

# CHAPTER ONE

## Introduction: The Context for Land Stewardship in the 21st Century

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The mid 1970s were tumultuous times for America's forests and rangelands. Environmental and commodity interests were at loggerheads over the way National Forest System lands ought to be managed. The courts had declared, as in the *Monongahela* decision (*Izaak Walton League v. Butz*, 1975), that some common Forest Service management practices were illegal, and citizens had lost confidence in the stewardship capabilities of the Forest Service. There were arguments that the discretion of the Forest Service should be severely limited and a prescriptive management regime imposed by Congress.

It was within this context that Congress crafted the National Forest Management Act (NFMA), designed to resolve the controversy over the management of our public lands. Its passage in 1976 was hailed by many as a great success. In the euphoria of the times, Sen. Hubert Humphrey, who played the major role in promoting NFMA, anticipated that the legislation would substantially limit future litigation as people reasoned together in developing mutually satisfactory management plans for the national forests and grasslands. The Act specified that the policy of multiple use of lands was to be codified not only in law, as it had been since the Multiple-Use Sustained Yield Act (1960), but also in a mandated planning process.

The NFMA was predicated on the notion that the key to resolving conflicts lay with the development of integrated land- and resource-management plans for each national forest after careful reasoning and analysis as man-

dated by the National Environmental Policy Act (NEPA). Reinforcing NEPA's commitment to public involvement, NFMA called for public participation in the creation of those plans. In addition to the need for integrated plans, NFMA recognized the need to limit and redirect the Forest Service's traditional emphasis on timber management. As Sen. Hubert Humphrey said upon passage of the NFMA, "The days have ended when the forest may be viewed as trees and trees viewed only as timber. The soil and water, the grasses and the shrubs, the fish and wildlife, and the beauty that is the forest must become integral parts of resource managers' thinking and actions."

The Act was based on two key assumptions. The first was that the planning process, by explicitly requiring public participation, would contribute substantially to the development of a national "shared vision," which would define and clarify the objectives of the National Forest System. The view was that the planning process would force a more comprehensive approach to managing the forests and rangelands, one that considered the long-term, forest-wide implications of management actions *and* was better informed of public concerns and desires through far-reaching public involvement.

Second was the assumption that the land- and resource-management plans would be viewed by Congress as a guideline for Congressional budgeting. After all, if the process generated a strong, broad base of support among the American people for forest-management objectives, that constituency would then encourage

Congress to provide adequate funding for plan budgets. In other words, if the plans were well-conceived through comprehensive assessment, combined with extensive public involvement, then Congress would be more apt to fund the implementation of those plans.

The National Forest Management Act granted a large measure of discretion to the Secretary of Agriculture to formulate regulations for implementing the Act, to describe in more detail what many of the noble, yet often ambiguous, phrases in the Act meant. A passage in NFMA, unique, or nearly so, in federal law, called for creation of a Committee of Scientists to help the Secretary of Agriculture develop those regulations. This original Committee of Scientists struggled for three years in discharging its duty; in the end, it pronounced the resulting regulations as generally sound and asked that groups on all sides give the planning process a chance to work.

## The First Round of Land- and Resource-Management Plans

During the next 10 to 15 years, the national forests struggled mightily to complete the first set of plans under NFMA. As the Chairman of the first Committee of Scientists stated, however, “no one paid the slightest bit of attention” to the Committee’s plea to allow the planning process a chance to work. In hindsight, it is doubtful that the process ever stood a chance of succeeding. With timber production the dominant objective and with an inherently divisive process of public participation and decision making, there was little incentive for any stakeholder to patiently await the mysterious machinations of the land- and resource-planning process. Individuals and groups pursued whatever forum would give them the greatest advantage; seldom did this advantage lie within the NFMA process. Appeals and lawsuits were used to gain leverage over the planning process or to preempt it.

Some of these appeals and lawsuits prevailed, causing major changes in national forest planning and management, the Northwest Forest Plan for federal forests within the range of the northern spotted owl being the outstanding example.

