

# SAVE AMERICA'S FORESTS

## Fact Sheet

### NATIONAL FORESTS, CLIMATE CHANGE AND CARBON SEQUESTRATION

**Summary:** Forests are one of the Earth's most important carbon sinks. Deforestation, logging of old growth forests and clearcutting lead to large inputs of carbon into the atmosphere and are major contributors to global climate change.

Modifying management practices on the national forests and other federal forestlands including banning clearcutting, ending logging of old growth and roadless forests, and restoring continuous cover forests would increase the sequestration of carbon on public forests in the U.S. and significantly diminish the annual net U.S. CO<sub>2</sub> emissions.

#### DEFORESTATION IS A MAJOR CONTRIBUTOR TO GLOBAL CLIMATE CHANGE

- An estimated 1.5 billion tons per year of the world's carbon is released through deforestation.<sup>i</sup>
- The clearing and degradation of forests actually accounts for approximately 20% of annual CO<sub>2</sub> emissions worldwide. This is more than the annual CO<sub>2</sub> emissions generated in the United States by burning fossil fuels.<sup>ii</sup>
- Measurements show that for 14 years following logging, regenerating forests remain net sources of CO<sub>2</sub> owing to increased rates of soil respiration.<sup>iii</sup>
- Logging removes biomass, disturbs the soil and changes the microclimate.<sup>iv</sup>

#### REFORESTATION COULD SEQUESTER LARGE AMOUNTS OF CARBON

- Scientists estimate that over the next 50 years, nearly 100 billion metric tons of carbon could be sequestered worldwide through forest preservation, tree planting and improved agricultural management. This would offset 10-20% of the world's projected fossil fuel emissions.<sup>v</sup>

#### FORESTS ARE LARGE CARBON SINKS

- Forest ecosystems store more than 80% of all terrestrial aboveground carbon and more than 70% of all soil organic carbon.<sup>vi</sup>
- In the U.S., over 90% of the net carbon sink occurs on forestlands.<sup>vii</sup>
- In the United States, forests sequester about 200 teragrams (Tg) (1 Tg=1,000,000,000 kilograms) of carbon a year from the atmosphere, an amount equivalent to about 10% of U.S. emissions of CO<sub>2</sub> from burning fossil fuels.<sup>viii</sup>

#### THE NATIONAL FORESTS CAN OFFSET MAJOR AMOUNTS OF U.S. CARBON EMISSIONS

- **National and Other Public Forests:** In the U.S., public forests hold 30% of the total forest volume and have considerable impact on the U.S. forest carbon balance.<sup>ix</sup>

- **Clearcutting:** Researchers report large soil carbon losses over 20 years following clearcuts that can range up to 20 tons of carbon per hectare. This is significant compared to the gain of carbon in a maturing forest that is not logged.<sup>x</sup>
- **Selection Logging:** Continuous-cover forestry, including selective harvesting, is considered a possible measure to reduce soil carbon losses compared with clear-cut harvesting.<sup>xi</sup>
- **Reforestation:** Reforestation and other land use or land management changes can work to mitigate climate change through carbon sequestration.<sup>xii</sup>
- **Old Growth Forests:** A recent scientific study found that the soil in old growth forests accumulated atmospheric carbon at an unexpectedly high rate, contrary to the common belief that old growth forests do not continue to accumulate carbon.<sup>xiii</sup>
- **Roadless Forests:** According to one study, 42 million acres of roadless lands sequester at least 445 million tons of carbon and annually provide \$1 billion in carbon sequestration services.<sup>xiv</sup>
- **National Forests:** A carbon sequestration model of the national forests and other U.S. public lands found that greatly reducing logging from 2010 to 2050 would lead to a 40% increase over current sequestration levels and would offset up to 2% of total U.S. greenhouse gas emissions.<sup>xv</sup>

As the world's largest emitter of total CO<sub>2</sub> and main contributor to global climate change, the U.S. should lead the way in reducing its own absolute and net carbon emissions. Increasing carbon sequestration can offset our continued carbon emissions. With different forest management, the national forests can absorb and hold significantly larger amounts of carbon than they currently do.

Legislation in the U.S. Congress, the **Act to Save America's Forests**, would require changes in the management of the national forests that would lead to greater carbon sequestration through protection of old growth and roadless areas, banning clearcutting, and promoting continuous cover forests and reforestation. Enactment of the **Act to Save America's Forests** into law would significantly reduce the U.S. annual net carbon emissions, thereby lessening the U.S. contributions to global climate change.

<sup>i</sup> Lester R. Brown, "Eco-Economy: Building an Economy for the Earth," (W.W. Norton & Co., NY: 2001): 28.

<sup>ii</sup> Union of Concerned Scientists, "Forest Carbon Sequestration," Publications, <http://www.ucsusa.org/publications/catalyst/fa04-catalyst-forest-carbon-sequestration.html>.

<sup>iii</sup> Robert Jandl et al., "How Strongly Can Forest Management Influence Soil Carbon Sequestration?," *Geoderma* 137 (2007): 258.

<sup>iv</sup> Robert Jandl et al., "How Strongly Can Forest Management Influence Soil Carbon Sequestration?," *Geoderma* 137 (2007): 257.

<sup>v</sup> U.S. Environmental Protection Agency, "Carbon Sequestration in Agriculture and Forestry," Frequent Questions, <http://www.epa.gov/sequestration/faq.html>.

<sup>vi</sup> Robert Jandl et al., "How Strongly Can Forest Management Influence Soil Carbon Sequestration?," *Geoderma* 137 (2007): 254.

<sup>vii</sup> United States Environmental Protection Agency, "Greenhouse Gas Mitigation Potential in U.S. Forestry and Agricultural" (Nov. 2005): 1-1.

<sup>viii</sup> Richard Birdsey et al., "Forest Carbon Management in the United States: 1600-2100," *Journal of Environmental Quality* Vol. 35 (Jul.-Aug. 2006): 1461.

<sup>ix</sup> Brooks M. Depro, et al., "Public Land, Timber Harvests, and Climate Mitigation: Quantifying Carbon Sequestration Potential on U.S. Public Timberlands," *Forest Ecology and Management* 255 (2008): 1122.

<sup>x</sup> Robert Jandl et al., "How Strongly Can Forest Management Influence Soil Carbon Sequestration?," *Geoderma* 137 (2007): 258.

<sup>xi</sup> Robert Jandl et al., "How Strongly Can Forest Management Influence Soil Carbon Sequestration?," *Geoderma* 137 (2007): 258.

<sup>xii</sup> Fischlin, A., G.F. Midgley, J.T. Price, R. Leemans, B. Gopal, C. Turley, M.D.A. Rounsevell, O.P. Dube, J. Tarazona, A.A. Velichko, 2007: Ecosystems, their properties, goods, and services. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, 221.

<sup>xiii</sup> Guoyi Zhou, et al., "Old Growth Forests Can Accumulate Carbon in Soils," *Science* 314 (Dec. 1, 2006): 1417.

<sup>xiv</sup> John B. Loomis and Robert Richardson, "Economic Values Of Protecting Roadless Areas in the United States," *The Wilderness Society* (Jun. 2000): 25.

<sup>xv</sup> Brooks M. Depro, et al., "Public Land, Timber Harvests, and Climate Mitigation: Quantifying Carbon Sequestration Potential on U.S. Public Timberlands," *Forest Ecology and Management* 255 (2008): 1131.