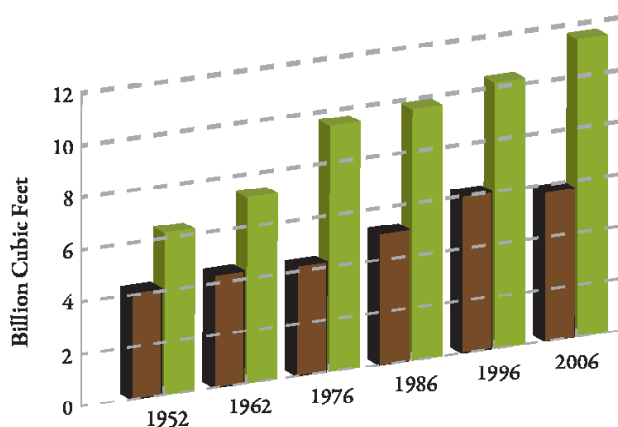




## Don't be Misled by Imitators

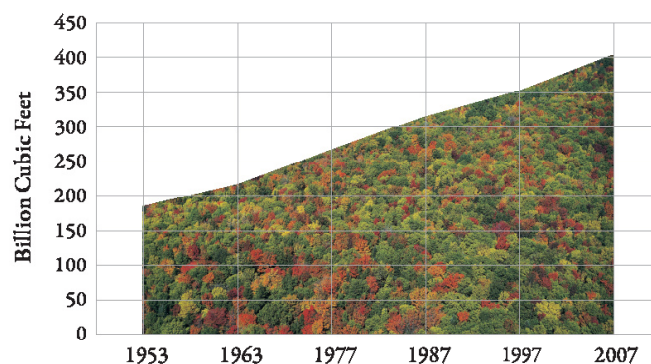
	AMERICAN HARDWOODS	BAMBOO
<b>Sustainability</b>	Maturity is reached in 40–50 years. According to the USDA Forest Service, there were 119% more hardwood trees in 2007 than in 1953, and the growth-to-removals ratio is 2.00 (Forest Resources of the United States, 2007).	Maturity is reached in 5–7 years. There are over 1,600 known species, but only several are suitable for flooring and panels. Non-suitable species and immature plants yield products that lack appropriate hardness.
<b>Energy Consumption</b>	Manufacturing energy is limited to running a saw blade.	Because bamboo is not a hardwood but a grass, its strips must be compressed with chemical-based glue, under extreme pressure, to be bound together. Glue content can range from 3–20%.
<b>Off-Gassing</b>	No emissions for methane, nitrogen oxides, and other particulate matter, and minimal emissions for carbon dioxide (Bergman and Bowe, 2008).	Lower grade bamboo products often use formaldehyde resins in the gluing process, which can lead to formaldehyde off-gassing.
<b>Material Utilization</b>	Virtually every part of a log is used as lumber or by-products (including bark, sawdust, and scrap); finished products can be repurposed or used as a combustible fuel.	High quality manufacturing techniques use only 65% of the raw material; traditional manufacturing utilizes only 35%. The remaining material is wasted, usually burned.
<b>Quality</b>	Standards, established by U.S. associations, regulate the quality of American hardwood products.	In China, where the majority of bamboo products originate, there are <u>no</u> organizations governing quality.
<b>Carbon Sequestration</b>	Hardwood trees store carbon as they grow and, when harvested from a responsibly managed forest, are actually a carbon-negative material.	Bamboo grass stores carbon during the growth cycle, but—due to extensive energy required to process and manufacture its products—bamboo is not a carbon-neutral material.
<b>Shipping</b>	American hardwoods can be regionally sourced and regionally shipped.	Most bamboo is grown and manufactured in Southeast Asia. Shipping products half way around the world adds significant hydrocarbons to the atmosphere.
<b>Aesthetics</b>	American hardwoods come in a variety of species and lumber grades, providing color, pattern, and character marks to satisfy nearly every design scheme.	Bamboo products, flooring, and panels come in vertical- and flat-grain patterns and generally are a light, honey or natural color.
<b>Life Span</b>	A solid hardwood floor can last 125 years or longer with several refinishings.	According to manufacturers, bamboo flooring should last 30–50 years.
<b>After Useful Life</b>	Finished hardwood products can be repurposed or used as a combustible fuel. Even in a landfill, hardwoods will naturally revert back to nature.	Because of the high glue content, bamboo products will remain intact in a landfill almost indefinitely.

## Hardwood Growth Far Exceeds Removal in U.S. Forests



The balance between net growth and removals provides an estimate of timber sustainability. The growth-to-removals ratio ( $G:R = \text{net growth} / \text{growing-stock removals}$ ) quantifies this balance. The  $G:R$  for hardwoods in 2006 was 2.00.

## Volume of Hardwood in U.S. Forests



In 2007, the volume of hardwood in U.S. forests totaled 403 billion cubic feet, an increase of 119 percent since 1953.

Source of Statistical Data: *Forest Resources of the United States* by the USDA Forest Service, 2007



Swift River Valley, Massachusetts, ca. 1880's (left) and ca. 1990's (right).

Photos courtesy Harvard Forest Archives, Harvard Forest, Petersham, Mass.

## Where Hardwoods Grow



Of all U.S. hardwood timber volume, 90% is concentrated in the eastern part of the country. All hardwood forests in the continental U.S. are temperate, not tropical. They are home to the oaks, maples, cherry, ash, poplar, and scores of other broad-leaved deciduous species.



**American Hardwoods**  
Treasured for Generations™