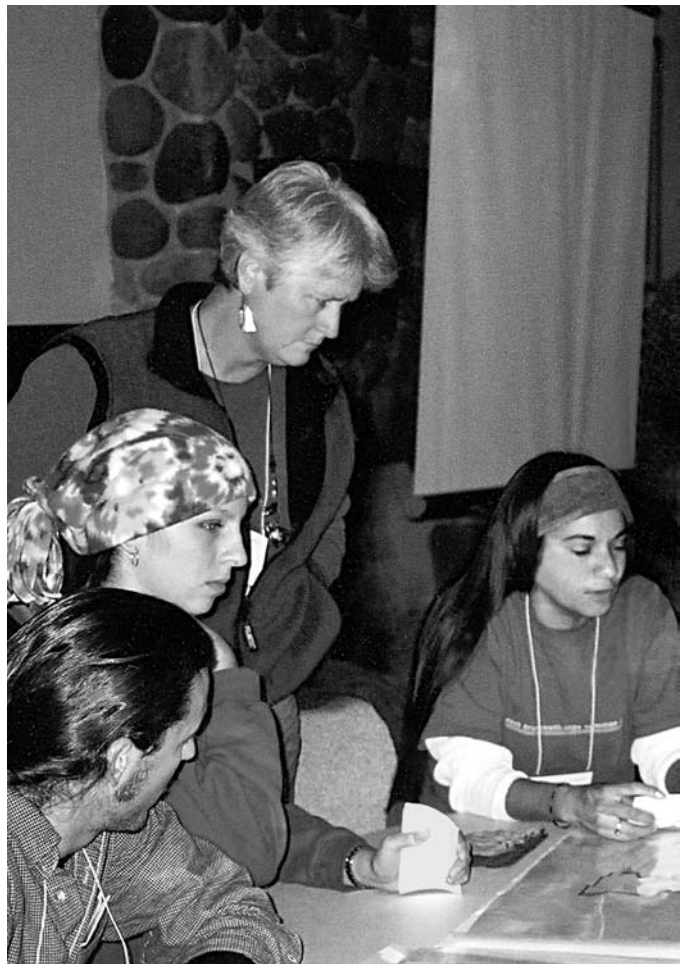


Handbook FIVE

Monitoring social and economic effects of forest restoration



The multiparty monitoring handbook series

This multiparty monitoring handbook is part of a series of guides to monitoring collaborative forest restoration projects. The series was written specifically for projects funded through the USDA Forest Service's Collaborative Forest Restoration Program (CFRP). The Handbooks in the series are:

- Handbook 1* – What is multiparty monitoring?
- Handbook 2* – Developing a multiparty monitoring plan
- Handbook 3* – Budgeting for monitoring projects
- Handbook 4* – Monitoring ecological effects
- Handbook 5* – Monitoring social and economic effects
- Handbook 6* – Analyzing and interpreting monitoring data

Multiparty monitoring is required of all CFRP grantees; however, the methods and approaches presented in these workbooks are to serve as guides and references only. The specific methods are NOT required. Because there is a wide diversity of projects funded through the CFRP, many grantees will have different requirements for monitoring and/or monitoring assistance.

The content of these handbooks was largely conceived at a series of workshops held in 2003 that were sponsored by the following: Ecological Restoration Institute (ERI), Forest Trust, Four Corners Institute, National Forest Foundation, Pinchot Institute for Conservation, USDA Forest Service—Collaborative Forest Restoration Program.

These handbooks are updated periodically and the latest versions will be available on the Collaborative Forest Restoration Program Web site at www.fs.fed.us/r3/spf/cfrp/monitoring. For more information on this series, contact the [Ecological Restoration Institute](#), Box 15017, Flagstaff AZ 86011-5017.

CFRP grantees are also eligible for multiparty monitoring training workshops and technical assistance from the CFRP monitoring team. This free service will be provided through September 2006. Call 866.614.8424 for details.

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Design, copy-edit, and production Joel Viers, ERI; cover photo the Forest Guild. 01.06.05



This Handbook series is largely funded by the USDA Forest Service and is published by the Ecological Restoration Institute at Northern Arizona University

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Introduction

Monitoring social and economic goals of forest restoration

What are social and economic goals of forest restoration?_____

Forest restoration projects frequently have social, economic, and cultural goals as well as ecological goals. For instance, project partners may hope that their project will provide new jobs and reduce local unemployment, keep youth in the community, reduce the wildfire risk to human lives and property, or increase public involvement in national forest planning and decision making.

The social and economic goals of the Collaborative Forest Restoration Program (CFRP), listed in the legislation that created the program, may also be goals of individual restoration projects. These include:

- Encourage sustainable communities and forests through collaborative partnerships
- Improve local management skills
- Improve the use of small-diameter trees, or add value to products made from these trees
- Improve communication and joint problem-solving among forest restoration stakeholders

Why monitor social and economic goals?_____

Monitoring provides a way to determine whether you are headed toward or away from your goals. For example, your monitoring group might want to ask, “Is our community becoming more or less sustainable?” “Are local management skills improving or getting worse?” or “Is the use of small-diameter trees increasing or decreasing?”

How to measure social and economic goals?_____

To answer questions like these, a multiparty monitoring team must select indicators that will measure changes in each goal. An *indicator* is a unit of information measured over time that documents changes in a specific condition. The most useful indicators are expressed in specific terms and measure aspects of the goal that people care about. For instance, an indicator of community sustainability might be local wage rates or the quality of the water. To monitor a goal, you periodically measure the indicator and document changes in the indicator over time. In this example, you would measure changes in local wages or water quality to determine if community sustainability is increasing or decreasing.

*To monitor a goal, periodically
measure its indicator and
document changes in the indicator
over time.*

For project-level monitoring, it is very important that your team select indicators that are linked to your project. If you don't think that water quality will be affected one way or another by your project, then don't choose this as an indicator of community sustainability. A better indicator might be the number of people employed in forest restoration, or the number of value-added wood products businesses in the community.

Part 1 of this handbook describes indicators that can help community-based multiparty monitoring groups measure changes in common forest restoration project goals. *Part 2* describes specific methods for measuring change in each indicator.

In addition to this handbook, there are a number of publications that describe how to choose social and economic monitoring approaches and variables. Some of these are listed in the reference section at the back of this handbook.

Part 1

Social and economic goals and indicators of forest restoration

Each CFRP project has a different set of partners, a unique community, a unique forest site, and its own restoration goals that reflect the values of its collaborative partnership. The specific restoration goals that your group chooses to monitor will depend on all these factors.

The following goals were developed by a multiparty group of researchers, land managers, and community members with experience in collaborative forest restoration and monitoring. The group considered many goals, including those identified by the Community Forest Restoration Act.

The following list is therefore slightly broader but may reflect goals and interests of your multiparty monitoring group. Your group can choose from the following sample goals or define your own as you develop your monitoring plan:

- Enhance community sustainability
- Build restoration business and workforce skills
- Improve or maintain local quality of life
- Ensure equal access to restoration jobs and decision making
- Improve capacity for collaboration
- Build support for forest restoration

Explanations of each goal, and indicators that you can use to measure change toward or away from that goal, are provided on the next few pages. You will note that some of the indicators can be used to measure more than one goal. Methods used to measure each indicator are provided in Part 2 of this handbook.

Enhance community sustainability_____

In recent decades, many small, rural forest communities have experienced a decline in both employment opportunities and population. As jobs and businesses are lost, these communities have fewer economic resources for community infrastructure and social services. Indicators of sustainability typically track a community's ability to achieve or sustain local workforce, businesses, and investments over years or even decades. At the project level, you may want to track wages and employment rates by month or season, to measure job stability. For forest-dependent businesses, supply of materials and the existence of a market for wood products are important contextual factors that can affect sustainability, and you may want to track these as well. You could also track educational and training opportunities as an indicator of people's ability to earn a living wage. Training opportunities may be particularly important to keep youth in the community. Sample indicators you might use to track changes in community sustainability include:

- Total number of workers employed by the project each month, season, or year
- Amount paid to project workers each month, season or year
- Timeliness of payments
- Number and type of restoration-related trainings completed by project workers
- Number and type of training opportunities for youth
- Number and diversity of wood products that can be processed locally
- Number and size of contracts offered each year to do restoration work on public lands
- Percent of all contracts awarded locally that go to local contractors

Improve local restoration business and workforce skills_____

One goal of the Collaborative Forest Restoration Program is to train a local workforce in forest restoration methods. Local people may build CFRP-related job skills when they are employed on a

restoration or utilization project, or by attending workshops or classes. Specific training topics might include sound ecological principles of restoration, how to operate mechanized equipment and chainsaws, or workplace safety procedures. Because forest restoration is a new kind of business, many communities and CFRP project teams will also benefit from developing their business skills, such as bookkeeping, grant writing, and product marketing skills. Indicators that could be used to measure change in business and workforce skills include:

- Total number of workers employed by the project each month, season, or year
- Number and type of restoration-related trainings completed by project workers
- Type of equipment used (such as chainsaws, harvesting equipment, skidding and loading equipment)
- Existence and use of written organizational procedures, rules, and operational guidelines
- Existence and use of system for books, receipts, and grant management

Improve or maintain local quality of life_____

For many people, employment conditions, like access to restoration-related jobs, money earned in those jobs, job stability, benefits received, and job safety, are indicators of quality of life. When people must work long hours, be away from home over night, or travel long distances to work, the quality and quantity of time available for their families and community are diminished. This in turn takes away from the overall quality of life in the community. Quality of life may also depend on public access to and the condition of nearby forests. In many southwestern communities, access to public forest land is critical to residents' ability to heat their homes and access food, medicines, and fuel for cooking. The threat of catastrophic fire is a significant quality-of-life issue in many communities, and reducing this threat is a goal of many restoration activities in the Southwest.

