



Land Use Change on Non-Federal Land in Oregon and Washington 1974 - 2014

Presented at:

Forest Inventory and Analysis Client Meeting
Mt. Hood Community College, October 11, 2017

Background

- The Development Zone Project (“Dzone”) is an ongoing study of land use change on non-Federal land in Oregon (since 1974) and Washington (since 1976)
- Dzone uses FIA aerial photo point and plot locations as sample points for collecting data on land use type and structure density
- Project years:
 - Oregon – 1974, 1984, 1994, 2000, 2005, 2009, 2014
 - Washington – 1976, 1994, 2006, 2013

Some Key Questions

- How have land use patterns varied as population has increased?
 - Oregon's population increased by 1,690,000 between 1974 and 2014 (74% gain)
 - Washington's population increased by 3,247,000 between 1976 and 2013 (89% gain)
- How have land use patterns changed since the implementation of comprehensive statewide land use planning?
 - Oregon's Land Conservation and Development Act of 1973 (fully implemented by mid 1980s)
 - Washington's Growth Management Act of 1990 (largely implemented by mid 1990s)
- How have land use trends been impacted by the Great Recession and subsequent recovery?

Methods

- Aerial imagery is interpreted at each sample point, for each Dzone year
 - Oregon – 37,775 sample points
 - Washington – 44,554 sample points
- Each sample point is assigned to one of eight land use classes
- Structures are counted within an 80-acre circular buffer around each sample point
- Use of the same methodology for all dates allows for consistent evaluation of change since the 1970s

Land Use Classes

Resource uses

- Wildland forest
- Wildland range
- Mixed forest/agriculture
- Mixed range/agriculture
- Intensive agriculture

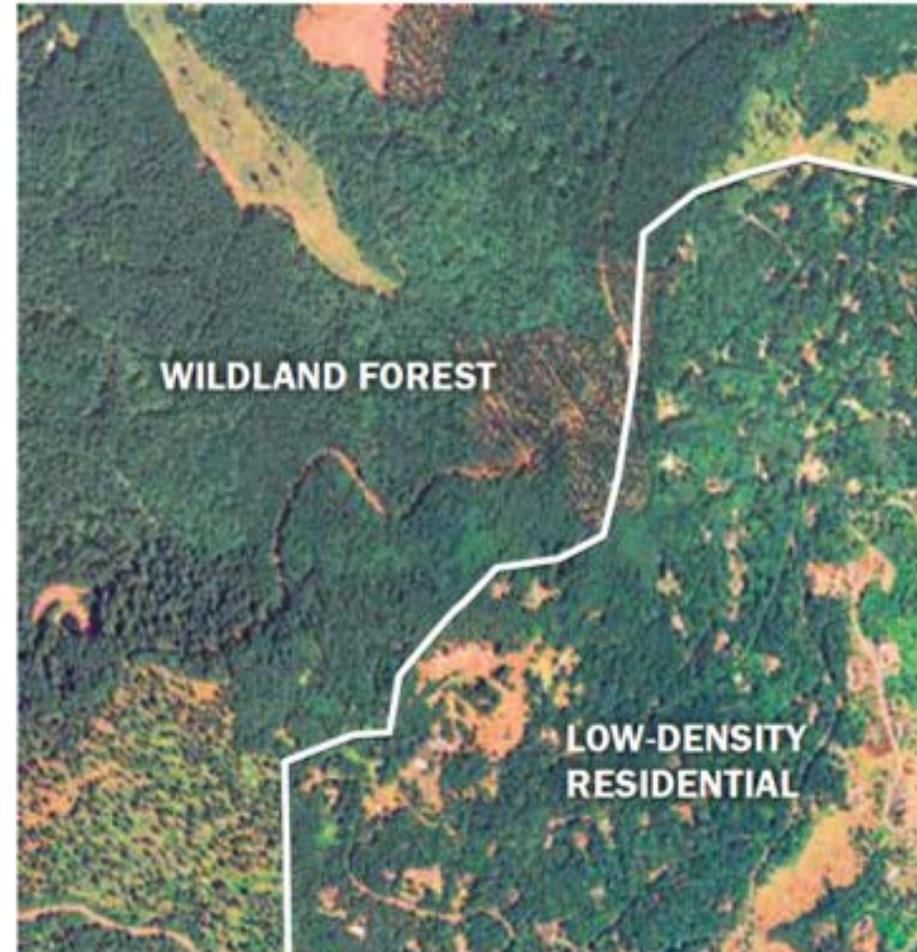
Developed uses

- Low-density residential
- Urban
- Other (sand, water, bare rock, etc.)

