

**Chapter 9**

# **Organizational Factors in Forest Planning**

## Contents

	<i>Page</i>
<b>Professionalism and Diversity in the Forest Service</b> .....	163
<b>Professionalism</b> .....	163
<b>Diversity and Interdisciplinary Efforts</b> .....	167
<b>Organizational and Employee Values</b> .....	169
<b>Performance and Rewards</b> .....	171
<b>Production</b> .....	171
<b>Team Spirit</b> .....	173
<b>Rewarding Plans and Planning</b> .....	173
<b>Summary and Conclusions</b> .....	175
<b>Forest Service Culture and Diversity</b> .....	175
<b>Performance and Rewards</b> .....	176

### Table

<i>Table</i>	<i>Page</i>
<b>9-1. Forest Service Interdisciplinary Team Members</b> .....	169

## Organizational Factors in Forest Planning

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In some respects, the Forest Service appears to be under siege even by some of its own employees. The plans and the planning system are being attacked, and the agency is accused of damaging the resources and ecosystems it is mandated to protect. One common allegation is that the agency's problems result from the dominance of professional foresters. Others assert that the problems arise from the unbalanced reward system for agency managers. This chapter examines these allegations, and concludes by assessing the impacts of organizational factors on forest planning.

### PROFESSIONALISM AND DIVERSITY IN THE FOREST SERVICE

This section explores the strengths and limitations of the agency's forestry-oriented professionalism, examines diversity and the use of interdisciplinary teams, and concludes by assessing organizational and employee values.

#### *Professionalism*

##### **Foresters**

Foresters have dominated the ranks of the Forest Service from the very beginning. Bernard Fernow, Gifford Pinchot, and others emphasized the importance of professional forestry training for those who manage forested lands, and focused on hiring foresters for the agency (240). Today, professional foresters are less dominant than in the past, but foresters still account for more than 50 percent of professionals and for more than 75 percent of the technicians employed by the Forest Service (284).

Foresters, as any professional group, are bound together by a common educational core and professional identity. The professional foresters organization—the Society of American Foresters (SAF)—contributes to this cohesive identity by providing the focus for professional activities and by accrediting forestry school curricula. This assures that forestry graduates are schooled to meet the needs of the Forest Service and the forest industry, the major employers of foresters. An interlocking network of agency-university-industry establishes a successful

paradigm of scientific forest resource management (316, 330). This paradigm emphasizes resource use and has implications for the direction of forest planning.

*Emphasis on Use*—The extent to which foresters do and should emphasize timber production has been debated for more than 50 years (31). SAF Executive William Banzhaf (12) recently noted the current SAF president and vice president reflect the diversity among foresters in differing over “the level of emphasis we as professional foresters should give the production of wood for commodity uses.”

Wood production is an important part of national forest management and of professional forestry. Timber management has traditionally been at the core of a forester's training.

In the United States, foresters were initially educated to be custodial managers with heavy emphasis on timber production, an educational philosophy that persisted for some 40 to 50 years (71).

Two decades ago it was alleged that:

The professional forester apparently accepts . . . the belief in the primacy of timber as a use of the forest, based on the fear of a wood famine, *interwoven* with a puritan ethic that utilitarian or commodity uses are always more important than any amenity values (29).

Foresters are the only professionals who have the education and experience to manage forests for wood production—they are the only ones who can be the timber specialists (53). Thus, foresters must be concerned with timber production.

This is not to suggest that foresters are all “timber beasts,” with no interests other than maximizing wood production. The forestry profession has long endorsed the concept of multiple-use management, and foresters in the Forest Service have recognized multiple uses of forest lands since the Gifford Pinchot era (131, 330). Wood production is only one of the many forest uses, albeit an important one, but managing trees is critical to many forest values, such as aesthetics, water flows, and wildlife habitat. Furthermore, forestry education exposes foresters to

all the various forest resources, and many foresters have additional training in other resource specialties.

Nonetheless, foresters typically emphasize use of the resources. The SAF Code of Ethics, for example, focuses on forestry as practices, rather than on forests as natural systems, and on management of forest resources, rather than of forests (209):

... foresters' traditional view of themselves [is] as managing *resource things* (i.e., objects like trees or game animals), rather than managing these resources as objects of changing social values (including non-consumptive and symbolic values) (129).

Some of the emphasis on uses comes from the Gifford Pinchot tradition of unbiased, professional management of the public's lands. Prices (or other measures of use value) are quantifiable, objective, and unbiased indicators of public preferences, and foresters prefer "neutral" economics for assessing social value over direct, emotional, face-to-face, unquantifiable expressions of social value at public hearings and political demonstrations (128). However, economics has developed better techniques for valuing unpriced or subsidized uses and outputs than for valuing nonuse benefits of forests. (See box 8-A, p. 145.) Thus, foresters (and economists) unintentionally emphasize use of forest resources over other forest values.

**Implications for Forest Planning—The** emphasis on forest uses has merit in national forest planning. People care about the forests, and whether and where to cut trees are central to much of the debate over forest management. Thus, in some respects, foresters' emphasis on uses addresses public interests and concerns. However, some forestry educators believe that foresters' commitment to the public interest has diminished:

A strong commitment to . . . the public good was central to the forestry profession in this country during the first half of this century. More recently, however, this commitment appears to have declined both within the profession and in the eyes of those outside it (71).

Why do some believe that foresters' commitment to the public good has declined? Some foresters have asserted that society has changed, and the profession is no longer in tune with social values. For example, Scott Wallinger of Westvaco Corp. (3 10) noted that:

What is changing rapidly is not the validity for forest practices but the values most of the public uses

to judge them . . . Current logging is heavily unbalanced toward just one system [clearcutting] . . .

William Ticknor of Mead Corp. (249) similarly observed:

... the public is saying, "Even, when I understand what you are doing, I *still don't like it*."

There is no debating matters of taste. You can't persuade a person to like broccoli, Penn tennis balls or clearcutting. Or, preferring seedlings to mature trees.

