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NEW IDEAS FOR TEACHING NATURAL RESOURCE MANAGEMENT: FROM THE LONG-TERM REALITIES OF NATIONAL FOREST MANAGEMENT

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ABSTRACT: Research and study of 90 years of managing multiple uses on national forests has revealed three new ideas or understandings about the nature of forest management (Fedkiw 1997a).

The first idea is a new definition that describes the task of forest management and the role of forest managers. The second emphasizes the critical, continuous role of the learning experience that accompanies resource management and its relationship to both the adaptive and holistic ecological approaches to resource management. The third establishes that forest management has been on a pathway toward a holistic ecological approach from the beginning of American forestry. It also describes how forest management advanced, and continues to advance, incrementally and adaptively on that pathway in response to intensifying and diversifying uses and services; improving experience, technology, and science; changing markets and social preferences, and Nature's unexpected responses to use and management and her own random vagaries.

These ideas have a large potential for improving the knowledge, teaching, communication, and progress of forest management in the classroom, in the field, and with the general public and its interest groups. To be effective, however, these ideas must be communicated, discussed, debated, researched, tested, refined, and written about, not only among resource professionals, but also with students, interest groups, stakeholders, landowners, policymakers, and the public-at-large. New ideas tend to roll off like water off a duck's back unless they are communicated, discussed, and debated; highlighted in their newness; packaged in a familiar context, and presented in a user/audience friendly way with graphic images (Perry 1993).

INTRODUCTION

My learning experience in studying and writing about 90-years of managing multiple uses on national forests has revealed a range of new ideas and understandings about the long-term nature of forest management particularly, and resource management generally (Fedkiw 1997a). The new ideas have three focal points:

- A functional rather than a technical definition of forest management,
- The important learning experience accompanying the management, and
- The movement of forest management along a pathway toward a fully holistic ecosystem approach.

These ideas are new primarily in their explicitness. They were largely implicit in the past management of national forests and other forest properties. Foresters just did not articulate them explicitly. They are poorly documented in the natural resource literature because long-term, on-the-ground shifts in resource use and management are poorly researched and difficult to observe or grasp---even from one's own long-term

experience---without a systematic study approach. These new understandings emerged largely from the inductive and historical methodology of my study and three questions:

- Who used the national forests: what for, and why?
- How were the uses implemented and managed? And then,
- What happened in response to the management and the evolving science, technology, markets, and public values?

The study examined national forest management use-by-use, year-by-year, decade-after-decade for 90 years. My framing of these ideas was also shaped by the modern emphasis on the ecological approach to resource management.

THE NEW IDEAS

The New Definition

The idea for a new definition for forest management emerged early in my study as I began to explore the evolution of national forest uses, their implementation, and the consequences use-by-use, year-by-year. That methodology quickly revealed a practical understanding of the purposes of national forest

management: **fitting and maintaining multiple uses and services into ecosystems according to their capability to support them, compatibly with other uses on the same or adjacent lands, and in ways that assured the permanence of the uses, the resources, and their benefits for future generations.** This definition forthrightly describes the task of forest management and the role of forest managers; not only for students and resource professionals but also for users and the general public. Landowner/user objectives are reflected in the emphasis on uses and services.

This definition contrasts strikingly with the current “official” and largely academic, abstract definition: “the practical application of scientific, economic and social principles to the administration and working of a forest estate for specified objectives” or “that branch of forestry concerned (a) with the over-all administrative, economic, legal and social aspects, and (b) with the essentially scientific and technical aspects especially silviculture, protection and regulation” (Ford-Robertson 1971).

The methodology which led to this new definition also clearly reveals that management is driven by use and service demands whether they be commercial, recreational, environmental, societal, aesthetic, psychological, or spiritual. It likewise reveals that use and management come incrementally use-by-use, area-by-area, year-by-year and that the user not only has an interest in the use, but also in the management, for the use must be located where it is accessible as well as suitable and effective for the user’s purposes.

This new operational definition appears to be universal, since it can be readily extended or adapted to apply to natural resources management generally or to its individual components such as wildlife or range management. It can even be extended to ecosystem management, and become the framework or a first principle in formulating a theory for ecosystem management. It can also be a useful framework in teaching forest and natural resources management.

We often talk about the need for better communications with the American people about forest management. A new definition that conveys a clear understanding of the task of forest management and the role of resource managers in fitting uses into forest ecosystems could be a big help in addressing this agenda.

