

Indicator 2.11.

Total Growing Stock and Annual Increment of Both Merchantable and Nonmerchantable Tree Species in Forests Available for Wood Production

What is the indicator and why is it important?

Growing stock is a fundamental element in determining the productive capacity of the area identified as forest available for wood production. Knowledge of growing stock of the various species that make up the forest and how it changes over time is central to considerations of a sustainable supply of wood for products and the sustainability of the overall ecosystems that provide them.

What does the indicator show?

The Nation's forests contain more than 800 species of trees. Because changes in markets and technology dictate species use for wood products, it is difficult to assign the status of nonmerchantable to any given species except those of very small stature or those with rare, threatened, or endangered status. Variability in the condition of the size and quality of these trees has considerable bearing on their value in wood products. Generally speaking, about 94 percent of all live tree volume on timber land in the United States is considered to be growing stock or wood capable of being used for commercial products. The remaining 6 percent are trees of poor form, small stature, or otherwise unsuited for wood products. Given the minor influence of nonmerchantable volume relative to total live volume of timber on forests available for wood production, the remainder of the discussion for this indicator will focus on merchantable or growing stock volume.

Overall, growing stock volume (fig. 11-1) has been rising in all regions of the country, for the past 50 years. The exception being the Pacific Coast and Alaska where harvesting of large timber and losses of high-volume timber lands to reserves in the 1970s and 1980s resulted in declines. Recent reductions in harvest in this region have reversed this trend.

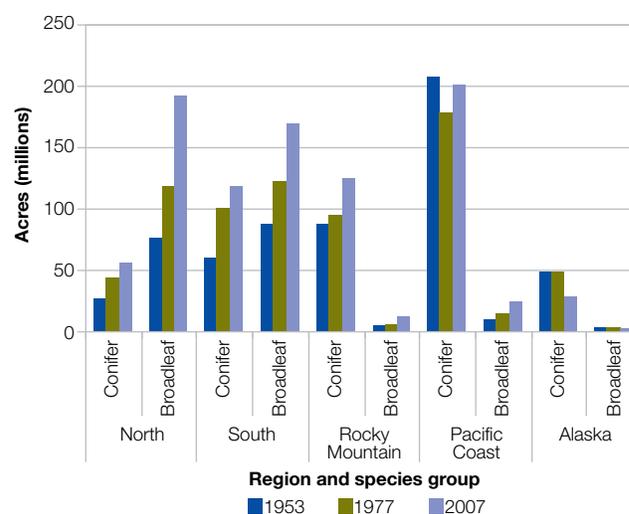
With a relatively stable base of forest land available for timber production or timber land (Indicator 2.10) and a historic pattern of growth exceeding removals (Indicator 2.13), the volume of growing stock in the United States has been rising steadily for more than 50 years. The current total of 932 billion feet of growing stock is 51 percent higher than the volume in 1953.

U.S. conifer growing stock volume totals 529 billion cubic feet or 57 percent of all growing stock. Conifer growing stock volume is concentrated primarily in the West and South. Broadleaves, at 403 billion cubic feet, account for 43 percent of all growing stock volume in the United States. Broadleaf volume has risen 118 percent since 1953 as second and third growth forests of the North and South continue to mature.

Growth rates on timber land have increased on all land ownerships (fig. 11-2). The higher rate of increase on National forests due, in part, to a response to vigorous young stands replacing older slower growing stands harvested in the 70s and 80s or lost to fire. The higher overall rates and lower net change on private lands reflects the history of these lands being the primary source of wood production in the United States for decades.