Others have noted that America is becoming more urban and our urban society views nature more romantically (26, 106). Urbanization has broken many of the direct ties with utilization of nature, and thus has led to the more romantic, less utilitarian view of nature. Furthermore, this is not a social change that can be corrected by "educating the public. They know what they like, and are unlikely to accept traditional justifications for standard forestry practices that have undesirable effects on the nonuse values of the forests. This implies the need to do things differently. Again, Scott Wallinger (310) observed that:

... we [foresters and the timber industry] must adjust to changes in public and landowner values and attitudes, not just defend traditional ways.

And William Ticknor (249) added:

... I think we [foresters] will find it useful to put aside the "we-they" mentality as we approach our task, and acknowledge that we, as a society, want to approach forest resource management differently in the future than we have in the past.

... it is inevitable that forest practices, as we know them today, are going to change.

### Other Professionals

**The** Forest Service may still be dominated by foresters, but the agency has always used other professionals as well, and these are becoming a more significant part of the agency's personnel structure. The Forest Service has traditionally employed numerous engineers, with range conservationists, soil scientists, hydrologists, economists, and other specialists. Engineers are still important, accounting for more than 10 percent of the professional workforce and nearly 20 percent of the technicians (284). Forest Service engineers are relatively similar to foresters in their view of the agency mission, decision criteria, and disagreements with the organi-

zation, although they tend to place greater emphasis on cost efficiency than do foresters (33).

In addition, over the past 20 years, the Forest Service has added or expanded to include other professionals, largely in response to the National Environmental Policy Act (NEPA), the National Forest Management Act (NFMA), and various other laws governing the management and/or protection of the national forests (1). Wildlife and fisheries biologists have become the second largest professional group within the Forest Service, accounting for nearly 15 percent of the professional staff (286), but the agency also has landscape architects, archaeologists and anthropologists, and various other professionals.

The agency has developed a strong cadre of professionals in each of [the important resource] areas (146).

Biologists have become a significant professional subculture within the agency, ranking with engineers in numbers (33, 132, 133). While biologists have much in common with foresters, they also differ in several ways. Education in biology, not surprisingly, focuses on biological and ecological processes. In contrast to forestry, biology has not had an industry to employ its graduates, and does not have the lengthy historical focus on land management. Thus, biologists in the Forest Service typically have a more biocentric, less utilitarian view of forest resources than foresters have (33).

Other specialists within the Forest Service have their own educational emphases, Landscape architects, for example, emphasize visual values, while archaeologists and anthropologists are more likely to be concerned with cultural values. However, regardless of their training, most of these various specialists share with foresters, engineers, and biologists a sense of professionalism, and undergo rigorous education and training in their specialty.

### Benefits of Professionalism

**Perhaps the greatest benefit of Forest Service professionalism has been the agency's long history of success.** For more than half a century, the Forest Service was viewed as a premier Federal agency, being a relatively strong and independent entity in managing resources for the public good. Shortly after the passage of the Multiple-Use Sustained-Yield Act in 1960, one observer wrote that:

... the Forest Service has an *esprit de corps* and a professional dedication unmatched in federal service which should not be damaged. The present fine condition of the national forests is a monument to the devotion and ability of the Forest Service and this is an important factor in any decision about the appropriate scope of professional responsibility.

Others have noted the traditional view of district rangers as local heroes (130) and the Forest Service as a hero-agency (128). Few would argue that the Forest Service had a long tradition of management with relatively little public challenge to its authority or direction, at least until the 1960s.

The Forest Service's professionalism and history of success (as measured by the lack of major public challenge to management direction or authority) have contributed to the agency's unusual *esprit de corps*. However, it may stem primarily from the homogeneity and shared perceptions of the foresters who have dominated the agency (50). Regardless of the source, Forest Service employees have had a consistent sense of mission matched by few Federal agencies.

Preserving this strong sense of mission is the key to maintaining the historic *esprit de corps* of the Forest Service. Some employees are concerned, however, that the management direction for the national forests is not consistent with the current motto "Caring for the Land and Serving People." Forest supervisors have been particularly outspoken in recent years about actions they perceive to be inconsistent with the agency's mission (90, 91).

### Drawbacks of Professionalism

While professionalism has contributed to the long history of Forest Service success and *esprit de corps*, it also has drawbacks. The scientific conservation paradigm (see below) limits the ways in which professionals interact with the public, and public trust in professionals has declined. These criticisms have been directed principally at foresters, largely because of their historic dominance of the Forest Service, but apply to all of the professionals employed by the agency.

***The Scientific Conservation Paradigm—The scientific conservation paradigm essentially presents conservation as primarily a scientific effort, with a focus on correct technical practices and procedures. This view was behind conservation efforts of the mid-1800s, and persists largely***

through the education of foresters, biologists, and other professionals in scientific and technical matters (330). Foresters are traditionally taught to be objective, scientific managers (131), and “forestry education emphasizes specialization, skill in quantification, and rational problem-solving approaches” (315). Furthermore, the sciences (in contrast to philosophy) typically eradicate disproven theories from their texts, leading students to view their education as the correct way of doing things (159).

This emphasis on technical matters creates numerous problems for the Forest Service in dealing with the public. The agency has been accused of “groupthink,” whereby cohesive groups (e.g., foresters) view problems and potential solutions similarly (130), leading to insular and inflexible approaches (50). Such cohesiveness limits the individual’s ability to explore new solutions and opportunities (161).

The technical emphasis also contributes to public perceptions of arrogance and aloofness (130). Foresters and other resource professionals are notoriously weak at interpersonal relationships: “many professionals are reluctant to interact with ‘nonexperts,’ those who are not members of their professional subculture” (315). “Groupthink” among professionals often results in unconscious or indirect censorship of contrary or disquieting information (130); “listening [to the public] seems to occur without hearing’ the message (159).

