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Collaborative Forest Restoration Program: Lessons Learned

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Executive Summary

Authorized by Congress in 2000, the Collaborative Forest Restoration Program (CFRP) was designed to encourage joint problem solving though diverse partnerships that design and implement forest restoration projects and provide jobs and training to local communities. Since then, annual Federal appropriations of up to $5 million have produced results both tangible and intangible. More than 17,000 acres of forest and woodland have been restored; 129 projects have been funded; and about 300 jobs have been created. More important, perhaps, are the program's less quantifiable results, as an atmosphere of litigation and acrimony surrounding resource issues has given way to a spirit of cooperation.

Based on detailed input from numerous program participants, this report provides an overview of the program's effectiveness since 2000. It looks in detail at the following program aspects, and incorporates a set of lessons learned for each.

Planning and Setting Goals: It is vital to incorporate the best available science when planning restoration projects. Working across jurisdictional boundaries is essential to the design of restoration efforts aimed at producing multiple benefits, especially when it comes to restoring watershed health and historic fire regimes. The CFRP Technical Advisory Panel, which reviews project proposals and makes funding recommendations to the Forest Service, has proven to be an effective means to build agreement among diverse interest groups, but integrating CFRP projects into the program of work and priorities of land management agencies has been difficult.

Communities and Collaboration: Good training and practice in how collaboration works are essential at both the program and project levels. This preparation is an important step in assuring that all project participants clearly understand how their work will dovetail with that of others.

Training Workers - and the Public: Education is key to restoration projects. But it can't focus only on the science of restoration. Effective education needs to draw a connection between ecology and economics, especially by assuring that key workers have the management skills needed to oversee personnel and attend to business details.

Fostering Business Sustainability: A grant program does not and cannot substitute for true sustainability of small businesses. It can, however, promote sustainability by encouraging business owners to train workers, seek alliances, and work with land management agencies to promote local sourcing for other projects.

Monitoring and Evaluation: Defined goals and dedicated resources are essential to an effective monitoring program. Plans for monitoring need to include sufficient budgeting, a clear delineation of who will do what, and a transparent means by which data can be stored, accessed, and used.

Program Infrastructure and Administration: The Forest Service has adopted and implemented virtually all the recommendations of the CFRP Technical Advisory Panel that evaluates the grant proposals. That history has proven to be an excellent way to earn the trust and continued participation and support of panel members.

Introduction: From Effigies to Efficacy

New Mexico's Collaborative Forest Restoration Program was born of conflict and crisis. It was created, in 2000, because a constellation of factors had caused both the ecological health of many of the state's wild lands and the social and economic health of many of its small towns and villages to become severely dysfunctional. A century or more of wildfire suppression, logging, livestock grazing, and other intensive land use practices had undermined the health of many of the state's public lands—Federal, state, and tribal. They were subject to erosion, unnaturally severe wildfires, degradation of wildlife habitat, and invasion by nonnative species. Rural communities, meanwhile, were also suffering. Due to environmental regulations, litigation, resource depletion, limited access to supply, and competition with other interests, many communities were increasingly unable to continue traditional activities such as livestock grazing and small-scale logging on public lands. Following a Federal decision to list the Mexican spotted owl as an endangered species, and a long period of overharvesting, the regional timber industry collapsed in the 1990s. Sawmills were closed; jobs were scarce, incomes low, and social ills widespread.

These paired problems—the ecological and the economic—fueled heated public debates in which the issues often appeared irreconcilable. Some environmentalists opposed even such small-scale traditional forest uses as firewood gathering; residents of land grant communities in the northern part of the state hanged effigies of well known environmentalists; the Forest Service, hampered by budget cuts and litigation, appeared stuck in a mire of analysis and planning. Rational discourse seemed impossible.
So did progress.

"We hassled about one thing and another," recalls a long-time area resident and activist, "and in the meantime, nothing got done in the woods."

Figure 1. Restoration work by CFRP recipient Taos Business Alliance

Against this backdrop, Congress passed the Community Forest Restoration Act in 2000, which authorized up to $5 million each year for a Collaborative Forest Restoration Program (CFRP) that would fund collaborative, community level projects aimed at ecological restoration projects on public lands in New Mexico. CFRP grants were authorized for up to $360,000 over 4 years. The act explicitly linked ecology and economy by proposing that the solutions to many of the state's land use problems lay in reinvigorating rural economies based on local resources, especially wood products made from small diameter trees that were abundant but had little value in the traditional lumber market. It also broke new ground by making it possible to fund restoration work across

jurisdictional boundaries; areas to be treated could be on public land managed by any agency, whether Federal, tribal, state, or local. The act established a technical advisory panel (panel) to evaluate CFRP proposals and make recommendations to the Forest Service on which ones best met the purposes of the program. The panel, composed of Federal, tribal, and state land managers, independent scientists, and conservation, commodity, and local community interests, was directed to use a consensus-based, decisionmaking process to develop those recommendations.

CFRP by the Numbers

Project proposals submitted, 2001-2009	318
Projects funded, 2001-2009	131
Federal and non-Federal investment (2001-2008)	$42.6 million
Acres treated by beginning of 2009	about 17,000
Jobs created, 2001-2008	about 300

Lands Treated by Ecological Type

Mixed conifer or ponderosa pine forest	61%
Piñon-juniper woodland	22%
Lowland riparian (bosque) or other	17%

Lands Treated by Jurisdiction

Forest Service	38%
BLM (3), BoR (1)	3%
Tribal	15%
State	5%
Local	4%
Mixed (cross-jurisdictional treatments)	11%
N/A (e.g., planning, training, equipment)	24%

363 Project Partners

Businesses	98
Tribes	24
Non-Governmental Organizations	103
Schools/Universities	46
Local Governments	48
State Agencies	30
Federal Agencies/Organizations	14
Associations	5

Youth Participation

Percent of projects involving youth in monitoring, education, and restoration fieldwork:

2001-2004	49%
2005-2008	78%

It was apparent from the outset that a yearly appropriation of $5 million, however wisely and efficiently allocated, would never be enough to solve the state's intertwined ecological and economic problems. After nearly a decade, though, it is clear that the CFRP has been a notable success in restoring some areas to ecological health and in increasing the economic health of some communities. More than 17,000 acres of forest, woodland, and riparian areas have been treated, mostly through the thinning of small diameter trees. The health of remaining trees and understory vegetation has improved; the risk of severe fires in some areas has been reduced. Meanwhile, hundreds of jobs have been created.

Businesses that would perhaps have foundered without Federal grant support have been able to survive. Members of numerous youth groups have found employment and educational opportunity through participating in the work of forest thinning, re-vegetation, and monitoring. The increased capacity of small business owners to apply for and receive Federal grants is demonstrated by the fact that 25 percent of the Forest Service biomass utilization grants have gone to the Southwestern Region in recent years.

But the program's main benefit may be its least tangible: the increased trust that it has engendered among groups that were once at loggerheads. That's a benefit whose effects can be seen well past the boundaries of specific CFRP

projects; within New Mexico's forestry and land use communities, it has created a groundswell of collaborative thinking and feeling that is likely to affect many other acres and communities.

"I think the CFRP has helped promote better understanding and mutual respect," says one Forest Service employee. "The one-time adversaries are realizing that they have to work together to craft a successful proposal. If we had CFRP in the 1990s, we would have seen less of that brinksmanship. I'm not saying it's the end-all, but it's gone a long way toward building respect and cooperation."

This report summarizes some of the key lessons from the Collaborative Forest Restoration Program. It details the program's successes and failures, with the intention of offering some recommendations that may be of use to those planning similar programs elsewhere. Though much of the CFRP story is unique to New Mexico, those who have compiled this report believe that what they've learned though hard-won experience may help others deal with their own land use problems by linking economy and ecology through a collaborative approach. As a result of the success of the CFRP in New Mexico, Senator Bingaman (D-NM) introduced the "Forest Landscape Restoration Act of 2008" (Title IV, Pub. L. No. 111-11), which creates a Collaborative Forest Landscape Restoration Program that builds on the collaborative CFRP approach to address larger landscapes. The new program would be an important beneficiary of these "Lessons Learned" from the CFRP that preceded it.

> ***"It is one of the most innovative and effective programs we have out there. It's a great model—not perfect, but it's working very well. Nationwide, there's a huge need to get forest restoration work done in a manner that builds community and business buy-in, and this does that."***
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> ***—Maia Enzer, Participant, CFRP 5-Year Report to Congress***

The Community Forest Restoration Act of 2000: Highlights

These are the goals laid out in CFRP's enabling legislation:

- Promote healthy watersheds and reduce the threat of large, high-intensity wildfires, insect infestations, and disease in the forests of New Mexico.
- Improve forest ecosystem functions and enhance plant and wildlife biodiversity.
- Improve communication and joint problem-solving among individuals and groups who are interested in restoring the diversity and productivity of forested watersheds in New Mexico.
- Improve the use of, or add value to, small diameter trees.
- Encourage sustainable communities and forests through collaborative partnerships.
- Provide a venue to develop, demonstrate, and evaluate ecologically sound forest restoration techniques.

