Exploring Barriers to collaborative forestry

Report from a workshop held at Hart Prairie, Flagstaff, Arizona September 17–19, 2003

sponsored by

Ecological Restoration Institute Society of American Foresters Pinchot Institute for Conservation American Forests





The Ecological Restoration Institute

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

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report compiled and edited by

Ann Moote and Dennis Becker

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	ERI Papers in Restoration Policy –
	Entrupers in restoration roney
Successful workshops don't just happen—they result from enthusiasm of many people. Heartfelt thanks to the conceaders who gave their time and shared their experience special thanks to Karen Gilbreath and Patty Kohany for leave everything went smoothly, and to Joel Viers for production.	ollaborative forestry s at this workshop. Ogistics and making
Cover photo by Joel Viers, ERI; workshop photos by Bonnie	e Stevens, ERI.

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Introduction

In September 2003, representatives of local collaborative forestry groups from across the western United States joined national policy experts to explore a situation affecting many, if not most, collaborative forestry groups in the West:

Collaborative forestry groups are not achieving their land management goals at the rate and scale they had anticipated, with the result that both agency and non-agency collaborators are experiencing frustration and burnout.

In fact, some of the pioneering collaborative forestry groups are in danger of disbanding. The goal of the *Barriers to Collaborative Forestry* workshop was to examine national policies and other factors that may be hampering project implementation and to suggest changes to help collaborative forestry groups move forward.

Overall, workshop participants agreed that frustration and burnout in collaborative forestry is a result of several important and interrelated factors. First, the anticipation of unrealistic outcomes for collaborative efforts has created expectations that have not been fulfilled. Second, inconsistent commitment, participation, and support of collaboratives within the federal land management agencies have made it difficult for collaborative efforts to succeed. Finally, collaborative group participants may lack the capacity or experience to deliver outcomes.

Workshop process

The workshop participants were a diverse group of practitioners, all with five or more years experience in a collaborative forestry group or in national forest policy development. The group worked as a whole to identify key barriers to collaborative forestry and worked individually or in small groups to develop recommendations for consideration by Congress, land management agencies, and others involved in collaborative forestry. There was no effort to prioritize or work toward consensus on the recommendations in this document. In many cases there was broad support for recommendations, but in other instances there were differing or even conflicting suggestions. Hence, participation in the workshop does not constitute an endorsement of, or agreement with, the identified recommendations. The full range of suggestions is provided to promote and stimulate further discussion; future action will require that recommendations be refined and prioritized. More dialogue is also needed to explore areas of disagreement and develop consistent solutions.

Key barriers to collaborative forestry

Prior to the workshop, participants were interviewed and a list of barriers was compiled based on participants' own experiences with collaboration. At the beginning of the workshop, the group examined these barriers as well as those previously identified in policy analysis documents and at other workshops on collaborative forestry issues¹. Working from this common knowledge base, the group identified the following as the most problematic issues for collaborative groups working on forest restoration:

- 1. Inconsistent and unrealistic expectations of collaboration, and lack of criteria for measuring the effectiveness of collaboration, lead to unfair criticism of collaborative efforts, accusations of failure, and both participant and agency burnout.
- 2. Government agencies' policies, procedures, and cultures limit their ability to engage in collaborative efforts.
- 3. NEPA analyses, ESA consultations, appeals, and lawsuits can delay projects for years and stop some altogether.
- 4. Funding for forest restoration projects is inadequate and unreliable.
- 5. Newer, more flexible contracting authorities are not well understood nor consistently used.
- 6. Collaborative forestry groups commonly lack funding for day-to-day program administration, capacity building, project planning and administration, staff time, education, and monitoring.
- 7. Intensive local economic development is needed to build industrial capacity for forest restoration.
- 8. There is a lack of commitment to and a lack of resources for monitoring.

Since the workshop was designed to focus on policy barriers, it was a surprise that the two issues the group felt most strongly about were neither legal nor regulatory issues, but 1) lack of agreement on appropriate expectations of collaborative forestry, and 2) Forest Service culture as a significant obstacle to collaboration. These were the issues participants most wanted to discuss, and also the areas of greatest disagreement. All of the problems and recommendations for action are important national policy issues and warrant further discussion.