Others used the Congressional budgeting process to tilt implementation toward specific resources and outputs. As a result, many land- and resource-management plans were never implemented or were only partly implemented because of the lack of budgets. Even when budgets were forthcoming, funds were sometimes allocated in a manner that did not reflect the priorities articulated in the plan. Thus, the budgets often negated the “balance” that had been carefully crafted into many plans, a balance that was essential to any meaningful implementation of those plans.

Still others attempted to push for new legislation to correct the imbalances that they found in management. Here the record is meager. Congress has shown little inclination to address, with new authorizing language, the appropriate uses of the national forests in the 23 years since NFMA.

## Recent Trends and Developments

As the national forests and grasslands have begun to revise their NFMA land- and resource-management plans, a number of trends and phenomena have developed that may not have been foreseen by the developers of NFMA:

- 1) Deep divisions remain over the management of the national forests and grasslands. Planning for these lands must proceed, even in the face of legitimate, yet divergent, interests and often in many forums simultaneously. Some have called for Congress to step in and end the disputes by decreeing the dominant uses of the national forests. Rather than seeking a method to reach final

accord on these issues, it might be more realistic and productive to put into place a process that recognizes the reality of divisions within a society. People's values differ; neither Congress nor fairy godmothers will ever be able to do away with this fundamental truth.

2) Ecosystem management, with its emphasis on management across broad landscapes and sustaining ecological processes, has become the management paradigm of the national forests and grasslands, raising questions about the traditional focus on a single owner and single ownership in planning and on an even flow of commodities as the measure of sustainability.

3) Protection and restoration of fish and wildlife has become a major focus of the National Forest System under both the statutes of the Endangered Species Act and the NFMA. Similarly, protection of water resources is a major focus under the Clean Water Act

4) The public has become increasingly interested in sharing stewardship responsibilities for the national forests, breaking down the traditional division between the Forest Service as stewards and members of the public as users.

5) A multitude of federal, state, and local statutes have been promulgated that mandate planning processes relative to protection and use of the environment. As a result, federal, state, and local agencies often collide as they implement their mandates.

6) The Forest Service and Congress have continued to budget by programs, such as timber and recreation, undermining the ability of forests to fully implement balanced plans.

## Developing New NFMA Regulations and a New Committee of Scientists

For the past five years, the Forest Service has attempted to develop new planning regulations to address some of these emerging issues and trends and to reflect the lessons learned from land- and resource-management planning during the past 20 years. Enough controversy has been raised by this effort that the Secretary of Agriculture commissioned a new Committee of Scientists to provide technical and scientific guidance for improving land- and resource-management planning. This advice will provide a basis for the development of new NFMA regulations by the Secretary of Agriculture.

In some ways, the new Committee of Scientists is like the last one. Both had to be composed of scientists outside the Forest Service; both focused on the NFMA. However, the previous Committee had nearly three years to complete its work; this Committee did the bulk of its work in 16 months. The first Committee was helping to invent land- and resource-management planning; this Committee has the advantage of being able to draw on the experience of the past 15 years to reshape planning to the changing times.

## Dreams and Practicality

The current Committee of Scientists was urged by the Secretary's office to step back and define a land- and resource-management planning framework that would last a generation, in some sense to dream a little. Our dreams have been inspired by the actions of dedicated and resourceful on-the-ground employees of the Forest Service. While some have understandably become disillusioned and defensive after years of conflict and impasse, others have risen to the challenge, experimented, and are successfully pursuing new

approaches to planning and management. The lessons of their efforts provide a glimmer of hope and a foundation of experience upon which the Committee could construct an innovative, dynamic, yet pragmatic approach to planning. All the while, the Committee has tempered its dreams with the realization that the Forest Service does not need another impossible mission; our dreams should not translate to Forest Service nightmares.

## The NFMA Regulations as One Piece in the Planning and Management Puzzle

In the mid 1970s, the Forest Service was able to focus on the regulations implementing NFMA to the exclusion of almost anything else, in terms of guidance for planning the management of the national forests. That situation is no longer true. Planning processes under other statutes, such as the Endangered Species Act and the National Environmental Policy Act, can have as large an impact on the national forests as the NFMA-mandated planning processes. Other forums, such as the annual budgeting process in Congress, can also have as large an impact. State, local, and tribal governments play important roles. Directives from the courts or the White House can upset the best-laid plans of a carefully constructed planning process. Finally, the continued deep disagreements over management of these forests makes consensus and stability in their management difficult.