The Science of Restoration: Planning and Setting Goals

The CFRP is based on the principle of restoration—a complicated idea, but one that revolves around the concept of restoring the functions and resilience of the ecosystem. For southwestern ponderosa pine forests, that generally means fairly open stands with a grassy or shrubby understory and relatively frequent fires; for riparian areas, it means some echo of a natural flood cycle that spreads nutrients and seeds and provides good germination conditions for such native plants as cottonwoods and willows. For New Mexico's widespread piñon-juniper habitats, previous conditions and potential goals are often a good deal less clear. Indeed, well-meaning ecologists can argue (and often have, throughout the program's early history) long and hard about just what conditions once prevailed—or ought to prevail once again—on a particular tract of land.

But there are some broad points of agreement, and in general people have come to agree that successful CFRP projects are ones that try to restore at least some similarity to what a place was once like. There are practical reasons for this: open ponderosa forests, as opposed to those with dense thickets of small trees, pose less fire risk to nearby communities and often support healthier growth of herbaceous plants; cottonwoods and willows often furnish better wildlife habitat, and more attractive riparian areas for human recreation, than nonnative species such as tamarisk and Russian olive.

With the assistance of the CFRP, a relatively high degree of scientific agreement on these issues in southwestern wooded areas has made the practice of applying science to project planning and implementation easier than it might be in other regions where such consensus is lacking. An example is the development of the New Mexico Forest Restoration Principles, in which a wide variety of stakeholders used the consensus-building process of the CFRP panel to negotiate agreement. But that doesn't mean this application is easy, particularly when it comes to broader landscapes. Most CFRP projects to date have been implemented on relatively small landscapes on the scale of a few hundred acres. In a state where the Forest Service has reported that 3.3 million acres of forest in its jurisdiction alone are in need of restoration treatments, CFRP projects have affected the landscape only in a localized way—by protecting a community watershed from severe wildfire, for example, or by improving wildlife habitat.

The CFRP is a small program whose grants are not sufficient to treat areas of more than a few hundred acres. In addition, treatments that truly accomplish restoration—for example, by conducting prescribed burns or re-establishing native plant species, not just thinning overly dense trees—tend to have a high per-acre cost. In the early days of the CFRP, the program supported some projects that were aimed at both planning and implementing restoration treatments. But the complexity of the NEPA process, which often involved unforeseen delays, made it difficult or impossible to both plan and implement projects within a grant's 4-year time limit. As a result, the Forest Service recommends that CFRP grant applicants focus either on planning or implementation. They can submit a grant proposal for the planning phase, and then submit a subsequent proposal to implement that plan when it has been completed. Implementation proposals must be "NEPA ready."

The CFRP staff and members of the panel have come to recognize the limitations of the small-scale, highly localized approach. As a result, the Forest Service now solicits CFRP proposals for landscape-scale, cross-jurisdictional planning projects. But small-scale projects are highly appropriate, and important, in many places, such as in urban watersheds and riparian bosque

woodlands. In any event, financial limitations dictate that projects funded solely by the CFRP do need to remain small. The tension about the scale of projects is likely to remain and to contribute to an additional imperative to collaborate and be creative, for it is by leveraging grant funding that project managers may be able to treat larger areas than they could through a single CFRP grant.

Figure 2. Baseline data collection in the Mesa Poleo CFRP

The extent to which panel members should dictate what they're looking for in an effective proposal is another point of tension. Most don't want to be in the business of dictating restoration priorities for an entire state, but some project proponents have felt blind-sided when their proposal was not funded because it didn't seem to fit priorities that were not clearly articulated in the request for proposals (RFP) process. It's a problem that has only grown as more well-planned and well-written proposals are received every year, since the inevitable result is that quite a few good projects have to be rejected. A significant contribution of the CFRP has been the capacity building that has occurred on the part of the grant applicants in New Mexico as a result of the CFRP proposal review process. The number and proportion of Forest Service biomass utilization grants awarded to applicants from New Mexico is one example of that increased capacity.

"The competition is really tough," says one Forest Service official. "To get a project funded now, you have to have really good writing skills and have the project really together."

Whatever the merits of particular projects, the big picture—the landscape-scale picture—does remain very much on the minds of many panel members.

"The projects are still one or more levels of magnitude below the scale of the problem," says one former member. "But you have to start with something that works. They have demonstrated that a collaborative approach can break some of the gridlock around natural resource issues. I think the chances are good that as the program grows, the projects will coalesce and have an effect on the larger landscape."

One way to do that, some argue, is to ensure that fire is integrated as thoroughly as possible into CFRP projects and the program's strategic planning. Most nondesert ecosystems in New Mexico have natural fire regimes whose absence causes significant problems, such as buildups of fuels or changes in the composition of plant communities. Yet wildfires often aren't allowed to burn, because they're too risky, given current conditions of dense fuels and widespread human development. The threat they represent, especially in an era when climate change may be making

southwestern forests warmer and drier, is to some a call to arms that argues in favor of more intensive strategic planning.

"Clearly, getting fire back into the system is the key," says one ecologist who has participated in CFRP projects. "Otherwise, you've got a mechanical substitute for a natural process. That's too expensive and not ecologically desirable. But we can't simply set forests on fire given current conditions. It's a difficult challenge. One solution is to place treatments strategically over the landscape so that fire, rather than chain saws, can manage the landscape."

Panel members and project proponents do say there's a strong interest in making restoration prescriptions as science based and collaborative as possible—in other words, in thinking them through as thoroughly as possible before work begins. In some cases there has been a disconnect between the often excellent theoretical underpinnings for restoration work and the ground level application of those ideas. More involvement of university groups, such as the Forest and Watershed Research Institute at New Mexico Highlands University, has helped fill that gap.

Figure 3. Ohkay Owingeh Pueblo's CFRP project restored riverine cottonwood forest along the Rio Grande.

So could an increased focus on developing agreement about restoration prescriptions. The New Mexico Forest Restoration Principles (see sidebar), completed in 2006 as an outgrowth of the CFRP's collaborative work, provide a good template for this. As one long-time CFRP participant has put it, "bringing people in on the front end virtually evaporates opposition at the tail end."

Lessons Learned

Be open to new, holistic ways of thinking about the costs and benefits of restoration. Though the initial costs of restoration treatments are often higher than those associated with simple fuels reduction, the benefits of restoration that accrue in the form of wildlife habitat, carbon sequestration, community values, and the sustainability of local businesses mean that restoration is, over the long run, a more cost-effective approach. Appropriate definitions of such terms as "sustainability" may help to quantify those benefits. The development and use of predictive tools or models can help to evaluate the relative costs and benefits of restoration versus simple fuels reduction. The use of best value and stewardship contracting agreements may provide the Forest Service with additional tools to address these issues.

Think across landscapes, even if they're multijurisdictional. For example, it might be appropriate to use watersheds or "firesheds" as planning units. Remember that landscapes are social and economic, as well as ecological, and that any list of priorities for treatment should incorporate all those elements. Size does matter—it's important to decide on the appropriate scale for treatments and to understand how the work done can fit into the broader landscape.

Make the NEPA process as collaborative as possible. Incorporate communities and key stakeholders in the NEPA and project planning process from the beginning. Begin working with district rangers, program coordinators, and other officials early in the process. It's critical to have multiple agency staff members involved in planning to ensure continuity in case of personnel changes.

Create a detailed work plan that realistically assesses the costs of the work to be done. Don't overpromise what can be accomplished in a particular timeframe or for a particular amount of money. For example, an effective proposal needs to be accurate in its assessment of the market value of small diameter timber harvested from a dense stand.

Develop prescriptions that incorporate as many stakeholder values as possible from the beginning. Written prescriptions cannot anticipate every problem that arises during implementation, but future conflict can be reduced if the prescriptions are developed using an open, collaborative process.

Look for planning and funding linkages. There are numerous other sources of funding that might be used to complement and expand upon CFRP-funded projects, such as community wildfire protection programs, Section 319 funding provided by the Federal EPA under the Clean Water Act, funding from the Secure Rural Schools Act, and others. Leveraging one grant by writing and winning other approvals is often the only way to get work done across a broader landscape.

In His Own Words: John Ussery

We set out on this project with three major objectives. First, we want to develop businesses. The mill here used to get wood from large timber sales. But nobody could make it work in the long run. We think that this forest can provide jobs and lumber. If properly maintained, it will provide a renewable supply of water that in the future will be even more valuable than oil.

