and analysis, and monitoring has continued as a standard activity of the YCC summer training program. Youth continue to be involved in monitoring work as employees in other local projects, including new CFRP grants¹⁰. Through this program, local youth have gained important forest assessment skills that continue to augment the knowledge and skills within their communities.

Business Operations



Like many community-based organizations, Las Humanas was familiar with project implementation tasks, from planning to crew scheduling to conducting forest treatments. However, the organization was less skilled in business administration (e.g., completing payroll, submitting tax forms, and developing a business plan) and initially had difficulties identifying and managing organizational needs. Once Las Humanas identified the needs of the organization and the skills available, it hired and trained individuals and

organizations from within and outside the community, allowing the director to plan for future work. For example, a business manager was hired to complete the payroll and submit grant paperwork, a leader was identified for youth monitoring and field crew leaders were trained.

Integrated Land Management

Regular and frequent communication between the grantee and land agency was critical to project

¹⁰ Dee Tarr, Claunch-Pinto Soil Water and Conservation District, personal communication Nov 2008.

success, and helped build the trust necessary to implement the project. During the early stages of the project, the Director of Las Humanas and the District Ranger of the Forest Service met frequently. The Forest Service recognized the important role that Las Humanas could play in efforts to restore health to the region's overstocked forests. The director of Las Humanas realized that community sustainability depended on a successful working relationship with the Forest Service and other local organizations. Thus, the development and implementation of an integrated forest restoration program arose out of mutual need. Both parties viewed the grant as the first step in a long-term plan for improving forest management in the area.

A trusting relationship between Las Humanas and the Forest Service was forged slowly due to the willingness of each partner to communicate their differences and reach common understanding. When obstacles arose, the parties contacted each other to address the issue as quickly as possible. It was this joint problem solving that effectively addressed many issues (e.g., reimbursement and cash advance delays, adjustments to thinning treatment schedules and activities) as they arose. By communicating a larger vision and future possibilities beyond the life of the grant, other partners, like the local Soil and Water Conservation District (SWCD) helped address issues. Support from the supervisory level of the agency also kept the focus on community involvement and sustainability when misunderstandings occurred.

Small Diameter Wood Utilization

Realistically estimating the costs of thinning and removal, combined with assessing business related expenses (e.g., workers' compensation, identifying and marketing value-added products) influenced the long-term availability and utilization of wood products.

Initially, Las Humanas successfully processed and sold posts, latillas and vigas. However, maintenance and associated machinery costs, combined with the competitive nature of an already saturated market, made this portion of the project too unprofitable to continue.

Much of the material removed by Las Humanas was used for fuel for heating and cooking in homes in the surrounding communities. Las Humanas also provided some of the material to local wood processing businesses. Thus, the collaborative relationship brought additional employment to the area and created new product markets in the region.

Summary of Las Humanas Project

Las Humanas set out to provide sustainable employment for local communities in forestry-related activities. The organization recognized the need to reduce local fire risk and improve the health of surrounding forests. Through this project many people were trained and employed in forest thinning. Although Las Humanas as an organization is no longer active, individuals trained through this organization have established their own thinning crews and continue to work on agency as well as non-agency land. For many of these businesses, sustaining year round employment remains a challenge. Through treatment, the local fire risk has been reduced and forests are in a healthier state. The 2007 Ojo Peak fire demonstrated that much of the area thinned with restoration treat-

ments burned as a low intensity ground fire compared with the untreated forest that experienced crown fire¹¹. Youth monitoring and education has expanded to other CFRP projects in the area. The integration of land management decisions by multiple partners continues today, in part, due to this initial CFRP project. The funding and focus given to this area as a result of the CFRP project provided the catalyst for future projects, additional funding and continued collaboration among the multiple partners. However, as with any collaboration, maintaining partnerships takes time and effort, and priority must be given to maintaining this partnership between rural communities and land management agencies if community-based landscape scale restoration is to continue in the Manzano Mountains.

