

# Logging debris gives newly planted Douglas-fir forests a leg-up

March 12 2013

---

The downed limbs and other woody debris that are inevitable byproducts of timber harvest could be among the most important components of post-harvest landscapes, according to a new study led by the U.S. Forest Service's Pacific Northwest Research Station.

Researchers found that retaining moderate levels of logging debris, also known as "slash," helped to both directly and indirectly increase the growth rate of Douglas-fir seedlings replanted after harvest. The findings, which are among the first to speak to the benefits of second-growth logging debris, are published online in the journal [Forest Ecology and Management](#).

"At levels typically left after [forest](#) harvesting, where 40 percent of the ground is covered by logging debris, we found that debris inhibited the growth of competing herbaceous vegetation and so preserved [soil water](#)," said Tim Harrington, a research forester with the station and the study's lead. "This means that just leaving typical levels of debris in place after forest harvesting helps new Douglas-fir seedlings to become established."

The findings are based on a study of seedling development under three levels of logging debris—0, 40, and 80 percent cover—at two sites in Washington and Oregon affiliated with the North American Long-Term Soil Productivity study, a collaborative program launched by Forest Service Research and Development more than two decades ago. Harrington and his colleagues expanded on previous research on logging

debris effects by increasing the number of seedlings studied, extending the study period to four years, and looking at the responses of additional variables, like vegetation abundance and seedling water potential.

In addition to having a "vegetation control" effect, the retained [woody debris](#) helped promote Douglas-fir seedling growth by reducing evaporation; slowing decomposition and allowing [soil carbon](#) and other nutrients to accumulate; and inhibiting the invasion of aggressive, non-native species, including Scotch broom and hairy cat's ear.

These responses occurred where no herbicide treatments were applied. However, where the use of herbicides to control competing vegetation was combined with logging debris, seedling growth rates were the highest observed in the study, especially where debris cover was 80 percent.

"Industrial forest managers and private landowners in Washington and Oregon are already using early results of the study to prevent Scotch broom invasions," Harrington said. "But these new findings suggest that long-term forest productivity will benefit from debris retention, indicating much broader applicability of the research," Harrington said.

Provided by USDA Forest Service

Citation: Logging debris gives newly planted Douglas-fir forests a leg-up (2013, March 12) retrieved 20 March 2024 from <https://phys.org/news/2013-03-debris-newly-douglas-fir-forests-leg-up.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--