CHAPTER FIVE

Challenges of Collaborative Planning

The collaborative-planning approach rests firmly on two foundations: credible scientific information and broadly inclusive participation. One of the challenges for collaborative planning will be to develop the institutions and available expertise for scientific involvement while at the same time operating in an open, public forum wherein all those with responsibility and interest are involved throughout the process. Thus, this approach moves well beyond notions of public participation as simply distinct stages in an otherwise technical process. It also moves beyond an expert-driven model of planning wherein narrowly focused analysis considers a range of alternatives all within a single-agency context. Because new strategies are needed for conservation of large-scale ecological processes and because participation is necessary to achieve coordination across administrative or governmental boundaries of responsibility, collaborative planning requires a more complex model of both democratic processes and scientific engagement than past planning efforts.

The first two sections of this chapter address these issues and include substantive recommendations by the Committee on new institutions, processes, and resources. A following section addresses the issue of the Forest Service appeals processes in the context of collaborative planning. The last section addresses a somewhat different issue: Given that sustainability is a global concern, how does the collaborative-planning process proposed here fit with global criteria for sustainability?

5A. Building Decisions on a Strong Foundation of Scientific Information

Public-land management has always rested on scientific and technical knowledge, not simply the desires of the public or the preferences of managers. Today, that commitment to scientific credibility has grown inside and outside of the Forest Service. Managers seek it, interest groups call for it, and the public expects it. For this reason, the collaborative-planning process outlined in this report integrates scientists and researchers within that process.

Recent experiences with bioregional assessments and science-policy processes in which scientists played a significant role suggest that new institutions, new funding support, and new roles for scientists and researchers are emerging. Partly, these requirements have resulted in response to legal challenges. Partly, however, they have resulted from the recognition that monitoring, adaptive management, and the complex system-level analysis necessary for sustainability simply demand expertise beyond the capacity of most managers and specialists. Research and technology are moving so quickly that scientists and researchers must themselves partici-

pate in developing and evaluating the information needed for "scientifically credible" conservation strategies and land-management approaches.

This section attempts to answer two questions: What does "scientifically credible" mean in collaborative planning? And what institutions and roles must the scientific community and the Forest Service develop to ensure that decisions are based upon credible scientific information and can withstand independent scientific review?

New Roles for Scientists in Land and Resource Planning

In the first round of forest plans under NFMA, managers and interdisciplinary teams sorted though the available information to design strategies that would allow the maximum sustained yield of commodities and amenities subject to "minimum management requirements" for protection of species and ecosystems. Scientists, by-and-large, sat on the sidelines during "forest planning." However, in response to the environmental laws of the early 1970s, in particular the Endangered Species Act and the Clean Water Act, federal and private funding for ecological research grew dramatically. Several major research initiatives like the Man and the Biosphere Project led to not only new scientific findings but also new theories about ecological and social systems.

As research expanded scientific knowledge about ecological and social systems, the new theories and data led to scientific concerns about the consequences of timber harvest on species, watersheds, and ecosystems. Scientific concern combined with a growing dissatisfaction among the public with clearcutting led to legal challenges to public-land management based on claims of an inadequate scientific basis for decisions. For example, in the Pacific Northwest, a series of lawsuits about the adequacy of protection for species associated with old-growth forests as well as threats to anadromous salmon stocks revealed that current management of federal lands could not withstand scientific scrutiny. This situation led the Forest Service and other federal agencies to call for "scientifically credible conservation strategies," first specifically for the northern spotted owl and then for old-growth species and salmon stocks.

Scientists, under the leadership of Jack Ward Thomas, moved immediately from the sidelines to center stage to construct scientifically credible strategies for management of the federal forests of the Northwest. Their efforts through four studies resulted in a set of alternatives for management of these lands, along with estimates of the ecological, economic, and social effects of the alternatives. One of these options, with some modification, became the President's Plan for Northwest Forests; finally, the federal forests had a plan that withstood legal challenge, albeit based on a strong commitment to monitoring and adaptive management. Rumblings about the adequacy of protection of species and ecosystems in the forest plans also occurred in the early to mid 1990s in most other regions in the country through protests, lawsuits, and attempts at congressional action. Many of these disputes resulted in a call for science and scientists to help sort out the competing arguments. It was these forces that led to the assessments on species (e.g., the red-cockaded woodpecker, the inland trout species across the west, and the northern goshawk in the Southwest) and assessments of bioregions (e.g., the Southern Appalachia Assessment, the Interior Columbia Basin Ecosystem Assessment, the Sierra Nevada Ecosystem Assessment, and the Tongass National Forest Assessment).

Each of these assessments carried consequences for the role of scientists and scientific

information in land and resource planning and management. In both the Interior Columbia Basin and the Tongass National Forest, the scientists continue to be deeply involved in assessing current conditions and trends while managers craft conservation strategies and make initial estimates of effects. In both cases, scientists and managers are working to identify the issues and set up the conceptual framework for analysis. In both cases, scientists have reviewed the consistency of these strategies and estimated effects with scientific understanding and have published their analysis in a separate report. However, while the above discussion has focused primarily on the forestry component of the planning process, it needs to be emphasized that other uses and activities on National Forest System lands (e.g., grazing, mining, fire, road construction, recreation, and flow withdrawals and diversions) can similarly have major impacts on planning, management, and attainment of sustainability. Their exclusion from the above discussion is not meant to relegate them to a lower level of concern.

In sum, the Forest Service (and other agencies in most cases) has embraced the notion that land- and resource-management planning must make effective use of scientific and technical analysis and review. Now, the agency and research community must develop the institutions and procedures necessary for collaborative planning to involve scientists effectively and appropriately as a matter of normal procedure.

Integrating Scientific Information into Collaborative Planning

Collaborative planning rests upon a foundation of scientific information developed by scientists and other knowledgeable people in an open, public process. This "assessment" process ensures that current scientific thinking is part of the planning process as well as a sound foundation of credible information. Issues in planning that have a significant scientific content include: whether the temporal and spatial scales being considered are appropriate for the questions being asked, whether all relevant information is being considered, whether that information is interpreted in a manner consistent with current scientific understanding, whether the level of risk to species and ecosystems associated with the alternatives is acknowledged, and whether the uncertainty of our knowledge is recognized.

In the application of scientific understanding to managing large landscapes, we generally are not talking about a classic application of the scientific method. Hypothesis testing at the landscape scale though controlled experiments is difficult. Rather, we are talking about scientific knowledge as a set of working hypotheses that are informed by experiments, demonstrations, argument, and reflection. Over time, those hypotheses are retained, revised, and discarded as needed. Scientists expect them to change; eternal truths are hard to find. Often, their revision occurs at the most inopportune time for managers. Nonetheless, a scientific way of thinking is at the heart of adaptive management.

To further complicate matters, there is rarely complete unanimity among scientists. On some issues, there are a variety of hypotheses having near-equal support among different groups of scientists. On other issues, strong support exists for a particular working hypothesis, although a dissenting opinion will almost always exist.