1.2.2 Ruidoso Interface Project

Project Description and Goals

Sherry Barrows Strategies (SBS) Wood Shavings is a community-based enterprise committed to value added utilization of wood from forest restoration projects in Southeastern New Mexico. Funded by CFRP in 2001, the initial goals of the Barrows' Ruidoso Interface project were to:

- Design and test a process to produce wood shavings for animal bedding derived from small diameter wood waste and utilize byproducts of the process to create value-added marketable products.
- Identify developing and emerging markets for wood waste products and market, produce, and sell these products to sustain regional economic growth.
- Offer training and create sustainable employment in the community.
- Empower community partners to contribute to appropriately scaled, integrated, sustainable rural economic development by demonstrating a successful model of value-added wood waste utilization.
- Conduct outreach to disseminate information to other communities



Removal of small diameter wood is critical to improving forest health and reducing fire risk to surrounding communities. However, limited markets for small wood often restrict restoration efforts. Prior to the Barrows' operation, there was little community-based infrastructure in Lincoln County to process large amounts of small diameter material into a value-added product that could be sold to offset a portion of the thinning operation costs. With a grant from CFRP to purchase a biomass-burning dryer, SBS began using small wood waste to produce high quality shavings for animal bedding. The small wood is transported from the forest site to a processing facility that utilizes a closed loop production strategy, co-generating thermal energy to dry the bedding by combusting sawdust waste from shaving manufacture. With an ever-growing customer base, the animal bedding is shipped for sale in multiple states. Over time, the company has expanded to produce building materials including kiln-dried dimensional beams, fencing materials, and custom architectural elements as well as fuel wood products.

¹¹ Dee Tarr, Claunch-Pinto Soil Water and Conservation District, personal communication Nov 2008.

Workforce Sustainability

SBS Wood Shavings employs from 7 to 14 workers in the Glencoe processing facility and 3 workers to implement forest treatments, remove and transport wood to the processing facility. The company collaborates with inter-dependent businesses to foster rural economic development by supporting sustainable forestry operations and building the capacity for small diameter wood utilization in Lincoln County. The biggest constraint to sustaining employment is maintaining a steady supply of wood resource to meet the company's production targets. Finding workers willing to perform specific jobs, such as peeling vigas, has also limited the range of products the company can produce.

Sustainable Business Operations

Much of SBS Wood Shavings' success is attributable to the owners' entrepreneurial spirit and foresight. The company started out small with a strong business plan and a vision of expanding and diversifying their product line as new markets emerged. Building on the initial CFRP grant, the company has applied for and been awarded other grants, totaling nearly \$1 million, to purchase thinning equipment, build infrastructure and expand the original business model.

Innovation has been critical to the success of SBS Wood Shavings. For example, the company implemented a saw-dust-fired kiln retrofit that redirects underutilized heat produced by combusting sawdust waste from animal bedding manufacture to a portable kiln that dries value-added wood products. This innovation allowed the company to respond to an unfilled niche market for kiln-dried vigas. When U.S. Forest Service contracts required that contractors take all woody material from a site, including sizes larger than the company had previously processed, SBS adapted by purchasing a small commercial sawmill to produce timbers and beams.

The biggest challenge faced by SBS Wood Shavings is securing a steady schedule of long-term contracts from the U.S. Forest Service to guarantee a continual supply of small diameter wood for shavings manufacture. To assure a continual small wood supply, the company works with other CFRP grantees and bids on fuels reduction contracts, which necessitates the removal of a wider variety of tree species and log diameters. To utilize this material, SBS is now testing new product markets with the intent of adding more specialized equipment so they can further diversify their value-added product offerings.

Integrated-Land Management

SBS is committed to restoring forest health and reducing wildfire risk through the identification of higher value marketable products for each size class and species of restoration wood. SBS works with local agencies using different thinning techniques to produce the most cost effective practices. The company develops and introduces new practices, equipment and training to address existing constraints to sustained forest product utilization. For example, SBS Treatment and Transportation improved transportation efficiency by minimizing the handling of small wood, a practice that greatly reduced transportation costs.

SBS Wood Shavings relies upon a wide network of technical resources to help tackle issues as they arise. For example, to research and identify new product markets, the company sought technical assistance from the U.S. Forest Service Forest Products Lab Technology Marketing Unit (TMU). The company has drawn expertise from dozens of entities, ranging from Forest Service regional research stations, to environmental organizations and small business developments centers.