Second, we want to increase community capacity. There's a new set of tools that really make it possible to participate at a new level of understanding about how to manage a forest sustainably. We've hired the ForestERA project at Northern Arizona University and got them to include 74,000 acres in the Vallecitos area in their macro landscape assessment of northern New Mexico. But we'd like to use similar tools at a micro level, too. We want to use these tools to be able to see both the risks and the opportunities. This will help us determine the availability of material and how much it will cost to remove it. Basically what we're doing is building community capacity for science-based forest management.

Third, we want to stop exporting youth from our rural communities. We're training kids to do scientific monitoring. We trained eleven 14- to 16-year-olds, and five of them were hired to do monitoring on a CFRP project here. We're hoping to provide them with a path to careers.

There's no loose change in these communities. The efforts before to get things going here have led to failure. The discouragement level is really high. The CFRP is important not only as a reality, but as a symbol. It's a key grant to have. It's a program that solves a real world problem. We'd been crippled by this legal mess for far too long. We believe there's a win-win, a way to preserve the forest while creating jobs for the community. The CFRP is ideal for that focus. The emphasis on collaboration is really important. People participating in the program are willing to put their process where their mouth is. They've been so hamstrung by the legal process that if they can get all the stakeholders signed on in advance, they can actually do something. We're all coming to the conclusion that proactive is the only way to go.

John Ussery is program director with Las Comunidades, a nonprofit organization whose mission is to provide jobs and business opportunities in the area of the Vallecitos Federal Sustained Yield Unit on the Carson National Forest.

New Mexico Forest Restoration Principles

Developed by a collaborative group of 13 agencies and interest groups during an 18-month process of deliberation, these principles are intended as a guiding vision behind the planning and implementation of specific restoration projects. Each point is fleshed out in the final principles document, available online at http://www.fs.fed.us/r3/spf/nm-restor-principles-122006.pdf.

1. Collaborate
2. Reduce the threat of unnatural crown fire
3. Prioritize and strategically target treatment areas
4. Develop site-specific reference conditions
5. Use low-impact techniques
6. Utilize existing forest structure
7. Restore ecosystem composition
8. Protect and maintain watershed and soil integrity
9. Preserve old or large trees while maintaining structural diversity and resilience
10. Manage to restore historic tree species composition
11. Integrate process and structure
12. Control and avoid using exotic species
13. Foster regional heterogeneity
14. Protect sensitive communities
15. Plan for restoration using a landscape perspective that recognizes cumulative effects
16. Manage grazing
17. Establish monitoring and research programs and implement adaptive management
18. Exercise caution and use site-specific knowledge in restoring or managing piñon-juniper ecosystems and other woodlands and savannas

"The CFRP is a really good model for ways we might support collaborative efforts and help communities take charge of their environment and future. Restoration will work if it's collaborative, which means we need to change the way we relate to one another."

—Dr. Penny Morgan, former technical advisory panel member and Professor, Department of Forest Resources, University of Idaho

A Tough—But Necessary—Thing to Work: Communities and Collaboration

Collaboration—to some ears, the word carries an unhealthy taint of giving up one's ideals, of allying with an enemy. Yet the CFRP wouldn't exist without it. The idea that decisions about land management should not be made solely by experts with little stake in a local community, or by local people with little connection to larger interest groups, is at once the program's most time-consuming element and its most vital.

Under the CFRP, proposed projects are required to incorporate collaboration. Ideally, that doesn't mean only that a small group of central planners find other agencies or groups to carry out specific tasks, such as logging, monitoring, collection of native seed, or business development. Rather, it means that decisions about all those project details, as well as about the larger project goals, are made collaboratively by a diverse and balanced group of stakeholders that have agreed to participate. Of course that's tricky, but it is the program's most notable legacy precisely because the groups involved in forest and land management issues in New Mexico in the 1990s were so fractious, so fragmented.

"Ten or 15 years ago," says one CFRP participant, "we had folks that we wouldn't talk to, but now they're involved."

How has that trust formed? The answer is twofold. First, it is an attribute of land management history unique to New Mexico that the scraps of a forest industry left to fight over in the late 1990s were very small—too slight, in other words, to interest large companies with significant political muscle. By the same token, grants made under CFRP have themselves been small—no larger than $360,000, spread over 4 years—and thus have mainly gone to companies, community groups, and agencies that are able to work at a small, local scale. Simply put, much of what happened in New Mexico during the early years of the CFRP took place under the radar of powerful interests, of whatever political stripe, that could otherwise have derailed the program's atmosphere of working together.

Second, and more important, trust has formed between those with widely varied viewpoints simply by virtue of time spent together—a lot of time, that is. The Panel specifically looks for evidence that proposals have been written with collaborative decisionmaking in mind. Often, when proposals aren't funded, it's because those partnerships haven't been worked out well enough.

"Collaboration is a tough thing to work," says one grantee. "But often, when weaknesses are identified by the panel, they lead to good revisions for next year's proposal—and often to good collaboration because it's in areas where you might have a weakness, but others don't."

Figure 4. Ruidoso Municipal Schools partnered with local businesses, environmental groups and the Forest Service to create an outdoor classroom to teach students about forest restoration.

As a result, members of groups that once interacted primarily through protest, litigation, and oppositional letters to the editor have found themselves sitting in the same rooms, slowly coming to appreciate one another's point of view. Loggers began to learn about ecological monitoring from academics or representatives of environmental groups; environmentalists came to appreciate that the sustainability of small, local businesses really did seem to have a connection to ecological sustainability; a tribal government and the Forest Service found themselves sharing monitoring data after years of a relationship that was more often adversarial. One participant who sat in on many lengthy meetings about a particular project says that he knew progress was being made when an advocate of one perspective left the room for a while—and his ideological opponent proceeded to summarize what the man would have said had he been present.

"Now people know the person, not just the name and signature," said one Forest Service official of a representative of an environmental group once viewed with disdain by those involved in the logging industry.

Still, challenges remain. There is a natural limit to the capacity of the community and environmental groups that are willing and able to participate in the program, especially in a state as large and sparsely populated as New Mexico. Though the circle of people and groups choosing to participate in CFRP has broadened over the years—coming to incorporate, as one observer says, "people who stood out there with their arms folded"—it has not come to include everyone. Some advocacy groups have litigated some CFRP projects and refuse to participate in the collaborative process. In other cases the number of CFRP grant applicants requesting participation from conservation and environmental organizations exceeds the capacity of those organizations, even if they support the project idea.

Some agency representatives, too, have been reluctant to take part; proponents of a number of CFRP projects have been frustrated by the challenge of working with Forest Service officials who are uneasy at best about participating. In part that's because of personnel turnover: new staff members arriving in a district may view the program as unfamiliar and threatening, or as an additional workload, rather than as an opportunity to get work done in a non-traditional way. In part it's also because the CFRP does not always align easily with other agency timelines, or with other policies or mandates, such as the need to get a certain number of acres treated with fuels reduction treatments on a particular district. A widespread embrace of the collaborative process within the Forest Service, or any other public resource management agency, is unlikely to occur without institutional changes that reward, rather than hinder, active participation in collaborative initiatives like the CFRP. There is, however, a perspective within the region that things are much better than they were in 2000, and that they are getting better each year. The program is being accepted and integrated more at the field level.

For all these reasons, broad-based education about collaboration is critical to the program's continued success. It needs to take place within projects themselves; in particular, several project leaders have pointed to the need to create a broad-based core of managers for each project so that one leader does not get overwhelmed by the work that needs to be done. It needs to extend to agency officials who may find the collaborative process unfamiliar. It's needed as a critical element of outreach to other members of a community, whether a geographically localized one or one of affinity or economics, such as an industry or environmental group. That might be done, for example, through expanded youth programs or through public outreach such as brochures and other educational efforts aimed at neighboring landowners.

The process of collaboration is an ongoing one, never perfected. But it is arguably the most enduring legacy, so far, of the CFRP—albeit the one hardest to quantify. As onetime opponents have learned to work with one another on particular projects, they develop trust that bears fruit far outside the bounds

of a small-scale forest or woodland restoration project. Whatever community—or communities, really—they're part of, they're learning to work together across old boundaries that, once you reach across them, no longer seem so important.

Lessons Learned

When planning a collaborative project, be clear about what terms mean and how the process will work. Many people aren't familiar with the process of collaboration and consensus. Use professional facilitation at the outset to define such concepts and model appropriate behavior.

Use an open, transparent process to recommend projects for funding. The review of project proposals should be open to the public. Recruit panel members from diverse and balanced interest groups. Seek out and appoint panel members who have standing within their interest group so they can effectively advocate for the panel recommendations when they return home. Assure that panel members are willing and able to listen, learn, and negotiate successfully in a consensus-based process.

Reward collaboration. Create a system within the public land management agencies that rewards employees for collaborating with stakeholders and partners to accomplish land management objectives.