¹ Moote, Ann and Andrea Bedell Loucks. 2003. *Policy Challenges for Collaborative Forestry: A Summary of Previous Findings and Suggestions*. Ecological Restoration Institute, Flagstaff, Arizona and Pinchot Institute for Conservation, Washington, D.C.; 13 pages.

Inconsistent and unrealistic expectations of collaboration, and lack of criteria for measuring the effectiveness of collaboration, lead to unfair criticism of collaborative efforts, accusations of failure, and both participant and agency burnout.

Expectations of collaboration vary widely. Some people, including many agency personnel, believe that collaboration is a process of collecting information, building support for proposed actions, and public education—but not necessarily using partner expertise to assist in making decisions. Others, most commonly non-agency partners, perceive collaboration as a shared decisionmaking process among diverse interests. In the words of one participant, "Agencies say 'collaboration' but mean 'consultation.' Meanwhile, [collaborative group participants] expect to assist in identifying the alternatives, not just advise."

Some agency personnel enter into collaborative partnerships expecting that collaboration will increase management efficiency and reduce appeals and litigation. Yet many collaborative group participants do not share this goal; instead, they advocate for collaboration as a source of innovation and joint problem-solving whereby people with different perspectives, experiences, and information formulate new resource management alternatives.

There are conflicting expectations regarding the appropriate scope of collaboration as well. Some strongly believe that collaboration should be project-specific, and that collaborative groups should disband once their project has been implemented. Others see collaboration as a new way of doing business that should permeate every aspect of land management.

Finally, there are differing expectations of the roles of agency and non-agency partners, and of collaborative groups themselves. The "agency treats collaboratives as single interest groups, when they actually represent multiple interests who are working together," said one participant. Some collaborative forestry leaders believe agency personnel should "sit at the table" as one of many interests; others think agencies should be required to implement projects agreed to by a collaborative group. Collaborative group participants may erroneously assume that agency partners will relinquish significant decisionmaking authority, which can lead to additional conflict and a breakdown of the process.

These differing expectations and a lack of agreed-upon outcomes and performance measures lead to variable assessments of effectiveness, and create tensions between agencies and collaborative groups.

Recommendations for both Congress and agencies

- **1.1** Experiment with new approaches to collaborative forest restoration.
 - Experiment with specific policies that affect collaborative efforts by having agencies test new approaches for a specified time period and monitoring their effectiveness. Monitoring should include measurement of both desired and unintended consequences.
 - Seek opportunities to implement collaboration at a landscape scale, coupled with experimentation, adaptive management, and policy monitoring.
 - Experiment with mechanisms that allow for mutually beneficial, binding agreements among collaborative partners, to improve accountability from all participating partners—including partner agencies.
 - Develop rules or agreements to improve partners' participation in the collaborative process, implementation of agreed-upon projects, and accomplishment of desired outcomes.
 - Provide legal authority for experimental mechanisms so that they can be fully implemented and tested. Such authority should not exclude participation of any interested stakeholder in the decisionmaking process.



Recommendations for land management agencies

- **1.2** Increase support for collaborative forest restoration efforts.
 - Formally recognize collaborative groups and partners.
 - Maximize the likelihood of success by adequately funding agency participants and collaborative processes for the duration of the collaborative effort or project, to help promote favorable policy and support future collaborative initiatives.
 - Designate specific agency line officers and Washington Office staff to work with collaborative groups and provide formal training in the techniques of collaboration.
 - Demonstrate good faith by seeking to implement projects as they were agreed to among community and agency partners.
 - Implement projects in a timely fashion to motivate partners to continue working together.