Finally, the technical emphasis leads professionals to believe that they know the correct way of doing things. This belief has been described in terms of the traditional professional-client relationship, with the client simply accepting the professional’s decisions:

In the traditional professional-client relationship, the professional’s expertise is wrapped in mystique, and the client accepts the professional’s authority and agrees not to challenge his judgment or demand explanation (316).

The public is considered to be uninformed, and the professionals are “‘uniquely qualified’ to make natural resource decisions’ (159). Foresters and engineers have been most likely to object to agency decisions when they felt that politics or the public was interfering in sound management (33). Furthermore, physical and biological scientists are more likely to discount the public’s knowledge than are

social scientists (economists, sociologists, etc.) (237). Foresters typically accept scientific answers, and reject emotional ones:

The argument is that in our [foresters’] special need to achieve scientific validation of everything, we have invalidated most everything that we find science cannot examine. In the process of second-rating all that is not “scientific” we have devalued romantic, emotional, and intuitive insights. We have trained hard to distrust those voices in ourselves and others, lest they prove to be unsound (106).

This is not to suggest that technical information is not important in forest planning. Indeed, technical analysis is essential, but it is not enough.

Technical competence is a necessary but not a sufficient condition for success in public forest resource management (316).

In its recent critique of land management planning, the Forest Service noted that it began the process expecting to find the “right” scientific answer for how to manage the national forests (276); the critique concluded, however, that many technically correct answers exist for land management, and that the public should be involved in determining which of the technically correct answers is most desirable socially.

The problem is not so much public ignorance of resource management as professional ignorance of the public (159).

William Ticknor (249) described the situation this way:

Traditional forest science is the essence of a left-brain endeavor. . . analytical, quantitative, logical, linear. Most of us who are practitioners are so because that’s the way we were trained, and because we enjoy and excel at left-brain pursuits.

But the solution to our problem, I propose, is to move toward a more intuitive, multidimensional approach which places a high priority on blending the not inconsiderable scenic, aesthetic and spiritual aspects of forestry with the biological and business aspects.

*Decline in Trust of Professionals*—Several authors have noted that the decline in public trust of foresters is not unique. Society appears to have less trust for all professionals (1 12, 158), including those in other government agencies, such as the National Park Service (316), and outside the government. The list includes lawyers, engineers (121, 315), and

doctors, as indicated by the rising cost of, and need for, medical malpractice insurance.

Some have suggested that part of the problem is the lack of public consensus about the proper management of the national forests (158). One observer wrote:

We [foresters] do have a difference of opinion within our ranks (which mirrors society) about how lands should be managed . . . Our image will never return to its previously untarnished sheen because our increasingly complex and strident society cannot form a single vision of what it seeks. Probably the best we can hope for is an uneasy consensus (95).

Thus, it seems that the public is simply less willing to accept the knowledge and expertise of professionals in deciding what to do about public issues.

### *Diversity and Interdisciplinary Efforts*

#### **Change in the Forest Service**

Change is occurring within the Forest Service. Although it is still predominately a white, male organization (more than 50 percent of all employees and nearly 75 percent of professionals are white males), the number of women and of minorities doubled between 1976 and 1989 while total employment climbed by only 20 percent (284). Furthermore, as noted above, the dominance of foresters is declining as the agency adds biologists, landscape architects, archaeologists, anthropologists, and other specialists.

The change is not problem-free. The Forest Service has been successfully sued in California (Region 5) for its slow development and promotion of female employees. The addition of numerous planners and computer specialists for using FORPLAN and preparing the forest plans has caused culture shock—both to the traditional employees and to the new recruits (146). Organizations have a strong, innate tendency to exclude “outsiders” the Forest Service’s history of success, for example, has led to “resistance to incorporating the nonutilitarian, amenity values of a post-industrial urban nation . . . and a manifest reluctance to share power with the public and with other professionals” (130).

We [foresters] are fond of saying our diversity is our greatest strength, but right now it really isn’t. The way many of us are going about our business is bringing us to denial and intolerance instead. If diversity is going to be our strength, then we need to

find a way to face our differences and respect them (105).

A study of attitudes based on educational and gender differences found that, a female forester is much more like a male forester than a male biologist is like a male forester. “[M]ost of the job frustration and prejudice women and men experienced were related to their [wildlife and fish biology] profession confronting traditional timber-range chauvinism” (132). Gender diversity is important for many reasons, but educational diversity is more important in terms of diversifying ideas and opinions.

**Benefits of Diversity**—Increased diversity within the Forest Service can yield several benefits in forest planning and public involvement. A diverse workforce brings a broader array of ideas, leading to greater creativity and flexibility for the organization. “Professional monoculture” resist change (132), and often unconsciously or indirectly censor information that contradicts insider views (130). Five out of six Forest Service interdisciplinary (ID) team members felt that “ID teams foster a holistic approach to problem-solving” (94). Furthermore, “creativity in environmental problem solving is a group activity that involves inputs from many different fields” (94).

Workforce diversity also can improve public involvement. Various segments of the public prefer different kinds of involvement in activities and decisions (159, 231). A diversity of professions, ages, and genders provides more avenues for various groups to be heard.

Diverse disciplinary backgrounds and generational differences create centrifugal forces that provide access to sympathetic decisionmakers by a broad range of groups (237).

Finally, diversity also provides a broader spectrum of values among agency employees (133). One reason for using interdisciplinary teams is “to overcome the narrowness of a single professional focus” (94). Foresters tend to focus on utilitarian values, and downplay the spiritual, symbolic values of the forest (128, 209). Biologists, in contrast, place greater value on biological processes (33), and these ecological values are more akin to the intrinsic values our substantially urban society holds for forests (194, 209). By combining the variety of values of a diverse workforce in its planning and management, the Forest Service could generate broader support for its activities and plans.

