ABSTRACT: Sustainable forestry must be socially acceptable, economically viable, and ecologically sound. Recent events indicate that many forestry programs have short-comings with regard to these criteria. Alternative management concepts, including "new forestry" and "stewardship forestry," have been proposed to resolve current problems. Such alternatives have appeal to public administrators and politicians, but skepticism exists within preservationist, forest products, and resource management communities. Benefits and costs -- social and ecological as well as financial -- have not been evaluated realistically. Although there are good ecological reasons to consider some of the alternative practices, supportive data are scarce and ideological rhetoric as well as misleading statements about existing management are matters of concern. Nevertheless, it is clear that relationships between people, forests, and resource managers have changed, and that foresters must work with other specialists to develop and evaluate a larger array of practices to provide a greater diversity of forest benefits and values.

INTRODUCTION

"Sustainable forestry" is a phrase heard in many discussions of natural resource issues today. It is rarely, however, defined specifically and it carries many connotations. Since the session organizers did not provide a definition--perhaps intentionally--I suggest that forestry--to be sustainable--must meet several criteria. Management activities must protect or enhance on-site resources essential to forest production, and they must not create or aggravate problems in other areas. Sustainable forestry must also be economically viable, sufficiently profitable to withstand the down periods of business cycles. Likewise it must be socially acceptable; it must be supported (or at least condoned) by the society that it is intended to serve. Few people would dispute the importance of sustainability, but events and conflicts in the Northwest and elsewhere indicate that many forestry programs have shortcomings with regard to these criteria. On public lands, problems with social acceptability suggest that changes are needed either in forestry practices, in the nature of public participation, or in both. On industrial forest land, substantial changes in ownership have occurred, some by hostile takeovers; these changes and other things suggest that the economic environment may not be ideal for sustainable forestry. Finally, some people have questioned the sustainability of current forest management on an ecological or biological basis.

Alternative management concepts bearing labels such as "new forestry", "ecosystem management", and "stewardship forestry", and national and regional Forest Service programs entitled "New Perspectives" have been developing. They have been proposed as approaches that may help resolve some of the current problems, particularly for public lands. My assignment is to discuss some of the social, economic, and ecological aspects of these developing concepts. As I offer my comments, please keep a couple of things in mind. They are the impressions of a research silviculturist--not an economist, sociologist, or policy-maker; and they definitely should not be viewed as indicative of existing or developing Forest Service policy.
RATIONALE AND EXAMPLES OF ALTERNATIVE PRACTICES

Concerns with various aspects of sustainability occur throughout the Nation. But the most intense conflicts exist in the Douglas-fir region, and this provides the general context for my impressions and comments. As background, I will describe the situation on Federal land and discuss a couple of the proposed alternative practices.

During the past 30-40 years, major changes have occurred in the development of National Forest lands. In many drainages, the forest landscape has changed from extensive stands of old growth or mature second growth to a mosaic of 20- to 60-acre patches. Young stages of forest succession and edge environments have increased as older stands were harvested, and populations of wildlife species associated with these environments--deer, elk, grouse--also have increased. Today, the habitats of concern to many wildlife specialists--and others--are those associated with old growth, where interior forest species such as the northern spotted owl and pine marten may find their optimal environment.

The sociopolitical environment has also changed greatly in the last couple of decades. Human populations have grown substantially, particularly in urban areas. Residents place high value on forests for a variety of uses and purposes. Thus, forest practices are closely scrutinized; conflicts over forestry issues have increased in number and intensity.

Some managers and scientists have suggested alternative silviculture systems as a possible solution to such conflicts. Although many labels have been used, all the suggestions have centered on the development of silvicultural techniques and landscape-level strategies for multi-purpose forest management. In essence, the proposed systems offer alternatives to the standard practice of clearcutting in dispersed patches, slashburning, and planting Douglas-fir; and they place added emphasis on managing forests for a diversity of values.

Two alternative practices are currently receiving quite a bit of discussion. Those are partial cutting (or green tree retention) and landscape-level planning to minimize fragmentation of remaining old-growth forests.

I use the term "partial cutting" to describe the retention of some portion of the overstory, ranging from 5 to 50 trees per acre, when mature stands are harvested. These reserve trees may supply added structural diversity to meet wildlife needs as well as provide an eventual source of large snags and down trees. From a timber standpoint, such retention may also offer an opportunity to produce some larger, older trees with higher quality wood on sites where most of the trees are grown and harvested on a much shorter rotation.