Recommendations for all involved in collaborative forestry_

- **1.3** Clarify and document expectations and desired outcomes of collaborative forestry efforts, both in general terms and within each individual collaborative group process or initiative.
 - At the outset of a project, formally identify common misconceptions and potentially unrealistic expectations about collaboration. Address the question, "what can the agency expect to get from this collaboration, and what can other partners expect to get in return?"
 - Facilitate communication between collaborative groups and partner agencies to help them articulate expectations of each other and of the collaborative process. Make expectations explicit, formalize them, and be sure all partners understand the expectations of the entire group at the outset of the process.
 - Help community partners understand agency parameters, such as legal constraints on the commitments an agency can make and the competing demands they must consider.
 - Help agencies understand community perspectives on constraints that may not be legal, but rather part of agency culture or administrative practice.
 - Periodically revisit and review partner expectations of each other and of the collaborative process.

- **1.4** Document and learn from successes and failures, and use the lessons learned to develop best management practices for collaborative forest restoration.
 - Identify mechanisms and techniques for improving collaboration in an adaptive management framework.
 - Identify and enforce mechanisms to improve accountability from all participating partners, including partner agencies. For instance, develop rules or agreements to improve partners' participation in the collaborative process, implementation of agreed-upon projects, and accomplishment of desired outcomes.
 - Create and circulate a general checklist of performance measures or best management practices for collaboration, identified from both practice and research.
 - Collect baseline monitoring data to accurately evaluate collaborative accomplishments.
 - Host annual "lessons learned" workshops among collaborative forestry groups to celebrate and learn from innovative and successful collaborative efforts. Publish a list of annual accomplishments for each collaborative for wide distribution.

Government agencies policies, procedures, and cultures limit their ability to engage in collaborative efforts.

Acceptance of collaboration varies among different land and resource management agencies as well as among departments and individuals within the same agency. Some policies and procedures are widely perceived to limit employees' ability to engage in collaboration. Many agency employees see collaboration as an inappropriate or inefficient use of their time, and in some cases agency staffers are suspected of using existing procedures as an excuse to justify non-participation in collaborative partnerships. On the other hand, many agency employees effectively collaborate despite agency cultures and policies.

Collaborative groups perceive barriers when agencies limit the discretion of local field staffers or discourage innovation. Under these circumstances, collaboration is a "hard sell" to agency personnel who forsee a considerable increase in workload for limited benefits or suspect they may lose control over the process.

The Bureau of Land Management is frequently identified as an agency that encourages both innovation and collaboration and that has effectively delegated decisionmaking authority to the local level, while the Forest Service is found less responsive to collaborative groups. Forest Service personnel are often said to be reluctant to try out new ideas, perhaps because they do not understand the extent of their discretion under new laws and policies or lack the resources to acquire appropriate training and experience. Yet even within the Forest Service specific forest supervisors, line officers, and contracting officers have been identified as exemplary collaborative partners. In both land management agencies, personnel changes and transfers affect continuity within local collaborative efforts, which reduces institutional memory.

Recommendations for Congress

2.1 Provide agencies resources that allow them to hire additional staff to participate in collaboratives (e.g., contracting officers, line officers, NEPA experts).

Recommendations for land management agencies

- **2.2** Give agency personnel meaningful incentives to collaborate, and support agency personnel in their collaborative endeavors.
 - Institute a national award program to recognize innovative collaborators.