Land Use Class Examples



Land Use Class Examples



Structure Count Example: 2005



Structure Count Example: 2009



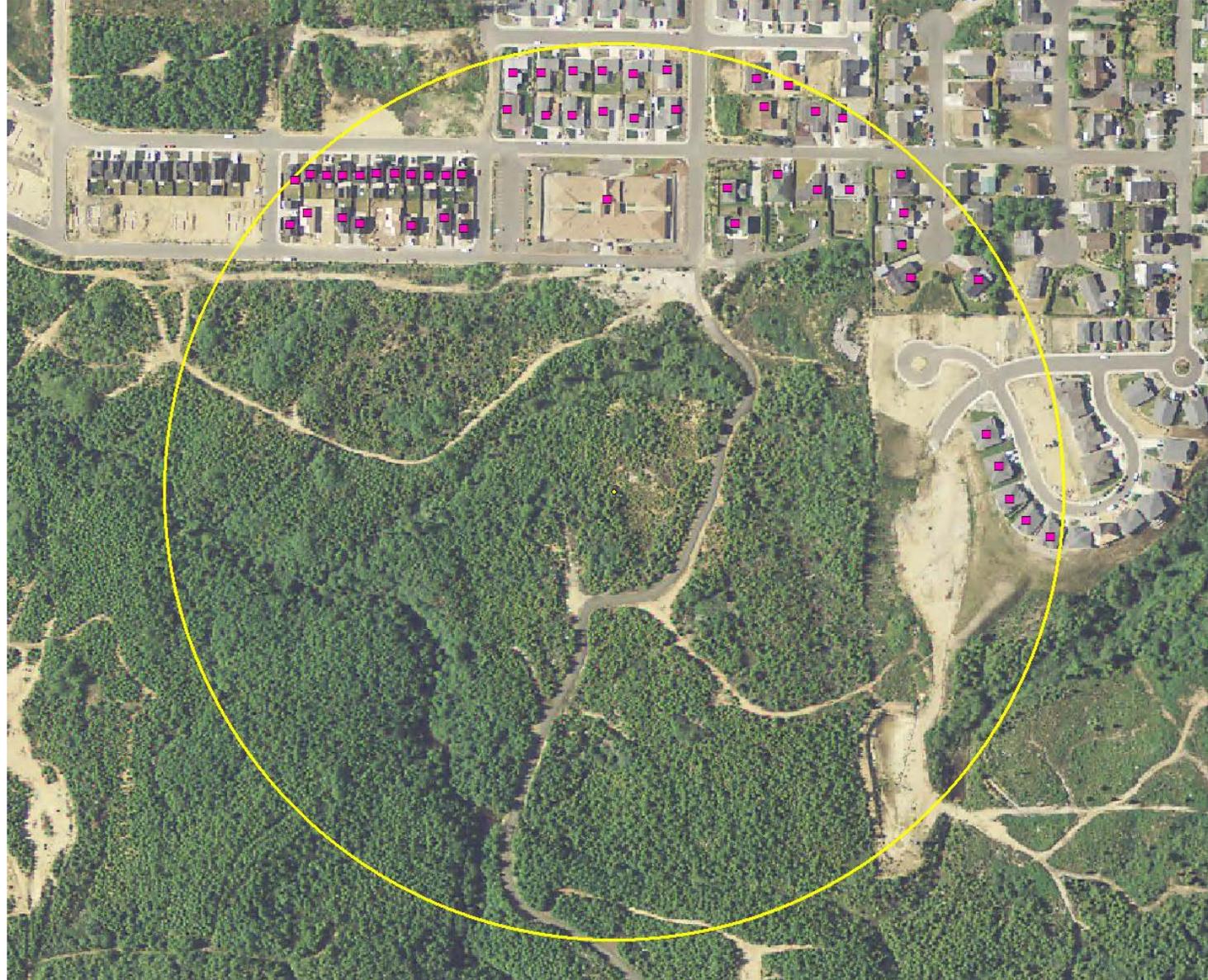
Structure Count Example: 2014