A vivid operational definition could also enlighten and perhaps ameliorate the unending confrontation and debate about the “proper” use and management of our public and private forests. The debate is primarily about the optimum levels and combinations of uses of our forests and, only secondarily, about the technical aspects of resource management. When the debate mixes uses and their allocation on the land with management practices, i.e., ends with means, it confuses the issue and adds to the difficulty of its resolution. For example, concerns expressed by some individuals and groups over timber

salvaging often are based on objectives for retaining those areas for future wilderness designation. The salvage management practice may be entirely appropriate and consistent with approved national forest management plans and guidelines.

The American people obviously have not come to an agreement about this issue of proper levels and combinations of uses and environmental services, particularly for national forests and generally for the Nation’s forests. A meaningful definition of the task of forest management and the role of resource managers would help clarify the debate by focusing it on use, and policymaking on uses and ends rather than on management. It is not the technical capabilities of professional resource managers that is so much in question as the proper levels and combinations of uses and services for both public and private lands, and who determines them.

The role of the resource manager in determining uses is largely limited to their location on the land and matters of technical feasibility. Where there are differences among the public and users about the proper use of forest lands, managers often have difficulty finding a satisfactory resolution without compromises among the public interests and users. Appeals and court suits are often involved. The dominant role of the resource manager, of course, is in determining and applying the appropriate management practices to implement the uses compatibly with each other and assure the permanence of the resources and their supporting ecosystem.

The Learning Experience

Over time, the learning experience is a critical, but often unrecognized, aspect of managing forests. This idea emerged primarily from examining how the use and management of national forests evolved over time, use-by-use, year-by-year, decade-after-decade. It was the study’s long-term perspective that revealed the dynamics of forest use and management—how the uses increased and diversified; how public interests and preferences changed; how management knowledge, technology, and science continually evolved, and how Nature often responded unexpectedly to management and from time to time introduced her own largely unpredictable events. This evolving aspect of public land management often made managerial judgment, reinforced by practical experience, equally and sometimes more important than the underlying science.

Ordinarily the long-term dynamics of forest use and management are difficult for managers with day-to-day problems to comprehend, because the long-term dynamics cannot be seen or observed. They can only be remembered or recalled from long-term on-site experience and observation. These are important axioms for teaching and practicing forest and resource management. An understanding of the long-term dynamics of forest use and management and the underlying causal factors is difficult to acquire or cultivate without a deliberate systematic approach for doing so. Often the documentation is inadequate and the formal research is even less adequate. An

even greater problem is the lack of general understanding about the need and importance of such information. Let me cite some examples of important early and modern learning experiences.

In the early decades of national forest management, it was widely accepted that predator control would contribute to the build up of game populations. In later decades, when game populations became a problem to their own food supply and to forest conditions, both national forest and state game managers introduced various practices including the direct reduction of some game herds and hunting options that would reduce and keep game populations within the limits of their habitat capacity and food supply. Predator control for game management was largely abandoned.

For several decades it was thought that good timber management constituted good game management. It increased food supplies, edge effects, and desirable cover for wildlife. In the 1960's, however, elk hunters and biologists throughout the Rocky Mountain area became concerned about the behavior of favorite herds and began to question the impacts of timber harvesting and road construction designs and practices on elk. The Forest Service and several partners undertook 15 years of research on the influence of timber management and harvesting and road construction on elk. This research uncovered needed changes in management in favor of more desirable elk behavior. An understanding of the importance of wildlife interactions over the large landscape scale emerged from this research and is now institutionalized into the ecological approach for managing multiple uses on national forests.

The science of even-aged management and clearcutting to regenerate desirable shade intolerant tree species was well-established and widely practiced on national forests through the 1950's and most of the 1960's. Beginning in the late 1960's, however, other considerations relating to diverse and changing user interests and values led to major reductions in clearcutting and substitution of other methods of regeneration harvest.

A more recent management adaptation is the need to modify national forest management strategy and practices for both wildfire control and timber growth and harvest purposes to reduce forest fuel accumulations. In this case, the successful implementation of public policy to control wildfires on national forests over many decades created a new management challenge. Forest areas once subject to frequent, low intensity, natural or human-set fires were particularly affected by this build-up of forest fuels and the related risk of conflagration fires.