**Costs** Costs of Diversity--Increasing workforce diversity also imposes costs on the Forest Service. One major cost is increasing internal conflict. To the extent that the conflicts are professional differences about technical matters, such conflicts can be beneficial, fostering creativity and flexibility. However, many of the differences occur because nontraditional employees are challenging the traditional assumptions and operating styles, and thus become "change agents" within the agency (130). Challenges to "standard operating procedures" are often viewed as disloyalty to the agency, and can damage career prospects (104, 132). Sometimes the differences among staff devolve into personal conflicts (94), and can be very disruptive.

It is also difficult to build a team from a collection of diverse individuals. Time is required to overcome distrust of other professions and to abandon the resource advocacy roles many employees must employ during budget negotiations (94). ID teams still often operate as a collection of advocates rather than as a team:

Consensus is not the norm on most interdisciplinary teams; rather the relationship among most team members is adversarial and, in some cases, antagonistic (13).

Frequent changes in interdisciplinary team membership complicates the task of fostering teamwork, as employees are hired, transfer to other positions or locations, or leave the agency. In addition, some ID team members have only part-time team duty and many nonteam duties (94). Thus, building an effective interdisciplinary team is a difficult and challenging task.

Strategic planning can overcome some of the problems of workforce diversity. If a strategic plan establishes a sense of mission that is consistent with the values of the employees, and of the public, all of the diverse elements of the agency can be brought together to implement the plan. As noted above, a strong sense of mission can rekindle the esprit de corps that has traditionally been one of the Forest Service's strengths. However, this entails more tolerance of diverse opinions and of challenges to traditional practices. Moreover, achieving a unity of mission and sense of teamwork is a time-consuming process.

## Use of Interdisciplinary Teams

The use of interdisciplinary teams in national forest planning is mandated by NFMA and NEPA. However, the functional organizational structure has inhibited integrated forest planning. As noted in ch. 7, FORPLAN has in some ways forced the various specialists to learn to talk a common language (123, 278), but it also has contributed to advocacy by the various specialists (13). Furthermore, when debates become "use versus nonuse" (rather than how to achieve all relevant values), they can polarize both internal and external groups (160). FORPLAN creates other barriers for many employees who are not on the planning team, and thus can separate planners from managers and other employees (23). Nonetheless, to the extent that teamwork can be created, ID teams can lead to more effective, coordinated planning (94).

Most ID teams used in national forest planning include specialists in wildlife, timber, recreation, engineering, hydrology, soils, economics, range, and a plethora of other disciplines. (See table 9-1.) Many of these specialists have college degrees in their area of specialty (94). However, some specialties are represented by employees trained in other areas. For example, foresters dominate the recreation, hydrology, and economic specialties (94). This does not necessarily mean that these people are unqualified to perform the necessary tasks, since many foresters have additional training in other disciplines. Nonetheless, to the extent that foresters are used in an assortment of specialty roles: 1) the benefits of educational diversity will not be achieved, and 2) foresters may lose the special characteristics that make them a distinct profession. Some forestry educators have noted this as a possible problem:

... as foresters fill evermore varied assignments, the term forester has lost much of its former meaning, and an identity crisis exists for the profession (71).

The Forest Service is not required to use ID teams except in planning, and ID team outside planning use has been rather limited. Several forests, such as the Allegheny in Pennsylvania and the Lolo in Montana, have apparently reorganized away from the traditional resource functional approach. However, the Forest Service is still generally organized by resource function, especially at the regional and national offices (276). Furthermore, despite the importance of teams and teamwork, Forest Service



Table 9-I—Forest Service Interdisciplinary Team Members

Specialty	Interdisciplinary team use (percent)	Degree in specialty (percent)	Degree in forestry (percent)	Degree in other (percent)
Wildlife	91%	80% (biology)	40	6%
Timber	89	95 (forestry)	95	5
Recreation	76	40a (recreation)	52	8
Team leader	75	2 (planning)	64	34
Engineering	74	90 (engineering)	2	8
Visual quality	73	97 (landscape architecture)	0	3
Hydrology	69	46 (hydrology)	46	8
Planning	64	0	71	29
Soils	64	78 (soil science)	10	12
Program analysis	59	4 (computer science)	56	40
Economics	58	24 (economics)	40	36
Range	54	47 (range conservation)	31	22
Fire	52	0	82	18
Public involvement	47	51 (social science)	41	8
Lands	41	0	88	12
Archeology	38	8 9 <sup>b</sup> (archeology)	0	11
Fisheries	30	80 (biology)	0	20
Writing	27	21 (English)	29	50
Sociology	23	41 (sociology)	0	59
Geology	13	82 (geology)	0	18

<sup>a</sup>Includes landscape architecture (37 percent of the total).

<sup>b</sup>Includes anthropology (68 percent of total).

SOURCE: M.W. Garcia, "Forest Service Experience With Interdisciplinary Teams Developing Integrated Resource Management Plans," *Environmental Management* 13 (5):583-592, 1989.

success is still symbolized by the "heroic district ranger":

Although agency guidelines . . . are stressing the importance of teams working together in cooperation with other organizations and the public, the traditional image of the strong, heroic individual still has considerable symbolic potency in the Forest Service (131).

The resource functional approach to national forest management is particularly a problem for budgeting. As discussed in chapter 8, the forests develop budget requests based on their interdisciplinary forest management plans, but these integrated requests are translated into resource functions, to meet the current requirements of the administration and the House and Senate Committees on Appropriations (217). Actual appropriations are then allocated to the forests, with substantial discretion vested in the regional resource staffs (217). Resource specialists at the national forest level must compete for funds with comparable specialists from other forests and with other specialists on their own forest. Thus, the current budget process inhibits an interdisciplinary or integrated approach to project planning and implementation.

### *Organizational and Employee Values*

Successful organizations in American business have distinctive corporate cultures that contribute to their success (195). Those corporate cultures typically provide both the stability needed by organizations and their employees and the ability to evolve as the needs of customers (and society) change. Stability is provided by the formal structure—the laws, rules, and regulations governing the organization—and by informal rules and internal goals (50). Providing for evolution is much more difficult, but is a key to success in business (195).