One purpose of landscape-level planning is to create a distribution of stand sizes and conditions that provide for many objectives. The dispersed clearcutting system, staggered 25- to 60-acre patches, meets certain objectives very well, such as those related to aesthetics, hydrology, road system development, regeneration, and habitats for some wildlife species. Larger stands, however, appear necessary to provide values associated with interior forest environments. At present, one thrust is to consolidate future harvests in areas already developed, so that fragmentation of the remaining large patches of old-growth forest can be minimized.

SOCIAL CONSIDERATIONS

A major factor driving current interest in "new forestry" and similar approaches in the Northwest is a belief that diversified forest management will have greater social acceptability than the continued dedication of land to meet single uses or solve specific problems: that it will provide more benefits to more people and
thus help bring about the consensus needed to proceed effectively with management of publicly owned forests. This has not been tested, but such concepts have great appeal, particularly to administrators of public agencies and political representatives who must deal with escalating land management conflicts. Many of the primary protagonists are not so enamored, however. The preservationist and environmental communities have adopted a cautious stance, with some suggesting that the concept is merely a ploy to continue business as usual and to harvest at current levels. And although application of some of the practices in the harvest of old-growth stands may have some ecological benefits, the harvest will still change the so-called ancient forest character of the stands. On the other hand, many in the forest products community—though supportive of multi-purpose management on Federal lands—recognize that unless some areas presently withdrawn from timber production are reincluded in the land base for multi-purpose management, the net effect of some “new forestry” practices will be further reduction in timber supplies. In addition, misleading statements about plantation forestry made by some “new forestry” advocates have created a backlash in the industrial and private forestry communities. Some fear that what they view as a management fad of questionable value could be imposed on owners of nonpublic lands.

Success in achieving the hoped-for consensus will likely hinge on greater and more effective involvement of additional segments of society. Many comments submitted on National Forest plans indicate that most of the public holds more moderate views and has a greater willingness to compromise. These people and their views receive little attention, however, in the media and courts. One of the knottiest problems facing public land managers today is obtaining balanced participation of an informed public and using it effectively to set forest management objectives.

Recent experiences in the State of Washington suggest that such problems are not insurmountable. Because of intense conflicts surrounding management of old-growth resources on the Olympic Peninsula, the Commissioner of Public Lands appointed a citizen commission on old-growth alternatives. This 33-member commission contained representatives of conservation groups, industry, local communities, Indian tribes, and educators, plus legislative leaders, bankers, and foresters. They were charged with developing recommendations for State forest lands that would provide revenue to school trusts, maintain ecological diversity and wildlife habitat, and continue an adequate flow of timber to local industry. After talking and listening to one another and various resource people for about a year, the members achieved consensus on a package of recommendations. This package included a commitment to strategies and practices intended to protect ecological values while maintaining timber harvest. A plan to implement the recommendations has been developed by the Department of Natural Resources and has been released recently for public review.

Another on-going effort on forest management in Washington State is known as the “Sustainable Forestry Roundtable.” The roundtable is a 40-member group similar in make-up and approach to the Old-Growth Commission. This group is dealing with issues related to private as well as public land. The issues involve controlling timber harvest rates and preserving the timberland base in areas with rapid population growth. Some of the proposals being discussed include commitments by large private landowners to maintenance of specified percentages of their forests in stands of various age classes (young and old), to harvest thresholds within each township, to no-harvest zones near streams and wetlands, and to limits on clearcut sizes.

ECONOMIC CONSIDERATIONS

Most recent discussions of “new forestry” and similar ideas have given little attention to relative costs and benefits associated with proposed strategies and practices. Advocates assume some improvement in ecological benefits, but they offer little information about the relative improvements in these benefits or the costs of providing them. On the other hand, detractors emphasize increased costs and other adverse consequences. We have not had informative discussions of trade-offs in part because a lack of pertinent data
precludes sound analyses. But another factor is poor communication between promoters and detractors; both have made broad sweeping statements about benefits and costs, and misunderstandings abound.

We must begin to identify and evaluate some of the potential benefits and costs. Potential benefits include peace (among users of the forest), greater biological diversity (relates also to commodities and flexibility for adapting to future markets), improved habitat for wildlife and human recreation, improved water quality and fisheries, and possibly net gain in total forest benefits. Some advocates suggest that costs (or at least some of them) will be reduced. They have also suggested that problems with damaging agents will be fewer or less serious. Potential costs include reductions in timber yields and returns (though quality and value could be increased), increased logging costs, increased cost of most management activities (some may decrease), decreased worker safety (increased insurance costs), and increased problems associated with fire, insects, and diseases.

The costs associated with specific strategies or practices will be much easier to determine or estimate than most of the benefits, in part because many of the cost items are readily measured and ranked in financial terms. However, we must find ways to evaluate both benefits and costs, ecological and social ones as well as economic ones. We must do this in terms that are understood and acceptable. For only then can we hope to obtain informed public participation, and develop useful procedures for decision making and long-term planning.