Structure Count Example: 2005



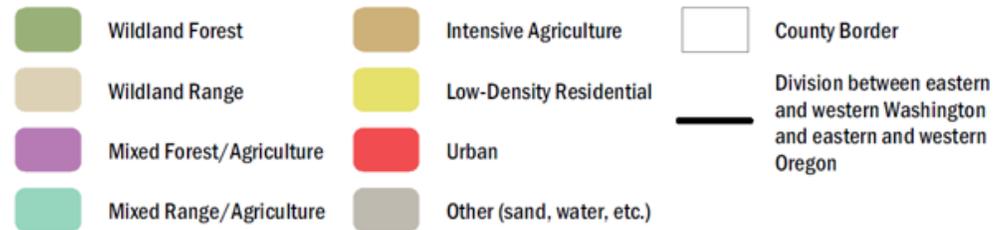
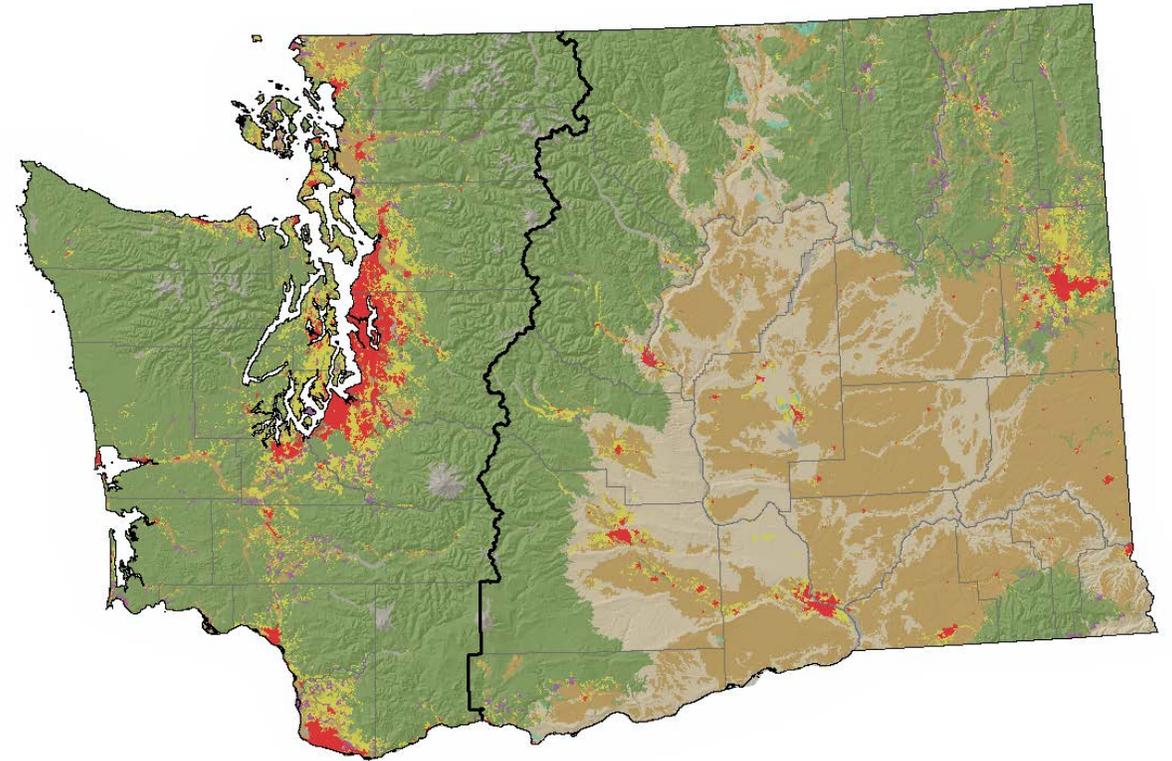
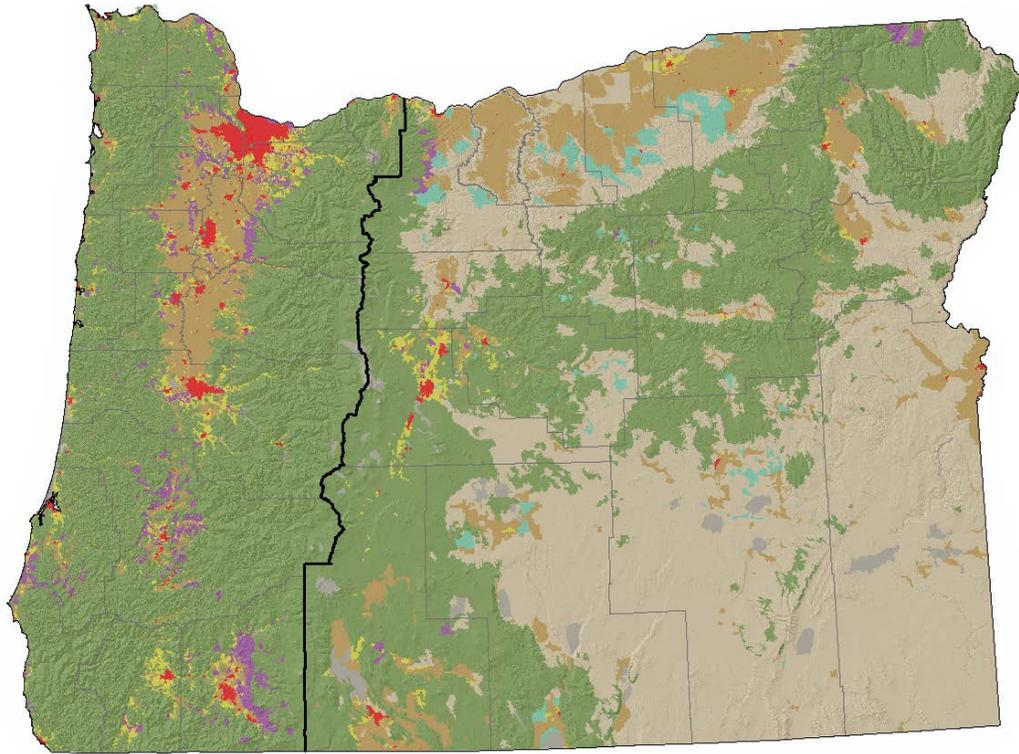
Structure Count Example: 2009