As a result of numerous discussions of this topic, the Committee anticipates that the scientific community can expect to be asked to help with at least five different tasks in collaborative planning:

Creating Knowledge of Relevance to Collaborative Planning

During assessments, specific problems or issues of concern arise for which inadequate information exists. Sometimes scientists are needed to undertake traditional research (hypothesis testing), and at other times they are asked to summarize the state of knowledge. This second role is very important because many of the practical issues in land and resource management have not been addressed by traditional research. Such issues include: determining the habitat requirements of owls, the effectiveness of fuel breaks in stopping wildfires, the growth and mortality patterns of riparian forests, or the mimicking of natural patterns of cleared areas in forests to make clearcuts more acceptable to the public. Generally, scientists prepare white papers that synthesize the state of knowledge related to issues. Given that these questions relate to expected results of management activities, scientists play an important service in relating theoretical models to actual practices.

Developing the Integrative Science for Bioregional Assessments

The shift to a bioregional and large-landscape scale creates a different sort of challenge for scientists. Understanding large-scale processes requires a new theoretical approach and a new integration across disciplines. For example, in the Interior Columbia Basin Ecosystem Assessment, scientists were asked how to assess the state of different fish stocks in the 160-million-acre Columbia Basin, the state of forest health in the northern Rocky Mountains, and the implications of placing roads in roadless areas. What to measure and what scale to use are critical questions that must be answered before scientists can provide a scientific foundation for conservation strategies. Answering these questions requires integration of different types of information across many disciplines and at scales not usually encountered in traditional research. Furthermore, compromises in information quality may result when attempting to answer a wide range of questions.

Helping Managers Understand the Application of Scientific and Technical Knowledge

As new policy requirements are issued from Congress, the administration, or the courts, scientists are often called upon to help interpret them from a scientific standpoint and ensure that the resulting instructions to the field have scientific credibility. The regulatory language for implementing ecological sustainability developed by the Committee uses the concepts of “ecosystem integrity” and “species viability” as central concepts. Without a doubt, scientists will be involved in interpreting the meaning of these concepts and working with managers to develop field-tested methods for implementing such rules.

Based on the assessments, the first step in planning is defining the desired future condition across large landscapes and bioregions. As resource specialists, planners, and managers undertake these tasks, they will have a multitude of questions about how to define the desired future conditions in terms that lead to measurable strategies for achieving them. They will need scientific assistance in translating conservation strategies derived from the assessments into practical management approaches that can be expected to achieve the desired goals. Answering these questions, as

vital as they are to the planning effort, is not the traditional domain of research scientists.

As specialists and managers begin to implement strategic plans for large landscapes, they will need the assistance of scientists to help craft creative ways to accomplish the plans' objectives. In recent experience, landscape-scale strategic plans, like the Northwest Forest Plan, have relied upon "default prescriptions" developed by scientists within the planning process to implement the conservation strategies with the full expectation that local knowledge developed in the field would lead to more-effective, site-specific approaches. As might be expected, these prescriptions often do not fit field conditions very well, yet managers are understandably reluctant to vary the standard prescription without assistance and field review by scientists. Adaptive management simply necessitates a new role for scientists in not only developing ideas for conservation strategies and how to achieve them but also working more closely with technical specialists and managers in applying these ideas and adapting them to field conditions.

Helping to Design Effectiveness-Monitoring Procedures and Adaptive-Management Experiments

Monitoring is a key component of collaborative planning. Yet, there are few standard procedures to draw upon for designing effectiveness-monitoring procedures for the millions of acres in a strategic plan for large landscapes. This deficiency especially holds true with the limited funds available for such work. Selecting an efficient, yet dependable, set of measures will require scientific involvement.

Evaluating the Use of Scientific Information in Planning and Implementation

Once strategic plans or sets of projects are proposed (along with estimates of their effects), policy-makers, interest groups, and the public often challenge their scientific bases. These "science-consistency checks" and field project reviews are just beginning, but are quickly becoming an important new role for scientists in collaborative planning.

New Institutions Needed to Support Scientific Information and Review

Independent review is essential if scientific and political credibility are to be achieved in a collaborative-planning process. Thus, the Committee makes four major recommendations to provide for scientific review.

Forest Service Research

Forest Service Research (FSR) will need to shoulder major responsibilities for the assessments, monitoring, and adaptive-management aspects of collaborative planning. Forest Service Research, as an existing institution, will need to provide the day-to-day information, evaluation, and advice to address the five tasks listed above. Although these efforts may be assisted by scientists in other federal agencies and from outside the federal government, Forest Service Research must form its core. This effort will call for an expanded mission for this branch of the Forest Service and will

5-1. Why Science Is Not Enough: Understanding the 1960s Controversy on the Bitterroot National Forest

When Harold Anderson came to the Bitterroot National Forest (BNF) as Supervisor in the late 1950s, he saw the forest through the eyes of a professional forester with a master's degree in forestry from Yale University. What he saw worried him: uneven stands of commercial timber with old growth mixed throughout the stand that was overstocked by silvicultural standards and a target for disease. So, in a effort to "get modern," a timber-management plan was developed by Ray Karr, hired specifically for this task. Indeed, he was immediately faced with huge fires coming in consecutive years and leaving more than 30,000 acres of burned-over ridge lines behind. So, Ray's directions were to accelerate the harvest of old growth to make way for younger, more productive forests; to emphasize disease control, especially for mistletoe in the Douglas fir and pine beetles; and to improve the availability of timber to the local sawmills, partly through salvage efforts. In 1950, only 3 million board feet were harvested from the BNF; by 1955 it was 14 mbf; and by 1964, through the timber-management plan, the BNF sold 70 mbf and built nearly 60 miles of roads.

The goal to modernize forestry through scientific methods of timber management applied to all of the national forests, and the BNF was one of the most advanced forests in Region 1. Indeed, one reason that the BNF could rapidly respond to this national call was because it had a cadre of old Civilian Conservation Corp road locators, allowing it to garnish more of the region's road-building budget than other forests and thereby access more areas to sell. Another reason, however, was its application of the reforestation technique of "terracing" on steep slopes. The costs of reforestation through hand preparation and planting averaged

require allocating a significant portion of the energies of this organization to supporting land and resource planning and management.

The Forest Service is blessed with its own research organization, one of the finest natural-resource research organizations in the world. Forest Service Research has fought for and achieved a mission that emphasizes scholarly work and allows considerable independence in defining a research agenda apart from the immediate needs of the National Forest System. Although making collaborative planning work will require efforts both inside and outside the federal government, we have reached one inescapable conclusion about the key to its success: collaborative planning can succeed only if there is a strong, deep, and sustained commitment to it from Forest Service Research.

Of the five tasks mentioned above, only the first one has been the traditional domain of Forest Service Research on a regular basis. Requests for help on the other four have been very occasional and are seen as "special assignments," extraordinary activities not related to the "real work" of the research unit. All this must change if collaborative planning is to have a reasonable chance of success.

National Forest System

National Forest System (NFS) technical staff must also shoulder major responsibilities to facilitate collaborative planning and scien-

about $100 per acre, and had an average survival rate of 20% on harsh, south-facing slopes. Using machinery to prepare slash for burning and create terraces allowed the BNF to use machine planting at about $50 per acre with an average seedling survival of more than 80% on the south-facing slopes.