Identify agency personnel who are trained in collaboration and task them with representing the agency in collaborative processes.

Train for facilitation and collaboration. Project managers and other interested participants may benefit from training, early on, in the basics of how to work collaboratively with groups.

Clarify the roles particular groups or individuals will play. In the proposal phase, as well as during a project's implementation, things run more smoothly if all participants share an understanding of what their responsibilities are or will be. Letters of endorsement should precisely spell out what a participating group will do. Establishing a steering committee can also help to provide support and avoid burnout. Detailed planning helps both in achieving consensus and in crafting a wise work plan that minimizes the chance of unwelcomed surprises.

Create working groups that foster effective collaboration. Think broadly about potential partners. For example, county associations can be a force for lobbying or collaboration. When working with tribes, it is important to also include the Bureau of Indian Affairs.

Listen. A genuine understanding of where a community, agency office, or organization is coming from is essential to the collaborative process. Those who have succeeded at this process suggest that good listening, and humility, are vital skills. Don't come into a community from the outside and tell its members how to act; do focus on building personal contacts and staying in touch.

Work with agencies to look for intersecting interests. When working with the Forest Service, potential grantees should determine if and how their proposed project dovetails with agency priorities. This could be done by attending Forest Service planning meetings or, at the minimum, by working with the CFRP coordinator on their local national forest as the first step in developing their idea.

Involve a wide range of agency personnel in collaborative decisionmaking. Too often, only Forest Service staff who are specifically tasked with working on CFRP projects attend the panel meetings or

the annual CFRP workshop. Broader representation by a wider range of agency personnel, such as district rangers and their staff, would help disseminate collaborative ideals more broadly.

In His Own Words: Rene Romero

I worked with the Rocky Mountain Youth Corps before I came to work for the pueblo. As a nonprofit we were always hungry, always looking for ways to find funding and projects. This looked like an innovative way to get out in the woods and do some good. So I've been involved with two CFRP projects now.

Here at the pueblo, we had a large fire called the Encebado Fire in 2003. Some of us had thought we were immune to fire—this was a big wakeup call. Our project focused on the aftermath of a fire by relying on a lot of cooperation across jurisdictional boundaries. We re-established access to some traditional usage areas, and did thinning in priority areas down low, where a fire could get started. And the biggest impact is assessing how much good we can do with the wood. That's the big question in all these forest thinning projects. Here, it's a valuable product, where many people still use wood as a primary source of heat, so we've had to make sure we're distributing it fairly.

The two watersheds we have are priceless, not just in the quantity of water they provide, but in the quality. The watershed restoration project has brought much more awareness to the everyday person—we've learned that we have to be proactive, because once a fire's on the way there's not much you can do. And we've been able to look across boundary lines with the Forest Service and the BLM. We can look at the whole watershed and at the cultural significance of certain areas. We've been able to create some pretty interesting maps that go across boundaries; that's a huge thing because we can define project-scale work that way. It's definitely going to carry over into other encounters.

The CFRP gave us a couple of steps to maneuver up the ladder and promote what we're doing. The dream—the big dream—looks forward a thousand years, and focuses on bringing the balance back and bringing fire back into the system. We're looking at how we can continue to get some funding to work toward that. The amount of money that's already been put into the system by the CFRP, the amount of work that's gone into protecting resource values—it's amazing what it's done. But I think the application process is becoming a bit too unwieldy. For a project to get the OK anymore you almost need a professional grant writer because you need to cross all the Ts and dot all the Is. I've seen a lot of good projects get kicked out by the panel just because they don't meet one criterion in the RFP. I don't know—maybe that makes everyone stronger in the end. Or maybe what's needed is more of a merit-based system.

Rene Romero is the fire program manager for Taos Pueblo.

> ***"Consensus isn't about sitting around and singing Kumbaya—it's about, can we all live with this?"***
>
> ***—Walter Dunn, CFRP Program Coordinator***

Learning for Today and Tomorrow: Training Workers and the Public

The CFRP is a pioneering program, and arguably everyone involved in it has had to spend a good deal of time venturing into uncharted territory—whether that entails negotiating with a land management agency, striving toward consensus with new partners, operating equipment in the woods, or gathering monitoring data that helps participants understand the effects of their work. Training for these new skills is vital if a project is to succeed, but it has proven a challenge to some program participants who have discovered that a greater degree of education should explicitly be built into each project from the beginning.

The need for learning is perhaps most selfevident when it comes to the practical skills required to implement a project on the ground. Workers thinning a dense patch of forest need to know how to safely sharpen and operate chain saws, fell and buck trees, and provide some first aid. Some of this training is mandated by state regulations. It's important not only in its own right, but because adequate training can help lower the cost of providing workers' compensation, which has been a considerable burden to some of the entrepreneurs conducting CFRP work. But some project participants feel that the training offered is either not hands-on enough or, in some cases, duplicative. Training can also prove expensive for community groups or small businesses carrying out restoration work. Such problems could perhaps be rectified by working with industry groups; in New Mexico, for example, the New Mexico Forest Industry Association now oversees the implementation of the forest worker safety training. Participating in that standardized training has allowed some businesses to reduce premiums for workers' compensation, which means that more dollars are available for restoration work on the ground.

Nowhere is the need for practical training more critical than when previously inexperienced youth workers are involved. Over the course of the CFRP's existence, the percentage of projects involving local youth in restoration and/or monitoring work has steadily increased. After a fire burned over part of Ojo Peak outside Mountainair in central New Mexico, for example, local youth from middle and high schools helped with a CFRP project whose primary goals were the reduction of fire-caused erosion and the replanting of native plant species. They collected and planted seeds of native plants, built erosion control structures from burned logs, and monitored the results. Some visited New Mexico Highlands University to learn how university training can form a base for a natural resource career. Not all will choose such careers, of course, but the coordinator of a project involving youth participation has pointed out that such exposure can provide big benefits down the road regardless of what career path the students choose.

"They could see the enthusiasm for what we do," he said, "and that's a benefit that might result in them going to college, or even choosing another field."

The larger benefits of youth involvement in their local landscape are even more intangible, but no less real. One of the Ojo Peak project participants described how he came to see the exceedingly familiar landscape outside his home village with new eyes: "I have a new appreciation for the mountain now," he said. A number of public schools in New Mexico have developed natural resource management courses that include gathering data for CFRP project monitoring. A core assumption of the CFRP is that greater understanding of forest restoration issues among young people will lead to a more informed public debate over public land management issues in the future.

Figure 5. Rocky Mountain Youth Corps won the 2009 National Youth Corps Award for the Largo Canyon Sustainable Forestry Project. ***Photo courtesy of the Forest Guild.***

Many new jobs have been created through CFRP projects; however, not all are sustainable. Sometimes no work is left when a grant runs out; sometimes trained workers leave for more education or better paying jobs elsewhere. That's not always a drawback, as some of those involved with youth programs point out. A number of CFRP projects have involved Youth Conservation Corps programs, which are explicitly designed to train youth in work skills so that they can move on to more lasting jobs or further their education. Some of those youth have embraced natural resource jobs—tin fact, some have gone to work for the Forest Service—but more have not. Still, one youth program coordinator notes, "thinning the field is part of the education"—discovering that operating a chain saw isn't for them can help motivate young people to continue their education so that they can work in some other field. Some project coordinators do, though, view a lack of retention as a problem and perceive it as a hurdle to the sustainability, and even to the long-term survival, of restoration-based businesses.

Education about the goals of CFRP projects needs to go well beyond the immediate circle of those working on a particular project. Participants have found that Forest Service officials who are often more accustomed to working solely within a Federal bureaucracy need to learn how to work at a community level; members of community groups need to learn why a time-consuming involvement in a CFRP project might be worth their while; neighboring landowners need to learn about forest restoration so that they can understand why a tract of woods is being thinned, and think about doing the same on their land. In that regard, a physical example is probably always best.

"When I got here, you needed a permit to cut a tree about 5 inches in circumference," says one project coordinator with extensive experience working in the wildland-urban interface. "The CFRP projects provide an example—we would bring people through the treated areas. It really provided the education and public awareness."

Lessons Learned

Work with and build on local or national youth programs. Youth Conservation Corps programs involve about 25,000 young people nationwide at any given time and can provide powerful opportunities for education and for getting work done. But it is critical to involve youth participants in the details of project planning, not just to rely on them as a labor force or as a means of swelling the ranks of groups participating in a project.

Put adequate resources into training and mentoring good crew leaders—they are essential to success. Their training needs to include not just education in equipment and restoration techniques and goals, but also in personnel management.

Develop monitoring and education through schools and colleges to improve capacity, especially in rural areas. In particular, it's helpful to identify and build capacity for spinoff careers, such as monitoring.

