

Ecosystem Management: An Uncharted Path for Public Forests

Roger A. Sedjo

Should public forests be managed to reduce all traces of modern human activities or to produce goods and services? Recently, the U.S. Forest Service seemed to answer that question by saying that it would like to restore the forests of the northern Rockies to presettlement conditions—that is, to the way the forests were at the start of the nineteenth century. This is indicative of the Forest Service's new philosophy of ecosystem management and reflects its shift away from multiple-use management, which has been the practice on public forestlands since the 1960s.

The impetus for both approaches is the desire to sustain forests. Concern about the rapid rate of logging on public lands following World War II led to congressional legislation that called for multiple-use management. This legislation explicitly recognized the worthiness of a range of goods or services provided by public forests—including market goods, such as timber, and nonmarket services, such as habitat for wildlife. Congress charged the Forest Service with managing forests to produce a mix of both within the context of sustainability.

In recent years, however, the leadership of the Forest Service has backed away from this goal as its attention has focused on forest ecology—the totality of relationships between forest organisms and their environment. This concern with forest ecology is embodied in the leadership's advocacy of ecosystem management. In accordance with this philosophy, the service has all but abandoned the notion of forests as primarily a vehicle for producing multiple goods (or "outputs") desired by society. Instead of practicing *multiple-use management*, which emphasizes the sustainable production of

myriad goods and services, the Forest Service has embraced *ecosystem management*, wherein the condition of forest ecosystems—the complex of forest organisms and their environment functioning as an ecological unit in nature—is considered to be the preeminent output.

Although an ecosystem-based approach has much to offer in the form of a broader, more integrated, and more comprehensive view of the forest—and thus contributes to the development of more effective management tools—its defect is

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its disregard for certain socially approved objectives. In essence, ecosystem management aims to restore forests to some biological condition that reflects fewer human impacts, but just *what* condition is a matter of arbitrary selection. Because ecosystem management has no real legislative mandate, decisions to seek any one of many possible conditions are being made by the Forest Service rather than by society at large, which makes its wishes known through the legislation of management objectives. More to the point from the perspective of taxpayers,

these decisions are being driven almost exclusively by biological considerations, with little attention paid to economic and other concerns. In short, when identifying objectives, ecosystem management ignores the social consensus implicit in the congressionally legislated objective of producing multiple market and nonmarket forest outputs and, instead, attempts to achieve some arbitrary forest condition about which society has little say.

The comparison of ecosystem management and multiple-use management presented below highlights the pitfalls of the Forest Service's new philosophy. Despite these pitfalls, it would be unwise simply to dismiss ecosystem management. It has resulted in the development of some highly effective management tools and activities and reflects a concern for the health of ecosystems that traditional management may not sufficiently recognize. Management for multiple-use objectives should continue to be the practice on public lands, but perhaps with a view to incorporating some aspects of ecosystem-based management.

The need for clear objectives

Management of public forestlands requires the identification of clear objectives and the development of a regime (procedures and tools) that will achieve the objectives without violating the constraints imposed by the availability of resources and the acceptability of actions and outcomes.

Forest management without objectives is meaningless. In the absence of stated goals, we cannot differentiate successful forestry activities from unsuccessful ones. And in the case of public forestlands, the ability to gauge the success of management efforts takes on added significance because these efforts are being financed by taxpayer dollars. Moreover, without specifying objectives, we cannot ensure that the preferences of society are being reflected in the way that our forests are managed. These preferences

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should inform goals as well as define the constraints within which a management regime will operate.

But where objectives dictate the management approach under multiple-use forestry, ends merge with means under ecosystem management. Indeed, in actual practice, the objective of ecosystem management is most often simply the application of an ecosystem, or ecosystem-based, approach that is concerned first and foremost with the state of the forest itself. Thus while the Forest Service has been embracing ecosystem management as its operating philosophy for several years, no clear vision of output goals, at least as traditionally understood, has emerged. What has emerged is a preoccupation with forest condition—that is, with biological attributes, such as a forest's structure (mixture of younger and older trees) and variety of tree species—rather than with the goods and services (particularly those consumed by humans) that forests provide.