Technically, terracing had been developed for slopes of less than 30% as a means for trapping all available moisture and eliminating competing vegetation; its goals were to improve reforestation rates and to decrease costs. However, it worked so well to conserve moisture and decrease mortality among seedlings, that it was tried all over. Knowing that this method was still experimental, the BNF brought researchers in at every step to review the plans and the field conditions.

As Orville Daniels, Supervisor on the BNF from 1970 to 1974 eloquently summarizes, clearcutting and terracing was cost-effective and technically successful and it created no watershed problems from siltation, but it was socially unacceptable. The clearcutting controversy arose on the BNF because the opinion leaders and key people in the adjoining communities never participated in reviewing this decision until they saw areas of the forest they loved treated in a way that offended them.

By 1969, when Senator Metcalf asked the dean of the University of Montana Forestry School to convene an independent faculty group to review the management practices on the BNF, the underlying reason for the controversy had spread across the nation. People expected to participate in reviewing agency plans, and they valued the many multiple uses and benefits from the forests, not just the timber production. The simple statement by the University Committee, "multiple use as a reality is not practiced on the BNF," sums up the public perspective of efforts to concentrate management on efficient, scientific timber production.

tifically sound management activities. While relying on FSR and nonagency scientific committees is important for ensuring the scientific credibility of management decisions, a key step in promoting sound decisions that will withstand external review is an increased capacity for NFS to effectively develop, implement, and evaluate scientifically based plans and management strategies and actions. A diverse and effective cadre of professionals grounded in science must be provided for in NFS. They must have support to develop and maintain technical skills to allow them to operate effectively between scientists and policymakers. To be credible, their efforts should be subject to open technical review.

NFS scientists and technical staff are one step closer to management issues and problems, and they develop relationships with land managers that can provide more rapid attention to pressing issues and more direct links to scientific information. NFS technical staff can provide an important link between science and policymakers, but they may lack the external credibility of FSR. Clearly, both FSR and NFS have important contributions to make to ensuring sound and credible collaborative planning. Their new roles and responsibilities need to be articulated in expanded missions for both and supplemented with the budgets necessary to fulfill these critical new tasks.

While FSR has an important and central role to fulfill in enhancing collaborative plan-

ning, it cannot and should not shoulder this responsibility alone. Care must be taken to ensure the ongoing credibility of FSR and to maintain its solid foundation of basic research. NFS technical staff must adopt a more central role as an interface between policymakers and the research community and between policymakers and managers on issues bearing on the scientific basis for decision making. While FSR can, for example, help create and evaluate science-based protocols for monitoring or assessments; help develop the scientific basis for creating, evaluating, and modifying standards and guides; develop science-based frameworks; and provide or secure independent review of the scientific foundation of plans, NFS technical staff should bear responsibility for assisting, enabling, and ensuring managers' ability to apply this guidance to their day-to-day management decisions. Additionally, NFS technical staff are in a position to more directly involve and benefit from the insights and knowledge that managers possess about trends, impacts, and on-the-ground realities.

Evaluation

Institutions and procedures must be established to evaluate, on a regular basis, the use of scientific thought in planning and implementation. These reviews serve both to provide independent verification of the scientific foundation of plans and their implementation and to highlight and reward creative approaches to the challenging issues faced in the management of the national forests and grasslands. The expectation of an evaluation at the end of the planning process should encourage collaboration among managers, specialists, and scientists as the plans are developed.

There should be an evaluation of the use of scientific and technical information in strategic planning (i.e., an evaluation of the consistency of strategic planning and plans with scientific and technical understanding). The "science-consistency" check undertaken by the Tongass National Forest land-management plan (Everest et al., 1997) is a step in this direction. In this case, the scientists who conducted the assessment as part of the land-management planning process evaluated the alternatives and analysis of management effects based on their "consistency" with the body of scientific information in the assessment. The science-consistency check can be used to achieve consistency through iterative application that involves successive improvements in how scientists state their findings and in how the framers of management policy interpret the implications of those findings. In the case of the Tongass National Forest planning effort, the science-consistency check was itself subjected to independent scientific peer review.

Because a finding of a lack of consistency can be a point of appeal or legal challenge, a thoughtful, thorough check can help avoid that problem. Questions that would be asked in a science-consistency check include the following: Are the temporal and spatial scales being considered useful for the resource-conservation issues being addressed? Was all relevant information considered? Was this information interpreted in a manner consistent with current scientific understanding? Has the level of risk to species and ecosystems associated with the alternatives been acknowledged and reported? Has the uncertainty of our knowledge been recognized?

Field reviews of projects should also be conducted. These reviews should address two basic questions: Are the proposed actions a credible attempt to meet the goals of the plans from a scientific and technical viewpoint? Were the actions taken in the field consistent with what was proposed.? The interagency PACFISH reviews could serve as a model for this effort, assuming that the interagency committee was broadened to consider all the values recognized in the plans.

Science and Technology Advisory Board

The Chief of the Forest Service should establish a science and technology advisory board with a primary goal of helping collaborative planning become a reality on the national forests and grasslands. This board would provide highly qualified and independent advice to the Forest Service to assure that the most current and complete scientific and technical knowledge is used as the basis of land and resource management. The board would help the Forest Service effectively accomplish the suite of tasks, such as those listed above, important to successful implementation of collaborative planning. They would be especially useful in advising the Forest Service on how to accomplish the many tasks that will require new directions and energies from Forest Service Research and the scientific community in general.

The board's members would include scientists and other specialists from a broad range of disciplines: biology, ecology, earth sciences, economics, sociology, and other fields. The members should come from a wide variety of organizations doing scientific work, including academia, industry, independent laboratories, and American Indian tribes. There should be a variety of backgrounds represented in the diverse and well-qualified group to help ensure a broad range of outside perspectives.

The membership should consist of an interdisciplinary group of nationally known scientists and planning experts from outside the National Forest System. The variety of scientific and technical specialties represented on the board should span the range of resources, issues, values, and geographic regions encountered in national forest management. In

5-2. Advisory Boards

The Scientific Roundtable on Biodiversity convened by the Chequamegon and Nicolet national forests in Wisconsin serves as an example of how advisory boards have assisted the Forest Service in land management. Two advisory boards, convened in 1992, were made up of teams of scientists and sociologists who subsequently provided reports that have influenced land management on these two national forests. One group focused on scientific issues, particularly biodiversity; the other focused on socioeconomic aspects of managing the forest.

The Scientific Roundtable assessed particular risks involving diversity in northern Wisconsin. Each risk was ranked according to its severity, possible responsiveness to changes in management, and uncertainty. The Roundtable concluded that many biodiversity concerns were best approached on a regional or landscape scale.

The Roundtable developed 23 sets of management recommendations that emphasized how particular risks could be mitigated or eliminated and discussed how uncertainties might be resolved via future research. The Roundtable also recommended that further research monitoring is necessary to more accurately detect threats to biodiversity and to assess how threatened elements respond to changes in resource management.

The Roundtable was successful in terms of bringing science to bear on the complex and difficult issues surrounding biodiversity. The research and management recommendations are now being used to influence management processes on these two national forests in Wisconsin.

addition to members, the activities of the board may be enhanced by consultants invited by a committee chair to serve on an "as needed" basis on various issues to which their expertise is relevant. The number of consultants is flexible, and their one-year term can be extended indefinitely. Consultants would be expected to meet the same standards of technical expertise as the members.