Congress could, of course, pass laws to straighten out this “crazy quilt” of influences. However, if the past 20 years is any guide, it will not do so. Nor is it likely that congressional action would sufficiently cure the current malaise. Much of the debate is not about the merits of existing legislative policies or mandates, but rather *how* such policies and mandates might most effectively be pursued and implemented.

Thus, we are left with administrative change and reform as the mechanism for recognizing and harmonizing these many influences on planning the future of the national forests and grasslands. Our assignment, as Committee members, deals centrally with one part of this legal and administrative puzzle, the regulations implementing the National Forest Management Act. Our mission is to develop a planning framework that can guide the writing of these regulations. We undertake this mission with an attempt to reach an understanding of the broader context of these regulations; we must look outward to the other processes and forums that influence the planning and management of these forests and rangelands. We regard our work as one piece in a larger puzzle, and we realize that events elsewhere can undermine the results of planning. Still, these regulations provide the organizing mechanism for land- and resource-management planning for the National Forest System and, as such, must be the foundation on which planning for the future uses of our public lands is built.

## The Social and Organizational Context of Planning

The Committee of Scientists recognizes that it would be doing the Forest Service a disservice if it proposed a new planning template that failed to recognize the context to which it would be applied. We are not proceeding with a blank slate. Instead, there are some very real challenges, as well as important opportunities, that must be recognized, accommodated, and capitalized upon if this second round of planning is to be given the greatest chance of succeeding. In this respect, we are at a distinct advantage relative to the first Committee. Not only do we have almost 20 years of experience from which to draw regarding on-the-ground consequences of the first round of planning, we also have almost 20 years of

experience that provides insight into how the Forest Service as an organization functions within the context of a comprehensive land- and resource-management planning process. Furthermore, we have 20 years of experience that has very vividly defined the social context of planning. The Forest Service does not function in a vacuum but in a very diverse, dynamic, and engaged social context that must be acknowledged and accommodated. Recognizing the context (both social and organizational) has grounded our expectations and the care with which we have structured the proposed planning process. It has also given us an opportunity to recognize important opportunities that can facilitate a more effective and meaningful second round of planning.

### The Social Context of National Forest Planning

The history of NFMA planning, while creating a base of knowledge and data about each national forest, has at the same time contributed to a social context that must be considered as this second round of planning proceeds. Several factors within the social context *constrain* effective planning and must be acknowledged in the development of a different process:

- There is pervasive distrust of the agency and the process.
- Many public participants are burned out, wary, fatigued, and disillusioned.
- The incentives of the previous planning efforts often promoted adversarial behavior by encouraging extremist positions and discouraging collaboration and problem-solving

At the same time, there are numerous *opportunities* inherent in the social context that provide a foundation upon which more effective planning may be fostered:

- An increasing number of people are willing and anxious to have an active

hand in the management of their national forests.

- Effective and innovative models of collaboration and public involvement do exist.
- There is a wealth of expertise, knowledge, and skills within society that can provide great assistance to national forest management.
- Human communities are demonstrating a growing understanding and appreciation of the critical importance of well-managed forest and range watersheds to their economic and social vitality.
- Increasing recreation is both an added demand on forest resources and an opportunity to educate and engage the American people in the management of resources they clearly care about.

### The Organizational Context of National Forest Planning

What these social contextual factors highlight is that national forest planning and management neither can or should be the sole preserve of the Forest Service. To bridge sources of knowledge and capabilities, to effectively educate and learn, to resolve disputes, to credibly solve problems, and to foster and restore trust so that management of the National forests and grasslands is a common endeavor rather than a battlefield, planning for our public lands must be structured in a manner that meaningfully and openly engages the American people. Such a process, however, must also be developed recognizing the challenges and opportunities presented by the Forest Service as a large bureaucratic organization.

Numerous *challenges* are posed by the existing organizational context of planning:

- Planning is disdained by many in the agency.