Small Diameter Wood Utilization

On an annual basis, SBS currently utilizes an average of 3,000 green tons of wood from approximately 800 acres of treated forest. Recognizing that the capacity to supply a large volume of wood to the processing plant did not exist locally, the company expanded vertically to become their own supplier. In addition to bidding on U.S. Forest Service competitive contracts on the Smokey Bear and Sacramento Ranger Districts, the company utilizes wood from multiple sources that include State Forestry projects for hazardous fuels reduction (WUI) and the Village of Ruidoso Municipal lands.

Critical to the company's continued success is product integration into local processing systems at a sustainable and appropriate scale. To increase regional capacity to utilize small diameter wood, the SBS forges collaborative partnerships with other community-based enterprises, such as Sierra Contracting, Inc, a local composting operation, and Shangri-la Woodworks. As local capacity and infrastructure evolve, SBS Wood Shavings continues to research and develop new markets to utilize and add value to small diameter wood.

Summary of Ruidoso Interface Project

SBS Wood Shavings started out with a well-defined business plan to add value to small diameter wood products from local forest restoration projects. The company has expanded its product offerings to use a greater variety of wood coming from treated sites, and has also expanded its operations vertically to maintain a constant supply of resource for an every growing market. Throughout this growth SBS Wood Shavings has remained focused on (i) maintaining an appropriate scale of operations, (ii) forming collaborative integrated partnerships with other local businesses, (iii) innovating to adapt to changing supply and market conditions and (iv) relying on a network of technical assistance to address issues as they arise. This focus has enabled the company to grow into a profitable business that offers sustainable employment for the community and economic partnerships with other local businesses. Currently, the greatest challenge faced by SBS Wood Shavings is securing long-term contracts to maintain a steady supply of raw wood material to meet the demands of the company's growing customer base.

2. Multiparty Socioeconomic Monitoring

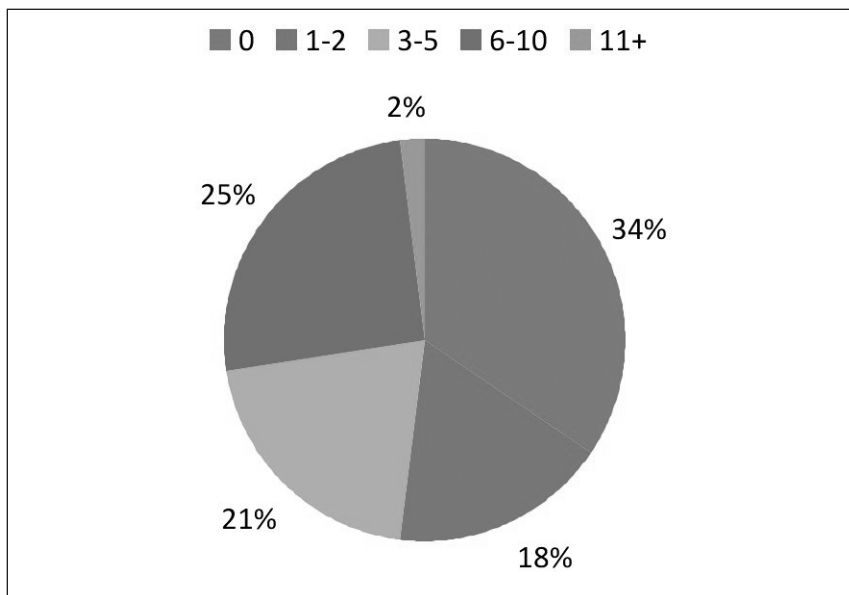
As the case studies demonstrate, the socioeconomic factors and related issues summarized previously (Table 1.1) bear heavily on CFRP project outcomes. Not all factors may be relevant to each project; however, at least one and typically several of these factors pertain to most CFRP projects. How successfully grantees and project partners address the issues associated with these factors strongly influences the progress made in a project. Therefore, we believe that indicators relating to these factors should be the basis for future socioeconomic monitoring. These indicators should be

easily measured and monitored in an integrated manner amongst project partners using a multi-party approach. Most importantly, the indicators should improve the reliability of monitoring and facilitate future analysis of CFRP program-wide impacts. To identify indicators that can effectively measure progress in the socioeconomic factors previously discussed, we begin by analyzing the indicators most commonly used by grantees to date and comparing them to those recommended in the CFRP Short Guide for Grant Recipients (Moote et al. 2008).