The 20-year history of the Science Advisory Board (SAB) of the Environmental Protection Agency (EPA) could serve as a model for some elements of the Forest Service board. Because the requests for projects now exceed the number that the boards can address, the EPA SAB has adopted the following criteria for prioritizing requests:

- Impact overall environmental protection
- Address novel scientific problems or principles
- Integrate science into agency actions in new ways
- Influence long-term technology development
- Deal with problems that transcend organizational boundaries
- Strengthen the agency's overall capabilities
- Serve leadership interests
- Deal with controversial issues

These criteria may useful for the Forest Service to consider in establishing this board.

5B. Integrating Scientific and Public Deliberation

Deliberation is a process in which a variety of perceptions, interpretations, claims, and contentions are openly discussed, critiqued, and challenged. Simply put, deliberation represents democracy in action. When used as a process for finding areas of agreement amongst scientists, stakeholders, or the public, deliberation needs to ensure inclusivity, openness, safety of expression, and respect for divergent views and positions. Clearly, a deliberative approach to participation takes time, involves numerous discussions across a wide cross-section of participants, and seldom leads to full consensus or complete agreement. Nonetheless, only through deliberative processes can collaborative planning create credible scientific strategies or public and stakeholder support. Without this legitimacy, it is difficult for planning to make a difference or have worthwhile results.

Public issues vary widely. In land- and resource-management planning, they vary in terms of whether there is sufficient scientific and technical information available to understand them or the implications of alternative strategies and actions. They also vary in terms of their contentiousness: some issues involve multiple goals and diverse social values, and require extended public discussion to define desired future conditions as well as strategies to achieve them. Thus, the nature and quality of public and scientific issues argues for different approaches to deliberation. A collaborative-planning process needs have the flexibility to treat issues differently.

The more that multiple goals and diverse social values are involved, the more that stakeholders representing the range of values in contention must be convened in a deliberative process aimed at developing options that reflect those different goals and values."Stakeholders" are all affected parties, including other federal agencies, state and local governments, tribes, and the public. And the more complex and ambiguous the scientific and technical information concerning an issue, the more that experts must be involved to assist with and provide credibility to the public

Table 4-1. A typology of information.

State of Knowledge	Agreement on Values	
	High	**Low**
Well-Developed	Routine analysis with periodic stakeholder and expert review	Emphasis on stakeholder deliberation with periodic expert review
Tentative/Gaps Disagreements/ Research Needed	Emphasis on expert deliberation with stakeholder review	Emphasis on both stakeholder and expert deliberation (wicked problems)

deliberation. Constructing a typology (see Table 4-1), with the state of knowledge as one dimension, and the agreement on values as the other, creates four assessment and planning situations that differ in the need for and type of stakeholder and expert deliberation.

Developing conservation strategies for species and ecosystems as well as treatments and actions that serve as pathways to desired future conditions are generally problems for which no one solution will satisfy all stakeholders or enjoy complete consensus among the scientific communities. In these cases, both assessments and decision processes must bring stakeholders and experts together in an extended deliberative process that involves multidimensional tradeoffs based on tentative knowledge.

In general, ongoing deliberation builds familiarity with public issues, the diversity of public viewpoints, and the complexity of the ecological and social systems. When planning is not an "event" but a continuous activity, then deliberation can build trust and legitimacy for public action. Regular expert and public deliberation also provides a long-term forum for public, scientific, and agency learning.

A Participatory Approach Is at the Heart of Democracy

Sustainability connects economic and social welfare with the maintenance of ecological integrity and productivity. Achieving this integration requires democratic processes, in which people participate in designing effective strategies and work together to carry them out. Thus, the simple democratic premise that people should participate in making decisions about issues important to them and which may affect them lies at the heart of sustainability. Indeed, working toward sustainability allows this generation to act as a steward for future generations, as well.

Our proposed collaborative-planning process rests on strong principles of democratic participation in planning and decision making. Public deliberation is a concept that expresses the democratic ideal of self-governance. In a collaborative-planning process, participants include: other agencies, other governments, tribes, interested organizations, communities and citizens. The terms "public involvement" or "public participation" emerged in the 1960s as correctives for government decisions contrary to the will of the people or affected stakeholders. Today, formal public-review processes are now required for nearly all types of government decisions. However, these terms refer to formal and informal administrative processes that allow the public to provide issues for consideration in planning, comments on proposed government actions or expenditures of public money, or comments on proposed government regulations. A collaborative-planning process rests on continuous, open participation by all stakeholders, interested parties, and the public. Simply providing issues for consider-

5-3. Public Participation in the Huron-Manistee National Forest Forest-Plan Revision

In 1995, the Huron-Manistee National Forest (HMNF) and the Eastern Regional Office developed a strategy to revise the forest plan. The overall vision was that the revised Forest Plan would be widely endorsed at the end of the process. The process would be open and fair, with employees and the public working in a collaborative and cooperative manner. A brochure, "Invitation to Participate," was developed that explained forest planning and the revision process and invited the public to actively participate.

In June 1996, a forest-plan-revision "need-for-change" process was initiated.

The public was invited to comment at 13 public meetings throughout HMNF on items that they felt needed to be changed in the forest plan, and on how they would like to participate in the process.

2500 interested public were also contacted by mail and invited to participate, either by writing or by attending the public meetings. During each step of the process, the media throughout Michigan were contacted and informed of events and results.

A content analysis of all suggestions was completed. More than 150 statements were identified as change, no-change, and discussion items. Discussion items consisted of suggestions that were in conflict with each other and highly charged issues, such as early successional habitat, old growth, allowable sale quantity, and roads. Various ideas and suggestions on how the public desired to participate in the process were documented. A common desire was to have public working group sessions that openly discussed the discussion items.

The need-for-change items and the proposal to conduct working group sessions were shared with the public at an open meeting and through mailings. The public commented, and modifications were made based on their feedback.

HMNF identified 12 discussion items (hot topics/no agreement), and briefing papers presenting all aspects of each topic were developed.

The briefing papers were discussed at a two-day public meeting. The purposes of the meetings were to determine whether all aspects of each discussion item had been adequately captured in the briefing papers and to review information about each item. On the basis of feedback at the meeting, the briefing papers were revised.

Twelve one-day public working group sessions were conducted to discuss each discussion item. Pre-work packets were mailed out two to four weeks prior to each working group session. Experts were invited to present information, and the public debated and discussed the issues at the working group sessions. HMNF documented areas of agreement and areas where there was a diversity of opinion and the reasons. All participants had equal opportunity to participate. HMNF documented each working group session and mailed the results of each session to participants and interested publics.

HMNF completed the need-for-change process by preparing a forest-plan need-for-change assessment that visibly incorporated the results of the public-participation process. The draft document was reviewed at a public meeting and revised on the basis of the feedback received at the meeting. A finalized need-for-change assessment was mailed to participants and interested publics. Interest-group representatives; individuals speaking for themselves and their families; tribal, state, and federal government representatives; and Forest Service leadership team and staff all participated in the process.