Good pretreatment data is essential for estimating costs and planning workloads. A small investment of time before a project gets underway can save a lot of time later.

Consider a wide range of education and outreach tools. Printed materials, Web sites, and audio and video materials may all be appropriate. But often field tours to restoration sites provide the most lasting educational value.

In Her Own Words: Suellen Strale

I opened this program with the youth in the community, or they opened the program for me, and now they've grown up. They keep graduating on, which is wonderful. My younger kids are corps members. Normally they start at 14. Eighteen and up, they join the crew. The focus is, I really want you to go to college; I really want you to be educated. You get college credit, and then the idea is that the professional forestry crew upon getting their degree will get positions with the Forest Service or BLM, rather than those agencies having to import people from out of state. That's why we've just changed the name from a youth corps to a conservation corps. We've built a really lovely long-term program. It's a family.

The work with CFRP came through a long-term partnership with Forest Guild and a newer one with Earth Works Institute. They wanted us to help with a CFRP project as the youth component. Part of the impetus was to have a strong training program, and to take these young burgeoning foresters out there and teach them: how do you really control erosion after a fire and keep runoff from ripping through the boy scout camp? How do you maintain your chain saw? So Forest Guild and Earthworks started training our crews. Some youth members weren't ready for the transition to the professional crew, but some were. They're the cream of the crop.

Everyone on my crew (who is over 18 years old) has their own chain saw. We own it, but we sign it out. So sawyer number 9 is in charge of chain saw number 9. You maintain it as if it's yours. They have time in the field dedicated to maintenance. And they're awesome. They all go out, do their own thing, and then the crew chief comes back to do the quality control. The crew has gotten their act in gear. They have to; we've got about 300 acres to do this summer, so you can't just poke along. They're the perfect role models for their younger brothers, sisters, cousins. There's no nonsense in the field. They don't mess around. Messing around would drag down the professionalism of the forestry crews (and compromise safety).

That's the philosophy—there's a very strong work ethic. And CFRP has given us the opportunity to graduate from a youth corps to a full-blown conservation corps. Now we have a triad with Forest Guild and Earthworks and we're working on all sorts of grant proposals together. It's a perfect match. We're getting other contracts now, and we need them to stay alive. Some of them are forestry projects, some are river restoration. These young people don't necessarily want to go into just one thing. The more contracts I can bring in, the better off we're going to be. And CFRP

helped that; it has helped us get a number of other contracts by networking with other forestry projects. CFRP has really given us a leg up.

Suellen Strale directs the Chimayo Conservation Corps in Rio Arriba County.

"I was surprised to learn that people get paid to do something I consider fun"

—Gabriel Ramirez, youth participant, CFRP project

Making It Last:
Fostering Business Sustainability

Promoting and supporting small businesses that can carry out restoration work at a local level has been an important part of the CFRP since its inception. But it has been and remains one of the program's greatest challenges. The sustainability of small businesses is connected to so many factors outside the program's purview—such as consumer demand, the price of fuel, or changes in the market value of wood products—that planning for sustainability is a challenging task indeed.

One of the main problems faced by CFRP-related businesses has been the unanticipated costs associated with the implementation of particular projects. Expenses in workers' compensation, taxes, overhead costs, equipment purchases, and treatment costs per acre have often proven higher than anticipated, resulting in losses of profit or in a reduction in the acres treated. Such costs as monitoring have often not been sufficiently factored into project budgets.

"In our area there are a lot of people who have worked on contracts, and they know how things worked in the old days," says one Forest Service official. "They're surprised by how much peripheral work is involved in making one of these projects work."

The peripheral work doesn't just result in higher costs; it often results in less desirable jobs. For example, the direct travel costs for workers traveling to and from work sites on a single CFRP project in 2007 and 2008 totaled more than $15,000 when calculated using the standard Federal mileage reimbursement rate. Depending on how a project is budgeted, such expenses represent a significant cost either to the project or to workers (if they have to pay their own commuting costs). In the latter case, they ultimately serve to make restoration jobs at distant sites less competitive than other jobs. In addition, delays in reimbursement have sometimes caused delays in processing paychecks. These factors, coupled with the seasonal nature of forest restoration work and a lack of benefits, often mean that jobs implementing these projects are relatively undesirable, even in rural settings where other jobs are scarce. As a result, business owners often have to spend time and money training new workers each season.

The creation of an industry group, the New Mexico Forest Industry Association, has greatly helped business owners with such problems. Founded in 2007, the association was awarded a CFRP grant in the following year enabling it to offer technical assistance in such areas as grant writing, financial management, public outreach and education. It also administers the state's Forest Worker Safety Certification program, which can reduce business overhead by cutting the costs of workers' compensation coverage by as much as 30 percent.

The best way to deal with these costs during program implementation is to have anticipated them—and budgeted for them—as thoroughly as possible in project proposals. The trick is to incorporate as much planning as possible into project proposals and work plans—while still retaining some flexibility for the changes that will inevitably come as a result of weather, changes in market conditions, and numerous other variables.

A potentially larger problem lies in the structure of the grant program itself. A grant of up to $360,000, spread over 4 years, can jump-start a business, but it can't by itself sustain it. Agency officials and business owners alike have often not fully grasped how much additional work is needed.

"Agency personnel have misunderstood the goals of CFRP by thinking that applicants may only require one or two grants to become successful in business," says one Forest Service official. "Some business owners feel the agency should be subsidizing forest restoration work, and don't work on ways to increase efficiency or increase or expand markets."

The successful business owners, of course, are those who realize they need to expand markets. Though some have successfully sold timber, especially value-added, regionally desirable products such as the viga and latilla beams popular in Santa Fe style architecture, it is often difficult to compete with cheap imports from other regions or nations. Many of the most successful CFRP grantees are those who have created innovative new products that avoid some of the problems of the southwestern timber market. Businesses have developed a number of products that can be made from low value, small diameter trees, including animal bedding, erosion control blankets, a composite plastic-wood chip material used for signs, and replacement pieces for old wood floors. Making a product that succeeds in the marketplace goes a long way toward making businesses sustainable, and removes some of the unpredictability of relying on grant funding.

"We eventually want to use every bit of the wood we remove," says one project coordinator. "This project cannot be done on Federal funds alone. There are too many acres, too many trees, too much fire risk. We need to add a market pull rather than just a Federal push."

Figure 6. Silver Dollar Racing and Shavings manufactures wood shavings from the byproducts of restoration projects.

The market pull is complicated, though, by uncertainties in supply. It has proven largely impossible for the managers of public lands to guarantee a certain long-term supply of wood to potential users. As a result, business owners often have to work to cobble together sufficient materials from a patchwork of public and private lands. But that works better in some regions than others; businesses in areas dominated by national forests often have real difficulty in assuring enough supply.

In recent years considerable effort has gone into strategic planning for forest restoration in the Southwest, through such initiatives as the National Fire Plan or Northern Arizona University's ForestERA project, which has conducted an assessment of fire risk and restoration opportunities across 6 million acres of north-central New Mexico. But similar effort has not gone into assessing prospects for the sustainability of small forest-based businesses. Perhaps strategic planning involving multiple communities, businesses, and public lands jurisdictions could help to put the survival of forest-related businesses on as solid a footing as the science of restoration itself.

Lessons Learned

Think about restoration projects as investments, rather than narrowly defined businesses. Forest restoration work has short-term benefits that may not equal the costs of planning and implementation, but it also carries long-term benefits in both ecosystem and community health. That has implications for how society, and Federal agencies, should fund restoration projects.

Ensure that program planners and panel members understand the business aspects of restoration-based work. It's easy to focus a great deal of attention on the scientific and ecological aspects of restoration. They're important, but a good understanding of business capabilities and needs is essential if projects are to be properly planned and funded.

Build coalitions around restoration-related business. Working groups can collaborate to address funding and strategic planning needs. From the perspective of land management agencies, it can be very useful to inventory companies certified to do the work, and have agencies communicate needs to them. This sort of advance planning can help sustain more lasting, year-round jobs.

Have a good understanding of tax and insurance requirements, especially workmen's compensation. Unexpectedly high costs have contributed to less work getting done on a number of CFRP projects.

Develop real cost and appraisal systems. Too often, Forest Service appraisals of small diameter material have been based on out-of-date timber models or indicators that do not reflect local conditions. A realistic business plan should be based on actual local market values and conditions.

Assess the material available. Projects utilizing small wood should assess the future availability of material beyond the horizon of the grant funded project. Collaboration with local agency units could help the Forest Service plan their future program of work and provide a consistent supply of acres for treatment and material.

Build flexibility into project tactics and budgets. Though proposals need to incorporate solid goals and parameters, things do change once work in the field is taking place.

