



## Recent Work from The Sustainable Wood Production Initiative

## Forest Fragmentation and Land Use Change in the Pacific Northwest

Ralph J. Alig



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### The Economics of Forest Fragmentation

According to Ralph Alig, research forester at the Forest Service’s Pacific Northwest Research Station, the region is growing rapidly, and in the next 50 years is expected to take on more than its share of the 120 million new people projected for the United States. The same factors that make the region ecologically productive for trees, plants, and animals also draw people from around the country. “We have unique mountains, rivers, and forests in the Pacific Northwest,” says Alig, “and that’s part of the reason both salmon and people migrate here. It’s an attractive place to live.”

In a national examination of the possible effects of housing density on America’s private forests, parts of the Pacific Northwest such as western Washington stands out as some of the most affected places. Research is underway to assess the risks and tradeoffs across a wide range of forest-based goods and services. These kinds of large-scale assessments of land use change provide a context for smaller scale inquiries and help address policy issues.



Increasing rates of development in forested areas are projected for the future.

In a forthcoming article in the journal *Forest Ecology and Management*, Alig and cooperators used western Oregon as a case study to advance understanding of how the economic environment affects forest fragmentation. “Certain land uses,” says Alig, “will correlate on the landscape with the pattern of land quality.” Namely, areas where the economic value of land is fragmented are more likely to have less connected parcels of forest land. Part of Alig’s work for the Sustainable Wood Production Initiative (SWPI) involves describing the economic factors that affect forest fragmentation and figuring out what that means for sustainable wood production. With a growing human population, conversion of some forest land to other uses over time is inevitable. Local jurisdictions and states can target efforts to prevent or reduce conversion of the most valuable forest lands to keep private working forests resilient and productive for the future.

Photo—Jeff Kline, USFS

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Photo—Tom Iredell, USFS

## A Landscape of Human Values

Ironically, the very features that draw people to the Pacific Northwest are the same features that are being altered by an increasing population. As more people move into the area and as land ownerships change, there will necessarily be tradeoffs in the amenities that people value. "It's such a pervasive issue," says Alig. "There are so many different ties to the land base. It depends so much on where the person sits. Are they a landowner? Are they a private citizen where public lands are managed? Do they have an investment in the land?" Alig and his cooperators are asking these bigger, more fundamental types of questions about land use change, and the answers are not always simple.



Photo—Seth White, USFS

A hiker enjoys a western Oregon trail in autumn.

For example, the link between the number of people and the amount of land base needed is not necessarily a linear relationship. Rather, as the population increases, people in some areas seem to use more land per person. "People want more elbow space," says Alig. "And on average, the number of people per household has been decreasing." This may be due to changing family structure—with smaller families occupying larger houses—or

the increasing tendency for individuals to live alone. The end result is more land needed per capita, and Alig's work addresses not only the implications for sustainable wood production, but also ties in with other values such as the production of clean water, fish and wildlife habitat, and outdoor recreation. "We're trying to come up with a way to better organize all the possible implications of land use changes and effects on land conditions," says Alig. "We need to do this in a multidimensional and multifaceted way."

## References

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Photo—Tom Iraci, USFS



Photo—Seth White, USFS

With an increasing human population, developed areas like this one in western Oregon are expected to become more common.

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## More on the Sustainable Wood Production Initiative

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