In summary, the public participated throughout the need-for-change process in a manner it selected, in equal standing, and in partnership with the Forest Service and other stakeholders. A full spectrum of diversity and diverging opinions were represented throughout the process. Participants got to know and understand each other. Experts participated as a source of information. The Forest Service role was to facilitate, keep the public on course, prepare and present information, be neutral, and listen. After listening, the need-for-change assessment was developed and widely accepted by the public.

ation or comments on proposals is nowhere near sufficient for a collaborative-planning process. Thus, this report avoids these terms to reduce confusion.

Rather, the concept of a "participatory process" is used to refer to democratic decision making and "public deliberation" is used to refer to the ongoing dialogue across multiple stakeholders, scientists, and the public in a participatory process. In addition to dialogue, however, the public has two other important responsibilities: to contribute to wise decision making and to contribute to evaluating the performance of government programs and activities. Thus, there are three primary roles for the public in a participatory process:

- *Deliberation of public issues* means that people contribute to developing the information needed for planning, join in debating public purposes, and come to better understand the perspectives of others interested in, and knowledgeable about, the lands and resources.
- *Coming to public judgment* can occur when sufficient deliberation results in wise and considered decisions.
- *Public review of performance* by federal agencies responsible for developing and implementing policies is an important public duty and needs to become an ongoing part of the planning process through monitoring and external review.

Contributing to Building Decisions and Evaluating Performance

Coming to public judgment (i.e., defining desired future conditions) is a time-consuming process when overlapping public purposes must be integrated within complex strategies for land and resource conservation and management. This process cannot be rushed, but it can be expedited by maintaining an ongoing dialogue. Ongoing processes of public deliberation create

5-4. Public Participation in Plan Revision on the White Mountain, Green Mountain, and Finger Lakes National Forests

A few years ago, the planners on the White, Green, and Finger Lakes national forests in the Northeast got together to develop a strategy for forest-plan revision. Though we needed to write three separate forest plans, we knew we had a large number of "constituents" in common who wanted consistency in our approaches. We also knew we could do a much better job together, harnessing the creative energies of the group. We wanted to create a new process wherein people (the public) would be involved up-front helping develop planning materials, rather than critically reviewing products created by the agency.

We reviewed past planning efforts and research, trying to use the best of each that would take advantage of the collaborative New England culture. There have been a number of successful planning efforts in the past, such as the Northern Forest Lands Council and the New Hampshire State Forest Resources Plan. These endeavors made it clear that the Forests would have to work closely together to accomplish ecosystem-sustainability goals and resolve the social issues. It was also clear that people would not tolerate being excluded from the process. This "no-surprises" philosophy evolved into a "plan for the plan" with four basic principles:

1) Nonagency people would be brought into the process from the beginning. They would be asked to help identify issues, determine what information was required, and decide how the public would be involved.

2) Information would be widely shared. Virtually any information developed by the agency would be shared with others. People who are interested in forest-plan revision would be urged to bring their data to the table.

3) Participants would learn from one another. Meetings of people interested in plan revision would be, among other things, educational forums. People were to express their views and provide information to support their points. Forest Service employees would be participants rather than controllers of the process.

4) Joint problem solving would be expected. No single organization or individual would be responsible for solving the problem. Everyone would share responsibility for helping devise solutions.

The process design we created divided public-participation phases into discrete units so that people could come in and feel productive, whether it was for one of the units or the whole process. We wanted people to understand that we wanted their involvement for the long haul, but we also wanted to give them the opportunity to step out and take a breather instead of burning out.

The units in this pre-notice of intent or "prescoping" portion of plan revision included outreach, public planning groups, local planning groups, technical working groups, and public forums, which culminated in the issuance of a notice of intent and the transition to the more formally defined phases of forest-plan revision.

Outreach: The Green Mountain and White Mountain national forests held seven geographically scattered sessions, including a joint session in Boston. The Finger Lakes held two sessions. We

asked participants to identify what they thought needed to be revised in the forest plans. We received thousands of comments. The comments were analyzed, summarized, and grouped into issues and subissues.

Public Planning Groups: Sessions were held on each forest. Three weekday sessions were held on the White Mountain National Forest and five were held on the Green Mountain National Forest. We held five sessions on the Finger Lakes National Forest, and varied the times from weekdays to weekends to consecutive weeknights to draw a diverse group of participants. The public planning group on the White Mountain National Forest reviewed issue briefs developed by Forest Service specialists for each of the issues, while the Green Mountain National Forest and Finger Lakes National Forest public planning groups developed issue briefs in concert with Forest Service staff. Those sessions built upon the work of the outreach comments and gave participants a chance to exchange knowledge about the issues. Planning-group members also raised questions for the technical working group in the succeeding phase, which they believed needed to be answered in revision.

Local Planning Groups: Originally, we planned to have about a dozen local planning groups established and facilitated in the Northeast, from New York City to Maine. Our intent was to allow interested people to come together in diverse groups for a few hours each month and discuss the issues. The results of these meetings were then to be carried forward to the public planning group on each forest. This effort failed. Funding was insufficient to provide paid facilitators for the discussions. Groups were encouraged to form on a self-directed basis; however, that never really took off.

The next two phases are more theoretical in nature because we have not yet reached them. The Green Mountain and Finger Lakes forests are under the moratorium on revision. Work is proceeding on the White Mountain National Forest in the following two phases:

Technical Working Groups: During this phase, the latest scientific information concerning each issue will be collected. The degree of scientific controversy will be identified, as will relative risks to sustainability. Literature reviews will be provided for each issue area, followed by symposiums to foster interaction between scientists and the public. Further work will follow to answer some of the questions raised. Our emphasis in this phase will be to bring scientific information forward in a manner understandable to the lay public.

Public Forums: Our goal in this phase is to develop a vision for each national forest that, in a few paragraphs, outlines the role the forest will play in sustaining ecosystems and meeting social needs in the Northeast.

Each phase builds upon the results of the previous phase. Our revision efforts will focus on those areas where a need for change has been identified. The public has helped to describe and clarify the issues. In addition, people have been engaged in an effort that allows them to express their values, share information, and build trust. We have focused on partnerships, collaboration, and involvement by all. The knowledge gained and the relationships formed can then be brought forward through the NEPA process and into implementation and annual plan updates. Positive outcomes to this approach have included continuing work, by the public, on the Green Mountain and Finger Lakes forests on nonrevision projects, such as trail maintenance, and an increase in the number of forest partners and volunteers.

Mary Krueger and Chuck Prausa for the Joint Core Planning Team

a reservoir of public understanding that can be drawn upon when difficult issues arise or unexpected events occur, such as hurricanes, floods, and fires. In this way, strong relationships can provide for efficient action by providing the context for considering what to do in light of past decisions. This is the payoff for taking the time to build deliberative capacity.

Engaging the American public in deliberating the future of the national forests and grasslands is more than just talking to people living near the public lands. Pinchot set forth the principle that local decisions should be made on local grounds at a time when local meant "people living nearby." Today, people who live great distances from the forests and grasslands feel strong attachments to them and want to participate in making decisions about them. Just as transportation systems have changed the meaning of "local" in decision making, information technologies have transformed the abilities of people living far from public lands to join in deliberating the future of those lands. New methods of public dialogue need to be invented in order for planning to effectively engage the American people.