In Her Own Words: Sherry Barrow

In 2000 we had a horrible fire season. Glen and I had been doing research to try to figure out what could be done. SBS Wood Shavings started in 2001. We applied for our first CFRP grant that year, a small request for the drying system that we have for producing shavings. We leveraged that CFRP grant in several different ways—it was a valuable and essential component for us. By 2002, we were in full-on production.

We didn't do any more CFRP grants until 2005, when we started the Cedar Creek project. This was a whole-cloth project where we brought in a whole lot of different stakeholders. We brought in some environmentalist stakeholders. We used a swing harvester system that was the only one in the West at the time. We did quite a bit of monitoring there. We've also participated collaboratively by doing mechanical thinning on several different CFRP projects. The improvement of ecosystem function—that's really our niche. A lot of people look at it with fire

eyes. We really try to look at the whole forest. We stand on a ridgetop, and we don't see board feet—we see trees.

The value of CFRP, more than any particular project, is the structure it provides for a way of identifying the common ground. Speaking from the perspective of a small business person who wants to do good in the world, the structure of having a collaborative process where one seeks to identify the perspective of the others out there is critical. When I go to the technical advisory panel meeting and they approve my grant proposal, I believe they've trusted me. That's a real commitment to me, my stakeholders, and my community. I wish people working in world politics did this.

What would I tell other business owners? Don't do anything until you visit your district ranger and find out if what you want to do fits into their plan. It's really hard work, and the margins aren't good. Do you want to do this to earn a lot of money to retire on, or to be a forest missionary? You're probably not going to make a lot of money. You've really got to want to do this.

If we are going to have sustainable forest-based businesses that can thrive after the CFRP grant is completed, there must be a commitment by Forest Service contracting to offer work with values that reflect the values of the CFRP. My greatest concern is that there is not a commitment to restoration type prescriptions applied as local contracts within the regular Forest Service budget. The "high volume of acres—low treatment cost" target mentality is the single most damaging directive of the National Forest System. Decisions for the most acres treated for the least amount of money are short sighted and don't address the relationship between ecology and the local economy.

Sherry Barrow is co-owner of SBS Wood Shavings in Ruidoso.

"Behind every restored forest is a restored forest industry"

—Naomi Engelman, former director,
New Mexico Forest Industry Association

Measuring Outcomes: Monitoring and Evaluation

CFRP projects are required to incorporate multiparty monitoring that assesses how effectively the project's stated goals are being met. It is the element of these projects that has perhaps evolved the most in the program's almost 10-year history. That's a continuing challenge for every single funded project, but it's a sign of vigor, too.

"The ability to morph and change is a success," says one program participant. "Monitoring is difficult. The fact that we're wrestling with it is a good sign about the maturity of the program."

Early on, grantees didn't know much about monitoring—except that it was a requirement. Contractors and community groups involved in projects were unaccustomed to measuring the results of restoration treatments. They were unsure why the monitoring had to happen, and uncertain about what to do with whatever information they did collect. It seemed, as more than one grantee has summarized it, that they were being asked to do "monitoring for the sake of monitoring."

"Monitoring was a big hangup for some of our first-time CFRP proponents," says one Forest Service official. "They just couldn't get their arms around what it means to have a well rounded and diverse multiparty monitoring group."

Figure 7. Students like these 7th graders at Santo Domingo often participate in monitoring CFRP projects. Of 14 projects funded in 2008, 8 involve students in monitoring project sites.

The hurdles were both practical and theoretical. In 2002 a working group was convened to build agreement on what multiparty monitoring was and how it could be accomplished. They produced a set of monitoring guidelines that were published by the Forest Service in 2003. A CFRP grant was then awarded to Northern Arizona University's Ecological Restoration Institute to work with other organizations to produce a series of six monitoring handbooks which are now available both in print form and online. The manuals go into great detail—so much detail that some project coordinators were overwhelmed. As a result, those handbooks were later condensed into a single "Short Guide" that provides an overview of how to craft a monitoring plan and measure 12 key variables (see sidebar). Beginning in 2009, CFRP grant applicants were required to include a minimum set of core ecological indicators. CFRP grantees and applicants can receive technical assistance on the design and implementation of multiparty monitoring plans through a Forest Service agreement with the New Mexico Forest and Watershed Restoration Institute at New Mexico Highlands University.

Even with these excellent tools, some monitoring continues to be difficult. Ecological variables, such as tree density and the height of tree crowns, are relatively easy to measure. The core indicators are not necessarily the best indicators for each project, though, as they were chosen in large part because of the ease of data collection and the opportunity they provide to compare results across projects and jurisdictions. Further, it is difficult to assess socioeconomic variables such as jobs created because much of the work on CFRP projects is seasonal. It is also difficult to assess project results that are important but largely qualitative, or at least challenging to measure, such as cultural values or ecosystem services. For example, a restored watershed might provide more or better quality water to a community below, but it's difficult to prove that thinning trees led to improved water supplies without detailed experimental manipulation that goes well beyond what most CFRP projects are designed to do.

The theoretical hurdle—why do we need to do this?—was a larger one. Ideally, monitoring data garnered from restoration treatments should be used for two purposes: (1) to alter a project's prescriptions and methods if the information shows they're not as effective as they could be; and (2) to assess the program's large-scale effects. The former has been done only sparingly, and generally only when monitoring has been done by outside professionals who can quickly assess the data collected and use it to make changes. That happened, for example, in a project on the Carson National Forest in which the contractor and the Forest Service disagreed about how much fuel could be left on the ground prior to a prescribed burn. After some negotiation, the contractor agreed to remove more downed wood. Re-measurement of the amount of fuel was then used to show that conditions had been made appropriate for the needed burn. For most projects, though, there really has been no effective feedback loop that allows the results of one summer's work to be used in altering the next season's work.

How useful has the overall monitoring of CFRP projects been? A subcommittee of the CFRP panel meets semiannually to review the multiparty assessments of completed projects. In 2008 they concluded that the results have been mixed. Despite the existence of the instructional handbooks, project teams have used a wide range of monitoring protocols, making it difficult to compare results across projects. About a quarter of projects, the report concluded, did not use reliable monitoring methods at all. But the report also pointed out that some projects did an excellent job at monitoring, and singled out 20 of them that feature particularly high standards of measurement and reporting. The act requires the Forest Service to monitor the ecological effects of the CFRP restoration treatments for 15 years, so the CFRP subcommittee proposed that those projects be monitored at intervals of 5, 10, and 15 years after treatment in order to gain a perspective on the long-term ecological effects of restoration treatments.

It's testimony to the high standards of the program that this long-term analysis can be done at this point. As more projects adopt standardized monitoring protocols, more such analysis will be possible in the future. One important step in that direction is the establishment of a centralized data repository and a focus on making monitoring data from all projects readily accessible to the public. The New Mexico Forest and Watershed Restoration Institute is currently charged with long-term monitoring of the 20 sites identified by the CFRP subcommittee, and may be positioned to establish a data repository of this kind in the future.

One of the tradeoffs that has surfaced as monitoring projects have been planned and implemented is between education and professionalism. Many projects have integrated monitoring and education by instituting a process through which youth participants collect post-treatment data. The educational value of such a process is genuine, but some observers have pointed out that this

is not the most efficient way to collect data, nor perhaps the most uniform. In response, some projects have in recent years focused on monitoring by professionals. That helps to standardize methods and reduce the need for training. But that may cut out an important component of community-level training, especially of young people who can benefit greatly from participating in project monitoring.

"There will always be incompatibility between community-based monitoring and landscape-level or regional usefulness," says one project coordinator.

There will always be incompatibility, too, between monitoring standards that are appropriate program-wide and those that are exactly right for a particular project. Where possible, it is of course ideal to focus energy and resources on both. But in reality designing a monitoring program often involves tough choices that focus more on needs than on desires, and that ultimately comes down to decisions about budget realities.

Lessons Learned

Develop a standardized monitoring framework upon which those carrying out projects can build their own monitoring protocols. CFRP projects must use six key ecological indicators that are included in the eligibility requirements in the CFRP Request for Proposals. A set of socioeconomic indicators are also recommended in the "Short Guide." Standardization has benefits, such as ready comparison across jurisdictional boundaries—but it has drawbacks, for too much standardization can result in a monitoring program not appropriate to a certain area or project.

Decide early on what the monitoring goals are. If the goal of the project is to educate or engage community members, then community-based or youth group monitoring should be the focus. If the goal is on-the-ground forest restoration, then the core ecological indicators apply. A project with a more specific ecological restoration objective may require more detailed scientific data that relies on professionals or academic data collection.

Collect sufficient pretreatment data. The post-treatment data lack context if they can't be compared to descriptions of earlier conditions.

Make room for qualitative descriptions of what the work has accomplished, not just quantitative. Aesthetics, for example, can be an important element of restoration work, but one not easily captured by such metrics as basal area or trees per acre. So can ecosystem services such as susceptibility to erosion or severe wildfire. The same is true of socioeconomic variables such as the sustainability of local businesses.

