



American Forest Foundation

# Family Forests & Climate Change



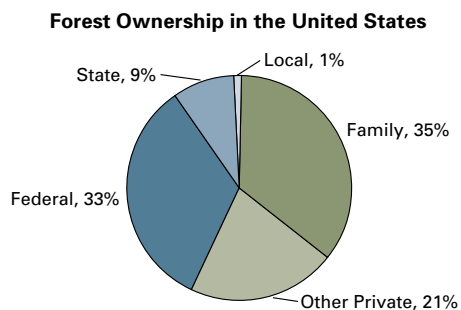


## Family Forests and Climate Change

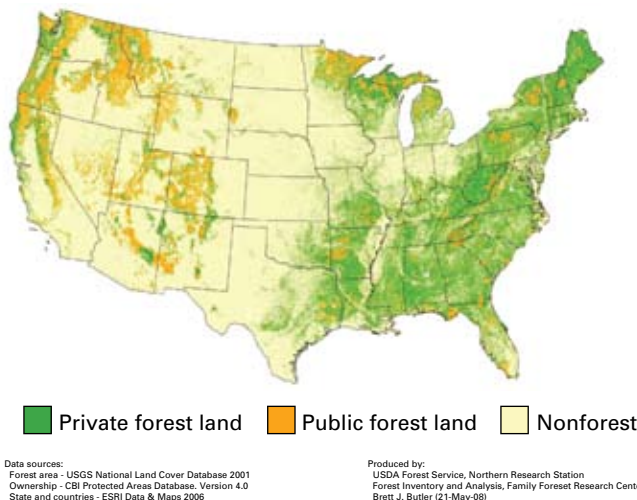
Healthy, well-managed private forests have a critical role to play in combating climate change. These forests capture carbon from the atmosphere and are one of the best ways to offset excess emissions under a market-based cap and trade system. The success of cap and trade, however, will depend on significant participation from private family forests. In fact the U.S. Environmental Protection Agency (EPA) projects improved forest management practices will need to provide 81 percent of all domestic offsets in a cap and trade system during the early years of the cap.<sup>1</sup> This is equal to the carbon dioxide emissions of more than 40 million cars each year.

Forest carbon offsets are the most readily available of all types of offsets. They are also the most affordable, as they are not dependent on the development of new, expensive technologies. The economy-wide cost of a cap and trade system will skyrocket if private forests do not play a critical carbon sequestration and cost-containment role.

Family forest owners hold 35 percent, or 264 million acres, of all the forestland in America. If family forest owners are to play the role expected of them in fighting climate change, policies must be developed that will encourage and not limit their participation.



## Forest Ownership in the Coterminous United States, 2006



## How Family Forests Impact Climate Change

Ten percent of *all* U.S. carbon emissions each year are absorbed and stored by America's forests and forest products. This means private family forests are already making an essential contribution toward mitigating climate change; however, this contribution must be increased if we are to fight climate change effectively. Managing forests specifically for climate change—with appropriate incentives—could double the amount of carbon sequestered, according to the U.S. Forest Service.

Family forests and forest products provide an immediate and cost-effective method to reduce the amount of carbon in the atmosphere. Healthy forests remove emissions from the air and store them every day. This is a proven, natural solution that can be implemented through well-established forest management techniques. It buys time we desperately need to make the long-term technological shifts to a low-carbon economy.

<sup>1</sup> The degree of landowner participation in offset projects is closely tied to market prices for carbon offsets. This projection assumes an expected price of \$15 per ton of carbon in 2010, with the price increasing by five percent annually thereafter. Source data located at [www.epa.gov/climatechange/economics/economicanalyses.html](http://www.epa.gov/climatechange/economics/economicanalyses.html) in EPA's analysis of the Waxman-Markey Discussion Draft, Data Annex.

## Family Forests in a Cap and Trade System

A carbon cap and trade system would set a fixed annual limit on carbon dioxide emissions from capped sectors, with that limit decreasing over time. An entity whose carbon emissions exceed their allowed emission level would be required to purchase an offsetting amount of carbon reductions. For the system to work, there must be a sufficient level of offsets actually available to trade, and this is where forest carbon offsets are expected to play a big role.

Forest carbon markets must be carefully structured to minimize transaction and

compliance costs while also ensuring environmental integrity, if family forest owners are to participate. Allowing market flexibility for forest owners to establish carbon offsets of different durations is a critical issue that can be addressed while still ensuring the integrity of emissions reductions using a carbon banking approach.