In adaptive management, the review and evaluation of performance is an integral part of stewardship. Complex strategies for conserving and managing the resources of the national forests and grasslands necessitate careful, independent review by outside scientists, interested parties, and knowledgeable people. Expert and scientific review is essential, but not sufficient to ensure public acceptability or simple common sense. Incorporating new methods of performance evaluation that are open, inclusive, and independent will be necessary for building trust.

Important to evaluating the strategies and treatments for achieving desired future conditions is a monitoring process designed to measure performance against expected outcomes. While the design of a monitoring process may be as simple as measuring water temperature and water flow and be carried out by school children, it can also be as complex as a research experiment and engage the research community. Without measurement and maintenance of good records for historical comparisons, it is difficult to assess long-term performance. The recent Government Performance and Review Act sets performance evaluation as a high priority for government agencies. Making that process an open and public one can greatly contribute to the restoration of trust in Forest Service management of national forests and grasslands and its commitment to achieving sustainability.

5C. Protests and Appeals of Federal Decisions

Federal agencies differ greatly as to if, when, and how their decisions can be appealed or protested by the public. A potential impediment to multiagency planning and decision processes is the differences in timing and approach to resolving protests and appeals. In the case of federal land management, both the Forest Service and the Bureau of Land Management allow the public to protest or appeal their decisions, whereas neither the Fish and Wildlife Service nor the National Marine Fisheries Service allow appeals. These agencies, like the Environmental Protection Agency, do not allow administrative appeals after decisions are final, only judicial review.

Several times we have heard reference to the differences between the Bureau of Land Management and Forest Service appeals processes. At the level of the Forest Plan, the primary difference is that for the Bureau of Land Management the appeals are predecisional and for the Forests Service they are postdecisional.

For the Bureau of Land Management, this means that after the final EIS is published, but

before the ROD is signed, "protest appeals" can be filed. The issues these appeals can raise are limited to those issues raised for the record in the planning process. The ROD is the final agency action. The next step is a lawsuit. For the Forest Service, a postdecisional appeals process means that after the final decision is published in the ROD, an appeal can be filed, and the Forest Service must consider it and respond. The Chief is the deciding officer for appeals of land- and resource-management plans.

There are several issues that these observations raise regarding our proposed collaborative-planning process.

1) In the context of multiple-agency planning and decision making, what is the effect of appeals processes that assume single-agency planning and decision making?

2) Should large-landscape planning have an appeals process that is predecisional instead of, or in addition to, the existing postdecisional appeal process?

3) How can small-landscape planning best address the statutory requirements for project-level, postdecisional appeals?

Appeals Process

One question that must be dealt with is whether the current appeals processes in the Forest Service and other federal agencies need modification to recognize the multiagency planning processes of the future. The current appeals processes assume single-agency planning processes and single-agency decisions. In one of the only instances of multiple-agency planning and decision making, the Northwest Forest Plan, the decisions were made at the Secretary level to avoid the problem of inconsistent appeals rules, among other reasons. In the case of the Columbia Basin project, the expectation is that regional foresters and the Bureau of Land Management state directors will make the decisions. In that case, the decisions of the Bureau of Land Management would be open to predecisional protest, but the Forest Service decisions could be appealed after the ROD. This makes coordinated planning for large-scale policy decisions very difficult.

Currently, the Forest Service regulations (36 CFR Part 215 and Part 217) create barriers to collaboration with other federal agencies. As generally applied, the existing rules limit the opportunity for other federal agencies to review and comment upon proposed courses of action after the Forest Service has chosen a preferred alternative based on comments on the draft environmental impact statement (DEIS). The current regulations do not allow other federal agencies to raise issues of concern after the final EIS and ROD are published. Unless agency planners and managers make a concerted and successful effort to seek out comment on a preferred alternative after reviewing the comments on the DEIS, concerns of other agencies cannot be raised during the postdecisional appeals process now used by the Forest Service. As a result, significant differences are raised to the highest levels of the agencies for resolution, creating political discord among agencies, or unaddressed issues reduce the success of implementation or threaten future actions.

It is the Committee's expectation that, if the Forest Service works with the other land-management and appropriate regulatory agencies in the early stages of the assessment and decision processes, relationships will be built and problems addressed before they must be dealt with by managers close to the field. Especially because adaptive management will necessarily require the capacity to review, evaluate, and change management activities on a regular basis, the federal agencies will need to become partners rather than adversaries in working toward achieving sustainability. However, the formal rules need to encourage, facilitate, and ensure that strong relationships

are built and maintained if stewardship is to maintain or achieve ecological sustainability.

Recommendation

Consider developing a consistent approach across federal agencies for addressing protests and appeals. The Committee recommends that the different agencies form a multiagency task group to carefully identify and examine the specific impediments to coordinated planning and decision making, opportunities for developing a more harmonized approach, and the development of an appeals process that is consistent across agencies and encourages participation in collaborative planning. The agencies' differences in experience and perspective on appeals and protests will provide useful comparisons for this effort. The Committee recognizes that legislation currently requires the Forest Service to allow project-level appeals after a final decision is made. While changing legislation requires a greater level of effort than that needed to change agency regulations, the appeal requirements need to be analyzed in the context of the new approaches to planning and recommendations for changes made to ensure that a collaborative-planning process can succeed.

Predecisional Appeals

A more specific question is whether the large-landscape decisions should have a predecisional appeals process. For the Forest Service, the appeals process (36 CFR 217) follows the publication of the ROD. The issues raised do not have to have been raised in the planning process. Appeals on Forest Plan approvals and revisions must be filed within 90 days of the decision, and the Forest Service has 160 days to respond to the appeal. However, given the size, complexity, and numbers of appeals on forest plans, the Service is not always able to meet this deadline.

The first Committee of Scientists recommended that the forest plans should not be subject to appeals; they recommended appeals only at the project-decision level. However, the array of interest groups all protested this recommendation, and the result was an appeals process with broad access to nearly all decisions of the Forest Service. In 1989, the Forest Service narrowed the type of decisions that could be appealed and split out certain contract and business decisions into a different appeals process.

In 1992, the Forest Service proposed to limit appeals to forest plans only and to replace project appeals with a predecisional notice and public-involvement system. In the fall of 1992, Congress responded. It created a mandatory project-level notice, comment, and appeals process and directed the Forest Service to "establish a notice and comment process for proposed actions of the Forest Service concerning projects and activities implementing Land and Resource Plans" and "to modify procedures for appeal concerning such project." Appeals can be brought by people who provided comments during the 30-day comment period or who otherwise expressed interest.

