

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

The Forest Health Science Panel, comprised of forest science professors from across the US, finalized the Report on Forest Health of the United States. The report 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. The Panel used this list to evaluate various forest land management approaches (Table 1).

There were approximately 9.9 million forest land owners in the US in 1994. Twenty percent of these land tracts are less than 50 acres each. This varied ownership and inconsistent management has 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. US laws and policies protect forest land and related environmental values more so than laws and policies in other countries. Therefore, harvest reductions in the US can lead to accelerated harvesting in foreign countries and corresponding negative impacts on the global forest environment.

Table 1. Frequently Expressed Forest Values

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

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 are mixtures of the three approaches and consider both public and private forests in all regions of the US because of the interrelated nature of forest land. The authors then present a description of the impacts of these options for the US as a whole and for each region.

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

Historically, timber management for 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

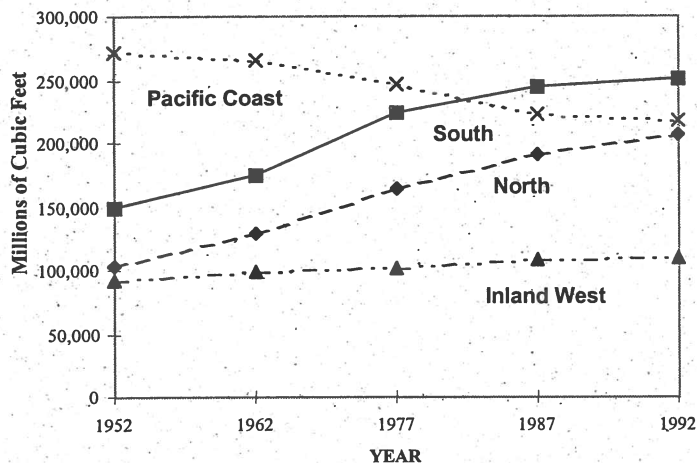


Figure 1. Changes in Standing Tree Volume (Growing Stock) of Trees by Region

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 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 efficiency. Integrated management would more likely produce higher quality timber as a result of pruning, thinning, and longer rotations. 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 extra 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 continuously change through natural disturbances, growth, and pests. Eventually, buildup of fuels and epidemic levels of native and exotic pests inside these reserves may cause them to act as centers for fires and epidemic levels of pests to spread 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. This report shows how various management and policy alternatives impact forest functions and quality of life values, and will contribute to this type of knowledge and planning.

The report can also be found on the web page of the House Resources Committee (downloadable with adobe acrobat) at: <http://www.house.gov/resources/105cong/fullcomm/apr09.97/taylor.rpt/taylor.htm>