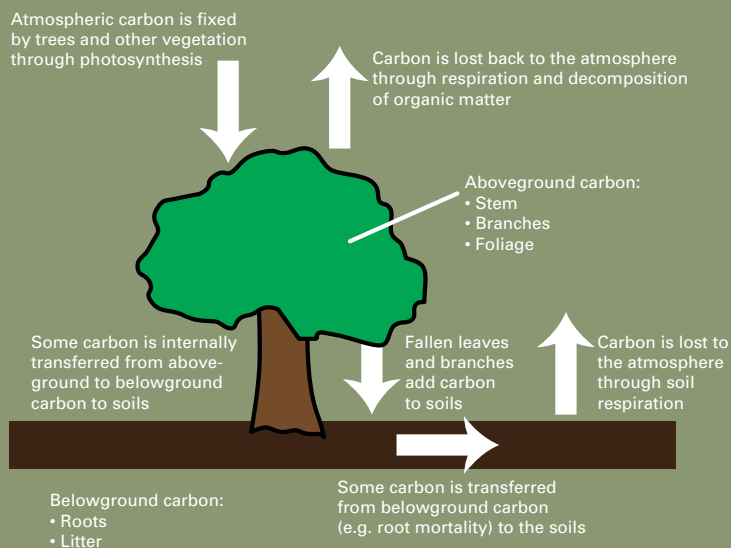
The following types of projects can be undertaken to sequester and store greater levels of carbon in our private forests:

1. **Afforestation** – planting trees in areas that have been without trees for an extended period (e.g., pasture or marginal farmland).
2. **Reforestation** – planting trees that were recently lost due to natural disaster such as Hurricane Katrina.
3. **Forest Management** – using forestry practices (e.g., thinning, extending the length of time between timber harvests, reducing the threat of catastrophic wildfire) to enhance the amount of carbon stored in a forest.
4. **Harvested Wood Products** – carbon storage in wood products varies depending on species (hardwood, softwood) and product type (homebuilding, furniture, etc.).
5. **Avoided Deforestation** – contracts, conservation easements, or other legal instruments that assure that a site will remain forested.

## How Trees Store Carbon

Trees and soils can gain and lose carbon through different processes, shown in the diagram below. On balance, forests accumulate carbon in aboveground, belowground, and soil pools over time.

In forests, carbon can be sequestered over decades or even centuries, until mature ecosystems reach a stage of carbon saturation. Carbon from forests can also be stored in wood products like furniture and housing lumber for years to decades (U.S. EPA).



## Supplemental Carbon Capture and Storage

There will inevitably be some lag time in developing a cap and trade system and until carbon offsets will be available in significant



quantity. America needs climate strategies that can work right now. A supplemental approach to a cap and trade system could provide incentives for forest carbon management that would immediately harness the potential of family forests to help fight climate change.

Family forest owners and farmers can and should be able to participate in carbon offset markets, where the carbon stored in their forestlands can be sold to carbon emitters who must purchase offsets to counteract their emissions. However, offset markets will not be feasible for many smaller forest owners, due to the economies of scale associated with the transaction costs of measuring, monitoring, and verifying carbon storage. Pilot projects underway at the American Forest Foundation indicate that economic feasibility drops precipitously for forests at or below 80-100 acres. For these smaller forest owners, a supplemental program could go a long way toward achieving maximum reductions from this sector.

A supplemental program of incentives, in addition to carbon offset markets, is urgently needed to create incentives and tap the full climate mitigation potential of forests. This will help maintain the existing mitigation capacity of these lands and enhance their

## Profile of a Local Forest Carbon Offset

Maintaining healthy, sustainable forests requires investments. For the 20 years since they bought their 365 acres of forestland in Chippewa County, Michigan, Richard and Karen Serfass have made a series of investments to improve their forest's productivity and diversity. They replanted aspens in areas where they no longer existed, improved wildlife habitat, and thinned red pine to improve forest health. Their forestland is certified under the American Tree Farm System<sup>®</sup>, showing that it is managed to sustain wildlife, water, recreation, and timber values. The Serfasses joined as a charter member of the Grossman Forestry Tree Farm Group, which aggregates smaller forest lots to participate in Michigan's forest carbon offset and trading program, and demonstrated that they sequestered 673 metric tons of carbon dioxide in 2007 and 790 metric tons in 2008. This combined amount, from just one property, is comparable to the emissions prevented by parking 256 cars for one year.