Indicators you could use to track changes in quality of life include:

- Amount paid to project workers each month, season, or year
- Extent that project employees receive health benefits
- Extent that project workers are trained to use and do use appropriate safety gear
- Extent that project workers are able to participate in family and community life
- Opportunities for locals to recreate in the forest
- Availability of and access to medicinal, food, heating, or building materials from the forest
- Number of acres protected from fire through the creation of defensible space, fuelbreaks, or other fuels reduction projects
- Location of the project's fuels reduction acres in relation to areas considered to be at highest risk from wildfire

Ensure equal access to restoration jobs and decision making__

The distribution of social and economic opportunities is an important issue in many southwestern communities, where some groups have at times been excluded from jobs and natural resource planning decisions. The CFRP, through its collaborative structure, provides opportunities to overcome these social and economic inequities. CFRP projects can involve people traditionally excluded from restoration-related work, and can include traditional forest users' values in forest restoration projects. Indicators that could be used to measure this goal include:

- Extent that traditional forest users' knowledge and practices are part of the project
- Number of youth, minority group representatives, or people from low-income communities hired to work on the project, and type of work they are conducting

Improve capacity for collaboration_____

The success of collaborative restoration efforts is closely linked to the quality and types of communication used by project team members, stakeholders, and the broader public. Openness to external input and willingness to consider different perspectives are important aspects of collaboration and are necessary for adaptive management. If there are strong and different opinions about your project, your multiparty monitoring team may be particularly interested in monitoring changes in the level of conflict among stakeholders. Indicators you could use to track changes in this goal include:

- Level of commitment to communication and group learning (in time and money)
- Quality and timeliness of communication among all project partners
- Extent that different perspectives are represented on the project team and in project activities
- Extent of community, agency, or environmental group participation in project activities
- Extent that stakeholders previously in conflict are now working together on this project

Build support for forest restoration_____

Restoration projects require high levels of support from stakeholders if the projects are to be implemented and completed successfully and in a timely manner. Projects without public support are vulnerable to appeals and litigation or vandalism. Failure to engage the community before implementing a forestry project may also damage relationships among community members or groups. Examples of indicators for this goal include:

- Extent that different perspectives are represented on the project team and in project activities
- Extent of community, agency, or environmental group participation in project activities

- Extent of tree poaching from restoration sites
- Acceptance of frequent, low-intensity wildfire or prescribed fire
- Perceived benefits of restoration activities
- Public attitudes toward the project and project collaborators

Summary of goals and indicators_____

Table 1 (pages 10–11) lists the sample indicators for each of the possible project-level goals discussed above. Monitoring groups may find that many of the indicators listed are relevant to their community and restoration project. However, not all indicators will apply to all situations, and there will likely be others, not included here, that are more directly applicable to your particular situation.

The authors of this handbook do NOT recommend that any group try to monitor all of the social or economic indicators listed. Each multiparty monitoring group will want to select or develop indicators specific to the local community and restoration effort being monitored.



Community mapping exercise

Table 1 on pages 10–11 lists sample indicators for each Part 1 project-level goal

Table 2 on pages 12–14 lists suggested data collection methods for each indicator

Data collection methods are described on pages 19–48

Table 1 — Summary of goals and indicators

Enhance community sustainability
Total number of workers employed by the project each month, season, or year
Amount paid to project workers each month, season or year
Timeliness of payments
Number and type of restoration-related trainings completed by project workers
Number and type of training opportunities for youth
Number and diversity of wood products that can be processed locally
Number and size of contracts offered each year to do restoration work on public lands
Percent of all contracts awarded locally that go to local contractors
Improve local restoration business and workforce skills
Total number of workers employed by the project each month, season, or year
Number and type of restoration-related trainings completed by project workers
Type of equipment used (such as chainsaws, harvesting equipment, skidding and loading equipment)
Existence and use of written organizational procedures, rules, and operational guidelines
Existence and use of system for books, receipts, and grant management
Ensure equal access to restoration jobs and decision making
Extent that traditional forest users' knowledge and practices are part of the project
Number of youth, minority group representatives, or people from low-income communities hired to work on the project, and type of work they are conducting

Table 1 — continued

Improve or maintain local quality of life
Amount paid to project workers each month, season, or year
Extent that project employees receive health benefits
Extent that project workers are trained to use and do use appropriate safety gear
Extent that project workers are able to participate in family and community life
Opportunities for locals to recreate in the forest
Availability of and access to medicinal, food, heating, or building materials from the forest
Number of acres protected from fire through the creation of defensible space, fuelbreaks, or other fuels reduction projects
Location of the project's fuels reduction acres in relation to areas considered to be at highest risk from wildfire
Improve capacity for collaboration
Level of commitment to communication and group learning
Extent that different perspectives are represented on project team and in project activities
Extent that stakeholders previously in conflict are now working together on this project
Extent of community, agency, or environmental group participation in project activities
Quality and timeliness of communication among all project partners
Build support for forest restoration
Extent that different perspectives are represented on project team and in project activities
Extent of community, agency, or environmental group participation in project activities
Acceptance of frequent, low-intensity wildfire or prescribed fire
Perceived benefits of restoration activities
Public attitudes toward the project and project collaborators
Extent of tree poaching from restoration sites

Table 2 — Suggested data collection methods for each indicator (suggested indicators are marked—in many cases other methods can be used)

Indicators	Document review	Participant observation	Surveys	Interviews	Focus groups	Community mapping
Enhance community sustainability						
Total number of workers employed by the project	X					
Amount paid to project workers	X					
Timeliness of payments	X					
Number and type of training opportunities for youth	X			X		
Number and type of restoration-related trainings completed by project workers	X	X				
Number and diversity of wood products that can be processed locally	X			X	X	
Number and size of contracts offered each year	X			X		X
Percent of all contracts that go to local contractors	X			X		
Improve local restoration business and workforce skills						
Total number of workers employed by the project	X					
Number and type of restoration-related trainings completed by project workers	X	X				
Type of equipment used	X	X				
Existence and use of written organizational procedures, rules, and operational guidelines	X				X	
Existence and use of system for books, receipts, and grant management	X					

Table 2 — continued

Indicators	Document review	Participant observation	Surveys	Interviews	Focus groups	Community mapping
Improve or maintain quality of life						
Amount paid to project workers	X					
Extent that project employees receive health benefits	X		X			
Extent that project workers are trained to use and do use appropriate safety gear		X				
Extent that project workers are able to participate in family and community life			X	X	X	
Opportunities for locals to recreate in the forest			X	X	X	X
Availability of and access to medicinal, food, heating, or building materials from the forest			X	X	X	X
Number of acres protected from fire	X					
Location of the project's fuels reduction acres in relation to areas considered to be at highest risk from wildfire	X			X		X
Ensure equal access to restoration jobs and decisionmaking						
Extent that traditional forest users' knowledge and practices are part of the project		X		X	X	
Number of youth, minority group representatives, or people from low-income communities are hired to work on the project, and type of work they are conducting	X	X				X

Table 2 — continued

Indicators	Document review	Participant observation	Surveys	Interviews	Focus groups	Community mapping
Improve capacity for collaboration						
Level of commitment to communication and group learning	X	X		X	X	
Extent that different perspectives are represented on project team and in project activities	X	X	X	X		
Extent that stakeholders previously in conflict are now working together on the project	X	X	X	X		
Extent of community, agency, or environmental group participation in project	X	X				
Quality and timeliness of communication among all project partners		X	X	X		
Build support for forest restoration						
Extent that different perspectives are represented	X	X	X	X		
Extent of community, agency, or environmental group participation in project activities	X	X				
Acceptance of frequent, low-intensity wildfire or prescribed fire	X		X	X	X	
Perceived benefits of restoration activities			X	X	X	
Public attitudes toward the project and project collaborators	X		X	X	X	
Extent of tree poaching from restoration sites		X		X		X

Part 2

Monitoring design and data collection methods

Creating a sampling design_____

Before beginning to gather data, your monitoring team should create a sampling design that can become part of the monitoring plan. Sampling designs provide information about the number, location, and type of measurements to be taken at any given time. When creating a sampling design, your group will need to determine:

- 1 – What indicators will be monitored
- 2 – Methods to measure each indicator
- 3 – Where data will come from
- 4 – When and how often to measure each indicator
- 5 – Who will take the measurements
- 6 – When and how data will be analyzed
- 7 – Where and how data will be stored

1 — What indicators will be monitored

When your multiparty team selects goals, it should also select the indicators it will use to measure each goal. If your group is having difficulty choosing indicators, you may find it useful to review the measurement methods discussed in this section and then discuss what would be most useful and reasonable for your project.