2.1 Previous Use of Monitoring Indicators

An important tool for assessing the socioeconomic benefits of forest restoration to communities, multiparty monitoring is mandated for all projects awarded a CFRP grant. A brief history of the development of multiparty monitoring, along with a shortlist of recommended socioeconomic indicators, is presented in Appendix 1. A recent analysis of the CFRP technical assistance grant showed that more than two thirds of projects had a socioeconomic plan (ERI 2007). Moote and colleagues (2007) found that among 68 projects, there were more than 75 different indicators being measured, indicating a high degree of variability in socioeconomic monitoring. We conducted a meta-analysis of all 102 projects funded from 2000-2007 to determine which of the recommended Short Guide indicators have been monitored. We reviewed existing monitoring plans and reports and compiled a list of all socioeconomic indicators monitored by past projects. We were able to track socioeconomic monitoring for two thirds of the projects, which corresponds to the number of grantees who reported having a socioeconomic plan the previous year. We found that 18% of projects are monitoring one or two indicators, while nearly half of projects are monitoring 3-10 indicators. Two projects are monitoring more than 11 socioeconomic indicators (Figure 1).

Figure 1. Number of Socioeconomic Indicators



We also examined the 34% of projects that did not monitor socioeconomic indicators. Half of these projects did not have socio-economic impacts during the funding cycle of the CFRP grant because the funds were dedicated almost exclusively to funding the planning and/or purchase of

equipment. An additional 17 projects were from the early years of CFRP, prior to the availability of technical assistance for socioeconomic monitoring. Four projects were in their first year of implementation and did not yet have monitoring plans completed.

We compiled the socioeconomic data from the 102 funded projects by percentage of projects that monitored a particular indicator (Table 2.1). We grouped these data by the actual indicator monitored and the corresponding Short Guide indicator from Moote and colleagues (2008). In general we found that most grantees have monitored one or more of the five Short Guide indicators. The data shows that projects have monitored a much wider variety of indicators, largely due to the nature of early socioeconomic technical assistance available to grantees. However, a comparison of the actual indicators monitored to the corresponding Short Guide indicator category, demonstrates that the majority of monitoring addresses at least one of the latter.

Table 2.1. Socioeconomic indicators monitored in all 102 CFRP projects and the percentage of projects that have used each indicator. The data include all socioeconomic indicators cited in project documents, as well as the corresponding Short Guide indicator. Because some projects are monitoring more than one indicator under the broader Short Guide categories, some totals are greater than the total 102 projects analyzed.

Short Guide indicator (and number of projects monitoring it)	Actual indicators monitored (as cited in project report)	Projects monitoring the indicator (%)
Number and kinds of jobs created (105 projects)	Number of jobs created	47
	Number of youth employed or involved	38
	Amount paid for jobs	20
Skills gained (100 projects)	Number of people trained	30
	Number of youth trained	35
	Improvement in management skills	20
	Number and types of trainings offered	15
Value of wood products (42 projects)	Value or amount of wood products produced	42
Educational outreach (38 projects)	Educational outreach	38
Community perceptions (14 projects)	Changes in attitude toward restoration	14
	Level of community participation	13
Other (not in Short Guide) (19 projects)	Business incubation	16
	Other (workforce sustainability, marketing, machinery purchase, etc)	3

2.2 Recommendations for Future Socioeconomic Monitoring

Of the five indicators recommended in the Short Guide, four were monitored in at least 38 projects (number and kinds of jobs created, skills gained, value of wood products, and educational outreach). The fifth indicator, community perceptions, was monitored by only 14% of CFRP projects, due the time-consuming and complicated nature of tracking this indicator. Table 2.2 demonstrates how these indicators currently align with the socioeconomic factors discussed in Section 1.