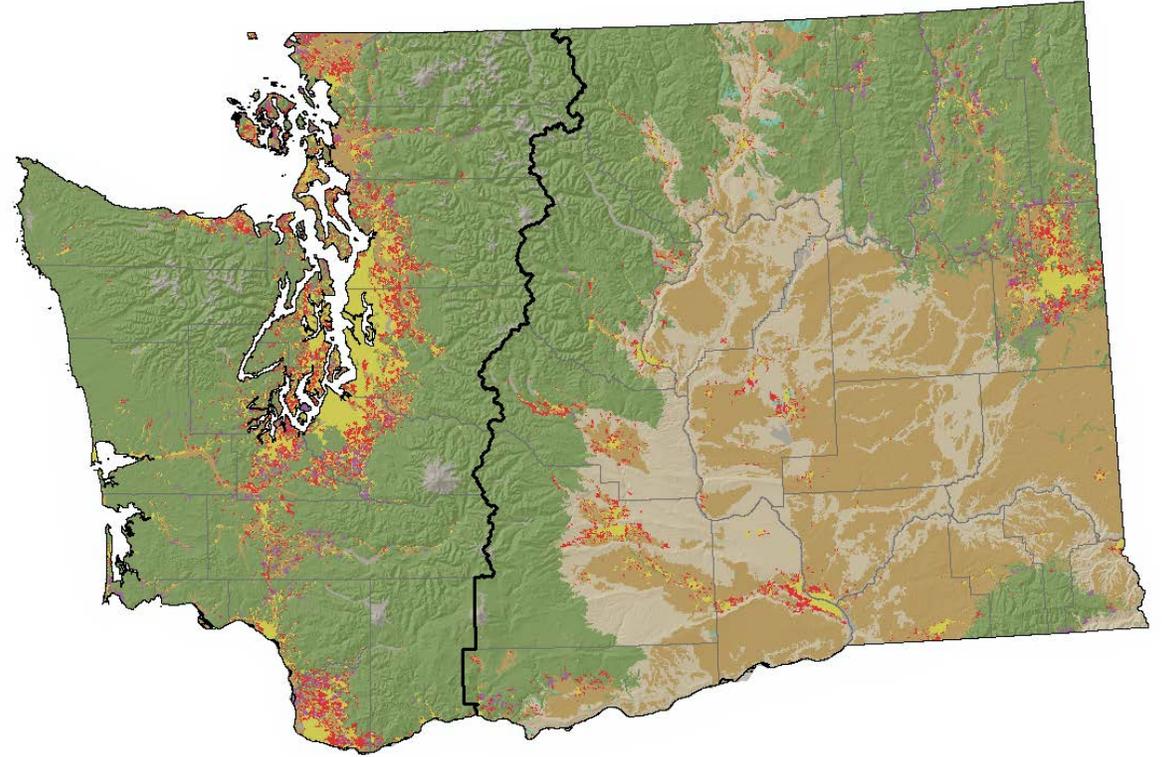
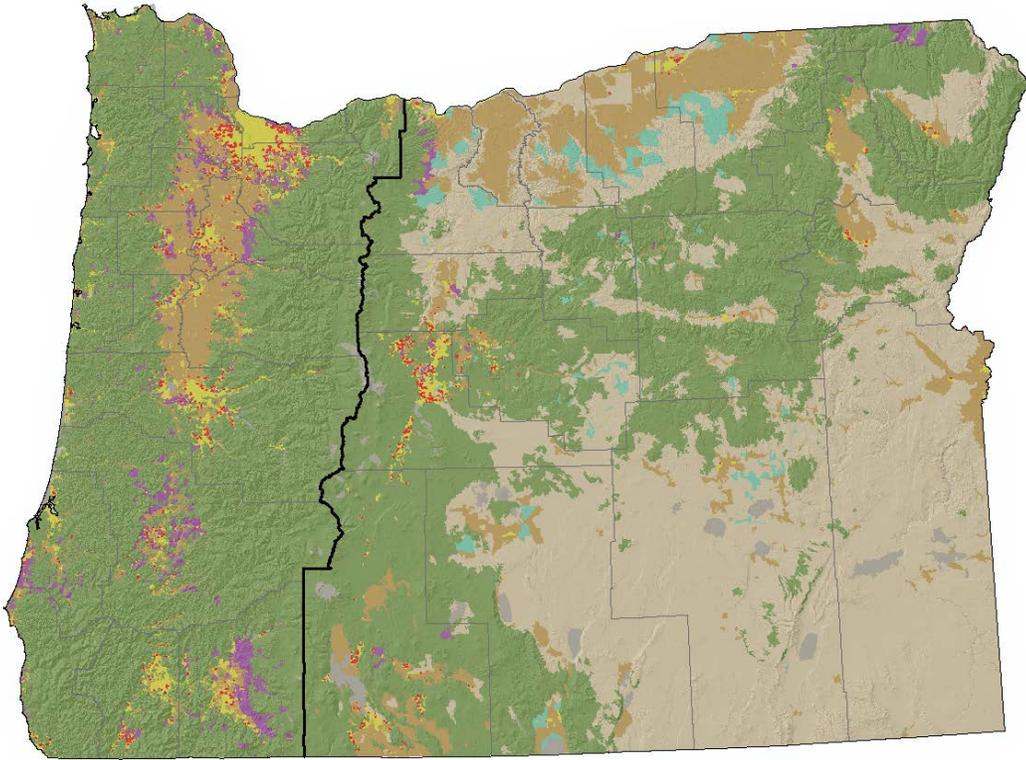
Structure Count Example: 2014