- Tensions exist between “managers” and “scientists.”
- Linkages between planning and management are unclear. (Planning is often viewed as an entirely separate function from management.)
- A customer-service orientation within the Forest Service [“our public and the people we serve”] reinforces an “us versus them” relationship with the nonagency world.
- Common personnel issues (e.g., transfers and retirements) undermine the maintainence of productive working relationships.
- Integrative and innovative planning approaches are difficult when budgeting continues by program.
- Few rewards or incentives encourage more effective and adaptive planning behavior.
- Learning from problems and failures, as with most organizations, is not a strength of the Forest Service.
- Many have a strong desire to approach planning differently given their intense frustration with the current process.
- An organizational structure is in place that can accommodate and support planning at different levels: large-scale assessments, landscape-level plans, etc.
- Other resource agencies are facing similar challenges and hence are at a point in their histories where they are more willing to engage in greater coordination, communication, and collaboration that will improve their ability to achieve their objectives while, at the same time, enhancing management of national forests and grasslands.
- Tools, such as GIS, remote sensing, and spatial models, are now available that can accommodate planning and coordination at varying spatial scales.
- Historical and ongoing research efforts are providing an improved understanding of the productive capacity of national forests and grasslands and the effects of different practices.

While these challenges represent important obstacles to effective planning, numerous *opportunities* are inherent in the organizational context that provide a foundation upon which more effective planning may be fostered:

- Forest Service employees, for the most part, are driven by a profound commitment to the resource; inherent in this commitment is a general desire to do “the right thing” for the resource and to capitalize on up-to-date knowledge and understanding.
- Some models of effective planning do exist; innovative, risk-taking Forest Service employees have tried new approaches and have succeeded; their efforts provide insight, direction, and hope.

## Historical Uses and Current Conditions as a Context for Planning

The Committee of Scientists recognizes that the management history of the national forests and grasslands, as well as their current conditions, need to be understood to fashion effective planning regulations.

### The National Forests and Grasslands: A Long History of Use

The long-term economic contributions of the forest reserves were recognized from the very beginning. Approximately three-fourths of the runoff in the West originates on the national

forests and grasslands. Irrigation districts in the West, wanting to be assured of reliable flows for their fields, pressed Congress for protective legislation, which was achieved in the Creative Act of 1891. Today, farmers, cities, and industries continue to rely upon clean, reliable flows from national forest watersheds, which comprise most of the high country in the West.

In the Organic Act of 1897, commercial timber production was recognized as the second purpose of the reserves after watershed protection. Timber harvesting in the national forests remained low until World War II, soared during the post-War boom, and has receded since the late 1980s (Fig. I-1).

Past harvest fluctuations were largely the result of market forces; the decline since 1990 is largely caused by the increased emphasis on protection of species and ecosystems combined with the realization that intensive timber management is not always compatible with other values.

The national forests and grasslands have many uses. Like timber harvests, recreation use of the public lands and waterways increased dramatically after World War II (Fig. I-2), has continued to grow, and is now the focus of a multibillion-dollar industry. Most of the nation's ski areas are located in the national forests.

Grazing of domestic livestock takes place on more than half of all National Forest System lands. In many cases, the use predates establishment of national forests. Grazing use, measured in animal-unit months (AUMs), peaked early in this century and then declined to lower levels over many decades (Fig. I-3).

Hardrock mining and oil and gas production are found on nearly every national forest. Hardrock mining proceeds as a priority use under the 1872 Mining Law, while mineral leases for oil and gas function under another set of statutes that gives the Forest Service more control over the development of these energy resources. Like timber and recreation, the number of leases on the national forests expanded greatly after World War II.

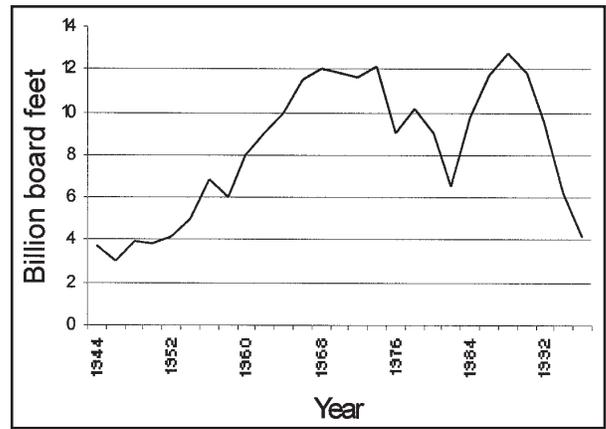


Fig. I-1. Total timber harvest on the national forests over time.