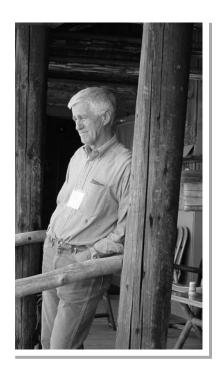
- Include measures of collaboration in agency employee performance evaluations to provide incentives for personnel to engage in collaborative efforts. Base measures, in part, on local collaborative groups' evaluations of agency personnel.
- Reward project implementation and completion, not just completion of the planning process.
- Include collaboration in the program of work for all field personnel.
- **2.3** Provide professional training in the techniques of collaboration to Forest Service personnel and collaborative partners.
 - Provide training in collaborative techniques to all forest- and district-level personnel and specific regional and Washington Office personnel involved in collaboration.
 - Incorporate agency training on collaboration into the existing mandatory training sessions that are held in each region.
 - Facilitate cross-training among land management agencies so that they can share lessons learned on working with community partners.
 - Train community partners in techniques for collaborating with agencies.
- **2.4** Restructure Forest Service priorities and functions to improve efficiency and increase local decisionmaking authority relative to current public participation and decisionmaking processes.
 - Empower district rangers to make project decisions in a transparent and open process, with clear information channels.
 - Provide line officers incentives to remain in one location (such as the ability to be promoted/upgraded without changing location), to reduce the effects of employee turnover on collaborative efforts.
 - Identify ways to decentralize Forest Service decisionmaking.
 - Provide regional and national interest groups greater opportunity to participate in the process, such as cooperating agency status.
 - Explore the implementation of new organizational models for the Forest Service. Begin by examining how the Bureau of Land Management collaborates with community partners.
 - Experiment with restructuring agency functions after the Incident Command System, which is perceived as an efficient and effective interagency response system.

National Environmental Policy Act (NEPA) analyses, Endangered Species Act (ESA) consultations, appeals, and lawsuits can delay projects for years and stop some altogether.

Inadequate environmental assessments and environmental impact studies are vulnerable to appeals. To reduce the likelihood of appeals, line officers often focus their efforts on extensive data gathering, which is time-consuming and is rarely the top priority of national forest system staff. At the same time, agencies

are suffering declining staff and budgets, with the result that many land management units lack staff with necessary expertise in NEPA analysis. From the perspective of some collaborative groups, more data gathering is unlikely to reduce the likelihood of appeals.

There is a belief that appeals are, in part, a result of a lack of collaboration throughout the decisionmaking process, particularly in the development of alternatives. Because of a perception that agency planners do not adequately consider their concerns, stakeholders may feel that the only way they can influence or otherwise be a part of agency decisionmaking is by appeals or litigation. However, when appeals are used by groups—especially groups from outside the area—who do not participate in earlier public involvement processes (e.g., scoping, comment periods), the appellants are considered to be abusing the appeals process.



Recommendations for Congress

- **3.1** Encourage agencies to expand the role of collaborative groups in NEPA analyses by directing them to involve collaborative partners in the analysis of alternatives prior to selection of a preferred alternative.
- **3.2** Designate a federal court, modeled after state water courts, to handle all NEPA-related cases. Require judges and staff members to have expertise in environmental law and experience and/or academic training related to natural resources.

Recommendations for land management agencies_

- **3.3** Provide (fund) adequately trained staff and resources to carry out quality NEPA work.
- **3.4** Establish NEPA analyses as a high staff priority within land management agencies.
 - Create "hot-shot" NEPA review teams or fund paralegals and attorneys with NEPA expertise to work with Interdisciplinary (ID) teams on highprofile, complex projects.
 - Establish dedicated NEPA teams for each forest or district that have as a top priority completion of NEPA analyses.
 - Dedicate individuals to work solely on NEPA analyses who cannot be called on for fire detail or other projects. Fire assignments significantly impede NEPA planning, which further strains collaborative partnerships and delays project implementation.
 - Require agency managers to pursue continuing education on conducting effective NEPA analyses.

Funding for forest restoration projects is inadequate and unreliable.

A disconnect exists between agency funding for restoration projects and their stated importance. As currently administered, forest restoration will not pay for itself. National Fire Plan funding has been beneficial, but specific funding does not exist for forest restoration projects, nor are resources designated for project planning and implementation. Project implementation can also be slowed or canceled by budget cuts and freezes, or by competing agency priorities—particularly fire suppression.

In addition, the Forest Service lacks a clear definition of measured outputs that correlate with forest restoration. Ecosystem management and restoration are discussed extensively, but priorities reflect target outputs, such as volume of products, miles of road maintained, or recreation visitor-days. Using acres treated as a measure of forest restoration is an improvement, but additional measures are needed to reflect improvements in watersheds, wildlife, and other important contributions to forest health. Such measures are needed to ensure that funding designated for restoration is actually being used on restoration.