Much of the debate and confrontation national forest managers are now experiencing over the proper use and management of national forests is likewise a learning experience, not only for the managers but also for the users, stakeholders, policymakers, and the American public generally. The enact-

ment of environmental legislation called for public involvement which expanded the sources of input for the learning experience. New legislation introduced many new environmental standards and requirements which necessitated widespread management adaptations. The Endangered Species Act is a special case in point. It required management adaptations that would protect and improve habitats to restore viable populations for listed endangered or threatened species. This became an especially complex challenge where such species' ranges encompassed multiple ownerships and jurisdictions. The Clean Air and Clean Water Acts likewise called for many adaptations. Thus, "learning to do it better" became a common demand of the modern learning experience.

Today, the management emphasis is on adaptive management, but the learning experience is implicit. The adaptive management practice is the response to, and the last step, in each learning experience. It also provides the setting for the next learning experience. The modern emphasis on monitoring epitomizes the importance and need for continuous learning. It provides data and information for the learning experience and, if properly planned, the framework for collecting and interpreting the data. It is the information tool for the learning experience. However, we need to keep in mind that resources for gathering statistical data are limited and will never be enough to even begin to cover every acre and management action. Resource managers will need to rely on the tools that were so important to the early forest managers when science and statistically gathered data were almost nonexistent: keen observation and perceptive interpretation. These skills can help determine where it will be necessary and cost-effective to collect statistical data. Another important tool may be long tenures for resident managers of forested properties to improve the quality of their observations and perceptions over time, economize data collection, and strengthen its interpretation.

The adoption of the holistic ecological approach to resource management increases demands on the learning experience since it expands the variables and the resource interactions that forest managers need to consider as well as the spatial and time dimensions of those considerations. Forest management is---and always has been and will be---a challenging and fascinating art in which the artist is never done learning (Hanna et al 1978).

More explicit emphasis in forestry education and communication on the unending learning component of forest management can produce more perceptive resource managers and more effective management. Deepening the understanding of the uncertainties associated with forest and ecosystem management can also provide a more humble and constructive framework for collaborative stewardship versus the endless debate and confrontation about what constitutes the "proper" use and management of renewable natural resources.

The Pathway Toward a Fully Holistic Approach to Management

National forest management has always been on the pathway toward a fully holistic ecological approach to resource management—or ecosystem management as it is often called (see Addendum: The National Forest Pathway). This idea and understanding has been implicit in national forest management particularly, and all professionally planned forest management generally, from the very beginning of forestry in America by virtue of the concern and emphasis of professionally-trained foresters on sustaining wood flows and assuring waterflows. That emphasis clearly meant maintaining soil productivity, protecting watersheds, and regenerating forests. Though not fully holistic in scope, these are ecosystem-wide considerations and principles for protecting and sustaining ecosystem functions and components. They were epitomized a hundred years ago in the Organic Act of 1897 which provided the original policy direction for managing national forests—called Forest Reserves before 1907. The Act declared that the purposes of the Reserves were to secure “favorable conditions of waterflow and to furnish a continuous supply of timber for the citizens of the United States.” It also provided for the “permanence” of the forests by directing that they be protected from destruction and improved. “Permanence” in 1897 carried much the same connotation or meaning as the usage of the term “sustainability” does today. These primary concerns and principles put national forest management on the pathway toward a fully holistic ecological approach to management. Because they were sound underlying principles of forest management generally, they also guided the progress of forest management on other lands and ownerships where professional foresters were employed. In recent years, the environmental movement and the emergence of explicit concerns for ecosystem sustainability have accelerated the movement of forest management along that pathway.

The Ecosystem Approach. However uneven or slow it may have been, historically, forest and resource management evolved incrementally and adaptively toward the holistic ecological approach as the intensity and diversity of resource use grew and our science and experiential knowledge improved. The environmental movement and the modern emphasis on ecological principles and ecosystem sustainability are now accelerating forest and resource management along that pathway. Further progress on that pathway, however, will come, much as it has in the past, incrementally and adaptively. It is impossible to achieve fully holistic management of forests and natural resources in one great leap since uses grow and change incrementally use-by-use, site-by-site, year-by-year, decade-after-decade.