Designate a monitoring coordinator and a multiparty team to support that person for each project. The CFRP provides on-the-ground technical assistance to CFRP grantees and grant applicants in the design and implementation of their multiparty monitoring plans.

Develop a centralized home for monitoring data that will allow the information to be made available both quickly and in the long term. The Forest and Watershed Research Institute at New Mexico Highlands University is fulfilling this function for the CFRP. Making monitoring data available online is critical in making it accessible.

Develop feedback loops that allow data collected to quickly be fed back into the planning of future work on a project, or into planning for other projects. Work with local agency personnel to build flexibility and adaptability into NEPA decisions to allow the feedback to be incorporated into the project in a timely manner.

Don't neglect to budget time and/or money for monitoring, data entry, and related tasks into project proposals. Use shortcuts where possible—for example, by buying and using PDAs for data collection.

Train for monitoring through publications, workshops, and other outreach tools.

In Her Own Words: Melissa Savage

I was on the first panel, and served for 3 years. Over that time I realized that although there's some language in the act that mandates assessment, most people didn't have access to the kind of information, either ecological or socioeconomic, that would help them assess the outcomes of their project. So we decided to help get that information to them by putting together some guidelines for monitoring. Early on something appeared that we hadn't expected. There were people at our first large meeting who wanted to track the outcome of restoration treatments on the ground. There were also people interested in community empowerment. They wanted communities to determine what should be monitored. The tension from that helped shape the monitoring protocols. Now the panel won't recommend funding unless you have a good monitoring plan in the proposal.

Following on that, a group of partners put in for a CFRP grant to help offer grantees monitoring assistance, and as part of that we developed the monitoring handbooks. We were trying to compromise between tracking changes in the forests and in communities as a result of restoration grants, and giving communities the capacity to do this. We chose the parameters so communities or anyone could do them, not because they were necessarily the perfect parameters.

Many communities are not interested in developing the capacity for monitoring, either ecological or socioeconomic. I struggled with that for a while before realizing that it wasn't necessary. There's plenty of money in these grants to pay outside professionals to do that. But the collaborators should be able to sit down at a table together with the professional and decide what monitoring choices are meaningful to them. Monitoring protocols can be carried out very well by people in the community, especially by youth groups. They're really good at it. But the design of a monitoring program should be developed by professionals in collaboration with the partners. The main purpose of the monitoring is for collaborators to understand what the results of their restoration work are. Part of the goal of the program was to develop capacity in smaller communities. That hasn't happened as we would have liked it to—a 3-year grant is too short a timeframe. For lower capacity communities, developing and managing monitoring can be overwhelming.

Data management has also proven difficult—keeping track of data, not losing it, and getting it to someone who can analyze it. That's another way monitoring benefits from higher capacity help. And then it's very important to think about what we do with the end result. Typically the final report gets sent in and shelved and not read. The partners should be encouraged to look at the final results and gain some insight into what restoration might mean for their communities and forests. So far it hasn't usually happened that way.

Melissa Savage is a geographer who directs the Four Corners Institute in Santa Fe.

Core Monitoring Indicators

The "Short Guide" published by the Ecological Restoration Institute and New Mexico Forest and Watershed Restoration Institute lists the following 12 key indicators that can be used to help monitor any restoration project. It describes why and how to measure them, includes sample forms that can be copied, and outlines how to budget for and plan a monitoring program.

Socioeconomic Indicators

Number and kind of jobs created *
Skills gained *
Value of wood products
Education and outreach
Distance to work
Community perceptions

Ecological Indicators

Live and dead tree density *
Live and dead tree size *
Crown base height *
Overstory canopy cover *
Understory cover *
Surface fuels *

*Variables marked with * are required to be monitored under current CFRP guidelines. For more information, view the guide at http://www.fs.fed.us/r3/spf/cfrp/monitoring/index.shtml.*

"Early on, monitoring seemed to be for the sake of monitoring. Now there seems to be increased focus on the 'what for?' "

—Gordon West, CFRP grantee

The Big Picture:
Program Infrastructure and Administration

The CFRP is administered by staff within the Forest Service. The team includes three employees within the Forest Service's regional office who are responsible for centralized program administration, and five coordinators who work for each of New Mexico's five national forests, as well as ancillary employees who provide such essential services as the administration of grant payments. The forest coordinators act as advocates, administrators, technical trainers, and liaisons for proposed and granted projects within their parts of the state—not just on national forest land. They help proponents develop project ideas, teach grant writing skills, process payments, and act as a connection to other Forest Service staff, such as district rangers, silviculturists, or other specialists.

The efforts of these Forest Service staff members are critical to the success of the program, but the annual spring panel meetings are arguably the heart of the program. The panel was authorized by Congress and is chartered under the Federal Advisory Committee Act, or FACA, by the Secretary of Agriculture to make recommendations to the Forest Service. Virtually all of the panel's recommendations have been approved and implemented by the Regional Forester. Panel members have pointed to that history of success as vital to their dedication and willingness to serve.

"Maybe I could influence a problem and help people work through it—that creates a willingness to commit to it," says one panel member. "It's well run and it has a philosophy, and if it didn't I don't think I'd commit the time to it."

The panel is made up of 12 to 15 members who represent a range of interests, including Federal and state land management agencies, tribes, industry, environmental groups, independent scientists, and communities. Members serve 2-year terms, and can reapply to serve for up to 6 years. Their work is no small commitment. Members need to assess detailed project proposals by all applicants; during the 2009 session, there were 39 proposals, with an average length of 65 pages each. The deliberations take a full week of workdays that often last 10 hours. Each project has a designated presenter on the panel—a member who has studied it carefully and can present it in detail to the group.

"We need to give due diligence to every project," says one former panel member. "Somebody worked hard on it. That takes time."

The panel meeting is open to the public. Project proponents are not allowed to make presentations, but they can provide clarifications if asked by panel members, or address the panel during scheduled public comment periods. Project proponents listen as their proposals are meticulously dissected. It's a process that proposal writers have called "brutal" and "grueling," and that most view with trepidation.

"The panel process is very thorough," says one project proponent who has been through it a number of times. "You've got to be kind of a masochist, but it's the most open grading process I've ever seen. They work it over. It's truly a good process."

Some proponents have suggested that the panel send more detailed signals ahead of time about how it will decide on its priorities, possibly by including more detail in the annual request for proposals about its strategic priorities. But others appreciate that the RFP doesn't spell out all the panel members' priorities, arguing that this leaves the door open for "out of the box" proposals

Figure 8. The CFRP Technical Advisory Panel for 2008-2009

that could not have been anticipated but that do meet program requirements and fill a genuine need. It is a yearly challenge, when the Forest Service CFRP staff writes its RFP, to ensure that the tension between providing too much detail in the RFP and too little is creative rather than simply confusing.

The panel develops its recommendations using a consensus-based process, not by voting. Early on, some panel members would dig in their heels and take a strong and uncompromising stance. "I want this on the record!" they'd say of a particular criticism, perhaps more concerned about staking out a political position than with working to shape proposals as effectively as possible. But over time panel members have learned to compromise, to be willing to alter their own preconceptions about what makes a project worthwhile. One panel member said he came onto the panel believing that he had to represent certain interests, as on a voting panel, and only came to learn over time that he needed to assess every proposal with the same skepticism and curiosity. As a result, panel members engage in frank discussions on all aspects of a proposal's strengths and weaknesses, and often change their minds as they learn about and come to understand the perspectives of other panel members.

Perhaps the most powerful lesson of the panel is that its members have always reached consensus by thoroughly evaluating each proposal using a process that values diverse points of view. Panel members do not just dictate that project proponents include elements of consensus and collaboration; they model that behavior for all project proponents to see. That helps to filter a philosophy of consensus throughout the program. When writers of failed proposals see their project's weaknesses specifically listed, those who will succeed in the following year are often those who collaborate to address those weaknesses—often by reaching out to new project partners.

The weeklong panel meeting is not the only occasion for fostering the program's "social capital"—the intangible but real benefits that result from an investment of time and energy in one another. Panel members also agree in their bylaws to support the recommendations of the panel when they return to their homes and interest groups. Another opportunity to build the program's "social capital" comes at the annual workshop, which is held in January and provides active and potential grantees and agency personnel a chance to learn from one another. The workshop typically features 3 days of presentations and project reports that, in the aggregate, provide a well rounded overview of the entire program. CFRP grantees are required to attend the annual workshop as a condition of their grant award.

"The annual (workshop) is CFRP 101," says one program veteran. "When you're a new person and have no idea what to expect, you learn an awful lot."