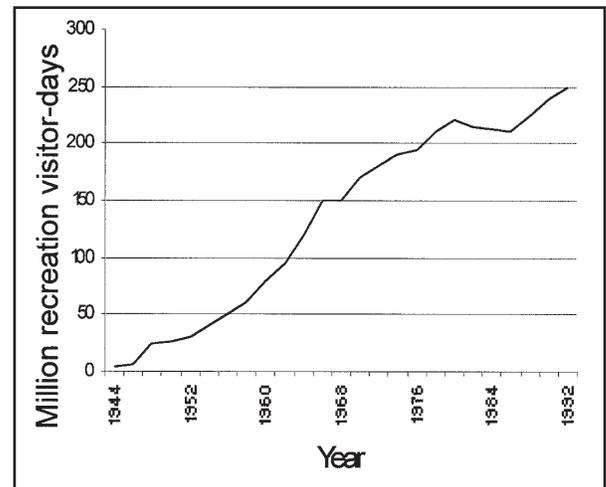


Fig. I-2. Recreation use on the national forests over time.

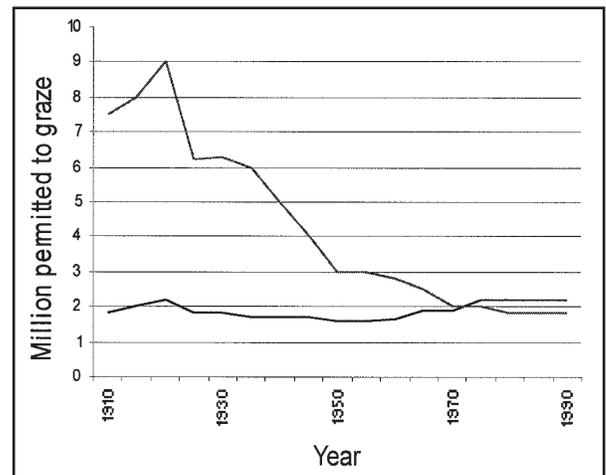


Fig. I-3. Grazing on the national forests over time; upper curve: sheep; lower curve: cattle.

The economic value produced by the different uses of the national forests is the subject of some dispute. Recent analysis by the Forest Service suggests that recreation produces the most economic value from use of the national forests and that downstream water use provides the second most significant amount. Most of that value is implied from the use levels because recreation on the national forests generally occurs with only a nominal charge and downstream water use occurs without charge. For a long time, timber harvest provided by far the most revenue to the government from national forest use. That revenue has declined as the overall sale level has declined and the harvest, in support of ecosystem management, has shifted to smaller, less valuable trees. The Forest Service has acknowledged that the cost of timber sales, including the in-lieu payments to counties drawn from the sales, has recently exceeded the revenue they provide. Total revenue has declined with the loss of timber receipts. Unfortunately, the revenue from other uses (e.g., from recreation) has not increased sufficiently to offset this loss.

The reduction in timber revenue has been felt throughout the agency. Because the national forests have traditionally funded much of their operation with the timber-management budget, a major contraction in funds and national forest workforce has occurred throughout the West in the past few years. As discussed above, Congress has not been disposed to fund other activities, such as wildlife, stream improvement, or recreation, at anything approaching the funding levels that previously went into timber sales. Without an alternative revenue source from use of the national forests, such as from charges for recreation use, or agreement by the major interest groups on funding needs, it is difficult to visualize adequate funding in the near future.

At the same time as revenues are falling, the costs of undertaking actions on the national lands are increasing. Implementing

ecosystem management has raised the expense of activities because it requires more analysis and monitoring, along with the involvement of more specialists. Also, as interdisciplinary teams search for acceptable ways to meet the tenets of ecosystem management, they often have to take a number of runs at any particular action before they “get it right.” In sum, the Forest Service is caught in a revenue/cost squeeze that will, most probably, be a fact of life for the foreseeable future.

