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# **Recommendations for Enhancing the Role of Forests In Climate Change Mitigation and Ecosystem Adaption to Climate Change**

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A Policy Statement approved by Resolution  
by the National Association of State Foresters



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## **Introduction**

Global climate change continues as an issue frequently raised in both political and scientific arenas. In these discussions the role of forests and the products derived from forests are often mentioned.

The National Association of State Foresters (NASF) is comprised of the chief administrators of the forestry agencies in all fifty states, the U.S. Territories and the District of Columbia. These agencies protect, manage, or assist in the protection and management of state, local government and privately owned forest lands totaling over 500 million acres. These efforts produce substantial multiple benefits for society as a whole. Enhancing the role of forests in climate change mitigation and improving adaptability is possible within virtually every program of concern to state foresters. Strengthening, growing and improving these efforts not only addresses climate change, but supports the fundamental mission of state forestry agencies.

Trees absorb carbon dioxide from the air, convert it to wood and release oxygen in the process. The carbon stored in wood represents carbon that does not enter the atmosphere where it would contribute to a “greenhouse effect” that warms the earth. It is estimated that fourteen to fifteen percent of the nation’s annual carbon emissions are offset by the additional carbon stored in US forests and wood products each year.<sup>1</sup> Carbon remains stored in wood until it deteriorates, whether it breaks down within a dying tree, a piece of lumber or a piece of paper. Agency programs that increase the extent of forests and tree growth, and promote greater use of wood products, ultimately lead to increased carbon storage.

The carbon released when converting wood to energy is recaptured when replacement wood is grown. A panel of scientists, conducting a comprehensive review of current research, have concluded that – over the long term – cumulative emissions of carbon dioxide can be reduced by increased use of forest feedstocks.<sup>2</sup> Programs that promote economically viable wood energy uses can also play a beneficial role.

Another concern is how ecosystems may change as climate changes – such as sea level change and alteration of terrestrial ecosystems. An important characteristic of adaptable ecosystems is that their response to change is more subtle than dramatic. They exhibit a resilience that allows them to experience natural disturbances and long-term shifts in external influences (such as climate) without

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<sup>1</sup> US Environmental Protection Agency. 2013. *Inventory of US greenhouse gas emissions and sinks: 1990 – 2011*. EPA 430-R-13-001, Washington, DC.

<sup>2</sup> Miner, R. et al. Forest carbon accounting considerations in US bioenergy policy. *Journal of Forestry*. 112(6): 591 – 606.

creating a rapid, wholesale replacement of the current system. Resilience is fostered by managing for biological diversity at a large scale. Landscape-level focus areas that promote collaboration across diverse public and private ownerships can be an important tool for ensuring adaptable forest ecosystems.

### **Recommendations**

#### ***Invest More in Private Forest Land Management –***

Private landowner assistance provided under the Forest Stewardship Program and Rural Forestry Assistance Program improve the nation's carbon stocks in numerous ways. Promoting sustainable harvest is the most effective way to deal with an increasingly aging forest resource that could someday become a carbon emitter as opposed to one that increases stored carbon. An added benefit is the conversion of aging trees into wood products that will retain carbon even longer. Management assistance is also focused on improving growth and reforestation which increases carbon uptake. Financial incentives such as Environmental Quality Incentives Program and Conservation Reserve Program are additional motivation for landowners to take actions that ultimately benefit carbon storage. Enhanced funding to support long term relationships between landowners and service foresters would allow these carbon benefits to be expanded to more acres.

In addition to the benefits provided to climate change mitigation landowner assistance can also assist with improving forest ecosystem adaptability. Resilience can be encouraged through more technically planned management activities. Landowners can become better informed as to options and strategies for achieving resilience.

#### ***Increase Investment in Urban Forests-***

Trees in urban areas store an estimated 770 million tons of carbon. They remove 740 million tons of air pollution each year and save over 2 billion dollars in residential energy costs annually resulting in significant reductions in fossil fuel use. Beyond these benefits to climate change mitigation are a host of other benefits to water quality, noise abatement, wildlife, human health and others.<sup>3</sup> Facilitating the conversion of urban wood into forest products and bio-energy also have positive climate change consequences. Enhanced funding for Urban and Community Forestry Programs would increase the level of all of these benefits.

#### ***Improve Forest Health Funding –***

Forest health programs administered by the states also contribute carbon benefits. From 2008 to 2012 over forty million acres of forest mortality were caused by insects and diseases.<sup>4</sup> Mortality results in carbon loss and poor forest health reduces the rate of carbon sequestration. Increased funding to

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<sup>3</sup> Nowak, D. et al. 2010. *Sustaining America's Urban Trees and Forests*. USDA Forest Service GTR NRS-62, Washington, DC.

<sup>4</sup> USDA Forest Service. 2013. *Major Forest Insect and Disease Conditions in the United States – 2012*. FS-1023, Washington DC.

better protect forests is essential to their role in climate change mitigation and becomes more so every year as the rate of invasive species occurrence continues to accelerate.

***Increase Funding for State and Volunteer Fire Assistance and Reduce the Occurrence of Catastrophic Fire –***

The Environmental Protection Agency estimates that wildland fires in the US from the years 2005 through 2013 generated greenhouse gases in an amount totaling 91.3 million metric tons.<sup>5</sup> This is relatively small compared to what was emitted from transportation in just one year (2013) estimated at 1718.4 million metric tons. NASF supports implementation of the “Cohesive Strategy” wherein the wildland fire community has identified three national goals:

- Restore and maintain resilient landscapes using tools such as thinning and prescribed fire
- Assure fire adapted communities through collaborative planning and fuels management
- Provide a safe, effective and efficient wildfire response<sup>6</sup>

Adequately addressing these goals requires additional financial resources and while emissions from wildfire may not be substantial at the national level achieving these goals would still create a climate change benefit.