2 — Methods to measure each indicator

Methods for each indicator listed in Part 1 are discussed in the final section of this handbook. They include document analysis, participant observation, surveys, interviews, focus groups, and community mapping. Table 2 on pages 12–14 shows which methods can be used to measure each of the indicators discussed in this

handbook. Your monitoring team should decide which method(s) it will use for each indicator and use these consistently. In some cases, you may want to measure the same indicator using two or three different methods, to cross-check and confirm the data.

3 — Where data will come from

Before gathering any data, you need to know the scope and size of your monitoring effort. Do you want to study changes for the project only, for the community, or for a larger region, like a national forest district? Your monitoring team will need to define the geographic boundaries of the study area for each indicator it wants to monitor. For example, if your indicator is diversity of restoration and wood-products businesses, you may want to know how many different kinds of businesses exist in your town, or you may want to know how many exist within 50 miles of your project site. Choosing the right scale for monitoring is important. Changes that have a large impact on a village, for example, may not have much of an impact on the county as a whole.

Your monitoring team will also want to identify all potential sources and methods for gathering data on a specific indicator. For many indicators, there will be more than one data source. The team will need to consider the reliability of each data source and the cost (in time and money) of obtaining data. These factors should help the group choose which sources to use for monitoring.

Whatever method you use, there are two distinct ways of determining where your data will come from: *random sampling* and *non-random sampling*.

Random sampling uses some kind of unbiased system to choose objects of study. In a random sample, every individual has an equal chance of being selected. For example, to select a random sample of survey recipients from all the residents of a town, you could assign each individual a number, and use a random number generator to select a sample from that population. Random

A sample refers to the people you choose to gather information from. It is usually a subset of the population, and should be similar to the population as a whole.

A population is all of the members of a group that you want to monitor; for example, a population might include all adult residents of a community, or all members of an environmental organization.

Random sampling means that every member of the population has an equal chance of being selected. A random sample is considered to be representative of the entire population.

If your sample is selected through non-random sampling, your sample is representative only of people very similar to those you sampled.

sampling allows you to gather information from a relatively small number of individuals to draw conclusions about the larger population from which they were drawn. Random sampling can be used for any of the methods described in this handbook, but is most commonly used for surveys.

Non-random sampling occurs when a researcher selects particular individuals to study, or when some individuals have a greater chance of being selected than others. Non-random sampling is most appropriate when the sample size is small, or when some individuals or documents are particularly important to include in the sample. It is possible to draw important conclusions based on non-random samples, but they cannot be said to represent the population as a whole. Non-random sampling can be used for any of the methods described in this handbook. If you are using non-random sampling, it is very important that your entire multiparty group works together to select a sample. This will increase the quality of your data and help to minimize the possibility that your results will be biased.

4 — When and how often to take each measurement

Exact dates or seasons may vary by the indicator to be measured. Some indicators may need to be measured monthly, some yearly, and some at the beginning and end of a project. It can be important to gather data at the same time, such as the beginning of a month or year, so that data are comparable.

At a minimum, you will want to take measurements before a project starts and after it is completed. It is important to document conditions before beginning the project to have some basis for comparison later. Gathering baseline data means measuring indicators before starting the project. It is equally important to collect data the exact same way after a project has been carried out as it was collected before the project started. Comparisons of data collected before and after a project can demonstrate changes that result from the project or that happen at the same time the project is implemented.

Baseline data provide information about the conditions in a project area before the project was started.

5 — Who will take the measurements

It is a good idea to have at least one person who is consistently involved in collecting data and training others throughout the monitoring project. People have slightly different ways of taking measurements, and keeping a consistent person involved with the project helps to minimize these differences.

6 — When and how data will be analyzed

When a monitoring team has collected data before and after a project, they will need to analyze the data in order to see what changes the project actually produced. While some information may be fairly easy to compare before and after a project, other information may require more complicated analysis.

See Handbook 6 for more information on analyzing your data

7 — Where and how the data will be stored

It is important to store monitoring data in a permanent place so that it can be used for future project activities. Any data should be carefully labeled and placed in notebooks. A second, photocopied set of the data should be stored in another location. Electronic data should be backed up on computer disks or CDs. Electronic data, including electronic spreadsheets and photographs, can be stored with local resource management agencies, such as the Forest Service or a local non-profit organization, if desired.

Data collection methods

In this handbook, we describe five methods for analyzing social and economic data: document review and secondary data analysis, participant observation, community mapping, surveys and interviews, and focus groups. As shown in Table 3, the best method depends on the type of information you are looking for.

Table 3 — Data collection methods described in this handbook

Method	Applications	Pages
Document review and secondary data analysis	Where information already exists in written records or where background context is needed	21–24
Participant observation	Indicators that may require direct observation of a behavior or interaction	24–27
Surveys	Where there is a desire to gather basic information about perceptions, attitudes, and relationships	27–34
Interviews or focus groups	Where there is a need to understand complex perceptions, attitudes, or important relationships	34–44
Community mapping	Where there is a desire to link information to particular places	44–48

For many of the indicators described in this handbook, you will find the information you need in project documents or agency reports, and you will want to use *document review and secondary data analysis* to track these indicators.

The *participant observation* method is commonly used to document project information that might not otherwise be recorded, such as the extent that project workers use safety gear or the extent that different perspectives are represented in project planning.

For some indicators, your best source of data will be knowledgeable people, and for these you may want to use some method of systematically asking questions to obtain the information you need. There are several ways to ask questions to get information and opinions from people. In general, they fall on a spectrum from highly structured to very flexible, as shown in Figure 1.

Figure 1 — Types of questioning



The most structured form of questioning is the survey. Surveys typically use closed-ended questions to gather information about the beliefs, attitudes, behaviors, or other characteristics of a relatively large group, such as all households or all high school students in a community. Survey design can be very technical, particularly if you are trying to find out information about an entire population by asking questions of a random sample of that population.

Closed-ended questions work best for questions with clear-cut answers.

—

Open-ended questions are used to get more complex information.

Surveys are most appropriate when you already know what the important questions are, and can devise a set of answers which capture the range of public opinion. For instance, if you want to monitor recreational use of the forest and you know that people primarily use the forest for hiking, riding off-road vehicles, and camping, you could develop a survey to determine what proportion of the community does each of these activities, and how often. Surveys are also useful when you think that people are more likely to share information in writing than when talking to other people.

The focus group method brings together several people who share a common interest in or perspective on a topic to have a group discussion. Questions are generally open-ended and designed to encourage discussion among group participants, so that perspectives can be explored and developed.

Interviews fall between surveys and focus groups on the spectrum of questioning methods. In an interview, you ask detailed questions of knowledgeable people on an individual basis. This is a good method to use if a relatively small number of people have the information you are seeking or if you want to be able to gain a deeper understanding of complex issues.

For information with a strong spatial component, such as the relationship of treatment areas to areas considered to be at highest risk from wildfire, you may want to use *community mapping*. This method is particularly useful for encouraging dialogue about potential interactions among project activities and other uses of the forest, such as the relationship between traditional firewood collecting areas and treatment areas.

Table 2 on pages 12–14 shows the recommended methods for each of the indicators discussed in this handbook. You will note that most of the indicators can be measured using more than one method. In these cases, you may choose to use more than one method as a way to cross-check the accuracy of your data.

Document review and secondary data analysis_____

In some cases, you may be able to gather the data you need from existing reports. Some monitoring data may already exist in project records. These could include planning reports, meeting minutes and semi-annual reports. Other useful data may be found in a company's employment records or business plan, or an agency or school's training records.

The basic method for document review and secondary data analysis is:

- 1 – Identify possible data sources
- 2 – Access documents with the information you need
- 3 – Evaluate and extract the data you need

Step 1 — Identify possible data sources

There are many possible sources of data for document review, but those you are most likely to use are the USDA Forest Service (district, forest, or regional offices), the New Mexico Department of State Forestry, and the CFRP project itself. For example, you might examine project budgets and employee job descriptions to measure the level of commitment to communication and group learning. To measure public attitudes toward the project and project collaborators, you could examine records of complaints or other comments received by authorities. You could also use records of public comments to measure changes in attitudes toward prescribed fire. Use the list in the sidebar for guidance in identifying data sources for your indicators.

Step 2 — Access the documents with the information you need

In most cases you will need to contact an agency, organization, or individual to obtain the documents you are seeking. Some data may also be available on the Internet, on sites like the CFRP Web site.

If information is from a private source, such as a business, you will want to explain the monitoring project and build relationships with business owners or agency staff in order to obtain access to these reports. You may want to spend some time thinking about how you can assure confidentiality for private information.