Recommendations for Congress

- **4.1** Establish a budget line-item or special fund for forest restoration efforts.
 - Appropriate funding for restoration at a rate comparable to that appropriated for fire suppression.
 - Establish a trust fund from dedicated forest restoration payments paid from stewardship contracts and timber contracts.
- **4.2** Adequately fund fire suppression efforts so that other high-priority forest restoration activities are not foregone.

Recommendations for all involved in collaborative forestry

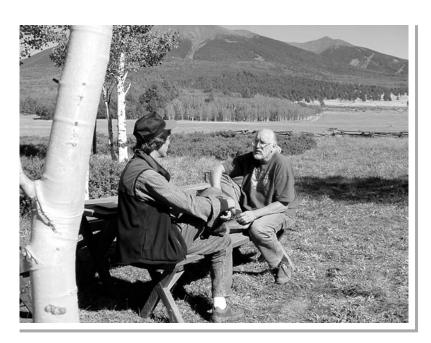
4.3 Develop a widely accepted definition of forest restoration among collaborative forestry groups, land management agencies, professional societies, and university scientists that is understood by members of Congress and can be used to secure congressional funding.

- Specify and describe the relationship between forest restoration and its related activities. Related activities may include habitat improvement (aquatic, terrestrial, atmospheric), watershed restoration, fuels reduction, post-fire rehabilitation, collaboration, community capacity-building through economic development, training, education, outreach, and public involvement.
- To build a coalition of interest groups that support forest restoration, define restoration in a way that will appeal to political constituents in urban centers who are concerned with water quality, forest recreation, wildlife habitat, and other environmental priorities.

Newer, more flexible contracting authorities are not well understood nor consistently used.

The use, interpretation, and implementation of new stewardship contracting authorities vary widely from region to region and among national forest districts. Community partners are frustrated by the lack of agreement among contracting officers, between districts, and among local, regional, and national offices about the appropriate use and legality of new authorities. Many contracting officers are uncomfortable with the new authorities and are reluctant to exercise their discretion because they fear that they will be held legally responsible for unexpected outcomes.

In some cases, contracting officers may be unwittingly limiting capacity for restoration activities. For example, local collaborative groups need small-scale projects to gain experience, establish rapport among partners, and demonstrate initial success, but contracting staff may be reluctant to implement small-scale projects because they are more expensive to administer. Similarly, contracting officers are often unwilling to use the multi-year contracting authority without dedicated funding available for out-years, while contractors and financial institutions are reluctant to make large investments in new equipment or personnel when contracts cannot be secured for five or more years.



Recommendations for both Congress and agencies

- **5.1** Identify mechanisms to encourage contracting staff and line officers to use their assigned discretion in using contracting authorities.
 - Protect agency staff from financial and legal liability when using contracting authorities in good faith and within assigned agency discretion.
 - Establish clear and consistent interpretation of legal discretion for contracting officers.

Recommendations for land management agencies

- **5.2** Provide formal guidance and training to improve understanding and consistent use of contracting authorities.
 - Continue to provide specialized agency training to contracting officers on both forest restoration and the use of related contracting authorities.
 - Extend training on new contracting authorities to all agency staff.
 - Extend training on new contracting authorities to community partners.
 - Sponsor joint regional training sessions for agency contracting officers and community partners, to establish consistent interpretation, use, and implementation of contracting authorities used in forest restoration.
- **5.3** Provide accountability within new contracting authorities by establishing agency protocols for contracting oversight, spot checks, and monitoring. Establish a tracking system to report problems and to communicate changes.

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Collaborative forestry groups commonly lack funding for day-to-day program administration, capacity building, project planning and administration, staff time, education, and monitoring.

It is difficult to identify consistent sources of funding for day-to-day collaborative functions. Most funding is project-specific and tied to vegetation management targets. Additional means are needed to strengthen funding for collaboratives from both the public and private sectors.