Many observers have considered the Forest Service to be among the best of Federal agencies (109, 128, 250). The agency certainly has a distinct culture that has provided stable direction for the national forests for many decades. Evolution in response to social changes is more problematic. Some have argued that the Forest Service has not responded to changes in social values (161, 310, 320). However, others suggest that the Forest Service has been more effective than other agencies at evolving to meet the requirements and intent of NEPA (1), and has at least recognized the broad mandate for national forest management:

To their credit, the principal public land agencies, the Forest Service and the Bureau of Land Management, have been seeking larger roles for wildlife on the millions of acres in their charge (197).

Recent research has examined employee perceptions of agency and personal values, and found substantial differences. The following sections describe apparent organizational values and employee values, and explore the reasons for the differences that have been found.

### Organizational Values

Many Forest Service critics have alleged that the agency is biased toward timber production (66, 104, 187). A survey of employees found that employees also believe that the agency values timber more highly than other resources; other resources are valued equally among themselves (133, 250). The belief in timber's primacy is also reflected in the recent letters from forest supervisors to the Chief of the Forest Service asserting that current programs are not consistent with proper land stewardship (90, 91). This belief permeated the agency, from new employees to forest supervisors, and even to top management (regional foresters and the Chiefs office) (133).

Others who have examined the Forest Service conclude that agency actions reflect an inherent bias not toward timber, but toward maximizing its budget (124, 187). O'Toole (187) in particular has suggested that the agency only appears to emphasize timber production because of the numerous special budget accounts associated with timber harvesting. (See ch. 8 for a discussion of these accounts.) Another study suggests that the reliance on standard procedures and the civil service protections from political interference account for the agency's efforts to maximize its budget (213). Despite their logic and some evidence to support these arguments, other evidence suggests that the Forest Service has not taken full advantage of the opportunities to exploit its special budget accounts (298). Thus, the budget maximization hypothesis is insufficient to account for Forest Service values and actions.

**Studies have shown that Forest Service employees believe the agency primarily values productivity and team spirit (132, 133). Productivity includes meeting targets, working hard, and being competent, while team spirit includes loyalty, teamwork, pro-**

**moting the Forest Service image, and getting along with your peers (133). Team spirit is clearly important to the Forest Service and its traditional esprit de corps. Displaying behaviors consistent with agency values is considered pivotal for success in the agency (131). This belief, along with the perception that the agency values timber over other resources, is widespread among the employees, with little difference by gender, professional background, or level of experience and responsibility (132, 133).**

Such views are not inappropriate, but can have unintended consequences. One potential problem is that, although the agency's "New Perspectives" is an attempt to encourage internal change, challenges to traditional practices and procedures are often perceived as disloyalty (130). This is more likely to be a problem for nontraditional employees, such as biologists and landscape architects, and could hinder the agency's ability to adapt to changing social values. Another potential problem is the message to new employees- 'don 't make waves' and "go along to get along" (104). While such messages are important to team spirit, they can inhibit employees from speaking out and thus inhibit challenges to traditional practices and procedures.

### Employee Values

In many respects, employee personal values differ from the organizational values of the agency. Forest supervisors have noted that their values and those of their employees have been changing (90). In contrast to the agency's apparent emphasis on timber resources, employees report that they value recreation higher than other uses, followed by wildlife and then water (133). Again, this is true for employees at all levels in the agency, even top management (regional foresters and the Chief's office). These values, moreover, matched employee perceptions of the public's values. Thus, employees believe that the agency values timber relatively more than either they or the public does.

Employees also believe that the agency should reward additional behaviors. Professional competence, hard work, and teamwork are and should be rewarded, but employees believe that concern for healthy ecosystems, for the long-run future, and for the welfare of one's peers should also be rewarded (133). Again, employees at all levels shared similar beliefs about what the Forest Service should reward.

### Why Are There Differences?

One might hypothesize that differences between organizational and employee values exist because new employees differ from experienced employees. Differences do exist—new employees are older at the beginning of their Forest Service careers, they are more likely to hold advanced degrees, and more are biologists and fewer are foresters (133). However, as noted above, these differences did not lead to differences in opinions about agency and personal values. The letters from the forest supervisors to the Chief also suggest that the managers' views are relatively consistent with those of their employees (90, 91). In fact, some of the long-time employees have been among the leaders in supporting Forest Service changes:

... many of these senior people have become adjusted to the challenges and promise of the post-NEPA era, and have supported and authored innovative approaches . . . (130)

Thus, it seems that increasing diversity is not the source of the differences between agency values and employee values.

Some differences probably occur because of the tradition and inertia common to large organizations. The Forest Service certainly has along and respected tradition (131), and it is difficult to change comfortable and successful modes of operation (161). The Forest Service has also institutionalized its traditional practices through common training, promotion from within, and regular transfers (250). Some argue that historic patterns persist because of procedural standards and civil service protections for government employees (213). Finally, the idea that change is necessary also implies that traditional practices represent the wrong way to do things (11). Despite the clear changes in social values, it is difficult to distinguish the appropriateness of past procedures for their era from the current relevance (or irrelevance) of such procedures.

The various external pressures on the Forest Service also limit the ability of the agency to alter agency values. External constituencies—'the welter of interdependent organizations surrounding the organization in question' (316)---impose some rigidity tending to hold the Forest Service to the status quo (50); and it is impossible to exist in a 'social environment of combative constituencies' without reflecting those constituencies (250).

Finally, the differences between agency values and employee values can result from the reward system. Perceptions of agency values may simply reflect the reward system rather than the organization's actual values. Many have suggested that achieving timber targets is more strongly rewarded than achieving other targets (66, 104). New employees, forest supervisors, regional foresters, and the Chief's office all "give the agency reward system a low legitimacy rating" (133)—i.e., what the employees believe the agency rewards does not match what they believe it should reward.

