

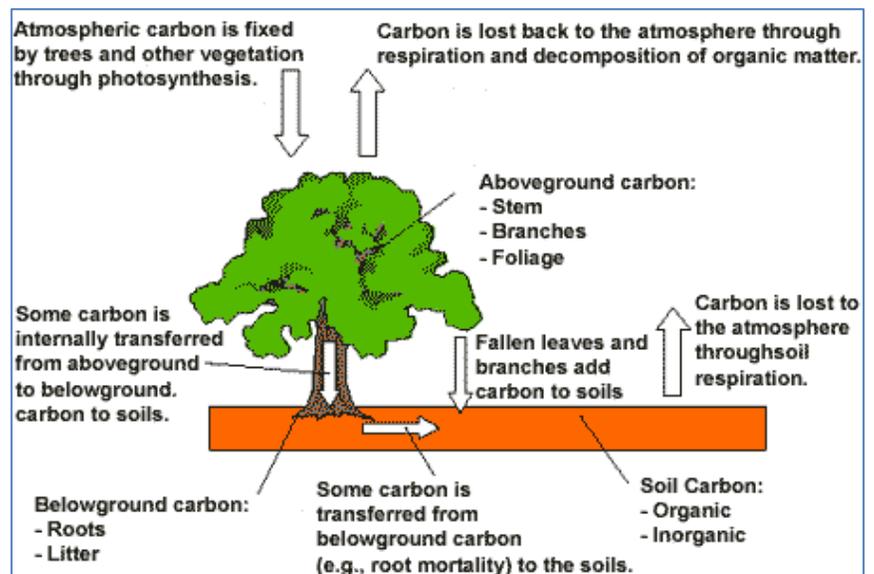
Energy & the Landscape

Carbon, Our Energy Future & You: A Community Workshop

Background

Terrestrial carbon sequestration is the process through which carbon dioxide (CO₂) from the atmosphere is absorbed by trees, plants and crops through photosynthesis, and stored as carbon in biomass (tree trunks, branches, foliage and roots) and soils.

The term "sinks" is also used to refer to forests, croplands, and grazing lands, and their ability to sequester carbon. Agriculture and forestry activities can also release CO₂ to the atmosphere. Therefore, a carbon sink occurs when carbon sequestration is greater than carbon releases over some time period. Under conditions of disease, pests, and fire, where mortality exceeds growth, forests can become carbon sources.



Facts

According to the EPA and the US Forest Service, the U.S. landscape acts as a net carbon sink—it sequesters more carbon than it emits (meaning, the forests take up more carbon via photosynthesis and storage than they release through decay and respiration). This offsets approximately 15% of total U.S. CO₂ emissions from the energy, transportation and other sectors.

However, the overall sequestration level in the U.S. has been declining and is projected to continue declining, due to land-use changes, increasing harvests (without replanting or reforestation activities), and maturing forests.

- According to the Virginia Department of Forestry, 62% of Virginia is forested
- The 2010 Virginia State of the Forest Report, however, indicates that the state loses an acre of forest every 20 minutes. Urbanization and development is the single biggest factor in loss of forestland acreage.
- Overall, the existing forests in Charlottesville/Albemarle are relatively young and healthy.
 - Based on 2009 land cover data, 72% of the area (City and County combined) has deciduous and evergreen tree cover (58% and 13.1% respectively).
 - 2009 tree canopy cover in the City was calculated to be 47%.

- Carbon sequestration rates typically follow growth curves. The current sequestration rate in Virginia’s forests is about 20% of current emissions. Given the age, condition, and distribution of forests in our community, opportunities to achieve additional carbon sequestration efficiency or effectiveness are limited and the potential contribution to emissions reduction may be in the 1 to 5% range. The environmental co-benefits (ecosystem services) provided by healthy and diverse forests are additional reasons to include forest-related strategies in a climate action plan.
- A well-designed landscape (using trees and other plants to shade your home or provide windbreaks) not only can add beauty to your home, but it also can reduce your heating and cooling costs. On average, landscaping for energy efficiency provides energy savings to return an initial investment in less than 8 years. Deciduous trees planted on the south and west sides will help keep your house cool in the summer and allow sun to shine in the windows in the winter.



Buildings and Trees—Natural Partners

Mitigation Strategies

- Maintain Existing Tree Canopy and Forestland Base
- Expand Forest Cover
- Manage Existing Tree Canopy and Forests to Promote Health and Diversity

Tips and More Information

Plant a tree and care for the ones you own. The Arbor Day Foundation will send you 10 free trees or plant 10 trees in a National Forest when you join the organization: <http://www.arborday.org/>

For more information on Landscaping and Energy Saving Tips:

http://www.energysavers.gov/your_home/landscaping/index.cfm/mytopic=11910

To learn more about the multi-tasking abilities of trees visit: <http://www.americanforests.org/>

The Virginia Department of Forestry’s 2010 State of the Forest Report:

<http://www.dof.virginia.gov/resources/pub-2010-State-Of-Forest.pdf>

To learn more about the issues via the USDA Forest Services Climate Change Resource Center:

<http://www.fs.fed.us/ccrc/>

To access an interdisciplinary resource actively developing new technology and tools to anticipate and respond to emerging eastern forest threats: <http://www.forestthreats.org/>