Indicators that can be measured using document review include:

- Total number of workers employed
 - Amount paid to project workers
 - Timeliness of payments
 - Number and type of trainings
 - Number and diversity of wood products that can be processed locally
 - Number and size of contracts offered
 - Percent of all contracts awarded to locals
 - Type of equipment used
 - Existence and use of written procedures
 - Existence and use of accounting system
 - Extent that project employees receive health benefits
 - Extent that project workers are trained to use and do use safety gear
 - Number of acres protected from fire
 - Location of defensible space created by the project in relation to areas considered to be at highest fire risk
 - Number of youth, minority group representatives, or people from low-income communities hired to work on the project, and type of work they are conducting
 - Level of commitment to communication
 - Extent that different perspectives are represented
 - Extent of community, agency, or environmental group participation
 - Acceptance of low-intensity wildfire or prescribed fire
 - Public attitudes toward the project and collaborators
-

Step 3 — Evaluate and extract the data you need

Possible data sources for document review:

USDA Forest Service

- Project planning records
- Request for Proposals mailing lists
- Contract award records
- Training records (e.g., safety or fire)

Department of State Forestry

- Wood Manufacturers Directory
- Annual reports
- Contract award records
- Product spec sheets

OSHA

- Safety inspection reports

CFRP project

- Project proposal
- Project management plan
- Business plan
- Semi-annual reports
- Event sign-in sheets
- Meeting minutes
- Mailing lists

Local businesses

Once you have accessed the documents, review them carefully to make sure that the data they contain matches your need. This is particularly important when you are reviewing data gathered by someone else for a different purpose (secondary data).

Make sure that you know what was measured. For example, “U.S. poverty” is based on income only. It does not include housing security, quality of life, or many other things that people associate with poverty.

Make sure you understand how the data were collected. This will give you an idea of how useful they really are. It will also be helpful if you have to gather the same kind of data later on in the project.

Make sure you know the reason the data were originally collected. You want to be sure that the records do not exclude data that you need or include data that is not relevant to your project. For example, if you are looking for wages of people employed on a CFRP project, make sure that you are not including wages of people who work for the same organization but are not working on the CFRP project. Also make sure that you can identify which data fit within the geographic boundary of your monitoring area, and which data come from sites outside of your study area.

Finally, be prepared to spend some time formatting data in a way that is useful to your monitoring effort. When someone else collects data, they format it for their own purposes. While their data may be useful to your team, the form in which they store or present their data may not be. Someone on the team may need to type data into a computer program, figure averages or percentages, or delete extra information that is not relevant to your monitoring project.

Example of using the document review method:

Say that your multiparty monitoring team has decided that it wants to monitor the project’s effects on community sustainability, and selected the number of project workers and

amount paid to workers as indicators. Your group has decided to monitor employment and wages on a monthly basis because it is interested in whether the project is providing steady jobs at a sustainable living wage or whether the jobs or pay rates are seasonal or otherwise changing over time. Your group has set the following targets for your project: 12 new jobs paying at least \$13 per hour that are full-time for at least 10 months of the year.

Step 1 – Identify possible data sources

You could measure both the number of project workers employed and the amount paid by reviewing project payroll records or documents supplied by contractors who work on the project.

Step 2 – Access the documents with the information you need

You would need to access this information directly through project payroll or from the contractors.

Step 3 – Evaluate and extract the data you need

You might need to convert the information available to reflect monthly wages and employment. Once this has been done, your multiparty monitoring group could examine the data for patterns, such as inconsistent wages or periods of employment and unemployment, and compare your data to your target values.

Participant observation

Participant observation involves one or more individuals tracking the daily activities of a group of people, and recording information of interest as it happens. This method can capture important information that is not recorded elsewhere.

The advantages of participant observation are that it is low cost, easy to do, helps validate data from other sources, and may not require a large investment of time. The disadvantages are that it is not useful for collecting certain types of data and can lead to biased results if carried out incorrectly.

Participant observation may be used to measure the following indicators:

- ▶ Number and type of restoration-related trainings completed by forest workers
 - ▶ Type of equipment used
 - ▶ Extent that project workers are trained to use and do use appropriate safety gear
 - ▶ Extent that traditional forest users' knowledge and practices are part of the project
 - ▶ Level of commitment to communication and group learning
 - ▶ Number of youth, minority group representatives, or people from low-income communities are hired to work on the project, and type of work they are conducting
 - ▶ Extent that different perspectives are represented on the project team and in project activities
 - ▶ Extent that stakeholders previously in conflict are now working together on this project
 - ▶ Extent of community, agency, or environmental group participation in project activities
 - ▶ Quality and timeliness of communication
 - ▶ Extent of tree poaching from restoration sites
-

In many cases, participant observation may work best when combined with document review. For example, to measure the indicator, “extent the project workers are trained to use and do use appropriate safety gear,” you might review project documents to determine the extent that project workers have been trained to use safety gear and participant observation to determine the extent that they actually use it. In this example, a project or crew leader who is consistently on-site during project implementation might be a good person to carry out participant observation.

For an indicator like “extent of community, agency, or environmental group participation in project activities” you might choose to use document review of project meeting notes and event sign-in sheets to determine *whether* people representing these groups are involved. Participant observation could then be used to determine *how* (or to what extent) they are involved.

The basic method for participant observation is:

- 1 – Choose a group of individuals, or an activity, to observe
- 2 – Record information as it happens or immediately afterward

Step 1 – Choose a group of individuals, or an activity, to observe

Your multiparty monitoring team should decide where and when you can best observe your indicators. For example, if you want to monitor the use of safety equipment by project workers, you might decide to be present during restoration operations, as well as at any safety trainings provided to workers. If, on the other hand, you want to monitor the extent to which traditional forest users' knowledge and practices are part of the project, you will probably need to practice participant observation throughout planning and implementation of the project.

Step 2 – Record information as it happens or immediately afterward

One of the biggest differences between participant observation and casual observation is the deliberate recording of information throughout the day. In most cases, you should record observations, events, and other information as they happen, which will mean always having a pen and paper handy. If you know ahead of time what you are looking for, you may want to develop a checklist so that the observer can simply check off each time something occurs. For instance, you might create a checklist of different kinds of safety equipment (hardhats, gloves, etc.) and check whether or not the equipment is being used. Checklists are a good way to ensure that the same data are recorded in the same way each time, no matter who is doing the observing.

Checklists can make data collection quick and easy. Also, using a checklist can help ensure that data are always recorded in the same way, no matter who is taking notes.

In certain cases, you may want to wait to write down your observations, particularly if you believe taking notes will influence the individuals you are observing. For example, project workers may be more likely to wear and use safety equipment if they know someone is watching and taking notes. Observing without influencing is a major challenge of this method.

With the participant observation method, it is particularly important for your multiparty monitoring group to help decide who or what gets monitored, and by whom. Without soliciting the input of others, it can be easy for someone to focus in on some groups or activities while neglecting others. The diversity of perspectives in your multiparty group can help to ensure that the results of your participant observation are not biased.

If observers are not actively involved in project implementation, they should ensure that their presence is welcome and will not significantly affect the activities or individuals they want to observe. For example, someone not employed by the project may need special permission to be present during mechanical operations, or to participate in the collection of culturally important plants. In other cases, they may be able to gather data just by recording what they observe during a normal day on the project site or interacting with project partners.

Example of using the participant observation method:

Say that your multiparty monitoring team chose to measure improvement in local business and workforce skills by monitoring the types of equipment used on the project using participant observation. If your multiparty team includes a forest worker who will be involved in the restoration work at all the sites, you might decide that he or she is the best individual to carry out the participant observation to monitor the types of equipment used. He or she could bring a list of equipment to the project site each day and check off when each type of equipment is used throughout the day. Alternatively, you might enlist the help of a Forest Service employee or someone else who will be present throughout the project to keep track of the equipment used.

Surveys can be used to measure the following indicators:

- Extent that project employees receive health benefits
 - Extent that project workers are able to participate in family and community life
 - Opportunities for locals to recreate in the forest
 - Availability of and access to medicinal, food, heating, or building materials from the forest
 - Extent that traditional forest users' knowledge and practices are part of the project
 - Extent that different perspectives are represented on the project team and in project activities
 - Quality and timeliness of communication among project partners
 - Acceptance of low-intensity wildfire or prescribed fire
 - Perceived benefits of restoration activities
 - Public attitudes toward the project and collaborators
-

Surveys and interviews

Surveys can be used to gather information about the beliefs, attitudes, behaviors, or other characteristics of a relatively large group, such as all households or all high school students in a community. Surveys are also useful when you think that people are more likely to share information in writing than when talking to other people.

Interviews are similar to surveys in that you are asking people to answer questions, but they tend to use open-ended questions, which are more interactive and so allow you to gain a deeper understanding of complex issues.

Both of these methods follow five basic steps:

- Step 1 – Clarify your information needs
- Step 2 – Select participants
- Step 3 – Develop and test questions
- Step 4 – Ask the questions
- Step 5 – Record the responses

Step 1 – Clarify your information needs

Before developing questions or identifying people to answer the questions, your multiparty group should review the indicator or indicators that you want to measure, and clarify what it is you are trying to measure and what specific information you hope to gather. An important part of this is ensuring a shared understanding of important terms. For example, if you are interested in measuring opportunities for locals to recreate in the forest, you must define the term “local” and possibly explore what kinds of “recreation” you are interested in monitoring.

Step 2 – Select participants

The rights of people who participate. It is important that monitoring teams explain their project to anyone who participates in a survey, interview, or focus group. It is also very important to ensure their confidentiality. The person asking for the information should clearly explain:

- Who is involved in the multiparty monitoring
- What the information will be used for
- Why the particular information requested is important
- The individual’s right not to answer
- How the information provided will be handled to assure confidentiality (for example: no name written down, questionnaire kept in a locked filing cabinet and who has the key, how the data will be compiled so that no one can identify an individual).

