



California Forest  
Products Commission

## Modern Forestry & Climate Change

As Californians, we only have to look to our forests when seeking ways to reduce the effects of carbon emissions, commonly called greenhouse gases, and climate change.

With 40 percent of our state covered by public and private forestland, we can stand to benefit as our working forests clear our air, keep our water clean and are an important tool for addressing atmospheric carbon.

Forests remove carbon from the air. The process of absorbing carbon, or sequestration, is a natural by-product of tree growth. Through photosynthesis, leaves absorb carbon from the atmosphere, store it in wood fiber, and release oxygen in the same process. Wood products continue to store the carbon for hundreds of years.<sup>1</sup>

It's true that forests release varying amounts of carbon into the atmosphere through respiration, decay, and wildfire. However, the cycle of planting, growth, and harvesting can remove this carbon and more, while also providing society with needed wood products. Forests take care of their own emissions while offsetting emissions caused by others.

As a result of this natural process, our forests are closely allied with the issues surrounding global climate change. They can be used effectively and efficiently to lessen the effects of carbon emissions.

California is leading the way in seeking solutions to these issues.

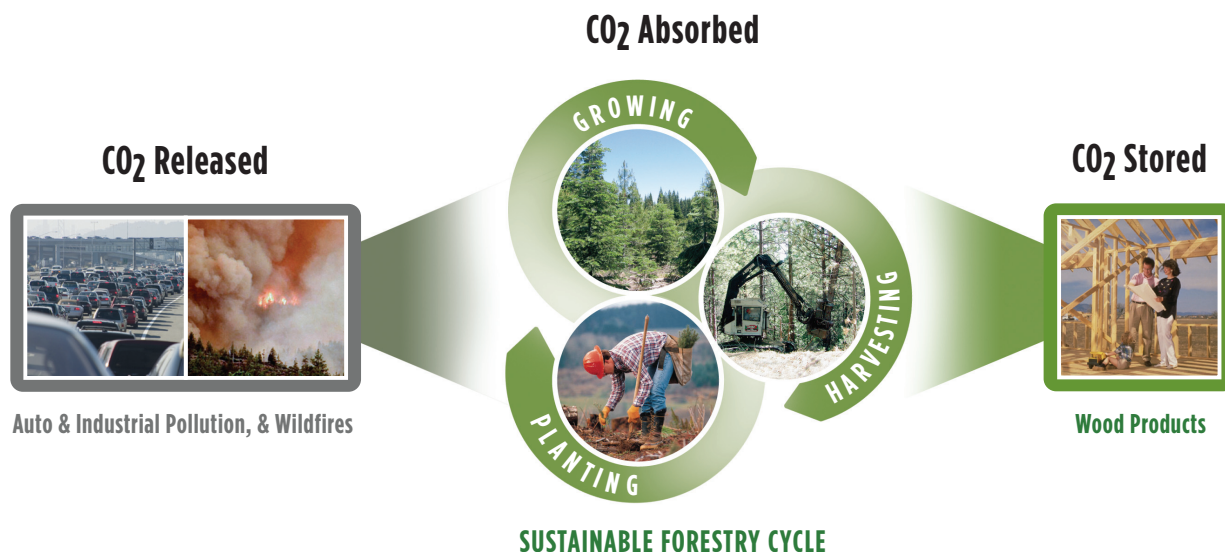
### Global climate change and our forests

According to the EPA, scientists think rising levels of greenhouse gases in the atmosphere are contributing to global warming; but to what extent is difficult to determine. Scientific data confirms the Earth's surface temperature increased 0.5-1 degree in the last century.

In addressing climate change, much of the current public policy options have focused on reducing carbon emissions. But, there are also ways to naturally increase carbon absorption through forest management. We must capitalize on the remarkably efficient capacity of trees to remove carbon from the atmosphere.<sup>2</sup>

- Through 2050, 12-15 percent of projected fossil fuel emissions could be offset by forests, according to the Intergovernmental Panel on Climate Change (IPCC).<sup>3</sup>
- Forests in the U.S. currently remove the greenhouse gases emitted by 139 million cars annually.<sup>4</sup>

### Reducing Carbon Emissions



### Managed forests are part of the solution

Numerous scientists and studies confirm that actively managed, sustainable forests absorb carbon more quickly and efficiently than mature trees.<sup>5</sup> Although mature trees contain large amounts of carbon, their rate of absorption has slowed to a near halt. They store more carbon than young trees, but young trees accumulate carbon at a rapid rate.<sup>6</sup> While some carbon is released through decomposition after a tree is harvested, much of the carbon is stored harmlessly in wood products.

