



Forest Facts

CARBON, FORESTLANDS AND CLIMATE CHANGE

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Experts agree that many human activities, like burning fossil fuels, pump carbon dioxide into the atmosphere and contribute to climate change. Trees have a remarkable capacity to not only remove carbon (sequester) from the atmosphere, but to store it as well. Young trees and forests that are growing rapidly are most efficient in taking up carbon and returning oxygen in the process of photosynthesis. As these forests mature, they will store large amounts of carbon. Carbon is also stored in wood products.

Because nearly half of Oregon's land is forested, there is plenty of potential for our forests to help reduce carbon dioxide in the earth's atmosphere. This is especially important, because scientists have discovered that current levels of carbon dioxide are the highest they have been in hundreds of thousands of years and are increasing rapidly. The more carbon in the atmosphere, the higher temperatures become. This is sometimes called the greenhouse effect because increased carbon dioxide and other gases trap heat radiating from the Earth's surface much like greenhouse windows trap heat from radiating sunlight.

Protecting forests from conversion and managing them appropriately can help reduce atmospheric carbon

Unfortunately, global forest losses since the industrial era about 300 years ago have resulted in only 50 percent of the forest cover that existed 8,000 years ago. These losses are attributed to population growth and larger and more permanent clearings for agriculture and development. This trend continues. The Food and Agriculture Organization of the United Nations estimates that each year we lose about 45 million acres of forestland worldwide—more than 1.5 times the total amount of forestland in Oregon. This makes it increasingly important to protect remaining forestlands from conversion to other uses and to manage them appropriately.

Several practices can help store carbon or reduce its emission into the atmosphere:

- Reducing the density of forests can help keep them healthy and minimize fire risk and disease problems. Fire not only causes loss of forestland, it also increases the emission of carbon into the atmosphere.
- Reforesting quickly after harvest
- Keeping forestland in forest use

- Reestablishing forestland that have been converted to non-forest uses
- Using wood products, which store carbon, instead of those made from fossil fuel-intensive products. Studies have shown, for example, that using steel and concrete for building materials results in more greenhouse gas emissions, more energy consumption and greater water quality degradation than using wood.
- Using management strategies that enhance carbon storage, such as increasing the time between planting and harvesting trees
- Reforest with species that are appropriate for growing conditions to improve the forest's adaptability to climate trends

Buying and selling carbon “offsets”

The amount of carbon in the atmosphere is a global phenomenon. If carbon emissions increase in one part of the world and are reduced somewhere else, the effect is counterbalancing (a zero net gain). A potential to develop a market-based system of buying and selling carbon “offsets” exists, which would require large power generators, for instance, to pay a fee to a non-profit organization so they could fund or undertake a project that would avoid, store or displace an equal or greater amount of carbon dioxide. Besides addressing carbon, some projects could also have other desirable outcomes. For example, planting trees to restore forest cover along a streamside could improve wildlife habitat and water quality. Although the carbon offset concept is still in its infancy, there is enormous potential for Oregon, which is rich with forest resources.

Carbon markets are also being explored that could provide compensation to forest landowners for implementing forest management strategies that increase carbon storage in their forests. For this to be viable, the revenue stream would likely have to be

large enough to cover landowners' costs, since delaying or reducing timber harvests would impact them financially.

The Climate Trust is a large buyer of carbon offsets

Since 1997, The Climate Trust, which is Oregon-based, has become one of the largest institutional buyers of carbon offsets in the world. Over \$6.4 million has been invested into 14 diverse projects around the world, offsetting over 2.2 million metric tons of carbon dioxide.

To learn more about The Climate Trust, visit:

<http://www.climatetrust.org/>

ODF's Forest Resource Trust program helps convert lands back to productive forest

The Oregon Department of Forestry's Forest Resource Trust Stand Establishment Program was endowed with \$1.5 million by the Klamath Cogeneration Project to convert marginal agricultural, pasture and brush lands back to healthy, productive forestlands. Landowners who participate in the program plant trees, control competing vegetation and take measures to reduce animal damage. There is no requirement for landowners to pay back the funds, unless they receive a profit from timber harvest in the future. Carbon benefits that are realized offset the Klamath Cogeneration Project's emissions. An advisory committee is evaluating potential statutory changes to the program to make it more practical for family forestland owners and increase their participation.

To learn more about the Forest Resource Trust, visit:

www.oregon.gov/ODF/PRIVATE_FORESTS/frt.shtml