Thanks to Michigan's carbon trading program, forest owners like the Serfasses will be able to retain some return on investments that improve carbon storage capacity of their forest. Michigan has 10.6 million acres of private forestland owned by non-industrial, private landowners. These forestlands are a major component of Michigan's economic and natural resource base. The goal of the Michigan Working Forest Carbon Offset Program is to provide landowners with financial incentives to engage in sustainable forest management, thereby fighting climate change, supporting local natural resource economies, and preserving family lands. The program has been so successful that it was taken to the national level in 2008. Besides controlling carbon emissions, this type of program helps sustain forest communities.

## Acres and Ownership of America's Family Forests

Size	Acres (in millions)	Ownership (in thousands)
10 – 49 acres	59	2,831
50 – 99 acres	42	644
100 – 999 acres	98	508
1000+ acres	35	19

carbon-storage capacity in the future. The result will be reduced overall emissions due to greater forest storage capacity and reduced pressure on parallel technology-based avenues, while they are developing, for reducing emissions.

Another reason why we need a supplemental program is to provide an added safety valve in case additional carbon reductions—beyond that specified in the capped levels—is needed for some reason (e.g., if overall carbon emissions from all sectors exceed projected levels over time). This would provide some emergency backup flexibility, without having to change the capped levels.

*Forests store enormous amounts of carbon. In total, the world's forests and forest soils currently store more than one trillion tons of carbon. This is more than twice the amount found floating free in the atmosphere.*

The U.S. Department of Agriculture (USDA) has the needed expertise to develop the criteria and processes for crediting offset projects in the agriculture and forestry sector. Indeed, Congress has already recognized such a role for USDA in the 2008 Farm Bill. Section 2709 of the Food, Conservation, and Energy Act of 2008 directed USDA to establish technical guidelines to measure the environmental

service benefits from conservation and land management activities—and to “give priority” to the establishment of guidelines related to “farmer, rancher, and forest landowner participation in carbon markets.”

To expedite the development of forest carbon protocols and landowner engagement before a cap and trade system takes effect, it is critically important that Congress allocate funding to a supplementary carbon emissions program. While forest carbon offsets have significant potential, a supplemental approach is needed to encourage more forest owners to participate in carbon sequestration and storage activities.

## Family Forests: A Key Part of Climate Change Solutions

U.S. forests must play a central role in our national climate change strategy. To secure maximum carbon sequestration by forests, our nation needs policies and programs that will help keep forests as forests, slowing their conversion to non-forest uses. This will ensure that our forest base can sustain its critically important role in mitigating climate change.

Forest-carbon climate solutions are supported by many forest stakeholders, including landowner, conservation, wildlife, industry, and forestry groups. Engaging family forest landowners in climate change solutions through offsets and supplementary incentives is an essential strategy for reducing carbon emissions. And in securing healthy forests for the future, we are also helping communities maintain public drinking water supplies, wildlife habitat, and recreational opportunities.

# Forest-Climate Policy Recommendations to Increase Family Forest Participation

## 1. Offset Markets

- USDA, with its expertise in forests, must play a strong role in the development of forest carbon offset markets.
- Representative lists of forest carbon offset projects should be included in legislation to speed market development.
- Flexible contract lengths are needed to ensure sufficient landowner participation and address regional forest variation.
- Standards for carbon offset programs should be workable for family forest owners

## 2. Supplemental Carbon Emission Reductions

- To reach the needed critical mass of effective reductions, supplemental programs for reducing carbon emissions are necessary to ensure strong participation of smaller family forest ownerships.
- Given the lag time in developing carbon trading markets, we need supplemental carbon emission reduction programs that can be deployed immediately.
- Starting now, using landowner incentive or cost-share programs, supplemental programs will inform and improve the development of future forest carbon offsets.
- This provides Congress with an emergency valve to increase carbon capture and storage, if needed in the future, without changing the fixed emissions cap.

## 3. Adaptation

- Dedicated funding will be needed to help family forests adapt to climate change—helping owners learn new management practices that will better protect wildlife habitat, enhance forest health, and maximize forest carbon storage.

The American Forest Foundation is a nonprofit conservation organization with decades of experience helping family forest owners manage their forests for multiple benefits—wildlife, clean water, recreation, and sustainably produced wood. We also train 30,000 environmental educators every year, bringing outdoor learning to students who would otherwise miss this opportunity. Our 50-state network of volunteers lead initiatives to protect wildlife habitat, conserve family-owned forestland, and engage youth and communities in conservation efforts.



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