

# U.S. Forest Service Pacific Southwest Research Station

CALIFORNIA-ALBANY-ARCATA-DAVIS-FRESNO-PLACERVILLE-REDDING-RIVERSIDE

HAWAII-HILO

SCIENCE YOU CAN USE

<http://www.fs.fed.us/psw/>

**Contacts: Greg McPherson, Ph.D., Center for Urban Forest Research, 530/759-1723  
Roland Giller, PSW Research Station public affairs, 510/559-6327**

## Application Quantifies Carbon Sequestration of Urban Trees

*DAVIS, Calif. December 9, 2008*—U.S. Forest Service scientists at the Center for Urban Forest Research are providing on-line software that can show users how much carbon dioxide an urban tree in California has sequestered in its lifetime and the past year.

The Tree Carbon Calculator is free and programmed in a Microsoft Excel spreadsheet that provides carbon-related information for a single tree in one of six California climate zones. It is the only tool approved by the California Climate Action Registry's Urban Forest Project Reporting Protocol for quantifying carbon dioxide sequestration from tree planting projects.

It can be found at the U.S. Forest Service Climate Change Resource Center Web site, <http://www.fs.fed.us/ccrc/topics/urban-forests/>

In addition, the tool is available on the Center for Urban Forest Research Web site, <http://www.fs.fed.us/psw/programs/cufr/>

Users enter information such as a tree's climate zone, species name, size or age. The program then estimates how much carbon dioxide the tree has sequestered in the past year and its lifetime. It also calculates the dry weight of the biomass that would be obtained if it were removed.

Trees planted near buildings to cut heating and cooling costs require additional inputs because they also reduce the greenhouse gases power plants emit while generating electricity. The Tree Carbon Calculator automatically calculates power plant reductions using emission factors for local utilities.

"The Tree Carbon Calculator is easy to use and provides quantifiable incentives for tree planting and stewardship projects," said Greg McPherson, director of the Center for Urban Forest Research. "Anyone from homeowners to certified arborists can use it."

McPherson and his colleagues measured the size and growth of 5,000 trees in the six climate zones to determine how much carbon dioxide the trees sequestered and stored.

The scientists determined tree shade effects on building energy performance by conducting more than 12,000 simulations that examined combinations of tree sizes, building locations and architectural styles for each zone.

"Microclimates, building characteristics and other factors can vary greatly within the six climate zones," McPherson said. "But, this software demonstrates the feasibility of a tool that quantifies the effect of urban trees on building energy performance."

In 2009, the Center for Urban Forest Research will add data for tree species in climate zones across the nation, McPherson said.

-End-