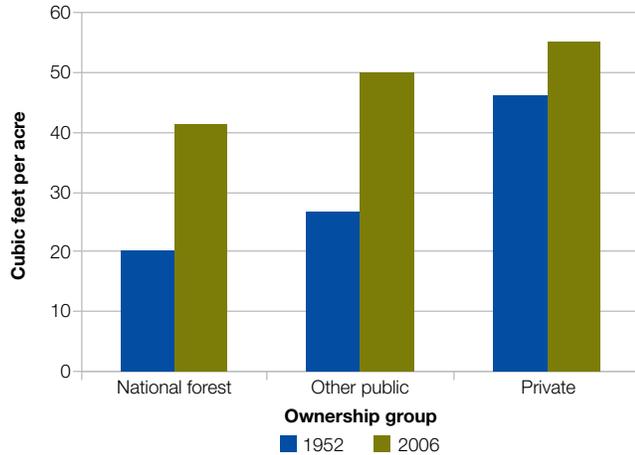
As mentioned in other indicators in this Criterion, ownership has a direct bearing on management policy and access to available timber. Timber volumes are distributed unevenly among owners because of many factors (fig. 11-3), among them history of use, land productivity, and degree of management. As public agencies have adjusted management policies to respond to

Figure 11-1. Growing stock volume on timber land by region, 1953, 1977, and 2007.



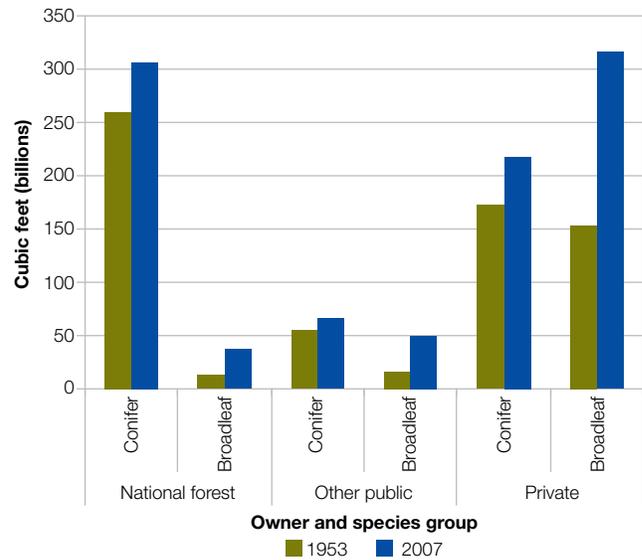
Source: USDA Forest Service, Forest Inventory and Analysis

Figure 11-2. Average growing stock growth per acre on timber land by ownership group, 1953 and 2007.



Source: USDA Forest Service, Forest Inventory and Analysis

Figure 11-3. Growing stock volume on timber land by region, owner, and species group, 1953 and 2007.



Source: USDA Forest Service, Forest Inventory and Analysis

increasing demand for uses of public forest land for recreation, wildlife habitat, and biodiversity conservation, the area and corresponding volume of wood available for harvest from public timber lands is declining and placing additional pressure on private timber land and imports. This pressure is further heightened by improved technologies, which allow a shift to broadleaves, which are dominant on private timber lands, for many uses previously dominated conifers such as paper and composite products to meet demand. Overall, growth on private timber land is increasing, but has slowed in response to increasing demand caused by shifts in policy and technology and the slowing growth of maturing broadleaf stands. This slowing growth will likely abate slightly as regeneration following the recent increases in harvesting gets established. The reduction of harvest on public land is reflected in sharply rising volumes per acre in these forests, which may create new management issues relative to fire and overall forest health.

National forests, which account for only 19 percent of U.S. timber land, have 30 percent of all timber volume, and 46 percent of

all conifer timber volume. Changing management policies have significantly affected the national forests and the wood they supply. The national forests supplied 15 percent of U.S. wood in 1976, today they supply 2 percent. The future of wood supplies from this source is in question, but is likely to remain low.

What has changed since 2003?

Growing stock volume increased from 856 billion to 932 billion cubic feet (9 percent) as net growth continues to exceed removals. Current conifer volume increased 8 percent (37 billion cubic feet) from the 492 billion cubic feet reported in 2003 and broadleaves increased 11 percent (39 billion cubic feet) from the 364 billion cubic feet reported in 2003. Recent large divestitures of timber lands by private corporate landowners, particularly forest industries, have left the future of what these lands will provide under their new ownership uncertain. Arrangements for wood availability from these lands, ranging for 10 to 50 years, however, were part of the forest industry divestiture strategy.