

# Policy Statement: Climate Change and Forests

Approved 9/10/2008

## Summary

Forests have an effect on, and are influenced by, changing levels of carbon dioxide and other greenhouse gasses in Earth's atmosphere and the resulting changes in climatic conditions. This policy statement focuses on outlining management that enhances forests' ability to adapt to climate change and mitigates the effects of climate change through increased carbon sequestration and storage.

The first priority in enhancing the ability of forests to adapt to changing climatic conditions and to store and sequester carbon is to prevent the conversion and deforestation of forestland. The second priority is to restore ecological functions and full stocking to impaired forests by preventing damaging management practices, to afforest lands not recently in forest cover where appropriate, and to reforest harvested or disturbed forests where appropriate. The third priority is to implement the excellent forestry practices that yield high levels of on-site carbon storage and sequestration.

## Climate change is real and exacerbated by human activities

Scientific data and conclusions of the Intergovernmental Panel on Climate Change overwhelmingly indicate that the climate in the U.S. is changing rapidly primarily because of human-caused emission of carbon dioxide (CO<sub>2</sub>) and other gases. These climate changes are changing our forests. It is important to reduce greenhouse gas emissions through energy conservation and efficiency improvements, and the appropriate substitution of renewable for non-renewable energy sources. In addition, forests play an important role in balancing terrestrial and atmospheric carbon. The Forest Guild believes that forest conservation and management can enhance our forests' capacity to mitigate and adapt to changing climatic conditions, and thereby continue to help support biotic life and human livelihoods. The Forest Guild report *Climate Change, Carbon and the Forests of the Northeast* identifies some of these practices. ([www.forestguild.org/publicationsw/research/2007/ForestGuild\\_climate\\_carbon\\_forests.pdf](http://www.forestguild.org/publicationsw/research/2007/ForestGuild_climate_carbon_forests.pdf))

## The Forest Guild and its members have a responsibility to act; forests can be part of the problem or part of the solution

Landowners' land use and forest management decisions impact the role forests play in, and how they influence and are affected by, climate change. Depending on these human choices and natural events, forests can be potential sources of carbon emissions as well as potential carbon sinks. Members of the Forest Guild have a responsibility to use their management skills to help our forests serve as part of the solution to this multi-generational challenge.

Forest management practices can enhance and maintain forest characteristics that confer resilience and resistance to stress and change. Many of these practices also help to mitigate climate change by increasing carbon storage and sequestration. Whenever ecologically, economically, and socially appropriate we will use forestry practices that help forests adapt to change and mitigate increasing CO<sub>2</sub> levels by sequestering and storing greater quantities of carbon. In addition, the organization and its members will seek to serve as innovators of new practices and develop place-based models that demonstrate their effectiveness.

## **Adaptation – forest management in support of ecological resistance, resilience, and response**

Forestry that uses nature as a model (e.g., excellent forestry) is a good approach for ensuring healthy ecosystems that are best able to adapt to a changing climate. Excellent forest management is designed to maintain ecological characteristics critical to forest health such as biological legacies, structural and compositional heterogeneity, and appropriate recovery periods between disturbance events. Some forests may naturally be resistant and resilient in the face of changing environmental conditions. But climate change is likely to exacerbate other problems that are already stressing forests including forest fragmentation, environmental pollution such as acid deposition, and invasion by exotic species. Therefore, forest management recommendations that enhance and maintain forest characteristics that confer resilience and resistance to stress and change must deal holistically with a full range of forest threats. However, identifying appropriate forest management options to aid in adaptation to climate change and attendant forest threats is difficult because of high levels of uncertainty and the impossibility of precise predictions for complex and chaotic systems. Even in the face of high levels of uncertainty, management decisions that improve ecosystem health will help forests resist the perturbations driven by climate change. Similarly, healthy ecosystems are more resilient, better able to respond to and recover from disturbances, which may become more frequent and more severe as time passes. Forestry that encourages a naturally diverse species mix will spread the climate change risks across multiple species.

In responding to climate change, managers will need to balance activities that support current forest communities and associated species with those that favor diverse species communities that may be more suitable to future environments. This may include targeted plantings where ecologically justifiable. In addition, future management decisions may have to increasingly focus on maintaining ecosystem functions and processes rather than specific species.

## **Mitigation - forest management in support of carbon storage and sequestration**

Avoiding deforestation and the diminishment of the forestland base is critical to mitigating the effects of climate change. Conversion of forestland to any other use releases stored carbon and damages the world's long-term ability to sequester and store carbon. Forest conservation also protects genetic diversity, provides refugia for threatened species, and facilitates species migration. Forestland can be protected through working forest conservation easements and other tools including full fee purchase and robust zoning incentives and regulations.

Forest management choices made by landowners and foresters also play a role in determining forests' ability to mitigate rising atmospheric CO<sub>2</sub> levels. Trees and forests have adapted over millennia to efficiently store carbon - a major component of their biomass. Therefore, the natural forest is our best model for carbon sequestration and storage in systems that also yield biodiversity, clean air, pure water and forest products.

In contrast, poor harvesting practices may decrease long term carbon sequestration by delaying or failing to achieve regeneration, failing to fully utilize the growing capacity of the site, depleting soil carbon, removing too much standing and down dead wood, or producing forest products with less carbon sequestration and storage potential.