Surveys tend to include a relatively large number of respondents (several dozen to several hundred) and are often drawn from a general population, such as all citizens of a community or all members of an interest group. Interviews tend to focus on fewer, more specialized respondents who give more detailed and nuanced information than would be given in a survey. Both methods may use either random or non-random sampling (see pages 16–17).

Indicators that can be measured using interviews include:

- Number and type of training opportunities
 - Number and diversity of wood products that can be processed locally
 - Number and size of contracts offered each year
 - Percent of all contracts awarded locally that go to locals
 - Extent that project workers are able to participate in family and community life
 - Opportunities for locals to recreate in the forest
 - Availability of and access to medicinal, food, heating, or building materials from the forest
 - Extent that traditional forest users’ knowledge and practices are part of the project
 - Location of defensible space created by the project in relation to areas considered to be at highest fire risk
 - Level of commitment to communication and group learning
 - Extent that different perspectives are represented on the project team and in project activities
 - Extent that stakeholders previously in conflict are now working together on the project
 - Quality and timeliness of communication among project partners
 - Acceptance of low-intensity wildfire or prescribed fire
 - Perceived benefits of restoration activities
 - Public attitudes toward the project and collaborators
 - Extent of tree poaching from restoration sites
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Examples of groups that can be surveyed or interviewed:

USDA Forest Service

- NEPA and planning personnel
- CFRP program manager
- Rural Community Assistance (RCA) coordinators
- District Rangers
- Forest Supervisors
- Fire management staff
- Fuels specialists
- Timber management staff
- Contracting staff

Department of State Forestry

- Timber staff
- Restoration specialists
- Forest products specialists
- Fir and fuel specialists
- Training specialists

CFRP project

- Project manager(s)
- Project participants
- Workers/employees

General public

- Community members

If the population of interest is large, you may want to employ random sampling to select a manageable number of respondents that is representative of the population as a whole. For example, to choose a random sample from the population of all high school students in the community, you could assign a number to each student and then use a table of random numbers to decide which students you will survey. To select a random sample from a population of households in your community, you might choose the fourth house along every road. Random sampling allows you to use the results of your sample to draw conclusions about the larger population of interest. Whatever the approach to random selection, it is essential to use the same method every time you gather information.

The appropriate size of a sample depends on the size of the community or other group to be monitored. The larger the sample size, the more you can trust the data to be representative of the entire population. You may want to get expert help determining the optimal sample size and selecting your sample.

You can also use non-random sampling. For instance, you may want to take advantage of gathering responses from people who are already gathered together for some reason. Your monitoring team might ask the people attending a workshop to answer specific questions at the start of the workshop and again at the end, to see what they have learned. Alternatively, interviewees may be specifically chosen by the multiparty group, usually because they have a depth of knowledge on the indicator of interest. When using non-random sampling, it is important to keep in mind that the results will only reflect the views of people very similar to those you surveyed, and not the entire population of interest.

Step 3 – Develop and test questions

There are two basic kinds of questions you can ask: closed-ended and open-ended. *Closed-ended questions* give people a limited number of answers to choose from. With *open-ended questions*, people are asked to provide their own answers. Open-ended questions often begin with words like ‘why’, ‘what’, ‘how’, or ‘where’.

For example, a monitoring team might want to measure the quality of communication among project partners. To get this information with a closed-ended question, they might ask, “Would you say communication among project partners is very good, good, neutral, poor, or very poor?” An open-ended question about the same issue might ask, “How would you describe the quality of communication among project partners?”

Closed-ended questions are faster and easier to answer, and often work better for written or telephone surveys and for fairly clear-cut questions. For each closed-ended question, include a means for the respondent to answer “don’t know” or “no opinion.” You may want to engage the help of a surveying expert (such as a CFRP technical assistant) to help you develop your questions.

Interview questions can be either closed-ended or open-ended, but in general tend to be less formal and structured than survey questions. Interviews often use open-ended questions to allow interviewees to go into detail on topics of interest. Interviewers must know how to ask follow-up questions and must be careful to ask them in a neutral way.

The questions you ask and the way that you ask them will greatly affect the quality of the data you collect. For example, you should be careful not to ask leading questions that could bias people’s responses. An example of a leading question might be, “Don’t you think that community participation has improved?” Respondents are likely to answer “yes” to this question, even if that is not what they truly believe.

Survey and interview questions should be developed and reviewed by the entire multiparty group. You should aim to develop a concise list of clear questions which directly relate to the indicator you are measuring. Before conducting the survey or interview, you should *pilot*, or pre-test, the questions on a small number of people who will not participate in the survey but are similar to your population of interest. Ask them to consider whether any of the questions or answers are unclear or poorly written, whether the questions address important issues and concerns, and whether the survey is too long or confusing.

Closed-ended questions work best for questions with clear-cut answers.

Open-ended questions are used to get more complex information.

Examples of leading questions:

Have you had any problems with extremist environmental groups?

Do you think our forests should be restored to a healthy state or left at risk of catastrophic fire?

How has your project improved communication between the Forest Service and the community?

Was the operator driving carelessly when he crashed the skidder?

Step 4 – Ask the questions

Surveys can generally be conducted in person, over the telephone, or in writing. Interview questions are generally asked in person or over the telephone. To make sure the results are comparable, always use the same method as the first time the survey was administered and take your sample from the same population. For example, do not conduct the survey in person one year and in writing the next. Similarly, you should not ask your questions of, for example, agency staff one year and local residents the next.

In-person and telephone surveys and interviews involve the interviewer reading the questions and recording responses. Conducting the survey or interviews by telephone allows you to reach a relatively larger number of people at relatively low cost. However, using the telephone may be less appropriate for personal or sensitive questions, does not allow the use of visual aids, and may not reach important people who do not have a telephone.

In-person surveys will generally get many more people to respond, and are particularly important when you want to ask open-ended questions. They are also time-consuming, however, so should be used only when they are really needed. In-person interviews are particularly appropriate when the topics of discussion are complex, when there are a large number of questions, or a large number of open-ended questions. This method is more time-consuming, but can result in more complete and nuance information than with phone interviews.

Questions can be asked in person, over the telephone, or in writing.

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It is important to use the same method of asking questions each time you ask them.

With written surveys, you have no personal interaction with the survey respondents. People are given the questions and written instructions for completing the survey. They then read the questions and write down their individual responses. Written surveys can be distributed by mail, at meetings, or on-site. *On-site* means the surveys are made available in highly visible locations, such as a public library, post office, trailhead, or visitor center. Surveys may be returned by mail or in a secure container located next to the surveys.

Step 5 – Record the responses

When conducting a survey or interviews you will need to have a reliable means of recording responses. The two most common approaches are using an audio recorder and taking handwritten notes.

Using an audio recorder, such as a cassette tape recorder or digital voice recorder, is the most accurate method and allows the person asking the questions to focus on the conversation rather than on taking notes. After the survey or interview is over, the recorded conversations can then be transcribed word-for-word into a computer document. When using an audio recorder, make sure it works, has adequate battery power, and that you know how to use it prior to the interview. It is also a good idea to take brief notes of the conversation in case of any technical problems with the recording equipment.

When administering surveys via telephone, make sure you have a consistent means of recording responses, either on a paper survey sheet or directly into a computer database. Answers to open-ended questions should be written down word-for-word whenever possible and repeated to the respondent to confirm that they were recorded correctly.

There may be cases where audio recording equipment is unavailable or where it would be inappropriate to use. For example, some people may not feel comfortable having their words recorded. In these cases, you will need to take detailed notes during the interview.

When using the handwritten note method, it is important to read your notes back to the participants throughout the conversation (and at the end) to verify that you heard them correctly and to be sure that you wrote down all relevant points. As you begin to analyze the notes, you may need to contact the participants again for further clarification. If you use a written survey format then your answers are already recorded and you can move directly into compiling and analyzing the results.

You should take care to protect both the confidentiality of your sources and the quality of your data. This means making a copy of all data sheets (such as transcripts or interview notes) and keeping them in a locked drawer at a separate location from where the originals are kept (also in a locked drawer).

Example of using the survey method:

Say your multiparty monitoring group is interested in monitoring the project's effects on local quality of life by measuring the extent to which project workers are able to participate in family and community life. If you feel that you are familiar enough with the issue to assemble a list of specific questions, and want to be able to generalize about all project workers, you might decide to use a survey approach.

Step 1 – Clarify your information needs

Your multiparty group begins by discussing and clarifying the term “project worker” in order to define the population of interest. You also discuss what it means to participate in family and community life by compiling a list of activities that represent important elements of quality of life.

Step 2 – Selecting participants

Your group uses project documents and personal recollection to assemble a list of all CFRP project workers. If the list is small (say, 20 people) you might decide to survey all of them. If the list is large (over 100 people), you might decide to use random sampling to choose a more manageable number to survey.

Step 3 – Develop and test questions

As a group, your multiparty team decides what questions are most important to ask and how to ask each one. The draft survey contains fifteen closed-ended questions relating to family life, participation in community events, and quality of life. Two community members who are not working on the CFRP project, but have worked on similar projects in the past,

agree to answer the survey and provide advice on suggested changes. Based on this feedback, you modify some of the questions to make them more clear.