## Current Conditions

Much debate has occurred recently about the condition of the national forests and grasslands. Some argue that these lands have been much improved by use or, at a minimum, that such use has been largely neutral to their well-being. Others argue that such use has imperiled the ability of these lands to provide the goods and services that we count on them to provide. We will briefly summarize these arguments here to set the context for our discussion and recommendations in the rest of this report.

The state of forests has often been described through the balance of growth and drain. The National RPA Assessment (Haynes et al. 1995), as an example, reports on the state of the forest resource in terms of the volume of removals (harvest), growth, and inventory over time. Cubic feet are used as the volume measure. Information is reported on both softwoods (conifers) and hardwoods (broad-leafed trees). We will use softwoods here because they dominate the national forests and have been the focus of harvest for a very long time. The 1995 RPA Timber Assessment Update estimates that growth in softwoods on the national forests has exceeded removals for the period of reporting (1952 to 1991) and will increasingly exceed removals during the next 40 years (2000 to 2040). See Fig. 1-4.

During the period of reporting, national forest softwood inventory on lands available for

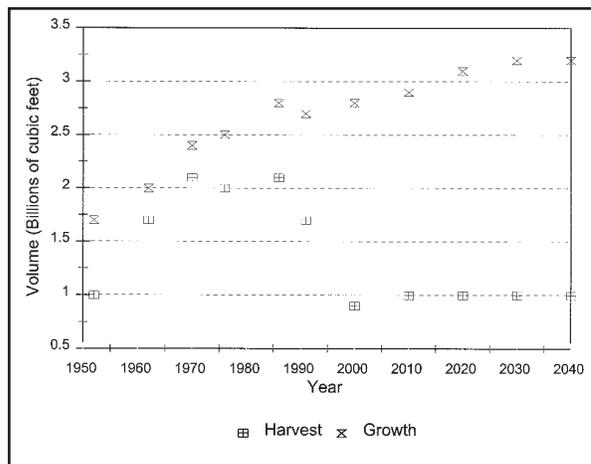


Fig. 1-4. Historical and projected growth and harvest in cubic feet of softwood on the national forests. (Source: Haynes et al. 1995.)

harvest went down slightly, in spite of the excess of growth over harvest, because of reclassification of forest lands to purposes that preclude timber harvest. On the stable land base used in the projection of the next 40 years, softwood inventories are projected to increase almost 50% in the future. Thus, projected future harvests of about 1 billion cubic feet (roughly 4 to 5 billion board feet) would be associated with an increasing inventory over time.

Nationally, across all owners, cubic-foot growth and harvest of softwoods has been roughly equal for the 40 years while cubic-foot growth of hardwoods has greatly exceeded their harvest. As a result of these trends, we have seen a substantial increase in total inventory volume during the past 40 years, with most of the increase in hardwoods. The RPA projections suggest that, in the future, softwood inventories will build substantially while hardwood inventories level off. In sum, these projections suggest that, nationally, we will have 35% more inventory volume in softwoods in 2040 than we had in 1952 and 100% more inventory volume in hardwoods.

From an ecological standpoint, though, we see a somewhat different picture, especially in the West. The western national forests, by and large, were reserved from the public domain and

became national forests before much activity occurred, except the general grazing of livestock and concentrated activities in certain areas, such as the mid Sierras during the gold rush and the Black Hills during the building of the transcontinental railroad. The rangelands and eastern forests, on the other hand, were, by and large, purchased by the Forest Service between 1910 and 1950 after sod-busting or logging by private landowners. The discussion below applies most directly to the West, where most of the national forests exist. In the East, by comparison, much of the land is in better ecological condition than it was when it was acquired.

Numerous recent studies have suggested that past practices have had a substantial ecological impact on our western national forests. These studies include FEMAT (Pacific Northwest), ICBEMP (Interior Columbia Basin), and SNEP (Sierra Nevada). Some of the findings of these and other studies are summarized below.

