

Report on Forest Health of the United States by the Forest Health Science Panel

The Forest Health Science Panel, comprised of forest science faculty from academic institutions across the U.S., including the University of Washington College of Forest Resources, finalized its report in 1997. The Report on Forest Health of the United States is written in non-technical language and is intended to present in an unbiased manner the impacts of various forest management approaches. By reviewing scholarly literature pertaining to forest management, the Forest Health Science Panel identified a list of important values in terms of contributions to human life and the environment and used it to evaluate various forest land management approaches. It also identified three general management approaches.

Background

There were approximately 9.9 million forest landowners in the U.S. in 1994, with 20% of their land tracts consisting of less than 50 acres each. Varied ownership and inconsistent management of these lands have had mixed impacts on overall forest condition and timber volume (Figure 1). Zero-use areas are often adjacent to commercial stands, pest-infested stands can infect healthy tracts, and over- or under-harvested areas impact regional animal populations. The global harvest and trade of forest products also responds to increases and decreases in international harvest. U.S. laws and policies often protect forest land and related environmental values more so than laws and policies of other countries. Therefore, harvest reductions in the U.S. can lead to accelerated harvesting in foreign countries and corresponding negative impacts on the global forest environment.

Management Approaches

The Panel identified three general management approaches: timber management to achieve the greatest financial return, management to integrate commodity and non-commodity interests, and management with no commodity extraction. It then developed eight policy options for forest management and the consequences of each option. These options combine the three approaches and consider both public and private forests in all regions of the U.S. because of the interrelated nature of forest land. The authors then present a description of the impacts of these options for the U.S. as a whole and for each region.

Liquidation, or rapid harvest of forests, was employed in the 18th and 19th centuries in the U.S. and is still used in some countries. With the exception of converting land for agricultural or urban uses, liquidation is not practiced in the U.S.

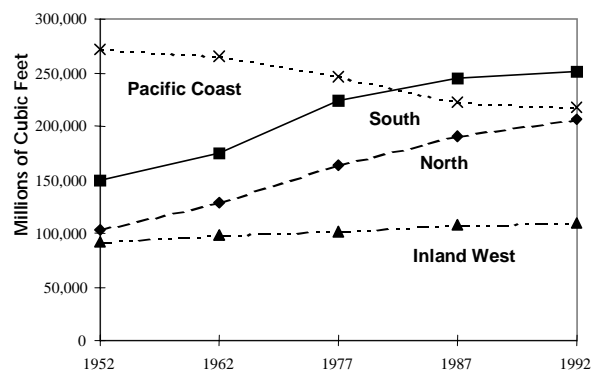


Figure 1. Changes in Standing Tree Volume (Growing Stock) of Trees by Region

Historically, financial performance was used as the criteria to manage timber. Initially, this approach meant harvesting old forests quickly to minimize the amount of timber lost to decay. Cleared forest land was replaced with young, rapidly growing trees. More recently, private owners apply even-aged management on their most productive sites by logging and rotating stands of timber between open and dense structures. Weeding and thinning is only applied to some productive sites. The result has been relatively small diameter, low quality timber, which is suitable for high volume processing facilities but is of little use where high quality timber is needed. It also creates only moderate employment levels since thinning and pruning are minimal and only a moderate amount of manufacturing labor is used.

Integrated management is aimed at combining commodity and non-commodity values. Managers harvest some stands and maintain and enhance others as long as they remain valuable. This approach requires more intensive management and more knowledge, skill, and technology than timber management for financial performance.

Values Expressed as Conditions and Functions of the Forest	Values Expressed as Contributions to Quality of Life
<p>Sustain Growth of Forests:</p> <ul style="list-style-type: none"> • Minimize levels of exotic insect and disease pests • Minimize catastrophic levels of native mammals • Minimize catastrophic levels of native insect and disease pests • Minimize catastrophic fire events • Minimize losses from catastrophic winds or other “natural” events <p>Sustain The Global Environment:</p> <ul style="list-style-type: none"> • Avoid atmospheric CO2 and other pollutant buildup • Conserve native forests in other countries <p>Ensure Plant and Animal Diversity:</p> <ul style="list-style-type: none"> • Conserve and restore native forest types and species • Provide habitats for native species within forest types • Ensure survival and recovery of threatened and endangered species • Protect native species from invasive exotic species • Maintain genetic diversity and architecture <p>Ensure Productivity of Future Forests:</p> <ul style="list-style-type: none"> • Maintain site quality • Sustain watersheds • Maintain forest land base 	<p>Timber Products:</p> <ul style="list-style-type: none"> • Timber volume • Timber quality • Selected species <p>Non-Timber Wildlife Products</p> <p>Reserve Areas</p> <p>Recreation:</p> <ul style="list-style-type: none"> • Remote • Accessible <p>Rural Lifestyles:</p> <ul style="list-style-type: none"> • Commodity-dependent • Non-commodity-dependent <p>Earnings, Employment, and Value-Added Water Volumes and Usefulness</p> <p>Game and Non-Game Fish and Wildlife</p> <p>Viability of Various Forest Economic Segments:</p> <ul style="list-style-type: none"> • Small, private, nonindustrial landowners • Private, industrial landowners • High-volume timber products manufacturers • Products manufacturers utilizing high-quality timber • Recreation industry <p>Low Public Costs of Managing Forest Lands</p> <p>Scenic, Existence and Historical Values</p> <p>Spiritual and Cultural Values</p>

Table 1. Frequently expressed forest values identified by the Forest Health Science Panel

Integrated management would more likely produce higher quality timber as a result of pruning, thinning, and longer rotations. However, management costs would be higher due to more intensive, integrated management. Analyses suggest the total return to the government may be high enough in some cases to compensate the landowner for the additional management needed to provide the additional values. The government would benefit from lower unemployment, greater economic activity and a higher tax base with increased employment, more wood flow in thinnings, and the value of non-commodity benefits (e.g., recreation).

Initially, proponents of reserves with no commodity extraction sought to maintain areas free from human activities. This concept began at a time when scientists and conservationists believed that without human intervention, forests would remain in a steady-state condition. Mainstream ecological science argues that forests have always been impacted by natural and human disturbances. A “hands-off” approach cannot be assumed to be an unchanging condition. The forest will continu-

ously change through natural disturbances, growth, and pests. Eventually, buildup of fuels and epidemic levels of native and exotic pests inside reserves may cause them to act as centers for fires and the spread of epidemic levels of pests to other forests.

Finding a balance between providing values for the present generation and leaving options for future generations to achieve their values has been called “sustainable development.” There are several components of “sustainability.” Degrading soil productivity can limit the rate of forest tree growth for hundreds of years and reduce future options. Elimination of standing forests (through harvest, fire, or pests) can limit future availability of wood and habitat for many decades if proper regeneration and management practices are not implemented. Sound management considers the impacts of human and non-human activities in land planning. The Forest Health report demonstrates how various management and policy alternatives impact forest functions and quality of life values.