Step 4 – Ask the questions

Your group decides that the best way to administer the survey is over the telephone. You call each of the respondents on your list, keeping track of who has answered the survey, who wasn't home, and who declined to participate. The caller asks the questions and writes down answers on a sheet of paper that does not contain the respondent's name or any identifying characteristics. After a week of surveys and returned calls, you decide that there are a few respondents that you will not be able to reach, and the group decides it is satisfied with the number of responses received.

Step 5 – Record the responses

You review the data sheets to ensure that there is no information that would identify any of the respondents. You make copies of these sheets and keep the originals in a separate location. The copies are used to begin analyzing the results.

Example of the interview method:

Imagine your multiparty monitoring group has chosen to monitor changes in local capacity for collaboration by measuring the number of people previously in conflict who are now working together on this project.

Step 1 – Clarify your information needs

Your group begins by exploring what kinds of conflict have been common in your community, and what individuals or groups have been involved. You also discuss possible contexts for different individuals working together.

Step 2 – Selecting participants

Your group discusses a list of possible interviewees, and you settle on eight individuals who represent six different stakeholder groups and two members of the general community. You contact these eight people to ask whether they would be willing to participate in interviews, and modify your list based on their responses.

Step 3 – Develop and test questions

Your multiparty group agrees on five general topic areas that they want covered in the interviews. For each topic area your group has developed specific questions that will help to spur conversation. Your intent is for the interviewees to do most of the talking, and your role will be to keep them focused on the topics of interest. You test these questions by conducting an interview with a local stakeholder who will not be interviewed for actual monitoring data.

Step 4 – Ask the questions

You invite the interviewees, one at a time, to join you and another member of your multiparty team in a quiet, private location where they will feel free to express their thoughts. You tell them that each interview should take roughly one hour to complete, and that they are free to stop the interview at any time and to refuse to answer any question. You also explain how you will keep their answers confidential. You use a cassette tape recorder to capture the interviews. After the interviews, you call several of the interviewees to clarify some of their responses.

Step 5 – Record the responses

You transcribe the recorded interviews into a word-processing document for review and analysis.

Focus groups

Some information can best be gathered through small-group discussions with people who share common experiences or perspectives, also known as *focus groups*. For instance, you may hold three separate focus groups with community elders, forestry business owners, and environmentalists to better understand the views of these three groups on a specific issue. You could also hold a focus group composed of people with different perspectives and interests. This would allow you to get a sense of the range of concerns about a proposed project, for example. In most cases, though, you will want each focus group to contain people with similar interests.

In focus groups, a skilled facilitator guides the discussion using a few specific questions about different aspects of a topic. Focus group sessions typically last one to two hours, are and best used to explore current conditions.

When a focus group discussion is to be used for monitoring, the same group should be brought together to discuss the same issues at least once a year. Focus groups are particularly useful when:

- ▶ data is not available from official sources,
- ▶ data is very expensive to gather through random surveys,
- ▶ the information asked is something that individuals are hesitant to share about themselves but are willing to discuss in general, or,
- ▶ when groups together might generate more ideas and thoughts about a topic than individuals would.

Like interviews and surveys, the focus group method has five steps:

- Step 1 – Clarify your information needs
- Step 2 – Select participants
- Step 3 – Develop and test questions
- Step 4 – Ask the questions
- Step 5 – Record the responses

To conduct a focus group, you will need:

- a skilled facilitator
 - a note-taker or tape recorder
 - a neutral, accessible meeting place
 - a group of 5–10 participants
 - a focused set of questions
-

Indicators that can be measured using focus groups include:

- ▶ Number and diversity of wood products that can be processed locally
 - ▶ Existence and use of written organization procedures, rules, and operational guidelines
 - ▶ Extent that project workers are able to participate in family and community life
 - ▶ Opportunities for locals to recreate in the forest
 - ▶ Availability of and access to medicinal, food, heating, or building materials from the forest
 - ▶ Extent that traditional forest users' knowledge and practices are part of the project
 - ▶ Level of commitment to communication and group learning
 - ▶ Extent that stakeholders previously in conflict are now working together on this project
 - ▶ Acceptance of frequent, low-intensity wildfire or prescribed fire
 - ▶ Perceived benefits from forest restoration
 - ▶ Public attitudes toward the project and project collaborators
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Step 1 — Clarify your information needs

Before inviting people to participate in a focus group, review the indicator or indicators that you want to measure using this method. Do not try to cover several different topics in one focus group session.

Step 2 — Select participants

Ideally, focus groups contain five to ten people with similar backgrounds, experience, and values. You may want to organize a few different focus groups on the same topic in order to get feedback from different groups. For example, if you are interested in gathering data on the extent that traditional forest users' knowledge and practices are part of the project, you may want to hold one focus group with local project leaders, another with members of local tribes, and a third with local land grant members.

Meeting locations should be neutral and easily accessible to all participants. *Neutral* means none of the participants will feel uncomfortable going to this location and no one will feel compelled to respond positively or negatively to the questions because of who owns, lives in, or works in the building.

You will need a facilitator who is knowledgeable about the topic to be discussed and skilled at asking questions without biasing participants' answers. The facilitator may be a project team member, or you may choose to hire a professional facilitator.

When inviting people to participate, explain the purpose of the focus group session and what will be expected of them. Because you will be using the focus group(s) for monitoring, explain that participants must be willing to meet periodically over the course of the projects (e.g., once a year for three years). In some cases, it may be necessary to compensate people for their travel expenses or time. Explain the topic of discussion in general, but do not provide too much information.

Examples of people who can be recruited for focus groups:

USDA Forest Service

- CFRP program manager
- Rural Community Assistance (RCA) coordinators
- District Rangers
- Forest Supervisors
- Fire management staff
- Fuels specialists
- Timber management staff
- Contracting staff
- Financial officers

Department of State Forestry

- Timber staff
- Fire and fuel specialists

CFRP project

- Project manager(s)
- Project participants
- Workers/employees

Local stakeholders

- Local business people
- Community members
- Tribal representatives
- Land grant representatives

Step 3 — Develop and test the discussion questions

Develop a series of open-ended questions that the facilitator can use to get the data you need. The focus group should be asked several related questions, to confirm what has been said in different ways. For example, if the indicator is amount and diversity of wood products that can be processed locally, the facilitator should ask the focus group several questions about the types and volumes of lumber, building materials, furniture, and crafts that are made in the area.

You should *pilot*, or pre-test, the questions with people who will not be participating in the focus group, to make sure that they can be easily understood and are not misinterpreted.

Step 4 — Ask the questions

Set up the meeting room so that all participants can easily make eye contact, with chairs evenly spaced around a table, for example. If the participants do not all know each other, provide nametags and start with small talk and introductions to make everyone comfortable before the discussion begins. If desired, participants can be given a short, written questionnaire at the start of the focus group session, to get them thinking about the topic before they start talking.

Before starting the discussion, the facilitator should explain how the focus group will proceed and clarify the scope of the discussion, such as whether the information being gathered is about a subgroup within the community or the entire community. The facilitator should explain how the discussion will be recorded (usually a designated note-taker or a tape recorder) and whether or not individual names will be attached to any comments.

As noted above, the facilitator should use several different kinds of questions to get data about each indicator you are monitoring. This will improve the validity of your data. Because you want to be able to compare the focus group results from year to year, it is a good idea to try to get the group to come to general agreement on the current state of the indicator you are tracking.

Step 5 – Record the responses

As with interviews, conducting focus groups requires a reliable means of recording responses. The two most common approaches are using an audio recorder and taking handwritten notes.

Using an audio recorder, such as a cassette tape recorder or digital voice recorder, is the most accurate method and allows the interviewer to focus on the conversation rather than on taking notes. After the end of the focus group, the recorded conversations can then be transcribed word for word into a computer document.

However, there may be cases where audio recording equipment is unavailable or where it would be inappropriate to use. For example, some focus group participants may not feel comfortable having their words recorded. In these cases, you (or an assistant) will need to take detailed notes during the focus group.

When using the handwritten note method, it is important to read your notes back to the participants throughout the conversation (and at the end) to verify that you heard them correctly and to be sure that you wrote down all relevant points. As you begin to analyze the notes, you may need to contact the participants again for further clarification.

You should take care to protect both the confidentiality of your sources and the quality of your data. This means making a copy of all data sheets (such as transcripts, or focus group notes) and keeping them in a locked drawer at a separate location from where the originals are kept (also in a locked drawer).

Example of using the focus group method:

Say that your multiparty group has chosen to monitor local quality of life by keeping track of the extent that traditional forest users' knowledge and practices are part of the project.

Step 1 – Clarify your information needs

Before you select focus group participants or develop questions for them to answer, your multiparty monitoring group discusses what it means by “traditional forest users’ knowledge and practices.” It is agreed that for the purposes of this project, “traditional forest users” are those community members who have been working in or using the forest to gather materials, recreate, or for spiritual reasons for at least 20 years, or whose families have been doing so for more than one generation.

Step 2 – Select participants

Your group decides that the people best equipped to answer these questions are community elders. You also decide that it would be best to choose a facilitator who is a respected community member and is not affiliated with the project—someone community elders will feel comfortable talking to. Since the majority of community elders attend monthly meetings at the community center, you choose this as the best location for your focus group sessions.