Also, the scientific knowledge about the limits of ecosystem adaptability to uses and the interactive relationships among ecosystem units and their multitude of variables is incomplete, though progress is being made in many areas. We still do not have a generally acceptable management theory or practical

guidelines for applying a fully holistic ecological approach. Such a theory and guidelines will need to integrate the holism of ecology with the democratic freedoms, open economy, and societal preferences of the American public. That is a particularly difficult challenge. We do not yet have the institutional framework or governance, other than the concepts and processes of public participation and collective stewardship, for managing resource use and decisionmaking among the wide diversity of stakeholders and across the multiple ownerships and jurisdictions that constitute ecosystems.

Nature will continue to surprise us with her responses to management and with her random events. Technology will also change with time and both public preferences and markets for natural resource uses and services will continue to be dynamic in the longer-term. The science of what we know or think we know about ecology and ecosystems will also change and improve. For all these reasons, and others, the ecological approach to forest and resource management will continue to be incremental and adaptive as it has been in the past with the traditional approach to land and resource management.

What is new is that managers are beginning to expand the framework within which they make management decisions for implementing and maintaining the uses and services of the forests and their resources. That framework includes a longer time horizon, a wider geographic scope, more environmental variables and species components of ecosystems, and wider-scale interactions among ecosystem units in addition to public participation of stakeholders and collaborative stewardship with multiple ownerships and jurisdictions. Much of our traditional forest and resource science and experiential management knowledge will remain relevant, but some will need to be adapted to the new ecological dimensions. Management decisionmaking is now more complex and challenging. Uncertainty and judgment continue to be important components of the decision process. Experts in the functional resource areas such as wildlife, water, timber, and others will increasingly need to work collaboratively and even-handedly with resource managers in the interdisciplinary mode.

CONCLUSION

It is now time to put together and make explicit the philosophical framework within which we are working to manage forest uses and resources. That framework will define where we are, where we have been, and where we are headed. It will be applicable to forest management particularly, and generally to all resource management, and have a large potential for improving the knowledge, communication, and progress of resource management in the classroom, in the field, and with the general public and its interest groups. In addition, the framework will provide a starting point for elaborating a practical theory for applied resource use and management based on the ecological approach, public participation, and collaborative stewardship. If we do not do this for ourselves,

then who will do this for us? Will we continue to strive to do our work in an anomalous setting?

The parts of that philosophical framework are all there. We need only to identify them and put them together into a meaningful framework. The three new ideas elaborated for teaching natural resource management have a strong catalytic value for shaping that philosophical framework:

- The operational definition of forest resource management with its focus on fitting uses with each other within the capabilities of ecosystems, and sustaining ecosystem functions and basic structure,
- The never ending role of the learning experience and its explicit recognition that no one of us nor all of us collectively know it all, with its corollary: the need for monitoring, continuing research for better knowledge, and the adaptive management approach.
- The fact that resource management has always been on a pathway toward the holistic ecological goal and has advanced incrementally and adaptively on that path as resource use increased and experience, technology, and science improved. The ecological goal cannot be achieved in one great leap.

The framework should also provide for proper sequencing of discussion, dialogue, and debate of ends (or more practically, uses, services, and objectives) versus means (or management practices). The ends, as used here, include all human utilities whether they are material, recreational, aesthetic, social, spiritual, or a mixture. Management is driven by uses, services, and objectives. They, together with resource conditions and ecosystem capabilities, are the principal determinants of the appropriate management practices. In long-term planning the focus is specifically on ends and their potential allocation on the land, and only generally on means. In short-term planning, such as for projects, the ends are known and the planning emphasis is on their actual location on the land and the appropriate management practices. Where there are public issues about existing management on the ground or planned management, the challenge reflects both ends and means and these need to be sorted out for a coherent dialogue and to avoid defensive managerial responses since the roles of professional managers are different between ends and means.

Thus, the framework ultimately needs to differentiate between the role of the professional manager and that of the public, the landowner, or the user not only in determining the uses, services, and objectives but also in deciding upon the appropriate management practices. In our open, democratic society the role of the public and its interest groups is dominant in establishing uses, services, and objectives, particularly for public lands. On private lands, the role of the public is also important but circumscribed by private property and landowner rights. This is a difficult and challenging time for professional resource managers on public lands. It is partly due to

the focus of modern legislation on environmental objectives as well as management standards and direction on public lands and on opening up public land management to public participation, appeals, and adjudication. Some of this influence has spilled over to private lands. Much of it is OK. But it is the lack of agreement among the American public about what constitutes the proper use of forest lands and resources that adds most significantly to the difficulties managers are experiencing in deciding their appropriate management. This is a difficult nexus to unscramble in a viable manner, for the dominant role of the public in determining use is highly political while that of the professional managers is primarily technical, mainly locating uses within ecosystem capabilities and determining and applying the appropriate management practices.