The Act was not limited as to which decisions were affected, so it applies to mining as well as all other activities. The law made no express provisions for exemptions; however, Forest Service regulations (36 CFR 215) interpreted the act and legislative history as allowing limited exceptions, including actions that are categorically excluded under Forest Service NEPA procedures, such as small timber sales, small wildlife openings in a timber sale, and others. The Act also provides for an automatic "stay" on the project once an appeal is filed, which in some cases can be overridden by an "emergency finding" by the Chief. In these regulations, a decision on the appeal must be rendered by the agency in 45 days. If a formal decision is not issued, a formal response will

5-5. *Sustainability in Indian Communities*

Managed Indian forests can serve as models of sustainability. Reservations are permanent homelands where people live intimately with the environmental and economic consequences of forest management. Indians want their forests for a complex mix of uses: timber harvest, livestock grazing, hunting, plant gathering, firewood, fishing, scenic beauty, and spiritual sanctuary; and they have a compelling need to balance competing interests. They are committed to protecting the resources that are both their heritage and legacy.

The Menominee of Wisconsin are sustaining their way of life through managing their forest for the production of timber. Yet the tribe also preserves species diversity within the forest, citing the devastation of elm trees as evidence of the wisdom of species diversification. Continued harvest of timber from their forest is part of the Menominee conception of the good life. The forest has few trees older than the selected rotation age, although that rotation age is much longer than is common in industrial forestry, in order to produce quality timber. Annual allowable cut is determined by observed growth in the previous planning period. The Menominee use fossil-fuel-powered equipment in the forest. They have a lumber mill, which provides employment and revenue, and they manage a major casino and engage in other economic activities. As the population expands, residences are not allowed in the forest; the tribe instead purchases new land for housing. Among the fundamental beliefs of the Menominee is that the current generation is borrowing from its grandchildren; hence an agreed-upon social goal is the maintenance of their forest and its productivity.

The Taos Pueblo in New Mexico sustains its culture through reliance on the watershed that contains Blue Lake. The Taos, unlike the Menominee, do not use their forested land to produce timber; wildlife and clean water are much more important to them. Blue Lake is sacred and is kept undeveloped. People can drink directly from the stream. The Pueblo itself sits on both sides of the stream, at the point where the stream leaves the watershed. The traditional homes in the old Pueblo are not powered by electricity; the Taos thus restrict the level of energy subsidy they accept from outside their ecosystem.

The two communities differ in the extent to which their lands are connected to the surrounding landscape. The Menominee Reservation is a forest amid dairy farms and cut-over lands; the Taos Pueblo's land contains most of a single watershed, with boundaries determined by ridges. Both communities have outside economic connections. The non-Indian town of Taos links the Pueblo to Hispanic and Anglo communities, which are potential sources of employment. With their international trade in wood products, the Menominee have global connections as well.

Cultural sustainability is the maintenance of a way of life linked to the past; defined by family, community, and spiritual and aesthetic values; and shared by an entire group. Conceptions of a good way of life differ among peoples, as do relationships with the land. Yet for both Menominee and Taos, their place on the land partly defines their identity, which is, in turn, reflected in their care for that place.

be given to the appellants on the disposition of their appeal.

The crux of the difference, then, is when the appeals process occurs and how the agency needs to respond. In the case of the Bureau of Land Management, the agency can respond to predecisional protests by acknowledging them and explaining the rationale of its decisions. In the case of the Forest Service, the appeals process follows the decision of field officers (regional forester for forest plans), and the chief is the reviewing officer (with the assistant secretary as a discretionary reviewing officer).

Several important issues arise with the Forest Service postdecisional approach. First, because the chief is the reviewing officer, it is important for him to maintain independence and objectivity in reviewing the evidence presented. For this reason, it appears that the chief might be criticized for getting very involved in the earlier stages of controversy or to work closely with regional foresters when they are writing the ROD or reviewing appeals. As a result the "the agency works against itself" by isolating the decision makers from one another, just at the time that some internal discussion might be useful.

Second, the USDA postdecisional appeals process can inhibit multiagency collaboration. Bureau of Land Management appeals are predecisional. For both the National Marine Fisheries Service and the Fish and Wildlife, there is no administrative appeals process, so controversial issues are elevated to the Washington level fairly quickly. The Forest Service Chief is the reviewing officer when the body of evidence is put forward in Forest Service postdecisional appeals.

Third, from the standpoint of interest groups, there are mixed and inconsistent incentives for their involvement in planning. On the one hand, they want to be involved in the planning process to influence the outcome. In addition, they must to be involved to show sufficient participation so that the courts would recognize their credibility were they to seek judicial review later. On the other hand, because the appeals process is postdecisional, appeals have the effect of providing an opportunity for some groups to gain a little more of what they want after the agreements are reached by the larger public constituency. Because of this problem of creating privileged access, the Forest Service Chief often sends plans back to the particular national forest for reworking of specific problems raised in the appeal rather than independently negotiating with the set of the public that brought the appeal outside of open, participatory processes.

The large-landscape plans will normally involve a wide variety of agencies, governments, organizations, groups, and citizens. Because their purpose is to develop broad conservation strategies based upon a set of regional-level issues, it seems that the ideal approach would be for the agreements reached in the public-participation processes to stand, except in instances where there were omissions based on legal obligations or other actionable reasons. Thus, the predecisional appeals process, wherein minority views could be expressed to the decision makers before the decision, would provide this incentive to stay at the table and work out differences substantively rather than watching for procedural errors that could be the basis of a lawsuit later.

Recommendation

The Committee believes that the incentives contained in the proposed collaborative-planning process are significantly different from those provided by the previous approach to planning. If the Forest Service is committed to a collaborative approach that meaningfully involves those who care about the national forest system lands, then the incentives to appeal planning decisions should be minimized. Our recommendation to the agency is, just like all other aspects of this proposed planning framework, to experiment with its application and to monitor this aspect of its

implementation to determine what is accomplished and what problems occur. If the appeals process proves problematic, influencing parties to disregard their agreements or to leave the table before agreements are reached, then the agency might evaluate the benefits of shifting to a predecisional process similar to that used by the BLM.

Postdecisional Appeals

A parallel question is how small-landscape planning can best address the requirements for project-level, postdecisional appeals. The idea of small-landscape plans, with integrated sets of projects and activities implementing the strategic direction from the large-landscape plans, may be the most difficult to achieve in the near term. Current statutory requirements for postdecisional project-level appeals increase the level of information, analysis, and evidence necessary for making individual project decisions sufficient to withstand a legal challenge. As a result, combining projects into multiproject environmental assessments (EAs) or EISs increases the information and analysis demands so they quickly become infeasible.

Given statutory requirements for appeals on projects, this issue is not easily resolved through internal administrative changes. The idea of treating small-landscape planning as more of an assessment may provide an interim approach in this evolutionary process, but is likely to be inadequate in that it may create "pseudodecisions" that are not sufficiently vetted through the NEPA process. In addition to the difficulties of developing multiproject EAs, there is an added problem when this level of planning is treated as an ongoing process of adaptive management based on monitoring and external review.

Recommendation

Addressing the issue of project-level appeals in a multiproject, integrated-planning process should be an important priority as the new planning process is developed in regulations and evolves in practice. The ideal of an integrated small-landscape planning based on adaptive-management practices will, no doubt, take some time to be fully realized, but its evolution will be greatly enhanced as planning, decision, and appeals processes are harmonized across agencies.