Although most community elders attend the monthly meetings, you want to be sure that all community elders are encouraged to participate in your focus group session. To make sure that all elders are invited to participate, you first make a list of all of the elders in the community. Then you announce the purpose, format, and data of the focus group session at the next monthly community meeting and note which elders are there. Your team reviews the list of elders and agrees to visit each elder who was not at the community meeting, to tell them about the focus group and offer to provide transportation to the meeting. Based on the response at the community meeting and individual discussions with elders, your multiparty monitoring team can now compile a list of people who will be participating in the focus group session.

Your multiparty monitoring team works with the facilitator to develop three or four questions that will get information about the extent that traditional forest users’ knowledge and practices are

part of your CFRP project. Together, you agree upon the following questions:

- What are the important traditional uses of this forest?
- How might this CFRP project affect or be affected by those traditional uses?
- How, if at all, is this project addressing these potential effects?

Step 4 – Ask the questions

You could initiate a series of focus groups with traditional forest users, beginning before project planning and continuing during and after implementation. Following each focus group, you could use the information gained to modify your project to better meet these needs. Remember that you want to get the same people to attend each session.

Step 5 – Record the responses

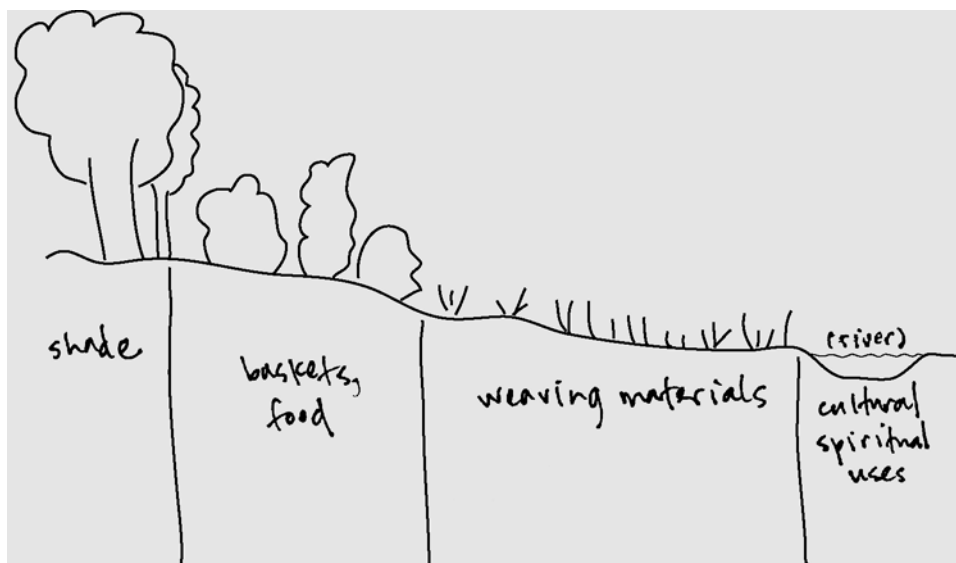
If your focus group participants give you their unanimous consent, you may decide to use a tape recorder or digital voice recorder to record the conversations of the focus group. If consent is not given, you may decide to enlist the help of another respected community member to be present and take notes during the session.

Visual aids for interviews and focus groups

There are many visual aids that can be used to help facilitate interviews or focus groups. Among these are community mapping (described in detail beginning on page 44), landscape cross-sections, and matrices. These aids are particularly helpful when you are working with a group of people who are unaccustomed to answering interview questions. They are also useful for facilitating focus-group discussions.

Landscape cross-sections: Landscape cross-sections are diagrams of a particular area that help people describe the land uses, plant or animal species, soil types, or other issues that relate to different parts of a project area. Figure 2 shows a cross-section used to discuss historical uses of the bosque. When using cross-sections, it is helpful to prepare a list of topics to be discussed or drawn ahead of time. This method may also be used in the field, with groups walking along actual transects and diagramming the uses in a project area.

Figure 2 — Landscape cross-section



Matrices: Matrices are essentially visual graphs of information that allow for group participation. A sample matrix might be developed with a group about historical uses of the bosque. The group could diagram different uses of the bosque according to important time periods in history. Each participant could then place a dot in each box that represents a use that they themselves participated in during a certain time period. The sample matrices in Figures 3 and 4 provide examples of this.

According to the historical matrix shown in Figure 3, most uses of the bosque have declined in the last 30 years. From interviews that accompanied the creation of this matrix, the interviewer might learn that these uses decreased primarily because desirable species no longer existed along the bosque or because the vegetation was so thick that it was no longer a good place to recreate.

Figure 3 — Historical matrix: uses of the bosque

	1940	1960	1990	Present
Recreation	•••••	••••••••	•••••	•
Shade	•••••	••••••••	•	
Children's play	•••••	••••••••	••	•
Basket materials	••••	••••	••	•
Cultural and spiritual	••••••••	••••••••	•••••	•••••

According to the classification matrix shown in Figure 4, pinyon pine was most useful species to participants for its wood and seeds, juniper for its wood, and coyote willow for its bark and wood. Interviews that would accompany the creation of this matrix might give information about whether these products are readily available.

Figure 4 — Classification matrix: trees according to the importance of their products

	Needles or leaves	Bark	Seeds	Wood	Cultural or spiritual use
Pinyon pine	•	••	•••••	•••••	
Juniper		•••••			•
Coyote willow	•	••••		•••••	••
Red bud		•••		••	

For monitoring, visual aids like these can be used to facilitate gathering information related to resource use over time or perspectives on collaboration and conflict. The same variables could be diagramed at the beginning of a project as well as one or more years after the project was implemented.

Community mapping_____

Community mapping can be useful for tracking some indicators. It can also be used at the beginning of a project to discuss project goals and to plan monitoring efforts. The process of map making is often accompanied by rich conversation among project partners and other stakeholders.

Community mapping involves having community members and other stakeholders draw or help to draw maps. Community members should be involved in identifying issues and deciding what should go on the maps. These maps are usually drawn from a “birds-eye” or aerial perspective and may or may not be drawn to scale. They can be used to document important areas for collecting medicinal plants or foods, areas that are important for wildlife or recreation, areas of spiritual importance, or other areas that are significant to community members and stakeholders. Usually, these maps are most appropriate for information about an area that is larger than a project. For example, maps might be created for a national forest district or for a Native American tribe’s reservation and ancestral lands.

Maps can be made in a variety of ways. They can be simple, hand-drawn maps, they can be drawn onto clear overlays in order to compare different values that may be affected by a project, or they can be put into a Geographic Information System (GIS) to make more precise comparisons. Some resources that describe mapping methods in detail are included in the references section of this handbook.

If maps are to be used for monitoring, special care must be taken to ensure that they are produced in the same way every time. At the

Indicators that can be measured using community mapping include:

- ▶ Number and size of contracts offered each year to do restoration work
 - ▶ Opportunities for locals to recreate in the forest
 - ▶ Availability of and access to medicinal, food, heating, or building materials from the forest
 - ▶ Location of defensible space created by the project in relation to areas considered to be at highest risk from wildfire
 - ▶ Number of youth, minority group representatives, or people from low-income communities hired to work on the project, and type of work they are conducting
 - ▶ Extent of tree poaching from restoration sites
-

Data sources for community mapping:

USGS topographic maps
(free maps are available at
www.terra-server.com)

Project area maps

Aerial photographs (some aerial
photographs are available at
[memory.loc.gov:8081/ammem/
award97/icuhtml/aephome.html](http://memory.loc.gov:8081/ammem/award97/icuhtml/aephome.html))

Forest Service scoping letters

Forest Service Schedules of Proposed
Activities (SOPA)

Environmental Impact Statements

Wildland-Urban Interface maps

U.S. Census data (www.census.gov)

beginning of the monitoring period, the multiparty monitoring team should select the symbols or colors that will be used to record different kinds of information, so that all participants record the same information with the same codes. Similar groups of people, such as youth, elders, or Forest Service representatives should be involved in the mapping process each time as well.

There are many ways to make maps, and groups who wish to include mapping in their monitoring projects should refer to other resources, such as those listed in the Reference section of this handbook, before beginning the mapping process.

Some of the questions you will need to consider when beginning a community mapping project include:

Who will be involved in the mapping process?

A community map is most effective when it includes broad representation from the community. You will need to decide if there will be a limit on the number of people participating, and how participants will be chosen. Your multiparty monitoring team can help determine the range of stakeholders who should be involved in the mapping process.

What is the geographic scope of the map?

Are you only interested in mapping the CFRP project site, or should your community map include lands immediately surrounding the project, the local ranger district, or the tribal reservation? Keep in mind the potential application of the community map to future restoration projects.

What are the features to be mapped?

You should be able to describe, in general terms, what kind of information should be mapped in order to provide information about your specific indicators. Do not be overly prescriptive, as this can cause participants to withhold important information that

may not have been obvious at the outset. For example, if you want a community map focused on defensible space and wildfire risk, ask the participants to map any features relevant to those topics and not to simply map the defensible space surrounding their own homes.

What will be the format of your community map?