Elaboration of the philosophical framework surrounding this nexus and the management that resource managers are striving to provide will enlighten the role of resource managers and strengthen their responses and contributions for resolving the challenges of that nexus. Hopefully, it will also provide enlightenment to the American public for more effective communication and collaboration in advancing the use and management of the Nation's natural resources.

These ideas, however, will not be effective in elevating the modern understanding of resource management and the role of resource managers unless we communicate, discuss, debate, research, test, and refine them and write about them---not only amongst ourselves as resource professionals but also with students, stakeholders, landowners, policymakers, and the public-at-large; in classrooms, in the field, and in the public arena, including the media. As expressed by technical editor-writer Carol R. Perry, in Corvallis, OR, "...new ideas tend to roll off like water off a duck's back" unless they are repeatedly communicated, discussed and debated; highlighted in their "newness", and presented to users and audiences in friendly packages with familiar contexts and graphic images (Perry 1993).

ADDENDUM

The National Forest Pathway. On national forests the first "Use Books", as the early guidelines for use and management were called, emphatically directed forest managers to take care where soil-disturbing practices were applied---especially timber harvests---to assure that watersheds and waterflows would be adequately protected. Over the years resource managers provided such protection by coordinating use and management activities with national forest soil and water resource experts. Such coordination became increasingly complex and challenging as all uses increased rapidly after World War II. There were management failures as well as natural and wild-fire damages to watersheds, but most have been rehabilitated consistent with the Organic Act direction to protect and im-

prove the forests, so that watersheds and their waterflows have seldom become national or regional issues or problems. Although ecosystems were altered considerably through timber harvests and management in favor of younger and more vigorously growing forests, forest cover and soil productivity as well as watersheds and waterflows, major aspects of ecosystems, have been generally well-maintained and protected. Timber sales and harvests, however, have been greatly reduced from the average annual level of 11 billion board feet achieved in the 1960's and continued through the 1970's and 1980's. Currently national forest timber sales and harvests are reduced to 3 to 4 billion board feet a year, about the same as those at the end of World War II. Net timber growth on the other hand is now 3.3 billion cubic feet (equivalent to about 16 billion board feet) compared to 2.1 billion cubic feet in 1952 (Powell et al. 1993). The reduction in timber harvests largely reflects the national forest management response to public values, interest group demands and court decisions for the protection of endangered species, particularly the spotted owl and certain anadromous fish species in the western states.

In the early decades, range grazing was the most widespread use on national forests. Forest managers gave priority to rehabilitating the rangelands which had been badly damaged by severe droughts and overgrazing at the end of the 19th and beginning of the 20th Century. By 1936, national forest rangelands were greatly improved compared to the conditions on private rangelands and the unmanaged, open grazing lands on the Public Domain. Today, only 15 percent of the national forest grazing lands are in unsatisfactory condition (Fedkiw 1997a, Gardner 1991, U.S. Senate 1936).

Under the Weeks Act of 1911, as amended, the National Forest System acquired over 25 million acres of primarily heavily cutover woodlands and abandoned croplands in the East. National forest management focused on their rehabilitation and reforestation to restore healthy forests, protect watersheds, and add to timber supply. This effort clearly had ecosystem dimensions. Most of the restoration and rehabilitation has been accomplished. But, a great deal more was also done to restore wildlife and fishery habitats and to provide a wide diversity of recreation opportunities.

Big game populations were at their lowest levels on the lands of the national forests at the turn of the century. Under national forest management, all big game species have generally increased in response to improvements in State game laws and management and to restocking and habitat improvements provided by national forest managers. Hunting visitor days rose from 2 million in 1947 to 19 million in 1996. In response to changing public values, especially the emergence of the endangered species legislation, national forest wildlife and fisheries management has increasingly focused its attention on nongame species and become more strongly integrated with management for other multiple uses, especially the management for market commodities (Fedkiw 1997b).