Table 2.2 A comparison of critical socioeconomic issues with corresponding indicators recommended for monitoring in the CFRP Short Guide.

Socioeconomic factor	Issues associated with factor	Corresponding Short Guide indicators
Workforce sustainability	Durability of work Training and advancement opportunities General pay and benefits Commute time to project site Youth involvement	Number and seasonality of jobs Skills gained Amount paid and benefits received Distance to work Education outreach/skills gained
Business operations	Access to and participation in training Availability of technical assistance Time to plan for future of business	Skills gained
Integrated land management	Open communication among partners Changes in project work schedule Changes in project personnel Payment reimbursement process	
Small wood utilization	Variable cost per acre for treatment and removal Workers' compensation costs Availability of field technical assistance Identification of value-added wood products and markets Effective wood product marketing Reliability of resource supply	Value of wood product

A standard set of indicators by socioeconomic goal is identified in the CFRP Multiparty Monitoring Handbook Series (CFRP 2005). Based on our discussion of critical socioeconomic factors facing most CFRP projects, current Short Guide indicators, if monitored consistently across projects, could effectively demonstrate project impact on jobs created and skills gained, and, to a lesser extent, small wood utilization. However, project impact on more complex factors such as sustainable business operations and integrated land management are not currently measured using the Short Guide indicators, and small wood utilization indicators are limited.

Because the socioeconomic factors discussed in Section 1 strongly influence project outcomes, they should serve as the basis for selecting additional socioeconomic monitoring indicators. We recommend selecting other socioeconomic indicators for business operations, integrated land management and wood utilization. Potential project indicators and the issues they address include (i) number of project partners and landowners (business operations and integrated land management), (ii) number of meetings with partners (integrated land management), (iii) number of thinning operators and/or wood product industries involved (small wood utilization). Depending on the objective of the project, the grantee should select the factor(s) and associated indicators that best measure socioeconomic progress. For example, a start up business may want to focus on monitoring progress in business operations and integrated land management, while a business already in place may want to monitor indicators that reflect improvements in workforce sustainability and/or small wood utilization.

3. Summary and Conclusions

We have outlined some key factors and related issues contributing to successful project implementation. Key factors include (i) providing employment to local community members, (ii) developing knowledge and skills through training, technical assistance for field and business operations as well as monitoring, (iii) encouraging integrated management of forest lands through open and constant communication among project partners, and (iv) developing appropriately scaled value-added wood product markets by identifying emerging product opportunities, expanding sales with effective marketing, and growing incrementally with rising demand. By examining the effectiveness of socioeconomic indicators used in past projects as well as identifying factors critical to successful project implementation to date, we have laid the foundation for improving future monitoring, both at the project and community level.

Challenges to project implementation still exist. These include (but are not limited to) (i) providing support to new businesses to ensure development and growth beyond the life of the grant, (ii) ensuring a continuous supply of raw wood material for various wood products, (iii) expanding and broadening markets and identifying emerging markets and (iv) providing guidance on how to relate job creation data to community and economic sustainability and ways to address the high rate of worker turnover in these projects.

A clear goal for socioeconomic monitoring must be delineated and widely understood among project partners to ensure a coherent monitoring process, reliable data collection and effective sharing and reporting (Moote et al. 2007). Development and use of indicators that effectively track

progress towards this goal is critical. In general the socioeconomic monitoring accomplished to date in the CFRP projects is limited when compared to the ecological monitoring. The variation in ability, interest, and desire to measure the socioeconomic indicators vary among the grantees. Based on our discussion of critical socioeconomic factors facing most CFRP projects, current Short Guide indicators, if monitored consistently across projects, could effectively demonstrate project impact with factors of workforce sustainability (through indicators of jobs created and skills gained) and, to a lesser extent, small wood utilization (through indicator of value of wood product). However, project impact on sustainable business operations and integrated land management are not currently tracked using the Short Guide indicators, and small wood utilization indicators provide limited information. Selecting other socioeconomic indicators that assess these factors more specifically would address some of the monitoring shortfalls identified. Because some grantees are focused on wood utilization, some on sustaining their businesses, others are focused on community development and jobs, and others on education and training, we recommend that the grantee select the factor(s) and associated indicators that best measure socioeconomic progress for their project.