Ecosystem management versus multiple-use management

Jack Ward Thomas, chief of the Forest Service, has said that ecosystem management means sustaining forest resources, from which will flow many goods and services. But our public forests have for decades been managed to sustain multiple uses. Is ecosystem management really different from multiple-use management?

The mandate for multiple-use forestry has been expressed by law since 1960, when Congress passed the Multiple-Use Sustained Yield Act. This act acknowledges that forests generate both market goods and nonmarket goods. The objective of multiple-use management is to produce the mix of these market and nonmarket goods that maximizes the value of forests to society.

If the objective of ecosystem management is simply the management of whole ecosystems for a variety of purposes, such management might be viewed as an

The Forest Service would like to return the forests of the northern Rockies (pictured here) to conditions that predate European settlement in the early 1800s. But why not aim for conditions that predate all human activity? Arbitrariness in the selection of desired forest condition is one aspect of ecosystem management that some taxpayers may find troubling.

expansion of the multiple-use approach. Under this expanded approach, the set of outputs under consideration would broaden to include the biological condition of the forest itself. In addition, the boundaries of the management unit would enlarge, because changes in forests affect the geographic area around forests. Finally, the potential uniqueness of each forest ecosystem would be recognized and new management techniques would be introduced. Conceptually, these considerations represent modest extensions of multiple-use management. The job of the public forest manager would continue to be producing the mix of outputs that would maximize the social value of the forest.

But proponents of ecosystem management are reluctant to treat such management as a mere extension of multiple-use forestry. Unlike multiple-use management, which focuses on distinct forest outputs, many of which are consumed

directly by humans, ecosystem management focuses on forest condition as the dominant forest "output." In this context, timber, recreational opportunities,

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and other traditional forest goods are merely by-products of managing forests to achieve one of many possible forest conditions. Production of these other

cation for jettisoning the multiple-use objectives called for in existing legislation, at least until such time as a national consensus on new forest management objectives is codified by Congress.

The practice of ecosystem management, however, has arisen partly as a result of the difficulties inherent in multiple-use forestry. Achieving the optimal social mix of outputs is, obviously, no easy task. The selection of outputs has been complicated further by court interpretations of the ESA that constrained management decisions. In this context, the current administration and the new Forest Service chief have promoted the shift to an ecosystem management approach.

Changes in the administration or the ESA are likely to alter the way that ecosystem management is practiced, however, perhaps making the forest conditions managed for today undesirable tomorrow. And changes are likely. Administrations come and go, after all, and with them the leadership of the Forest Service. Moreover, the ESA is expected to be amended. In the absence of any kind of legislative mandate, then, ecosystem management could go by the wayside or it could constantly alter the goods that forests provide and do so without reference to public opinion.

If ecosystem management is to be practiced on public lands, the application of democratic principles suggests

that such management be made law. In the absence of new congressional directives, however, management for multiple forest outputs should continue on public lands. But ecosystem-based management should not be dismissed altogether. Its tools and activities could and probably should be used by the Forest Service to achieve the objectives of multiple-use

Forest management as being practiced by the Forest Service in the mid-1990s has no clear political or social mandate. Indeed, ecosystem management marks a sharp shift away from legislatively supported multiple-use forestry.

forestry. And if there appears to be some public support for returning forests to a specified condition of fewer human impacts, this condition could be added to the list of existing management objectives, such as producing timber and providing recreational opportunities.

The advantage of multiple-use management is that it tries to accommodate additional objectives and make trade-offs among them in order to increase social values. Such an approach, although sometimes flawed, is much more likely to benefit all members of society than ecosystem management, which makes one objective dominant and essentially impervious to trade-offs. In retrospect, we can see that multiple-use management's chief strength lies in its flexibility and in its responsiveness to changing social desires. By comparison, ecosystem management is rigid in identifying objectives and essentially arbitrary.

Roger A. Sedjo is a senior fellow in the Energy and Natural Resources Division at Resource for the Future.

Under multiple-use management, timber harvests could be decreased to increase recreational opportunities; but under ecosystem management, such recreational opportunities would not be enhanced if they resulted in an "undesirable" change in forest condition.