There are now more trees on the national forests, but the number of large trees has declined significantly because they have been a focus of timber harvest until recently. Large trees, standing live or dead or as logs on the forest floor, play a crucial role in the functioning of forest ecosystems. This diminution of old-growth stands has caused a loss of essential habitat for many species and of the aesthetic and spiritual qualities of these ancient forests, which are valued by many people. Under the projections reported above, however, growth should substantially exceed harvest in the future, which could allow the rebuilding of large trees and old-growth forests over time.

Management activities have had a number of other effects on the ecological condition of the forests and rangelands. Replanting after timber harvest has been generally successful, but the plantations so created often lack the diversity of tree species now sought under ecosystem management. Policies to suppress all fires, along with timber-harvest practices, have altered the natural disturbance regime

with a resulting change in the mix of tree species in many places and a buildup in stand densities. These changes in vegetation have, in turn, often increased the risk of catastrophic fire along with a number of other effects.

The agency's extensive road system, much of it built to facilitate timber harvest, has taken a toll in terms of erosion, landslides, and the destruction of riparian habitat. Remaining roadless areas have assumed increasing importance as refugia for some fish and wildlife.

As the national forests have increasingly become the nation's playground, recreational activities have left their mark. The vast road network has allowed significantly increased traffic and opportunities for off-road use, with many and varied impacts on wildlife and ecological processes. The proliferation of "unofficial" roads may be one of the most egregious problems facing the Forest Service. Further, the clustering of recreational use in stream corridors and lakes often puts pressure on fragile resources.

Rangelands, overall, are recovering from the severe degradation suffered at the turn of the century. Still, problems remain. Nonnative plants have taken over some upland range and riparian areas. Many riparian areas and aquatic systems are degraded and not functioning properly. Cattle use of streamside areas, often accompanied by adverse environmental impacts, remains a flashpoint in the debate over grazing on public lands and the protection of water quality.

Reservoirs and water diversion, grazing, and mining have affected streamflow patterns on many streams and rivers within the national forests and grasslands. Mining has been an especially nettlesome cause of pollution.

Perhaps the most unsettling development in the past few decades has been the identification of a number of species whose continued presence on the national forests is no longer secure. Many causes can be invoked to explain this situation, including the uses mentioned above, settlement of adjacent lands, and intro-

duction of nonnative species. The seriousness of the situation is compounded because the federal lands are now expected to form the first line of defense in protecting endangered and threatened species, yet there has been a continuing need to invoke the Endangered Species Act. This loss of biological diversity is a matter of considerable concern in evaluating the current state of the national forests and grasslands.

Although ecological diversity has declined across large areas of the national forests and grasslands, according to many measures, those lands generally remain less disturbed by human influence than the surrounding areas. Settlement, ranching, farming, logging, and development during the past century have transformed the private forests and rangelands of the United States. Rapid development continues in much of the country. Many rural areas near national forests and grasslands have also experienced population growth, with a sharp increase in second homes and a corresponding surge in recreational use of the adjacent public lands. We expect these trends to continue and to intensify as human population growth fuels the competition for scarce resources.

## Conclusion

In 1979, the Forest Service embarked on a journey that no other resource agency had ever undertaken. It began a comprehensive planning approach for the 191-million acre estate of national forests and grasslands that was to look to the future but to provide for the multiple-resource needs of the present. The effort was to involve the public in planning to maintain the long-term sustainability of the resource base. There were theories about how the agency should proceed; yet many of these were developed without consideration or full knowledge of political, social, and organizational realities.

Regardless, well-intentioned Forest Service employees joined the fray, doing their

utmost to make the regulatory guidance work. It has not been easy for them, and it certainly has not been fun. But this Committee of Scientists has been humbled by the continued devotion of so many on-the-ground employees of the Forest Service who have persevered despite the shortcomings of the process and the conflict it engendered.

Nevertheless, the Committee of Scientists is optimistic. Yes, there are problems to address and history to overcome; there is no

question that the Forest Service needs a significantly restructured and redirected planning process. At the same time, however, it is also clear that the Forest Service has the capabilities to follow through. The people are well-meaning and dedicated, and most within the agency and among the American public are anxious for direction as to what they might do differently in the future. The Committee of Scientists is honored to have been asked to help with this task.