Contract and grant dollars are also not being distributed in a timely manner. This inhibits the ability of contractors to stay in business, which affects forest restoration efforts and leads to a loss of trust between agencies and community partners. The Forest Service payment system, in particular, is lengthy and is plagued by delay. Requests for reimbursement begin at the district level, then must pass through the forest and/or regional office before they are received in the National Finance Center for final processing. Most grants are paid on a cost-reimbursable basis, which forces non-profit organizations to borrow money to cover interim costs.

Recommendations for Congress

- **6.1** Expand the New Mexico Collaborative Forest Restoration Program (CFRP), which provides \$5 million per year to community forestry efforts in New Mexico, to other states interested in forest restoration.
 - Institute state-by-state implementation of the CFRP, with strong state involvement directed by the State and Private Forestry section of the Forest Service.
 - Make funds available for the full suite of restoration activities, including fuels reduction, planning, monitoring, collaboration, and economic development.
 - Allocate funds for multiple years to ensure adequate implementation.
- **6.2** Identify mechanisms for consistent funding of collaborative efforts.



- Experiment with requiring contractors to contribute a percentage of profits received from forest restoration activities to collaborative efforts. Provide economic safeguards for contractors. Link contributions to harvest levels, or provide them at a constant level similar to how schools collect payments in lieu of taxes.
- Create a trust fund with contributions from companies and agencies performing forest restoration activities.

Recommendations for land management agencies

- **6.3** Reform federal regulations requiring matching funds for grants.
 - Explore options for expanding the range of collaborative group activities that can be used as in-kind matches for federal grants.
 - Use "challenge grants" from private foundations as a match for federal programs.
 - Establish a sliding scale for federal grant match requirements, based on income indicators or type of service provided.
- **6.4** Expedite contractor payment for forest restoration work.
 - Request that agency chief financial officers develop methods to streamline the payment process and ensure timely contractor payment.
 - Require agency payment immediately when it is received in the National Finance Center (NFC), rather than 30-days payable from the point that it ultimately reaches the NFC.

Recommendations for all involved in collaborative forestry

- **6.5** Elicit funding from private foundations.
 - Define restoration more broadly, to include issues that are important to private foundations.
 - Encourage agencies to work with foundations to coordinate funding or develop collaborative funding programs.
 - Work with community foundations to fund specific elements of forest restoration projects.

Intensive local economic development is needed to build industrial capacity for forest restoration.

The wood products industry in the western United States lacks the ability to carry out large-scale restoration projects. The infrastructure to process small-diameter and underutilized trees generally does not exist, or is economically infeasible given low product values. In many regions, the lack of a consistent timber supply from public lands hinders contractors' ability to invest in the necessary equipment. There is a concern that collaborative processes do not adequately address issues of supply or infrastructure development because they focus on restoration projects too small in scale to make a difference to landscape problems. Some also criticize the wood products industry for being slow to adapt to the available forest resources while continuing to seek material conducive to traditional products manufactured from larger-diameter trees.

Without significant increases in infrastructure, collaborative restoration efforts will continue to be limited to economically marginal, small-scale projects, potentially leading to additional loss of capacity and a decline in collaborative efforts. For restoration efforts to be effective, not only will economically viable products be required from small-diameter trees, but investment will also be needed to build, retain, and retool the wood products industry.

Economic development is needed for small-, medium-, and large-scale enterprises. Small enterprises are important for their ability to capitalize on value-added opportunities for niche markets and provide direct community links. Medium-scale enterprises are needed to develop approaches to larger-scale treatments and processing activities that provide a consistent source of jobs while maintaining clear attachments to rural communities. Larger-scale enterprises are needed for large-scale treatments across the landscape.

Finally, the requirements and timing of some contracts make projects economically untenable. There is a general lack of understanding of both how national and international markets influence the development of value-added products and how the timing and specifications of contracts influences investor profitability.