***Reform Federal Land Management Policy –***

Since the largest fires occur on federal lands the greatest gains are to be made there. To that end NASF supports policy reform that would accelerate the scope, scale and pace of on-the-ground management of federal forests. Increased accomplishment is the only option for improving federal land resilience at an acreage level that ensures continued water quality and quantity and that in the future large catastrophic fires and insect infestations covering millions of acres will not become even more prominent as a result of the stressors brought on by climate change. In addition to treatments to reduce fire risk post-fire rehabilitation and reforestation need to be addressed in a more timely and predictable fashion.

There is also a need to create new administrative, compliance and planning processes that allow more timely response to changing conditions. In addition, funding of fire protection on federal lands needs to not rely on the transfer of funds from other programs – such as private landowner assistance – that are contributing to climate change mitigation.

***Increase Landscape Scale Collaboration across Public/Private Ownerships –***

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<sup>5</sup> US Environmental Protection Agency. 2015. *US Greenhouse Gas Inventory Report: 1990-2013*. (Found at <http://epa.gov/climatechange/emissions/usinventoryreport.html>)

<sup>6</sup> USDI/USDA. 2014. *The National Strategy – The Final Phase in the Development of the National Cohesive Wildland Fire Management Strategy* (Found at <http://www.forestsandrangelands.gov/strategy>)

State Forest Action Plans identify priority landscapes where efforts can be focused on specific resource issues. Landscape-level projects involving multiple partners and ownerships committed to a long term effort are ideal for addressing ecosystem adaptation at the proper scale. These projects can draw on tools such as social marketing to increase landowner participation. They also provide economies of scale for supporting vegetative treatments as well as monitoring and research to better inform future efforts.

***Increase Programs to Retain Existing Forests –***

Though they currently are adding carbon, it is projected that the total carbon stock in US forests will begin to decline by 2040 due to a loss of forest cover and an increase in the relative age of standing timber.<sup>7</sup> The Forest Legacy Program, funded through the Land and Water Conservation Fund, is an important tool for stemming the loss of forest land and needs to be maintained and enhanced.

***Strengthen Nursery and Tree Improvement Programs –***

A key element in managing forests as a sustainable, renewable resource is successful reforestation following harvests. Often this is most effectively accomplished by replanting harvested areas. Additional support for state nursery and tree improvement programs will assure the availability of planting stock and enable genetic improvement programs aimed at increasing adaptability.

***Establish Favorable Tax Policy –***

Tax policy impacting forest owners can influence decisions around retention of forests or conversion to other uses. It is important to maintain current beneficial tax policies such as treating timber sales as a capital gain and expensing management costs yearly. Increasing the cap on the dollar amount exempt from estate taxes would prevent heirs from having to dispose of property to meet a tax liability. And, reinstating the enhanced tax benefits that had been available to landowners who contribute conservation easements on their land would also assist in retaining forest cover.

***Support Expansion of Forest Product Markets and Forest Bio-energy Utilization–***

In 2007 there was an estimated eight billion tons of greenhouse gases stored in wood products still in use or in landfills.<sup>8</sup> Housing drives the production of solid wood products and manufacturing activity normally drives paper production. The recession of 2008 dampened both markets and slowed the rate of carbon storage in those products. NASF supports encouraging the use of wood over other non-wood building materials and facilitating the expansion of wood industries, as well as increasing the use of woody biomass. Programs implemented by state forestry agencies include forest inventory analyses and providing technical support to existing or emerging natural resource-based businesses. NASF also supports expanding the availability of raw material from national forests, particularly in the western US as a way to convert more domestic standing timber, reduce fuels and rebalance age classes as well as serving to support the maintenance of forest product markets for private landowners. Increased use of products sales as part of the fuels treatment can also reduce management costs.

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<sup>7</sup> USDA Forest Service. 2012. *Future of America's Forests and Rangelands – Forest Service 2010 Resources Planning Act Assessment*. GTR WO-87, Washington, DC.

<sup>8</sup> USDA Forest Service. 2010. *National Report on Sustainable Forests – 2010*. FS-979, Washington, DC.

In 2007 wood generated approximately two percent of all the energy consumed in the US.<sup>9</sup> Thus there is substantial room for growth and with it would come the added benefit of improving markets for private landowners, thereby encouraging retention and management of forests. Certification programs in conjunction with solid data such as that from FIA could play an important role in addressing concerns over sustainability.

***Strengthen Research and Forest Inventory and Analysis –***

The Forest Inventory and Analysis (FIA) program has tracked carbon stocks since the early 1990s. This is essential data for understanding to what extent forests can offset carbon emissions through sequestration. In addition, inventories look at all ecosystems and can provide early detection in order to implement adaption strategies. NASF considers FIA a priority program. There is also a need for more research to identify the best ways to manage forests for greater resilience and a need to conserve genotypes as ecosystems change in ways that cannot yet be predicted.

In addition, the Forest Products Laboratory and the USDA Wood Education and Resource Center play key roles in expanding forest product and bio-energy opportunities through research and extension. Strengthening their contributions will support climate change mitigation.

***Support Markets for Ecosystem Services –***

We have in place examples and processes for monetizing the value of carbon stored in forests, but markets for selling this value are limited. The development of this income opportunity for landowners, as well as market opportunities for other ecosystem services such as water quality protection, would make ownership of forests more attractive and retention of forests more likely, as well as increase the storage of carbon thereby mitigating carbon emissions.

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<sup>9</sup> USDA Forest Service. *National Report on Sustainable Forests – 2010*.

*This policy statement was adopted by NASF membership in Resolution No. 2015-03 and expires on September 15, 2020 unless renewed or otherwise acted upon by NASF membership.*