Current Land Use (Oregon 2014, Washington 2013)



Land Use Change (Oregon 1974 - 2014, Washington 1976 - 2013)



Washington: Land in resource land uses* in 1976 but converted to low-density residential or urban uses by 2013



Oregon: Land in resource land uses* in 1974 but converted to low-density residential or urban uses by 2014



Wildland Forest



Wildland Range



Mixed Forest/Agriculture



Mixed Range/Agriculture



Intensive Agriculture



Land in low-density residential or urban in Washington (1976) or Oregon (1974)

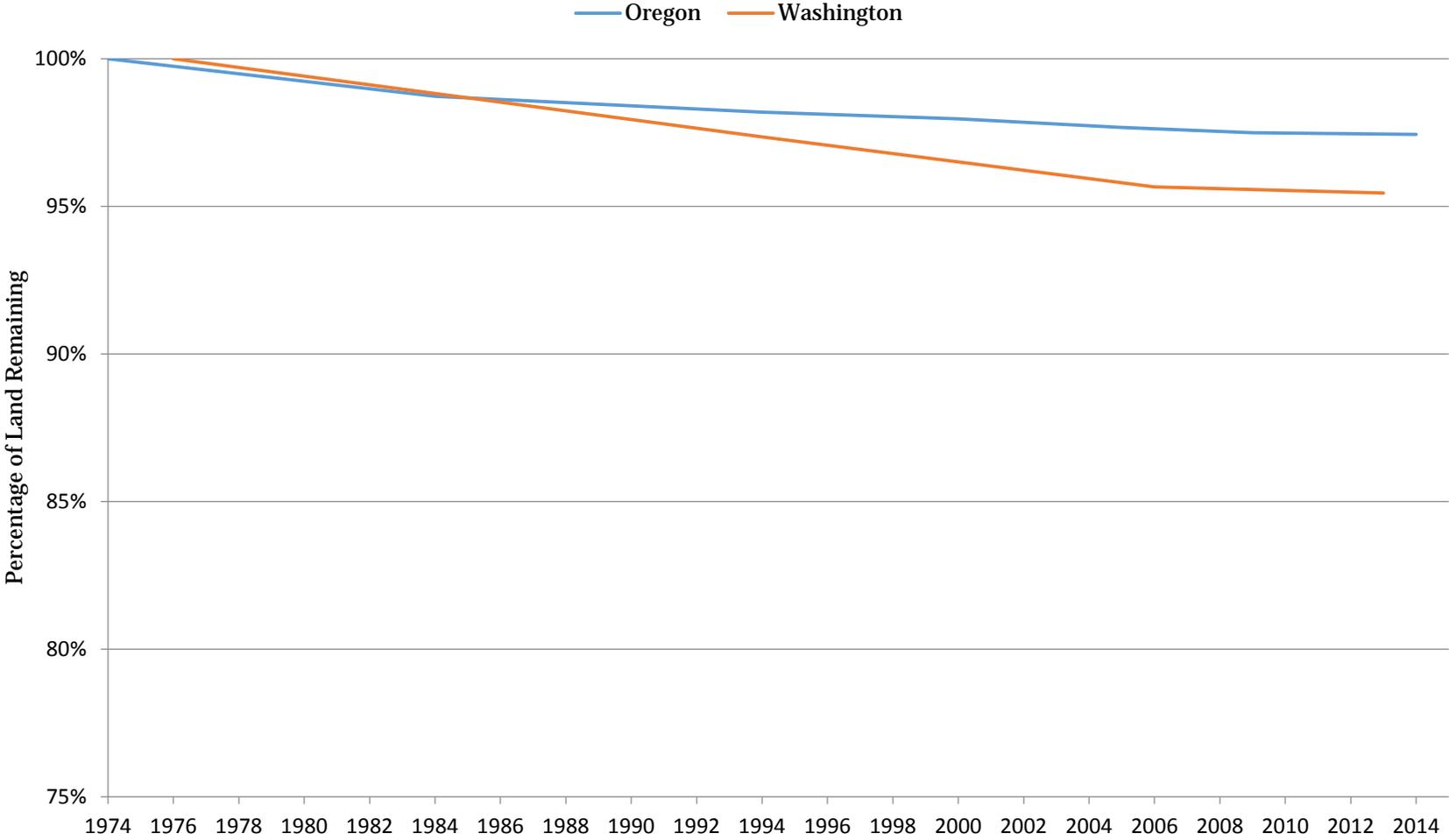


Other (sand, water, etc.)



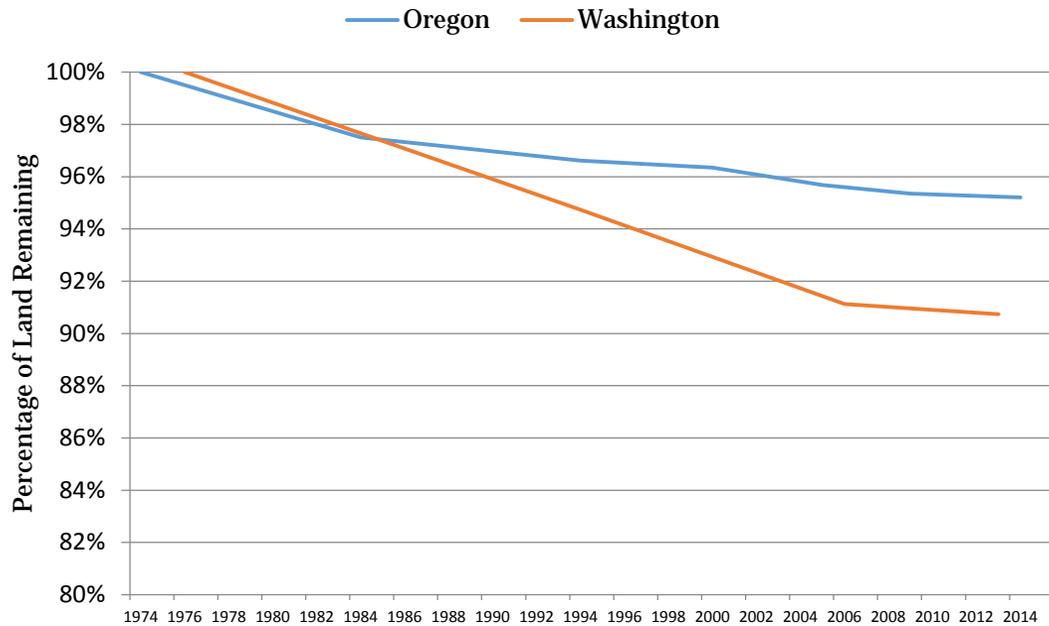
County Border

Non-Federal Land Remaining in Resource Uses (Oregon 1974 – 2014, Washington 1976 – 2013)

