

WALLOWA COUNTY CHIEFTAIN

New study shows leaving trees bigger than 21 inches in the forest is better for climate change, fire, habitat

23 December 2020

ENTERPRISE — As forest managers search for the best way to manage forests for fire and other issues, controversy has grown over what to do with big trees — those more than 21 inches in diameter.

A new study, co-authored by local forest ecologist David Mildrexler and others, indicates that the bigger should be retained in the forest because they provide extraordinary uptake and storage capacity for carbon, and are an essential element of reducing greenhouse gas and slowing climate change.

“Carbon storage is an increasingly important management objective for national forest lands,” Mildrexler said. “The harvest of big trees would have major implications for carbon dynamics in the forests of the Blue Mountains.”

The yearlong study was done by Mildrexler, who works for the Eastern Oregon Legacy Lands (the nonprofit that operates Wallowology), along with colleagues at Oregon State University, Tufts University and the Woodwell Climate Research Center. It’s titled “Large trees dominate carbon storage in forests east of the Cascade crest” and published in the Nov. 5 issue of *Frontiers in Forests and Global Change*.

Mildrexler’s study is especially relevant to the new amendments of the “21-inch rule,” originally implemented in 1995, that prohibited cutting of trees greater than 21 inches in diameter in eastside national forests. The new amendments would allow harvest of trees between 21-30 inches diameter. When implemented 25 years ago, the 21-inch rule and “eastside screens” were not intended to be permanent regulations.

Mildrexler and his colleagues examined data on tree sizes and distribution on 3,335 plots in six eastern Oregon national forests, including the Wallowa Whitman, Umatilla and Malheur.

They found that large trees of 21 inches or greater comprised only about 3% of the almost 640,000 trees on the plots. But they calculated that these rare, big trees held up to 42% of the above-ground carbon, depending on the species.

Large ponderosa pine were the carbon-storage champs, at 46% of total species carbon, with grand fir second, followed by Douglas fir, Engelmann spruce and, bringing up the rear, western larch.

They also found that a 20-inch tree held about six times as much carbon as a 10-inch-diameter trees. Even more impressive, a 30-inch tree contained up to 18 times the amount of carbon as the 10-inch.

The Mildrexler report also notes that large trees provide many other climate-related benefits. They shade and cool the forest floor, preserving moisture. This will be increasingly important as the climate warms, he said. Large trees also resist fire, which is increasing in intensity and scope, and provide important habitat, including nesting, denning habitat in snags and hollow trees.

Harvesting a big, old tree does little to sequester its carbon. Mildrexler reported that only about 20% of the carbon in the whole tree was stored for the long term. The rest went back into the atmosphere, or into the landfill where it decomposed.

Mildrexler and colleagues' paper counters some findings in a Forest Service study that was released earlier this year. That study, headed by USFS research landscape ecologist Paul Hessburg, recommends harvest of some large grand fir and Douglas fir to control the flammable understory their seedlings produce.

"These young trees, and their big, greater-than-21-inches parents also compete for soil moisture and nutrients, warranting their removal in some cases," the report said.

But Hessburg's report, like that of Mildrexler and colleagues, recognizes the importance of large, old-growth, especially Ponderosa pine and tamarack (western larch).

"Growing and retaining large live trees of early-seral species (e.g., ponderosa pine, western larch) is critical for achieving many restoration objectives," the Forest Service report noted. "With their thick bark and elevated canopies, large, early-seral trees are typically more resistant to fire, insects and drought than smaller and shade-tolerant tree species. Large trees concentrate stand biomass and carbon and often contain a high proportion of above- and below-ground biomass in a stand."

"The large trees have a very long ecological memory on the landscape that transcends most disturbances," Mildrexler said. "They are a very, very small part, just 3%, of the trees in the forest now, but a very disproportionately important part. It's important to keep them there."

Source: https://www.wallowa.com/news/local/new-study-shows-leaving-trees-bigger-than-21-inches-in-the-forest-is-better-for/article_9db7ba12-384a-11eb-a906-0f2cabf46379.html