Fish populations and habitats, in general, including riparian areas are poorer than they were in the early decades. Much of the decline in fish populations is attributable to factors such as reservoir construction, both offshore and instream commercial and sporting harvests, diseases, agriculture and irrigation, and other land management on lands largely downstream from national forests. National forest management has generally sought to protect and improve fish habitats and in recent years has adopted a new focus for restoring riparian areas and habitats. National forest angler visitor day use rose from a little more than 2 million visitor days in 1947 to nearly 18 million in 1996 (Fedkiw 1997b).

Aggregate recreation use, including fishing and hunting, rose from about 15 million visitor days in 1947 to 160 million in 1965 and 341 million in 1996, much more rapidly than population growth. Visitor use diversified as much as it intensified. National forest managers were continually challenged to provide recreation visitors with safe, sanitary facilities and adequate services that were compatible with other national forest uses and the sustainability of the forest resources. The national forest concept of wilderness use emerged in the 1920's and by 1941 the Forest Service had designated 2.5 million acres and targeted a total of 15 million acres for such designation. Today there are 35 million acres of designated National Forest Wilderness---18 percent of all national forest lands.

As national forest uses rapidly intensified and diversified after World War II, national forest management became increasingly complex and challenging and called for more science, better technology, and more effective integration of uses and their management. Shifting public preferences in the 1960's and 1970's from commodity production to amenity uses, intensified these challenges and accelerated the process for strengthening management direction. The enactment of NFMA (the National Forest Management Act of 1976) and its implementing regulations were a major outcome of those challenges and public pressures. Later, in 1992, the Forest Service adopted an ecological approach to managing multiple uses with emphasis on the principles emerging from ecological science, for as yet---and still today---there was no widely accepted theory or practical guidelines for "ecosystem management" itself.

The concepts and principles of ecological science were not new to the Forest Service and its national forest managers. They began to establish Research Natural Areas (RNA's) in the 1920's to document baseline data on individual ecosystem units and forest types which could be used to evaluate the effects of national forest use and management on ecosystem processes and components. (Other Federal and state land management agencies subsequently followed suit). The RNA concept emerged with the Ecological Society of America in 1917 to protect habitats of rare plants and animals. To that end, the Society set up a work group that ultimately became The Nature Conservancy---a long-time cooperator with the Forest Service. In the 1970's, the establishment of RNA's acceler-

ated in response to the growing environmental concerns and pressures. Today, national forests have more than 300 RNA's totaling more than 300,000 acres.

The ecological aspects of national forest management gained further emphasis in 1970, when Chief Edward Cliff gave this message to regional foresters and station directors:

I am convinced that with an ecosystem approach to multiple use management our forests and rangelands can contribute to a better living for present and future generations...(USDA Forest Service 1970)

This was followed by the establishment of an ecosystem management training program at Colorado State University where the Forest Service co-sponsored an Ecosystem Management Short Course with the Range Science Department. When the University first offered the course in 1968, it became the first University-level course in ecosystem management *per se*. By the early 1980's, nearly 1,000 national forest managers and staff from the ranger district to the Chief participated in it. Many of its graduates also participated in the national forest land and resource management planning training programs that were established to help implement the National Forest Management Act of 1976. These graduates served as a bridge for linking ecosystem management principles with national forest planning and management (Fedkiw 1997a).

In 1992, the Forest Service formally adopted an ecosystem approach to managing national forests. Chief F. Dale Robertson announced it this way:

An ecological approach will be used to achieve the multiple use management of the national forests and grasslands. It means we must blend the needs of people and environmental values in such a way that national forests and grasslands represent diverse, healthy, productive, and sustainable ecosystems (USDA Forest Service 1994).

In 1993, the Chief's Office asked national forest managers to begin using the National Hierarchical Framework for Ecological Units to provide a consistent basis for collecting data on resource conditions, and for estimating ecosystem productivity, probable responses to management practices, and interaction effects among ecosystem units for land management planning. This framework was initially developed by the Forest Service's Robert G. Bailey in the 1970's. It was improved through the years so that when the Forest Service leadership needed it, it was ready for application (Fedkiw 1997a).

More recently, the Forest Service introduced the "collaborative stewardship" approach which seeks consensual guidance and approval from stakeholders and other natural resource interests for national forest management decisions within the broad ecological perspective. This approach is based on inventorying ecosystem conditions on national forests and sur-

rounding ownerships and jurisdictions, mutually sharing this information with stakeholders and other interests, and discussing national forest use and management objectives in the context of resource conditions, objectives, and management on other ownerships and jurisdictions as well as national forests.

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