

Forest Carbon & Climate Change

How is Carbon Affected?

► Carbon Sinks and Sequestration

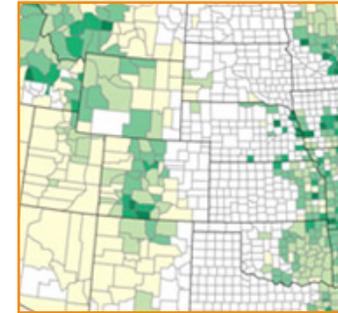
Forests and other ecosystems act as carbon sinks—they sequester carbon dioxide through plant growth, removing it from the atmosphere. Carbon dioxide uptake by forests in the coterminous United States offset approximately 16 percent of our national total carbon dioxide emissions in 2011 (*US EPA 2013*).

The Forest Service is a leader in developing tools for carbon assessment, management, and forest carbon cycle science. We are the official reporter nationally and internationally on the status of the forest carbon resource through the annual EPA Greenhouse Gas Inventory and the United Nations Framework Convention on Climate Change.

The Forest Service champions the principles of considering carbon and other benefits together, integrating climate adaptation and mitigation, and balancing carbon uptake and storage in a wide range of ecosystem services, some of which have tradeoffs.

► Where Can I Find Local Forest Carbon Information?

The Forest Service has developed **regional carbon assessment reports** (white papers) to help forest managers and the public understand how much carbon is stored in forest ecosystems and harvested wood products. The baseline forest carbon reports provide information on carbon stocks and trends for seven different forest ecosystem carbon pools: above-ground live tree, below-ground live tree, standing dead, understory, down dead wood, forest floor, and soil organic carbon – for the baseline period 1990 to 2013 (and 2005 to 2013, truncation of the longer baseline).



GLOSSARY

Carbon Density: An estimate of forest carbon stocks per unit area (e.g. tonnes per acre of carbon in standing live trees).

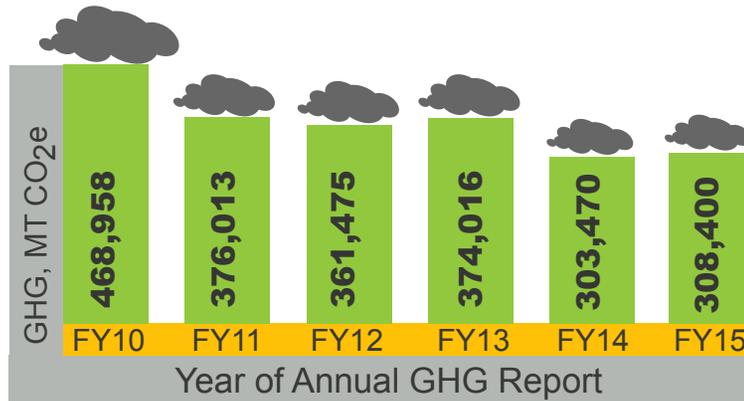
Carbon Sink: A natural or man-made system that absorbs more carbon than it releases.

Carbon Stock Change: The change in carbon stocks over time, calculated by taking the difference between successive inventories and dividing by the number of years between these inventories for each national forest. A positive change means carbon is being removed from the atmosphere and sequestered by the forests (i.e. carbon sink) while a negative change means carbon is added to the atmosphere by forest-related emissions (i.e. carbon source).

Sequestration: The direct removal of CO₂ through biologic processes such as forest growth.



Total Greenhouse Gas (GHG) Emissions for the US Forest Service



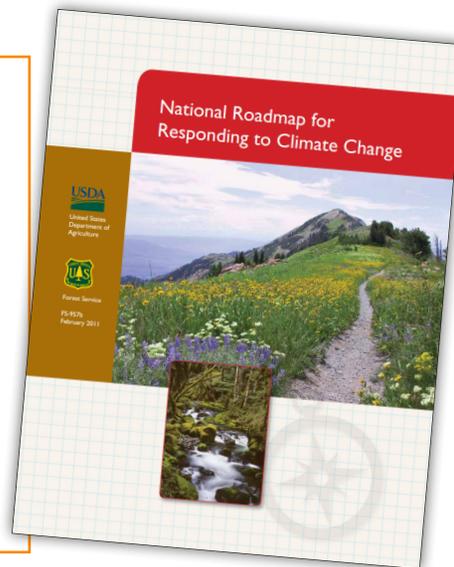
The Forest Service's three largest emissions categories remain:

-  **1. Fleet and Equipment**
-  **2. Employee Commuting**
-  **3. Building Energy**
(leased and owned)

Looking at the distribution of GHG emissions by category can help us prioritize work for the agency in achieving efficiencies.

Forest Service National Roadmap for Responding to Climate Change

“Managing America’s forests and grasslands to adapt to changing climates will help ensure that they continue to produce the benefits that Americans need, while helping to mitigate the effects of a changing climate and to compensate for fossil fuel emissions through carbon storage in healthy forests.”



SPOTlight

A Short Course for Land Managers - Forest and Grassland Carbon in North America



[This course](#) was designed to provide land managers with a range of presentations by experts on carbon science, management, and policy. Before the video capture, each presentation was critiqued by scientists and managers, and then improved to provide the best information possible. The result is a series of “portable electronic presentations” that provide relevant and credible information, link to numerous tools and resources, and that management professionals can watch at their convenience.