Employees gave overwhelming endorsement that the vision statement values *should* be rewarded by the USFS [U.S. Forest Service] . . . and there was little disagreement between ranks, gender or professional identity. However, most survey respondents believed the agency reward system did not adequately endorse and support these values (133).

### PERFORMANCE AND REWARDS

Performance of the appropriate tasks may be the most important aspect of any endeavor. In business, performance (typically measured by profitability) defines success, and achieving long-term success requires that appropriate performance be rewarded (195). Assessing performance is more difficult for a government agency than for a business, because government agencies rarely have simple, financial measures of success. Nonetheless, individuals and organizations respond to incentives (187), and thus a system that rewards *appropriate performance is necessary*.

As discussed above, Forest Service employees believe that the current system does not consistently reward behaviors that promote the Forest Service motto of Caring for the Land and Serving People. Forest supervisors have written to the Chief that we just can't continue to do more [more targets, more initiatives, more customer service projects, more conflict resolution] with less [money and people]" (91). According to employee opinions, the agency rewards production and team spirit (133). Thus, this section explores the agency's reward system, and assesses the relationship between that system and the planning system.

#### *Production*

Production is an important part of any organization's performance. Employees have reported that the agency rewards professional competence and

hard work, and, to an even greater extent target achievement (133). This seems appropriate, since successful efforts (meeting the goals) should be rewarded more highly than unsuccessful efforts. However, observers have suggested that timber targets are more important than other targets to the Forest Service (104); at least timber target achievement is assessed more diligently than other performance (217).

Obviously, employees are likely to expend more effort to achieve objectives that are measured than those that are not. Nonetheless, the lack of appropriate measures of performance is a surprisingly common failing of unsuccessful businesses (195). The entire purpose of the management-by-objectives system widely touted in the 1960s was to identify measurable targets that employees and their supervisors could agree on (220). One problem for the Forest Service is the lack of appropriate performance measures for some of the objectives for national forest management (100).

#### What Gets Measured, Gets Done

Meeting targets is clearly important to the Forest Service, but what targets get measured? The answer is not as simple as it may seem. The 1990 OTA report on RPA planning (259) assessed the annual *Report of the Forest Service*, and found it to be an inadequate report on Forest Service performance. Management activities for the national forests are displayed, but activities are generally not related to targets for national forest outputs or conditions. The only output information contained in the Forest Service's annual report which shows the *results* of management efforts is timber sales and harvests.

Several observers have noted the existence of "hard targets" for national forest management (104, 217).

The hard targets tend to be the tangible, directly measurable outputs of commodity resource programs: board feet of timber, number of cows or sheep grazed, mineral leasing permits issues (217).

Forest Service managers, not surprisingly, focus their efforts on meeting such "hard targets."

Whether or not a forest supervisor has met his or her assigned target for timber sale volume is quickly and unequivocally determined by direct, physical measurement; whether recreation or wildlife targets have been met is a matter of broad professional judgment . . .

Forest Service field officials indicated that the primary focus of performance evaluations continues to be the attainment of the "hard targets" for timber and, to some extent, range and minerals. On most of the national forests, the district rangers in particular indicated that their overwhelming management concern relating to their own performance evaluations was to "get out the cut," that is, meet the annual timber sale volume targets assigned them (217).

The important timber targets are not those established in forest planning, but the targets set in budget process. Congress typically sets targets only for timber in the annual appropriations laws (217). Furthermore, congressional timber targets have consistently exceeded the timber sale levels requested by the Forest Service for the past decade (217) although the timber funding and outputs in the agency's budget request have been below those identified in the forest plans with unconstrained budgets. Thus, meeting the annual timber targets is clearly important to meeting congressional direction for national forest management.

#### What Isn't Measured, Is Important

In contrast to the hard targets for timber and other commodity outputs, the measures for noncommodity resources are called "soft targets." As noted in chapter 6, consistent and comprehensive measures of nontimber outputs do not exist. Measures of recreation use, for example, have been described as "horseback estimates" (217). Wilderness management is reported in acres managed, which is a function of congressional wilderness designations, not of managerial performance (215). The "output" of watershed management depends more on the size of the watershed treated than on the efforts or the results (217).

Equally important is the lack of measures of resource and ecosystem conditions. Range, watershed, and wildlife habitat improvements are measured in acres, but results of these efforts are not reported in terms of changes in conditions (100). Even for timber, the Forest Service does not report on changes in resource quality (215).

The Forest Service also does not assess production costs. (See also ch. 8.) Cost data reported nationally are incomplete and inconsistent with appropriations data (259). Unit costs are no longer important to managers in annual budgeting, and inaccuracies result in few sanctions (217). Further-

more, costs are not related to outputs, even for the hard targets, in any meaningful way (217, 254).

It is difficult, if not impossible, to hold Forest Service managers accountable for all the relevant management tasks when appropriate measures for costs, outputs, and conditions are lacking. It is admittedly difficult to develop measures for all the tasks. However, without such measures, Forest Service managers will continue to be evaluated on achieving the hard targets for national forests. In particular, managers cannot be rewarded for achieving and maintaining healthy ecosystems (as employees at all levels believe they should) unless the health of ecosystems is measured, at least indirectly.

### *Team Spirit*

*Loyalty*, teamwork, and other measures of team spirit are even more difficult to assess. The Forest Service has stressed the importance of teamwork, but has done little to reward or encourage it (131). Little research has been conducted on how to build and maintain esprit de corps, probably because of the difficulties in measuring and assessing it. Clearly, team spirit is important, and has been a traditional strength of the agency. Equally clearly, team spirit, as measured by employee pride in the Forest Service, has declined at all levels of the organization over the past 20 years (133).

Team spirit will be more difficult to build and maintain with the increasing professional, racial, and gender diversity within the agency. Challenging traditional practices is often construed as disloyalty (130), but challenge is likely to be more common in a more diverse agency. Challenge--if done within proper and necessary limits--is an appropriate way of assuring that the agency is responsive to its mission and to the public. An open, strategic planning process, wherein employees and the public agree on management direction for the national forests, can lead to a spirit of cooperation and consistency.

