

## TREES AND GLOBAL WARMING

Eugene's trees are more than just a pretty face; logging the urban forest is also an environmental issue. "Urban trees have so many benefits," says Snyder. Beyond creating community and a more livable neighborhood, he says, they "improve safety, spur economic development" and improve mental health by reducing "stress and noise levels." And importantly, he added, trees respond to global climate change by reducing greenhouse gases.

Human fossil fuel consumption in the form of coal, gas and oil combustion is one of the largest sources of greenhouse emissions on the planet, accounting for approximately 90 percent, according to the U.S. Environmental Protection Agency. The EPA identifies agriculture, industry, transportation and electricity generation, in order from least to greatest, as the primary sources of U.S. greenhouse emissions.

Since 1990, total greenhouse gas emissions have risen 16 percent with carbon dioxide representing the dominant gas produced. Other atmospheric pollutants released through the burning of fossil fuels that contribute to the greenhouse effect or ozone depletion are nitrous oxide, methane and fluoridated compounds.

We use fossil fuels to sustain our current way of life. But do urban trees represent a realistic way to reduce fossil fuel consumption and lower carbon dioxide emissions?

Trees help control the excessive amounts of greenhouse gases in the air "by absorbing carbon, but that doesn't add up to much," says Michael Kuhns, extension forestry specialist and professor of Forest Resources at Utah



KATHRYN SCHUESSLER

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— Paul Ries, state of Oregon urban forester.

State University. Kuhns spent his sabbatical at OSU and has presented his research on trees and global climate change at various locations around Oregon.

Through the natural process of photosynthesis, trees remove carbon dioxide and other greenhouse gases from the air and store them in the roots, trunk and branches.

However, as Kuhns' research indicates, "we should not be planting trees in U.S. cities and towns thinking that we are absorbing great amounts of carbon dioxide and reducing global warming." In his opinion, "landscape tree planting or even rural tree planting in the U.S.

can not make a significant dent in absorbing the carbon dioxide we release."

Nevertheless, Kuhns finds that "trees can play an important part" in reducing greenhouse gas emissions by lowering our consumption of fossil fuels.

"Tree planting is one tangible thing people can do to immediately help the environment," says Paul Ries, state of Oregon urban forester. "You can view a tree as an oxygen enhancing device" and "as a natural air conditioner," he says.

"The real benefit of trees is in all the things they do to reduce energy use," says Kuhns.

"The most direct way trees save energy is in shading property," Kuhns says. Trees "counter the urban heat island effect" or the warming of cities compared to their rural surroundings, he says. Dark surfaces such as pavement and commercial and residential rooftops cause air temperatures to rise, thereby increasing the demand for electric power in the form of air conditioning. Kuhns's research indicates that "trees planted to properly shade a building reduce energy use for air conditioning by up to 70 percent."

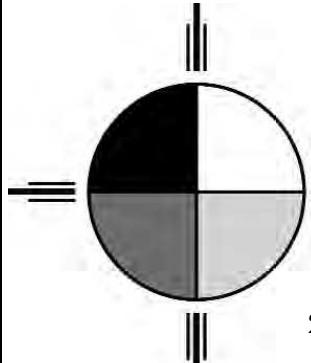
Moreover, his work reveals that "well-placed trees that slow the wind can reduce energy use for heating by 30 percent."

Urban trees also clean the air by absorbing fine particulates, Kuhns says. Breathing fine particulates has been linked to many serious lung and heart diseases such as lung cancer and cardiovascular diseases. Fine particulates (also known as PM 2.5) are created by field burning, fire-based home heating and diesel and gas exhaust.

City trees also help with erosion and stormwater control by slowing rainwater, Ries says.

But small, young trees require decades to grow to full size, and a larger tree removes 60 to 70 times the pollution a small tree does, according a June 2007 article on urban forests in *Time* magazine. And it's the leafy crown of older, bigger trees that intercepts rainwater and helps with stormwater control.

But energy conservation is the most important thing people can do for global warming, Kuhns says. "I worry that people will have extremely consumptive lifestyles and will think that planting a tree compensates," he says. **EW**



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