5D. Global Commitments Regarding Sustainability

The Santiago Agreement for the Conservation and Sustainable Management of Temperate and Boreal Forests, signed on Feb. 3, 1995, is an important step forward in conserving forest resources. The criteria and indicators, as stated in the Declaration, "provide a common framework for describing, assessing, and evaluating a country's progress toward sustainability at the national level. They are not intended to assess directly sustainability at the forest management unit level. As such, the criteria and indicators should help provide an international reference for policymakers in the formulation of national policies and a basis for international cooperation aimed at supporting sustainable forest management."

The Santiago agreement includes criteria and indicators for conservation and sustainable management of temperate and boreal forests. Seven criteria were developed:

1) Conservation of biological diversity

2) Maintenance of productive capacity of forest ecosystems

5-6. Working Towards Economic and Social Sustainability in the Eastern Sierra

A 300-mile-long region along California's eastern boundary, the Eastern Sierra, includes a diversity of landscapes and contains both the highest and lowest points in the continental United States. Recreational opportunities abound, from Mammoth Mountain ski area to the Ansel Adams Wilderness. Public and private landownership patterns overlap in the region, and its economy is inextricably tied to the natural-resource base.

In 1991, Bill Bramlette, then District Ranger for the Inyo National Forest's Mono Lake Ranger District, and Nancy Upham, then Manager of the Mono Basin National Forest Scenic Area, recognized the region's dependence on the national forests for its tourism-based economy, but also noted the increasing overuse of some areas, which was threatening the ecological base. They were concerned that no mechanism existed for addressing the region's ecological and economic needs. Bramlette and Upham began working with representatives of the chambers of commerce of Bishop and Mono counties, Mammoth Tourist Bureau, U.S. Bureau of Land Management, and California Department of Fish and Game to organize a public workshop on recreation in the Eastern Sierra. Approximately 200 people attended the initial two-day public workshop, including representatives from public agencies, chambers of commerce, private businesses, and environmental organizations. This meeting spawned the formation of a group called the Coalition for Unified Recreation in the Eastern Sierra (CURES).

During the ensuing six months, newly formed task groups met monthly to discuss and develop strategies for a range of issues, from resource-planning to marketing and education. Each task group had at least one representative from each of the following interest groups: private recreation providers, local businesses, chambers of commerce, elected officials, public agencies, and environmentalists. By spring 1992, the coalition had evolved a formal structure and mission. According to their mission statement, "CURES is dedicated to preserving the Eastern Sierra's natural, cultural, and economic resources and enriching the experiences of visitors and residents."

In mid-1992, CURES began to develop a vision statement describing what recreation in the Eastern Sierra should look like in the year 2010. Upham, who facilitated these meetings, sought common ground. She asserted that the region's carrying capacity should not be exceeded, and the group concurred; in their words, "a sustainable economy requires a sustainable environment." They discussed ways to market and manage the area's recreation potential, as well as ways to reduce use of areas that were already exceeding their carrying capacity for recreation.

The CURES effort has had its share of tension and conflict. The group has helped address conflicts by creating a special "Balancing Task Force," charged with looking at the broad economic and environmental issues facing the Eastern Sierra. Upham noted that the task force sponsors forums to "get people together to learn about issues and be able to discuss

them in a noncombative way." One environmental member of CURES commented that opposing interests used to "fight it out through the newspaper," but they now speak directly to each another instead. In this way, the relationships among all groups in the larger community have been strengthened, and the capacity for problem solving finally exists.

CURES has remained successful and intact as it has moved into its implementation phase. The group has created an interpretive guide for visitor centers in the region and published a trilingual activities map. In addition, CURES sponsored three educational seminars for local businesses, attended by more than 200 people. The State Division of Tourism awarded CURES its annual "Good Host" award for sponsoring the seminars. CURES also conducted a marketing conversion study and has received a $1.5 million federal grant to develop a scenic byway project in the Eastern Sierra, which will include 28 stops. CURES also installed an interactive computer system at a popular visitor kiosk in Inyo County. The CURES process has now become an institution of sorts in the Eastern Sierra, allowing this region to effectively link resources, knowledge, and energies in pursuing a shared goal of ecological and economic sustainability.

CURES is succeeding because of the initiative and commitment of two Forest Service employees. They provided the critical initial forum in which public dialogue could begin and a common vision could be crafted. The process that evolved from their efforts has taken on a life of its own and has broad participation of all interests across the region. It has been instrumental in building understanding of the role of the national forests in this region's economy and has provided a structure within which problems are solved, plans are developed, and an ecologically sound and economically sustainable future is pursued.

3) Maintenance of forest ecosystem health and vitality

4) Conservation and maintenance of soil and water resources

5) Maintenance of forest contribution to global carbon cycles

6) Maintenance and enhancement of long-term multiple socioeconomic benefits to meet the needs of society

7) Legal, institutional, and economic framework for forest conservation and sustainable management.

A number of indicators are listed under each criterion. For example, the first criterion (conservation of biological diversity) is subdivided into ecosystem diversity, species diversity, and genetic diversity; two criteria are listed under species diversity: (1) the number of forest-dependent species and (2) the status (rare, threatened, endangered, or extinct) of forest-dependent species at risk of not maintaining viable breeding populations, as determined by scientific assessment or dictated by legislation.

We have a number of observations about the criteria and indicators:

1) The criteria and indicators are explicitly established with national and international perspectives. The decennial assessment called for by the Forest and Rangeland Renewable Resources Planning Act of 1974 would be the logical vehicle for aggregating and reporting the state of the lands of the United States relative to the criteria and indicators, and the regional assessments recommended in this

report could assist in gathering the needed data.

2) In addition, the criteria and indicators could provide a set of considerations for examining regional conditions, as well. Indeed, as countries become proficient at developing and measuring indicators related to these criteria, it is critical that indicators are chosen that monitor progress at different geographic scales. Otherwise, it would be difficult to relate progress at the watershed or community level to achievement of national benchmarks and goals.

While acknowledging their potential usefulness, the Committee has a number of qualifications about the use of these indicators for gauging sustainability on the National Forest System lands:

1) They may not be sufficient, by themselves, to gauge ecological sustainability. As an example, the "maintenance of productive capacity of forest ecosystems" does not appear to include the amount of dead trees for wildlife habitat as an indicator. Undoubtedly, these indicators will be improved through time.

2) They are generally nonspatial and seem to lack a landscape view. They focus on measuring acres in certain condition without the aggregation needed for judgments about areas. The lack of integrative concepts on the use of the indicators may make it difficult to use them to make overall judgments.

3) They could consume much of the agency's resources for inventorying and monitoring, leaving little to other important measures of sustainability.

Clearly, working to link the kinds of monitoring activities on the national forests and grasslands with the indicators of national-level sustainability for these important public lands will be a challenge in the coming decades.

5E. Summary

Bringing scientific credibility to the management plans and activities of the Forest Service is essential for a collaborative-planning process to work. Trust can be built through mutual understanding and agreement on basic information. Understanding the role of the public in collaborative planning is much more than simply providing "issues" of concern and "comments" on options and should lead to a richer base of information as well as a foundation of commitment and trust. These propositions are not abstract symbols; there are many successful examples around the country both within the Forest Service and involving other highly contentious natural-resource-policy issues involving other federal and state agencies. The experience is there to address the issues outlined in this chapter; the challenge is to do so with enthusiasm.