Community maps can range from simple hand-drawn sketches to complex GIS-based documents. If using a hand-drawn approach, you may want to start with a “base map” which includes simple outlines of major features such as public land boundaries and major roads. Or you may decide to use transparent overlays, with a topographic map as a base layer. If you decide to use GIS for your community map, be sure to conduct the community mapping session in a way that does not confuse or intimidate those with little computer experience. In these cases you may want to conduct the mapping exercises on paper and later integrate the results into a GIS map.

What symbols will be used for mapping relevant features?

It is a good idea to standardize the symbols that participants will use to identify features of importance. For example, medicinal plants might be marked with a series of green squares, old-growth trees with brown dots, and fuelwood areas with orange circles. A legend should be put on each map so that everyone can see what these symbols mean. The multiparty monitoring team may want to choose these symbols as a group.

What supplementary geographic information is needed?

Depending on the complexity and detail of the map you aim to produce, you may need to invest time and energy into locating and gathering geographic information to inform the community mapping process. You may find it necessary to hold several

community mapping forums where participants identify information needs. For example, you may start your mapping process with a simple outline of local public land boundaries and a topographical map. After your first meeting with community mapping participants, you may realize that they need aerial photographs as well as information on forest road conditions, areas of high fire risk, exotic plant densities, and private land boundaries in order to better express their concerns and desires for the landscape. Geographic information specialists with federal agencies, local governments, or tribal offices can be great resources for obtaining maps, GIS layers, and other geographic resources.

What information might be left out of the community mapping process?

Some participants may not be comfortable identifying the locations of certain features. For example, individuals who collect ceremonial or medicinal plants may not want to share their specific collection locations. Other people may not want to give away a secret fishing hole or favorite hunting spot. Do not try to force people to divulge information if they are not comfortable doing so. Rather, try to get a general sense of what kinds of information are unlikely to be shared, and tailor the map to the features people feel comfortable discussing.

Community mapping sessions should be facilitated. While your ultimate objective might be to produce a collaboratively-developed map that can help guide and monitor your CFRP project, recognize that the process itself is also important. Sharing the locations of culturally important places, identifying areas of concern, discussing popular recreational sites – these can all serve as a basis for constructive conversation between different stakeholders who do not normally interact (or who normally interact antagonistically). Do not lose sight of the primary purpose of the session—to develop a community map—but do allow ample space and time for community interaction.

Example of using community mapping to determine acres of defensible space, areas of high fire risk, and opportunities for local families to recreate in the forest.

Your community mapping approach could include two sessions: one prior to project implementation and another held one year after completion of the treatments. In both cases, you could invite members of the community to map areas of particular interest or concern to them, areas which act as escape routes or defensible space from wildfires, and areas where they enjoy recreating in the forest. Spatial information from federal or state agencies, including fire hazard information, could be integrated into these maps to show the relationships between treatment areas, fire hazards, and recreational areas. The “before” and “after” maps could be compared as a means of monitoring the possible effects of the project on fire risk and recreational opportunities.

Glossary

Adaptive management: A resource management approach that combines science and practical experience by treating management actions as experiments. Adaptive management involves carefully observing human and ecological systems' responses to management actions, and adjusting future management based on what is learned.

Aerial: A “birds-eye” perspective, looking directly down at a landscape from above. Aerial photographs are pictures taken from an airplane.

Analysis: Procedure used to evaluate data and provide information.

Baseline data: Data collected at the beginning of a project to document the existing situation. These data provide a benchmark that can be used to compare against data collected after the project is completed.

Causality: The extent to which change in one variable results in a predictable change in another variable.

Checklist: A template containing a list of items you are interested in tracking. Items on the list are checked as they are observed. This allows different individuals to use a consistent means of recording data.

Closed-ended question: A question with a limited number of pre-determined answers.

Community mapping: A data collection method that uses a group of community members or stakeholders to draw or help draw maps of variables that may affect or be affected by a project.

Confidentiality: A guarantee that a person responding to a survey or interview will not be publicly identified. Confidentiality protects respondents' interests and well being by protecting their identity.

Data: A set of observations collected through monitoring. Information is derived from data through analysis.

Factor: A specific event, situation, condition, policy, attitude, belief, or behavior that may affect the desired future condition.

Facilitator: A person who helps conduct a meeting in an efficient and effective manner without influencing its outcome.

Focus group: A data collection method that brings together groups of knowledgeable people for a facilitated discussion on a specific topic. Focus groups usually include five to ten people with similar backgrounds and interests.

Goal: A general summary of the desired state that a project is working to achieve.

Implement: To put a plan or agreement into action.

Indicator: A unit of information measured over time that documents changes in a specific condition.

Informant: A person well-versed on a specific topic who is willing to share what he or she knows.

Information: Knowledge that is extracted from data through the process of analysis.

Interpretation: Explanations that tell what data means. Interpretation takes into account factors like the data collection and analysis methods and external events that occurred during the study period.

Interview: A data-collection method in which one person (the interviewer) asks questions of another (the respondent).

Leading question: An interview or survey question that biases the respondent toward a specific answer.

Monitoring: The periodic collection and evaluation of data relative to stated project goals, objectives, and activities.

Monitoring plan: An outline for the steps taken to ensure that a project is on track. A complete monitoring plan lists a projects' audience, information needs, data collection strategies, indicators, methods that will be used to collect data, and when, by whom, and where data will be collected.

Monitoring team: The group of people involved in developing and implementing a monitoring plan.

Multiparty: Involving members from a variety of backgrounds and perspectives.

Objective: A specific statement detailing the desired accomplishments or outcomes of a project.

Open-ended question: A question specifically worded to encourage respondents to provide their own answers. Open-ended question often begin with words like 'why', 'what', 'how', or 'where.'

Outcome: The result of an action or set of actions.

Participation: Active involvement in the design, implementation, and monitoring of a projects.

Population: A clearly defined set of people who represent all of the individuals with a specific set of characteristics. For example, all residents of a community or all youth aged 14–20.

Questionnaire: A written survey document listing questions designed to solicit information appropriate for analysis.

Random sampling: A method for selecting interview or study subjects in which each individual in the population has an equal chance of being selected.

Representative: Having the same distribution of characteristics as the population from which it was selected.

Resources: Items that a project has or needs, such as staff time, managerial time, local knowledge, money, equipment, the presence of trained people, and social and political opportunities.

Respondent: A person who provided data for analysis by responding to interview or survey questions.

Sample: A subset of a population.

Stakeholder: Person who has a vested interest in the natural resources of the area or who could be affected by project activities.

Survey: A set of questions posed to a group of subjects about their attitudes, beliefs, plans, lifestyles, or any other variable of interest. Surveys may be conducted in person, over the phone, or through the use of a written form (*a questionnaire*).

Transect: Straight lines across a study area used for sampling. Measurements are taken at regular intervals along transects.

Trend: Direction of change.

Unit: A single item or individual. For example, a community, a household, a person, a garden plot, or a tree.

Variable: A particular characteristic that an observer is interested in measuring.

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Acknowledgments

Many individuals offered their time and expertise toward the development of the monitoring guidelines that form the basis of these handbooks. We gratefully acknowledge the contribution of the following individuals:

Craig Allen, U.S. Geological Survey/Midcontinent Ecological Science Station
Gregory H. Aplet, The Wilderness Society
Dennis Becker, USDA Forest Service, Pacific Northwest Research Center
William Block, USDA Forest Service Rocky Mountain Research Station
Sam Burns, Fort Lewis College
Nils Christoffersen, Wallowa Resources
Geneva Chong, U.S. Geological Survey
Max Cordova, El Greco and La Montaña de Truchas
Cecilia Danks, University of Vermont
Rick DeIaco, Village of Ruidoso
Tori Derr, Forest Trust
Carl Edminster, USDA Forest Service, Rocky Mountain Research Station
Don Falk, University of Arizona, Tree-Ring Research Lab
Deborah Finch, USDA Forest Service, Rocky Mountain Research Station
Cornelia Flora, Iowa State University, Center for Rural Development
Peter Fulé, Northern Arizona University, Ecological Restoration Institute
Peter Gaulke, USDA Forest Service, Region 3
John Gerritsma, USDA Forest Service and Bureau of Land Management
Quinn Griffin, Escalante Heritage Center
Richard Hart, Ashland Oregon
Jan-Willem Jansens, Common Ground
Ajit Krishnaswamy, National Network of Forest Practitioners
Andrea Bedell Loucks, Pinchot Institute for Conservation
Taylor McKinnon, Grand Canyon Trust
Mary Mitsos, National Forest Foundation
Bob Moore, Catron County Citizens Group
Ann Moote, Northern Arizona University, Ecological Restoration Institute
Dan Neary, USDA Forest Service, Rocky Mountain Research Station
Brian Nowicki, Center for Biological Diversity
Melanie Parker, Northwest Connections
Deborah Potter, USDA Forest Service, Region 3
Michael Quintana, New Mexico Community-based Forestry Alliance
George Ramirez, Las Humanas Cooperative
William H. Romme, Colorado State University
Melissa Savage, Four Corners Institute
Todd Schulke, Center for Biological Diversity
David Seeholtz, USDA Forest Service, Region 3
Tom Stohlgren, Colorado State University
Joe Truett, Turner Endangered Species Fund
Bob Unnasch, The Nature Conservancy
Lisa Wilson, Watershed Research and Training Center
Barbara Wyckoff-Baird, The Aspen Institute