ECOLOGICAL CONSIDERATIONS

There are good ecological reasons to consider alternative silvicultural systems, and there are also reasons to be concerned about some of the recent rhetoric concerning management practices. I have already mentioned the rationale for some of the proposed practices. Biodiversity and long-term forest productivity—in its broadest sense—are also major considerations. On the other hand, many foresters and scientists have concerns about some "ecological" views associated with the "new forestry" movement. One concern is the view that there is strong ecological evidence to support specific management proposals, and along with this, the suggestion that such practices should be implemented on a broad scale—perhaps even legislated to be so. In fact, an exceptional amount of speculation is involved. The "scientific base" consists primarily of hypotheses developed from data collected to characterize processes and properties in unmanaged and, in many instances, old-growth ecosystems. Many statements on conditions in young, managed forests are largely conjecture. Moreover, the inference that the practices proposed will produce the attributes and values desired in young stands represents a second-order leap of speculation. Another concern is the "naturalistic ideology" that has influenced some of the proponents and permeates much of the public debate on forest management; this view—that nature is always best—has resulted in some management plans with fuzzy objectives and restricted thinking regarding practices to attain them. The results may be the opposite of those desired. A third concern involves misleading and erroneous statements about current management made by a few advocates in arguing the case for "new forestry" or other alternative practices. All of these matters are disconcerting; they are no doubt confusing to the public and they have led to polarization among resource professionals. It does seem that the situation has improved somewhat during the past few months.

For the remainder of this section, I will make some general observations about ecology and forest management in the Douglas-fir region. The clearcut, burn, and plant strategy has resulted in vigorous young stands on most land, but there are sites where the strategy has been less successful. Regardless, its application to the near exclusion of other systems has become increasingly less palatable to many citizens, in part because of visual appearance. Even though the strategy may be founded on sound ecological principles concerning tree growth and stand development, many members of the public have doubts about its overall ecological desirability. Indeed, there is limited information about influences of current management practices on ecological processes and conditions related to other forest benefits. There are questions about cumulative effects, long-term soil productivity, and even quality and future value of timber that is produced.
The scarcity of information on such matters makes it difficult to respond to some challenges to current practices—even when such challenges seem ill-founded. It probably also has resulted in proposal of alternative practices that are undesirable or unnecessary.

If we consider all of the research, observations, and management experiences of the region, they suggest that our tree species, soils, and climate have resulted in a forest ecosystem generally resilient to the disturbances associated with current management practices. Similarly, the characteristics of our species and environmental conditions seem to offer latitude for much greater differences in silvicultural approaches than one would surmise from viewing presently managed forest landscapes. It seems unlikely that we have achieved the only or the best practical solution to sustained tree production on many sites, and even less likely that we are providing an optimum mix of forest conditions and values on public lands. Presumably similar situations prevail in other timber-producing regions.

CONCLUSIONS

"New forestry," "stewardship forestry," and the "New Perspectives" programs of the Forest Service represent attempts to find improved approaches for managing forests; to provide solutions that may do a better job of meeting the conditions required for sustainable forestry programs. They should be viewed neither as panaceas nor as specific sets of forest practices to be implemented immediately on a huge scale. Rather they are philosophical approaches—concepts intended to foster broader thinking—in terms of objectives, practices, and landscapes. They also are intended to improve the effectiveness of citizen participation in public resource decisions. However, such goals will be attained only if foresters work closely with other resource specialists, such as wildlife biologists, ecologists, hydrologists, sociologists, engineers, and economists. For in reality, although foresters may know a lot about growing trees for wood production, we have much to learn about managing forest stands and landscapes for other values and combinations of values. Useful practices cannot be developed or evaluated effectively by foresters—or other specialists—working alone.

Contrary to some opinions, these evolving programs do seem to recognize the importance and value of traditional forest practices as well as the need for some new and modified practices. And though the dominant theme may be one of multi-purpose management of greater portions of forest landscapes, the needs for reserved areas (wilderness, nature preserves) as well as areas intensively managed for specific objectives, including timber, must also be recognized. For if we wish to achieve a greater portion of the social, economic, and ecological benefits that may be obtained from our forest lands—and sustain them, for ourselves and future generations—we will need a broad array of forest practices and strategies, a far larger array than we are now using.

We are entering a new era, and some (though not all) of the relationships between people, forests, and forest managers are changing. For many of us, these changes are confusing and frustrating. I hope, however, that we will come to see them as opportunities to broaden the responsibilities of and the services provided by our profession.