### *Rewarding Plans and Planning*

Forest plans are not just pretty documents to set on a shelf and gather dust. The plans must be implemented—to guide management of the national forests. Forest supervisors must ultimately be responsible for the forest plans and their implementation, and must make the time to ensure the plan is right. “The manager should be willing to devote

considerable personal time to the process” (60) to motivate the planning team and assure that the results are feasible.

### **Plan Feasibility**

Clearly, plans must be technically feasible. The chosen alternative must be internally consistent—all the outputs must be achievable and the ecosystems protected. Foresters and other professionals are quite good at examining technical feasibility; as described above, the scientific conservation paradigm common to many physical and biological disciplines emphasizes the technical aspects of management.

The plans must also be politically feasible, at the local and national levels; technical competence is a necessary but not sufficient condition for successful national forest management (316). It has long been recognized that public involvement is needed to understand the social values of the forest (29). The forest supervisors have reiterated the call for effective public involvement, arguing for increasing work with “local, state and national key publics and elected leaders’ (90). (See ch. 5.)

A major difficulty for forest planning is the lack of public consensus on how and for what the national forests should be managed (158). Foresters and other professionals are typically not very good at face-to-face, emotional confrontations about management (129). Many of the planning ‘failures result because resource professionals are working to change the public’s mind about management practices rather than developing alternatives to satisfy public goals’ (159). However, foresters have traditionally been committed to serving the public interest (71). This commitment to service must be strengthened and molded to building a public consensus, because consensus is crucial to building politically feasible forest plans (158, 231).

Some have described the goal of the forest planning process to be a “social contract” between the agency and the public (130, 230). This view is useful, but may not recognize the need for plans to be politically feasible at the national level—i.e., consistent with the RPA Program, the annual budget, and other national policy direction from Congress and the administration. (See also ch. 10.) Research indicates that national RPA direction has had relatively little direct effect on the forest plans (213). However, national direction on budgets and on targets can subvert the direction established in the

plans, as described above. Forest plans must be consistent with likely national decisions about budgets and targets and other policy guidance, if they are to be implemented. This probably will require modifying the planning and budgeting processes to impose some consistency in budget consideration, and to display how budget changes will affect forest plan implementation. (See also ch. 8.)

### Manager Responsibility

Another requirement for implementing the forest plans is that the managers-forest supervisors, district rangers, etc.—be accountable for performing according to the plan. Plans are unlikely to be implemented if managers are not held responsible in performance reviews for both the technical and political feasibility of the plans.

Technical feasibility can be assessed annually by comparing actual outputs, changes in conditions, and unit costs with those projected in the forest plan. Some variability is certainly to be expected, and unanticipated events, such as Hurricane Hugo, can devastate a forest. Nonetheless, if the plan was done correctly, it should give a reasonably accurate projection of activities, costs, and results. Managers and their planning teams should be evaluated, in part, on the output condition and cost targets in their plans.

The public also needs to examine the activities, costs, and results of management annually. The annual *Report of the Forest Service* was intended to provide such information at the national level, although it has not fulfilled this task (259). A comparable annual report on the consequences of implementing the forest plan could provide the public with the relevant information, and many forests are now preparing annual reports (137). However, as discussed above and at greater length under monitoring in chapter 6, the existing measures of outputs and activities are inadequate to assess the results of management activities on total outputs, ecosystem conditions, and unit costs. The lack of complete and relevant measures of national forest production make it difficult to evaluate how managers perform in implementing the forest plan.

Political feasibility, at least at the local level, is also important to implementing forest plans. One simple and obvious measure is the number of administrative appeals and lawsuits filed against a plan. Agency critics have suggested that the appar-

ent increase in litigation, despite increasing public participation efforts, suggests that the agency is not really responding to the public (159). However, one should also recognize that the plans and the subsequent activities cannot be “bomb-proof,” because forest plans are not comprehensive, site-specific action plans (13). Forest management is often contentious, and thus some appeals and litigation should be expected. Furthermore, conflict, and even litigation, are not necessarily bad, because they can lead to improved understanding and agreement. Nonetheless, managing conflict and reducing appeals and litigation is a relevant goal for Forest Service managers, and the agency does reward managers who deal with contentious issues at the local level (217).

The number of appeals and lawsuits is one measure of local conflict over management decisions: fewer appeals and lawsuits suggest better conflict management. However, it is possible to reduce appeals and lawsuits without resolving conflicts, by postponing controversial decisions to a later date or to another forum. Managers could, through such techniques, shift the controversies to their successors or to other decisionmaking forums. Thus, the number of appeals and lawsuits is an incomplete measure of the political feasibility of a forest plan. Additional measures of the effectiveness of public involvement and manager responsiveness need to be developed to assure that managers are properly rewarded for preparing politically feasible forest plans.

### Difficulties in Accountability

As noted above, the lack of complete and accurate measures to assess the technical and political feasibility of forest plans is a problem. Another, related problem is objectivity—it is difficult for managers and planners to be impartial in monitoring and evaluating the plans they have spent so much time and effort preparing (50). Effective, unbiased assessment of performance requires monitoring by quasi-independent groups within the national forests, such as interdisciplinary teams that include nonemployees (e.g., retirees and experts from various interests). However, purely external monitoring and evaluation can reduce planners’ and managers’ commitment to developing effective, implementable plans.

A more intractable problem relates to the frequency of transfers for agency employees. Habitual

transfers, including laterals, are important for employees to advance in the organization, but often drain local expertise from a forest (64) and can be a problem for dual-career families (132). Furthermore, frequent transfers and the inability to quickly demonstrate improved resource quality mean that managers face relatively little risk of being held responsible for failures to meet resource quality and ecosystem health targets (215).