Some of that learning comes in a highly directed way, as forest CFRP coordinators and officials familiar with NEPA give presentations, or as particular topics such as workers' compensation or marketing issues are discussed. But many participants say that the more important learning takes place informally, through peer-to-peer networking and brainstorming. It's a good example of how investing in social capital—in this case, in organizers providing a meeting opportunity, and in participants taking the time to attend the workshop—provides benefits that really can't be planned in advance.

Lessons Learned

Funding for any program like CFRP needs to be noncompetitive with other agency needs. Especially as emergency firefighting costs continue to rise, funding needs to be specifically dedicated so that there's no risk funds will be siphoned off for other purposes.

Build a diverse panel whose members have identified and diverse skill sets, such as business acumen. Proposals need to be judged on numerous qualities, and assessing them requires experts from an array of fields who are willing to learn. Panel members must have standing and be respected in their fields, so that they can advocate for and support the panel's collaborative decisionmaking process and recommendations when they return home.

Respect and adopt the recommendations of the review panel, recognizing that not doing so would undermine the collaborative process.

Allow for flexibility in the proposal review process. The CFRP has refined the Request for Proposals each year in response to panel recommendations, leading to a continual improvement in the quality of proposals and program effectiveness.

Use advisory panel meetings and annual workshops as opportunities for learning. Potential project proponents, potential panel members, and involved agency officials should all plan to attend a panel meeting and/or annual workshop before they become involved, so that they can get a sense of what the program is about, and how decisions are made.

Conduct panel meetings and workshops professionally. Professional facilitation of these meetings, by specialists with no stake in a particular outcome, has helped them to run smoothly.

Require CFRP grantees to attend an annual workshop to share lessons learned and network among project partners.

Be clear in RFPs about what the panel wants—but don't be too restrictive. It's important to think strategically and even to capitalize on current issues and concerns, especially regarding large-scale issues such as cross-jurisdictional landscape-scale planning, climate change, and creating sustainable local employment. Be open to new, innovative and unanticipated ideas and proposals.

Ensure that planners spend time in the field. Regional office staff, field coordinators, and even planners for some individual projects are often over committed to office work, but there are great payoffs to spending even small amounts of time in the field with project partners.

In His Own Words: Walter Dunn

I was a Peace Corps volunteer in Latin America. That formed a lot of my philosophy in working with communities and resolving conflicts in areas with great disparities in wealth. When I went back to visit projects, what led to their success or failure was more the durability of their partnerships than technical decisions such as spacing of the trees. As a natural resource manager, that was quite a surprise to me. A lot of the concepts in the CFRP were originally developed around the world—if you want communities to be involved in and take ownership of natural resource issues, they have to be involved in planning and implementing them. CFRP grantees are extremely unlikely to damage the resource because of the ownership factor.

The grant period is a time to experiment and take some risks. The good projects then seek their own direction—they're able to adapt in a way that fits the resources that are available. That's the idea of Federal grants, to try out new ideas that would be unlikely to attract support from the usual funders. The question is, of the successful projects that have proven they can be selfsufficient, how many have been replicated by someone else who sees it and says, hey, I want to do that? That's the true measure of success.

It's surprised me how strong the support for the program has been from above. The CFRP is a big departure from the world of contracts, where the agency decides what to do and hires someone to do it. The Forest Service has not traditionally been an organization that used Federal grants much. I get frustrated with it sometimes, but this is just like any model of change in a big organization.

Walter Dunn is program manager for the CFRP.

> ***"You have to have a group of people who imbue the program with a philosophy and carry it through"***
>
> ***—Rick DeIaco, former technical advisory panel member and CRFP project coordinator***

About This Report

This report was compiled from comments made during two 1-day workshops, the first held in Santa Fe in January 2009, at the close of the annual CFRP workshop, and the second with a smaller group that was held in Albuquerque that May. Attendees included Forest Service officials, technical advisory panel members, and participants in numerous past and ongoing CFRP projects. During both workshops facilitated discussions focused on the successes and challenges of the program, as well as on recommendations that might be of use to planners of similar programs.

Research for the report was also culled from the following written sources:

- The New Mexico Forest Restoration Series of working papers published by the New Mexico Forest and Watershed Restoration Institute (http://www.nmfwri.org/restoration-papers)
- Monitoring guidebooks and reports published by the Northern Arizona University Ecological Restoration Institute and the New Mexico Forest and Watershed Restoration Institute (http://www.nmfwri.org/collaborative-forest-restoration-program)
- An assessment report on the entire CFRP prepared by a national assessment team in 2005 (http://www.fs.fed.us/r3/spf/cfrp/monitoring/pdf/mp-assess-122005.pdf)
- CFRP Technical Advisory Panel Multiparty Assessment Subcommittee Findings and Recommendations Report (August 5-6, 2008)

In addition, personal interviews with CFRP officials, panel members, and participants involved in CFRP-funded projects were essential in completing the research.

The report was written by freelance journalist Peter Friederici, with assistance by Larry Fisher, U.S. Institute for Environmental Conflict Resolution, Rosemary Romero, Romero Consulting, Rob Williams, Meridian Institute, and Walter Dunn, USDA Forest Service.

Participants:

Lessons Learned Workshop, May 11, 2009, Albuquerque, New Mexico

Bob Berrens	University of New Mexico
Bryan Bird	Wild Earth Guardians
Anne Bradley	The Nature Conservancy
Abel Camarena	Isleta Pueblo
Carl Colonius	Rocky Mountain Youth Corps
Rick DeIaco	Village of Ruidoso
Michael Deubel	Gila Area Restoration and Thinning
Roberta Deubel	Gila Area Restoration and Thinning
Walter Dunn	USDA Forest Service
Larry Fisher	U.S. Institute for Environmental Conflict Resolution
Ian Fox	USDA Forest Service
Peter Friederici	Freelance journalist

John Harrington	New Mexico State University
Eytan Krasilowski	Forest Guild
Delfinia Montano	U.S. Fish and Wildlife Service
Reuben Montes	USDA Forest Service
Jerry Payne	USDA Forest Service
Ignacio Peralta	USDA Forest Service
Brent Racher	Restoration Solutions, LLC
Kent Reid	New Mexico Forest and Watershed Restoration Institute
Rosemary Romero	Romero Consulting
Melissa Savage	Four Corners Institute
Julia Vasquez	La Lama Community
Gilbert Vigil	Pueblo of Tesuque
Ann Watson	Santo Domingo Tribe
Gordon West	Gila WoodNet
Rob Williams	Meridian Institute

CFRP Annual Workshop/Lessons Learned Open Space Workshop, January 29, 2009, Santa Fe, New Mexico

Mila Allen	Mt. Taylor Millwork, Inc./Mt. Taylor Machine LLC
Arturo Archuleta	NCWMEDD/MLECT
Phil Archuleta	P&M Plastics, Inc.
Glen Barrow	SBS Wood Shavings
Sherry Barrow	SBS Wood Shavings
Bryan Bird	Wild Earth Guardians
Don Bright	USDA Forest Service
Gail Campbell	Alamo Navajo School Board
Cody Deines	Silver Dollar Racing & Shavings
Kathy Deines	Silver Dollar Racing & Shavings
Roberta Dembel	Alternative Forestry Unlimited
Tori Derr	Crane Collaborations
Walter Dunn	USDA Forest Service
Bill Ferranti	Alamo Navajo School Board
Ian Fox	USDA Forest Service
Jerry Payne	USDA Forest Service
Peter Friederici	Freelance journalist
Glenn Griffin	Gila Tree Thinners
Patrick Griego	Griego Logging LLC

Sterling Grogan	Biophilia Foundation
Mike Henio	Ramah Navajo Chapter
Jan-Willem Jansens	Earth Works Institute
Tom Jervis	National Audobon Society
Eytan Krasilovsky	Forest Guild
Ellis Margolis	University of Arizona
Katherine Mattor	Colorado State University
Linda Middleton	Alamo Navajo School Board
Gabriel Montes	Bosque Carpentry
Jeff Morton	Santo Domingo Pueblo
Yolanda Nava	National Hispanic Cultural Center
David Old	Old Wood LLC
Shiloh Old	Old Wood LLC
Ignacio Peralta	USDA Forest Service
Jennifer Pratt Miles	Meridian Institute
Rosemary Romero	Romero Consulting
Alicia San Gil	USDA Forest Service
Juan Sanchez	Chilili Land Grant
Clint Sando	Sandia Pueblo
Nathan Schroeder	Pueblo of Santa Ana
Todd Schulke	Center for Biological Diversity
Terrell Treat	State of New Mexico
John Ussery	Las Comunidades
Gilbert Vigil	Pueblo of Tesuque
Edward Wallhagen	Ramah Navajo Chapter
David Warnack	USDA Forest Service
Ann Watson	Santo Domingo Tribe
Gordon West	Gila WoodNet
Rob Williams	Meridian Institute
Gina Wolff	Pueblo of Tesuque