Modern forestry creates healthy forests of all ages. Management techniques include thinning, restoration, and replanting. The goal is to create ideal conditions to grow healthy trees. Healthy forests are less susceptible to catastrophic wildfires that release alarming amounts of carbon dioxide and carbon monoxide into the air, kill wildlife and destroy their habitat and watersheds. When a tree burns it releases all the carbon it previously stored.<sup>7</sup>

Attempts to thwart thinning or responsible harvesting and replanting in public and private forests inadvertently diminish the role our forests can play in combating global warming. This results in less carbon absorption and recovery, disease and insect infestation and greater fuels for catastrophic wildfire – which contributes huge amounts of harmful pollution into the air and our atmosphere.

### How modern forestry benefits all of us:

- In addition to increasing carbon absorption and helping the climate, responsible forest management provides essential wood products, a healthy watershed and clean air, and maintains biodiversity in our forestlands.
- Reduces the threat of catastrophic wildfire by removing excessive trees from overcrowded forests.
- Meets the U.S. demand for wood products, reducing the need for imports from countries where forests are not properly managed.<sup>8</sup>
- Wood-based building materials are substantially less carbon intensive to produce than substitute materials.<sup>9</sup> A comparison of a wood-framed house to steel-and concrete-framed houses found that steel generates 33 percent more greenhouse gas emissions, and concrete 80 percent more.<sup>10</sup>
- Managed forests supply raw material for biomass “clean energy” fuels that replace fossil fuels.
- More than 60 percent of the energy used to manufacture forest products in the U.S. is derived from biomass energy rather than fossil fuels.<sup>11</sup>

*“One of the best ways to address climate change is to use more wood, not less. Every wood substitute, including steel, plastic and cement, requires far more energy to produce than lumber.”*

– Patrick Moore, Ph.D.,  
Greenpeace co-founder

### Steps Needed to Maximize Forests Potential to Fight Global Warming

- Recognize the importance of forests of all ages by planting and growing young trees, which remove CO<sub>2</sub> at a faster rate than mature trees.
- Harvesting some mature trees when their growth rate declines to make room for faster-growing younger trees, which do a better job of absorbing carbon.
- Promote the use of wood products for construction. Wood harmlessly stores carbon and, unlike concrete and steel, is the most environmentally friendly when manufactured.
- Convert materials from the forest that aren't appropriate for wood products into clean, biomass energy. This offsets CO<sub>2</sub> released by burning fossil fuels.
- Protect forests from catastrophic wildfires, which release massive amounts of carbon into the atmosphere.
- Replant areas destroyed by wildfires so they quickly begin removing carbon from the air.



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**Footnotes:** 1. Patrick Moore, Ph.D., “Forest Management: Part of the Climate Change Solution,” California Forests Winter 2006: 8-9; 2. John A. Helms, Ph.D., “How Forests Can Combat Climate Change,” California Forests Winter 2006: 10-11; 3. American Forest & Paper Association (AF&PA), “Wood and Paper Products Store Greenhouse Gases”; 4. Based on data from 2005 U.S. EPA study; 5. Kenneth Green, Ph.D., “Beyond Reducing Emissions,” California Forests Winter 2006: 14-15. Helms, Moore; 6. Helms, Stavis & Richards chart: 11; 7. Gabrielle Pfister, Ph.D., “Address Air Pollution at its Roots,” California Forests Winter 2006: 16-17; 8. Moore; 9. Buchanan & Levine, “Wood-based building materials and atmospheric carbon emissions,” Environmental Science and Policy 2 (1999); 10. Bruce Lippke et al., “CORRIM [the Consortium for Research on Renewable Industrial Materials]: Life-Cycle Environmental Performance of Renewable Building Materials,” Journal of Forest Products June 2004:14; 11. AF&PA.