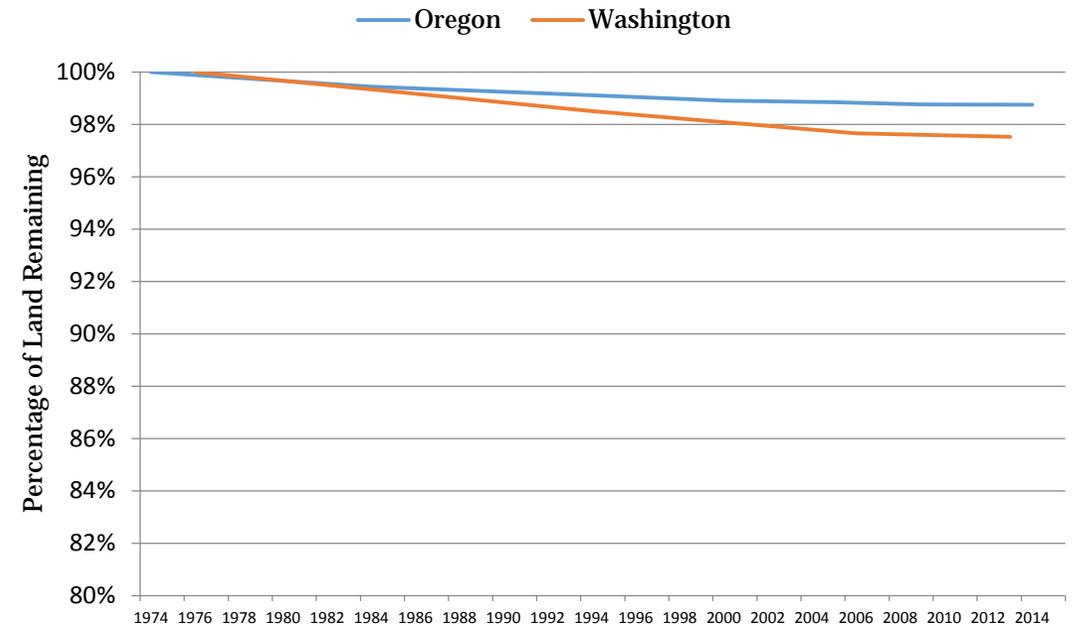


Non-Federal Land Remaining in Resource Uses (Oregon 1974 – 2014, Washington 1976 – 2013)