Recommendations for Congress

7.1 Implement mechanisms to increase investment in and support for small business development.

- Establish new Small Business Administration micro-business set-asides.
- Pursue small-scale, community-biomass-energy development as part of emerging national renewable energy policy.
- Seek to include community-based-enterprise language in future congressional bills.
- Create blue-ribbon committees for business development for small-diameter wood utilization.
- Initiate a pilot program that provides competitive grants to local wood product businesses in areas with high priority for fire hazard reduction and forest restoration. Convene a panel of business, manufacturing, and community-development specialists to work with selected enterprises.
- **7.2** Increase congressional oversight of trade practices to protect local industry from global markets.

Recommendations for land management agencies_

- **7.3** Increase regional discretion within the agencies so that regional line officers can offer consistent forest access and supply.
 - Explore ways to provide increased assurance of forest access and supply to facilitate financial investment, contractor capacity-building, and economic development.
 - Establish regional protocols for coordinating the timing of timber harvest among federal and state agencies, tribes, and private landowners.
 - Create amortization schedules that provide contractor safeguards for supply commitments.
- **7.4** Expand the use of designation-by-description contracting, whereby contracting officers describe desired end conditions and allow operators to select appropriate equipment and techniques—with agency and community oversight.
- **7.5** Ask agency research stations to assess federal rural development programs for small-diameter wood utilization and market development.
 - Assess progress and accomplishments of associated rural-development programs and establish regional investment priorities.
 - Evaluate community-based, small-diameter wood utilization and marketing enterprises and continue to facilitate technology transfer among community groups.

There is a lack of commitment to and a lack of resources for monitoring.

Project monitoring is necessary for a variety of reasons. Included among them are building trust among partners, establishing accountability, increasing understanding of the effects of restoration actions, measuring change, supporting adaptive management processes, and setting a course for future management actions. There is no single approach to monitoring that can be used in every situation. Regardless of the type, monitoring can be used to make information available to a variety of stakeholders. Types of monitoring may include:

- compliance monitoring—measures the degree to which we did what we said we would do;
- effectiveness monitoring—assesses the degree to which actions resulted in intended results;
- trend monitoring—discerns patterns from our actions; and
- research monitoring—isolates how certain actions influence particular aspects of a system.

For a number of reasons, agencies and collaborative groups alike tend to make monitoring their last priority. There is uncertainty over what to monitor and how to measure impacts. Monitoring often requires intensive investments of time and money in return for unknown results. Few projects or programs have consistent funding for data collection and analysis, and most lack the staff expertise or availability required to be effective. Project leaders, in particular, may fear that the results of monitoring will affect their management strategies, expose mistakes, or demand accountability for past actions. Finally, the amount of time required for monitoring often does not match funding or project timelines, which further undermines adaptive management goals.

Recommendations for both Congress and agencies

- **8.1** Provide adequate funding to support monitoring activities.
 - Establish a trust fund for project monitoring, with contributions based on harvest receipts or provided at a constant level similar to how schools collect payments in lieu of taxes.
 - Create a budget line item for forest restoration monitoring.

Recommendations for land management agencies_

- **8.2** Make monitoring mandatory on all agency restoration projects, and provide adequate funding to support monitoring activities.
 - Require the development of a monitoring plan prior to allowing project implementation.
 - Provide agency funding for ongoing monitoring in each project.
 - Seek funding from contractors and the wood products industry for monitoring.

Recommendations for all involved in collaborative forestry_

- **8.3** Develop standardized monitoring protocols through a coordinated effort among research institutions, agencies, industry, and non-governmental organizations.
 - Establish monitoring protocols for involving local community partners in data collection and analyses, as directed by regional scientists and experts.
 - Require a minimum standard of monitoring for all agency restoration projects, but allow agency discretion in determining the monitoring approach to be used (e.g., multiparty, unilateral).
 - Design monitoring protocols in concert with regional interests and expertise.
 - Provide full access to monitoring information via a centralized data system.
- **8.4** Provide incentives to conduct monitoring.
 - Seek adequate agency funding to support research stations in reviewing, analyzing, and publishing monitoring information.
 - Identify incentives that increase communication and sharing of monitoring information.
 - Recognize and reward state-of-the-art monitoring programs and techniques used by collaborative groups, research institutions, agencies, industry, professional societies, and non-governmental organizations.

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