More targeted monitoring is essential for tracking progress towards project-specific socioeconomic goals and improving the project-wide impact of the CFRP program. We recommend that the next steps include the development of other more targeted socioeconomic indicators to address this variation in focus by grantees.

Further discussion among a broad group of stakeholders would help determine if these indicators should be monitored by individual grantees or at a programmatic level to fully assess the socioeconomic impacts of CFRP. This discussion should also include additional means to determine socioeconomic impacts such as external reviews, a summary of lessons learned and/or workshops. Additionally, discussion is needed among a broad group of stakeholders to determine how to make forest restoration businesses more self-sustaining so that restoration of forest health and rural communities continues throughout the Southwest.

Acknowledgements

The authors are grateful for the input provided by Sherry Barrows of Barrows Wood Shavings, Connie Zipperer, Lincoln National Forest CFRP Coordinator, Dee Tarr of the Claunch-Pinto Soil and Water Conservation District, and George Ramirez of Manzano Land Grant and Past President of Las Humanas.

Also a special thanks to all the Forest Service CFRP Coordinators for their timely responses and input in preparation for and during the writing of this paper. They are as follows: Ian Fox, Connie Zipperer, Ignacio Peralta, Reuben Montes and Craig Cowie.

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Appendix 1. Development of Multi-Party Socioeconomic Monitoring Within CFRP

Monitoring is the process of collecting and analyzing data periodically to determine whether a project is meeting its goals and target conditions. Multiparty monitoring brings together a diverse group of people, including land managers, environmental groups, community organizations, and forest practitioners to participate in the monitoring process. Inclusion of these stakeholder groups is aimed at increasing public participation in public land management, assisting in conflict management, promoting shared learning and ensuring greater data reliability. Funding agencies also use multiparty monitoring to evaluate projects and maintain accountability (Moote et al. 2007).

In 2001 when the first CFRP projects were funded, there was little shared understanding among grantees of the multiparty process, appropriate socioeconomic indicators, and budgeting for monitoring. In 2002, a group of more than 40 land managers, academic and agency researchers, community forestry organizations, and forestry practitioners convened to discuss the multiparty process in CFRP and generate guidelines for ecological and socioeconomic monitoring (USDA Forest Service 2003). A CFRP grant was awarded to the Ecological Restoration Institute to provide monitoring assistance to grantees. A CFRP technical assistance team developed handbooks that simplified the earlier guidelines, conducted workshops and provided on-site monitoring assistance.

The simplified guidelines recommended five goals and over 30 indicators to consider when designing socioeconomic monitoring for CFRP projects (Appendix 1, USDA Forest Service 2003). The protocols are described in CFRP Monitoring Handbook 5 (CFRP 2005). To meet the needs of grantees that wanted more simplified monitoring protocols with fewer indicators, the CFRP Monitoring Technical Assistance Team developed a Monitoring Short Guide that recommended the following five socioeconomic indicators (Moote et al. 2008):

- Number and Kinds of Jobs Created
- Skills Gained
- Value of Wood Products
- Education and Outreach
- Community Perceptions

New Mexico Forest and Watershed Restoration Institute

The New Mexico Forest and Watershed Restoration Institute at New Mexico Highlands University is dedicated to providing state-of-the-art information about forest and watershed restoration to the public, federal and state agencies, tribes, and private landowners in New Mexico. To accomplish this, the Institute collaborates with citizen stakeholders, academic institutions, NGOs, and professional natural resources managers to establish a consensus concerning prescriptions and monitoring protocols for use in the restoration of forests and watersheds in an ecologically, socially, and economically sound manner. Through research and collaboration, the Institute promotes ecological restoration and forest management efforts in ways that 1) will keep New Mexican homes and property safe from wildfire, 2) will lead to a more efficient recharge of New Mexican watersheds, and 3) will provide local communities with employment and educational opportunities.