

Indicator 26. Total Forest Ecosystem Biomass and Carbon Pool, and if Appropriate, by Forest Type, Age-Class, and Successional Changes

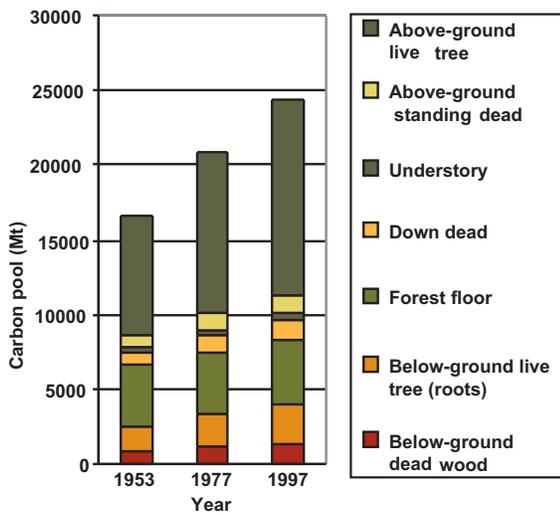


Figure 26-1. Carbon pools (Mt) of coterminous U.S. forest land.

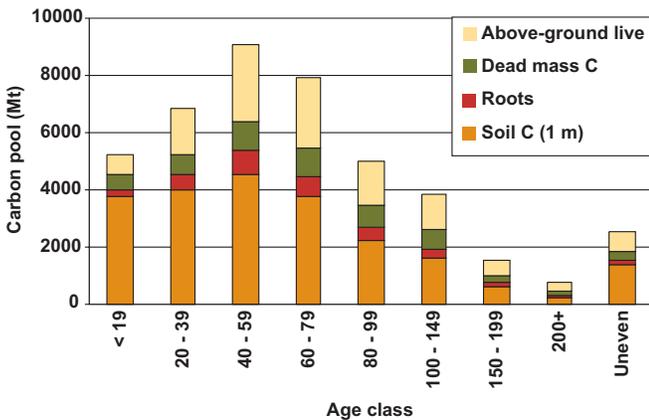


Figure 26-2. Carbon pools (Mt) by age-class, 1997. Uneven refers to uneven-aged stands.

What Is the Indicator and Why Is It Important?

The United States emitted a net 1,665 megatonnes (Mt) C in the year 2000. Because plants utilize carbon dioxide in the photosynthesis process, forests provide a primary vehicle to sequester carbon from the atmosphere. During this process, the carbon becomes part of the plant mass. Thus, managing forests to sequester carbon reduces the net amount of carbon dioxide accumulating in the atmosphere. Less carbon dioxide in the atmosphere may help reduce the possibility of human-induced climate change. Carbon can also be viewed as a measure of productivity. Productive forests feature a greater increase in carbon per year than forests of lower productivity.

What Does the Indicator Show?

All carbon pools, with the exception of soil carbon, are estimated using the USDA Forest Service Forest Inventory and Analysis measured data or imputed data, along with inventory-to-carbon relationships, developed with information from ecological studies. Thus, trends of volume and area in other indicators should be consistent with this information.

From 1953 to 1997, nonsoil forest carbon increased almost 46 percent, from 16,613 to 24,292 Mt. The 1997 inventory is equal to about 15 years of current net emissions for the United States. Most of the increase in forest carbon is caused by vegetation, particularly live trees. In 1997, total aboveground tree biomass was 28,505 Mt dry weight on 250,026 thousand hectares of forest land. Soil carbon (to 1 m depth) was omitted from figure 26-1 because of the complexity of interpreting carbon trends from land-use transfers. In terms of age-class, almost 50 percent of forest carbon is in stands less than 60 years old, and about 80 percent is in stands less than 100 years old. About 6 percent of the carbon on unreserved timberland is in uneven-aged forests. Almost 56 percent of forest carbon on unreserved timber land is in sawtimber stands. The oak-hickory forest type contains more carbon than any other type.