In the extreme case, transfers can make one manager and planning team responsible for implementing a plan prepared by another manager and team. Two steps can minimize this potential problem. First, the plan should identify all the relevant information needed for implementation: the participants, their issues and concerns, the current outputs and conditions and their trends, and the goals and direction for managing the forest. Second, improved communication and a sense of shared responsibility is needed between employees and their predecessors. This would include informal talks as well as formal communication, and possibly even joint performance review.

## SUMMARY AND CONCLUSIONS

Organizational factors, such as traditions and incentives, affect the ability of an organization to develop and implement strategic plans. Within the Forest Service, the traditional dominance of foresters is changing as the agency's workforce diversifies and as foresters adapt to changes in American society, but Forest Service tradition still exerts a strong influence over national forest management. The reward system for national forest management also determines the effectiveness of strategic forest planning under NFMA.

### *Forest Service Culture and Diversity*

The Forest Service has long been dominated by foresters, and foresters still account for at least half of the agency's professionals and at least three-quarters of its technicians. Foresters, by training and experience, typically emphasize the uses and outputs of forests, and particularly, the management of trees. However, the increasingly urban American society holds a less utilitarian, less anthropocentric, more romantic view of nature. Thus, society increasingly values the nonuse benefits of forests, which are often discounted by foresters.

The Forest Service also employs a variety of other professionals. Traditional engineers and range conservationists hold values relatively similar to foresters, and thus have contributed to the agency's consistent internal philosophy. However, other professionals, such as biologists, landscape architects, and archaeologists, are diversifying the educational background of the agency's workforce. Biologists have become the second largest professional group within the Forest Service (after foresters), and their education typically emphasizes the biological and ecological processes of forests, rather than the utilitarian view of foresters. Thus, as more biologists and other specialists are employed, the values and orientation of the agency is broadened.

As a Federal agency, the Forest Service has long been highly regarded for its professional approach to its mission. The professionalism of Forest Service employees has contributed to the agency's historical success and to the strong esprit de corps within the workforce. However, professionalism also has its costs. The professional training of foresters and biologists emphasizes technical competence. While technical competence is important to, and indeed necessary for, management of the national forests, it inhibits listening to the public. The public is generally perceived as uninformed and overly emotional, while the professionals consider themselves specially qualified to make rational resource management decisions. However, this view often leads professionals to ignore or discount the public's goals for the national forests and public objections to some common management practices.

The Forest Service workforce is becoming more diverse, in racial and gender as well as educational composition. Research suggests that educational diversity is more important than racial or gender diversity in terms of broadening the values and ideas of the workforce. Such diversity is important because it leads to greater creativity and flexibility in management, tends to open more channels of communication to various interests, and broadens the basis for management decisions. However, diversity also creates internal conflict, because new ideas often challenge traditional practices and can seem to be disloyalty to the agency. It takes more time and effort to build teamwork and trust among groups with disparate backgrounds and values than among groups with shared outlooks and experiences. A shared sense of mission can overcome some of the difficulties, but many employees are

concerned that the current motto—"Caring for the Land and Serving People"—is not really being implemented and rewarded.

Diversity is important to developing and using interdisciplinary teams as required by NEPA and NFMA. The Forest Service uses ID teams in forest planning, although in many cases the diversity of specialists is less than that specified in the laws. More importantly, however, the interdisciplinary approach is not used widely other than in forest planning; the Forest Service is still generally organized functionally, by resource specialty. This is particularly a problem in budgeting, as integrated management activities are translated into resource functions; the subsequent appropriations may bear little relationship to integrated management.

Finally, the apparent values of the organization and the employees differ significantly. Regardless of experience, level within the agency, or educational background, employees believe that the agency emphasizes timber above other resources, and primarily rewards outputs and team spirit. However, employees' personal values apparently emphasize recreation, wildlife, and water, and match their perception of the public's values. Employees believe that the agency should also reward healthy ecosystems, long-run concerns, and the welfare of their peers. However, the agency's traditions, normal organizational inertia, pressures from various external groups, and the existing reward system all impede change.

### *Performance and Rewards*

As noted above, employees believe that the Forest Service rewards production and team spirit. Production and productivity are appropriate standards for evaluating employees, but the existing measures are incomplete for assessing performance. "What gets measured, gets done. Timber and other commodity outputs are more easily and accurately measured, and thus commodity output goals are commonly known as "hard targets." Other national forest goals--noncommodity outputs, nonuse values, and efficiency (unit costs)--are either poorly measured for annual production (i.e., they are "soft targets") or are not measured at all. Thus, employee performance evaluations emphasize achieving the hard targets.

Spirit is far more difficult to measure, and thus to assess, than is production. One problem for establishing and maintaining esprit de corps in a diverse workforce is that challenges to tradition are often perceived as disloyalty to the agency. Strategic forest planning can overcome such perceptions, if the established direction and the subsequent management are widely accepted by the employees (and the public).

Successful implementation of forest plans must also be rewarded. To be implemented, the plans must be technically feasible, something the various professionals employed by the Forest Service are trained to assess. However, the plans must also be politically feasible. This means building a local public consensus on the appropriate management direction and practices for the forest plan, an admittedly difficult but essential task. The resulting "social contract" must also be politically feasible from a national perspective, fitting with the nationwide goals for resource management and for Federal budget priorities and limitations.

Accountability is the key to forest plan implementation. The limited number of performance measures make it difficult to hold managers responsible for achieving all the management goals for their forests, and for the political feasibility of their plans. The number of administrative appeals and lawsuits is one measure of political feasibility, but the number can be reduced by simply postponing controversial decisions to another forum or to a successor. Thus, additional measures of effective public involvement are needed to assess managerial performance in this area. Another difficulty is that managers and their staffs are likely to be predisposed to favorable evaluations of their performance, thus limiting their impartiality in monitoring forest plan implementation. Finally, the habitual transfers of managers can reduce their accountability; one manager and/or planning team may develop a plan which must then be implemented by a successor. These problems can be minimized with distinct monitoring teams and a thorough description of planning participants, issues and concerns, and past and current conditions. The direction and goals in the forest plan also must be clearly specified.