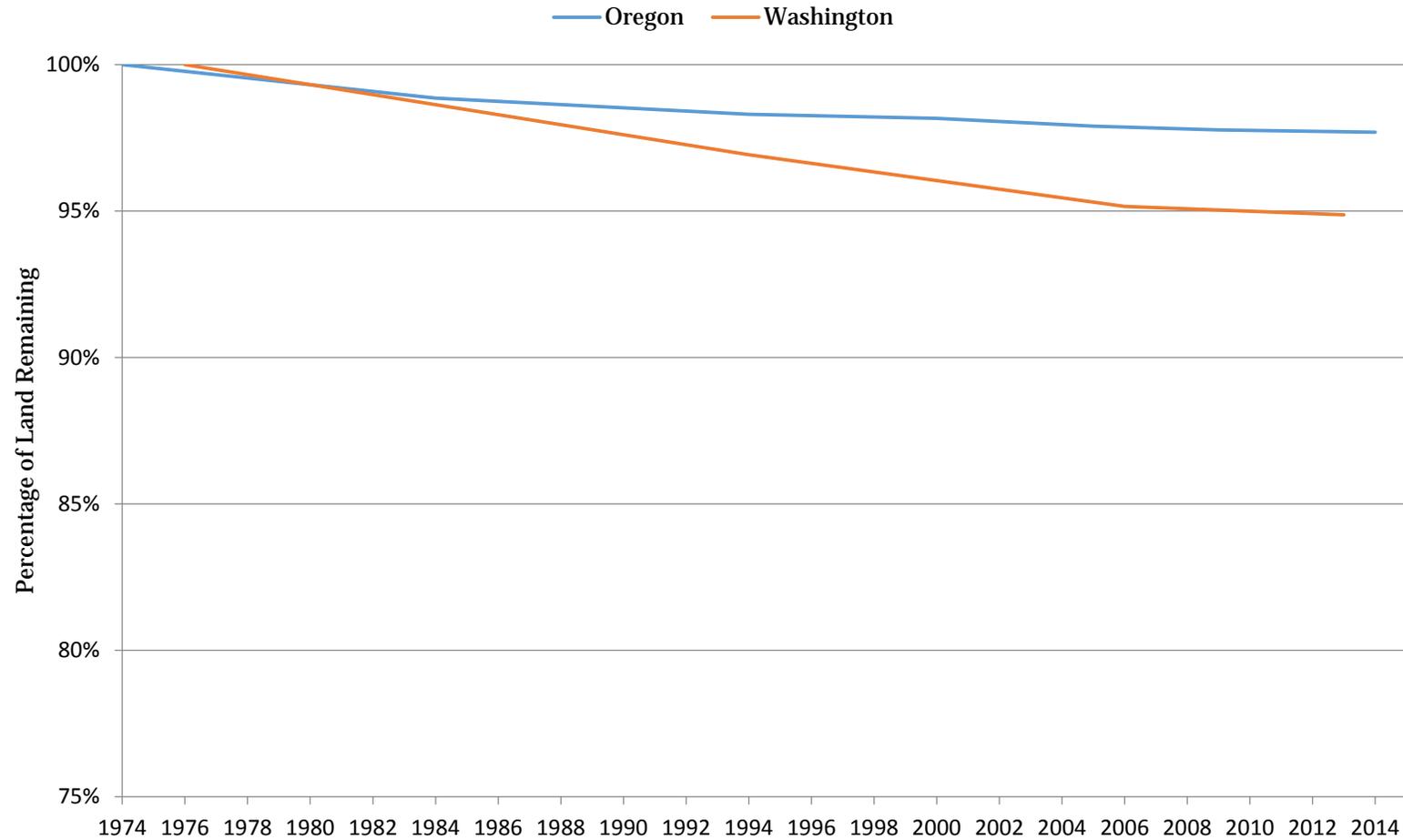
West Side



East Side



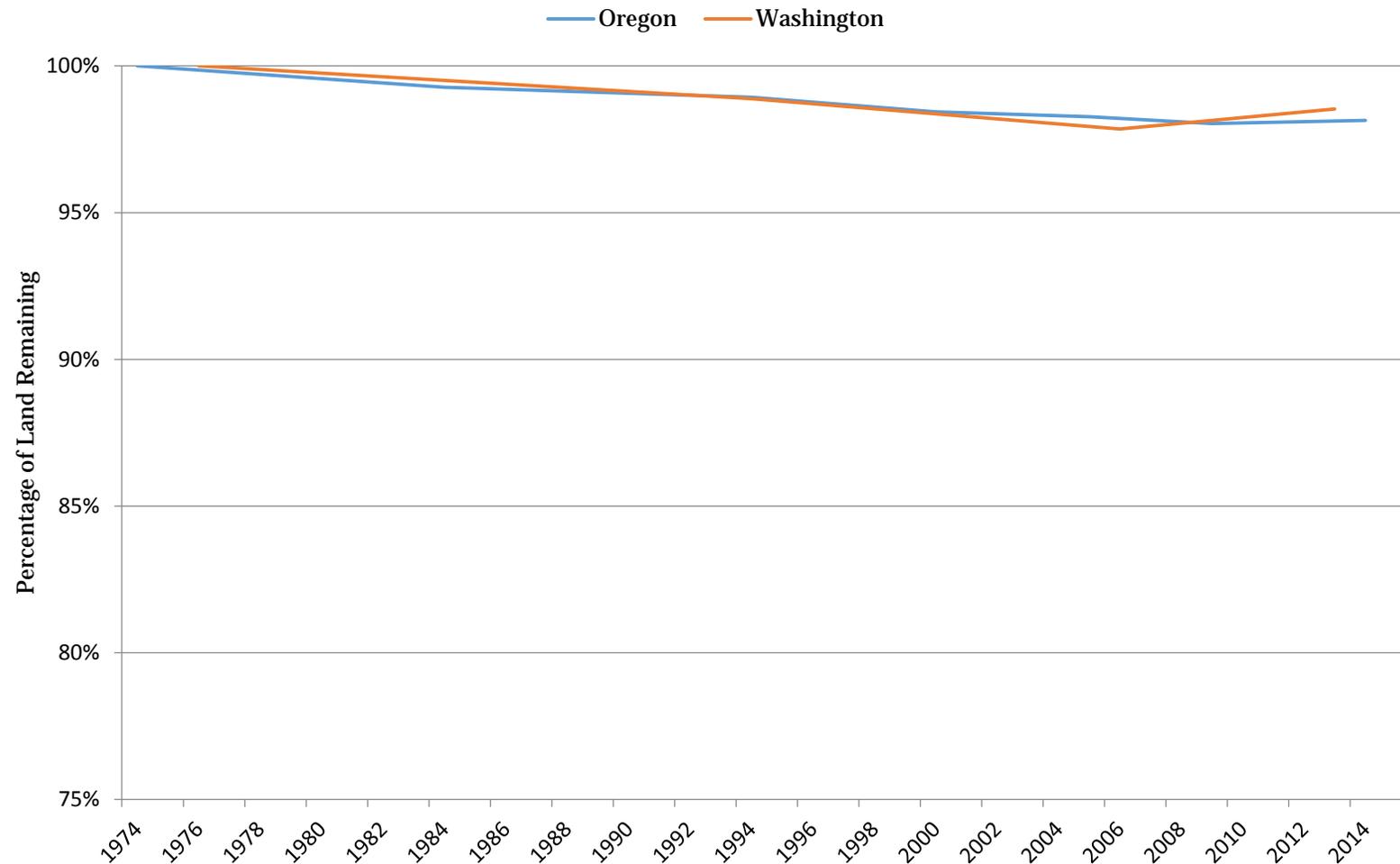
Non-Federal Land Remaining in Wildland Forest Use (Oregon 1974 – 2014, Washington 1976 – 2013)



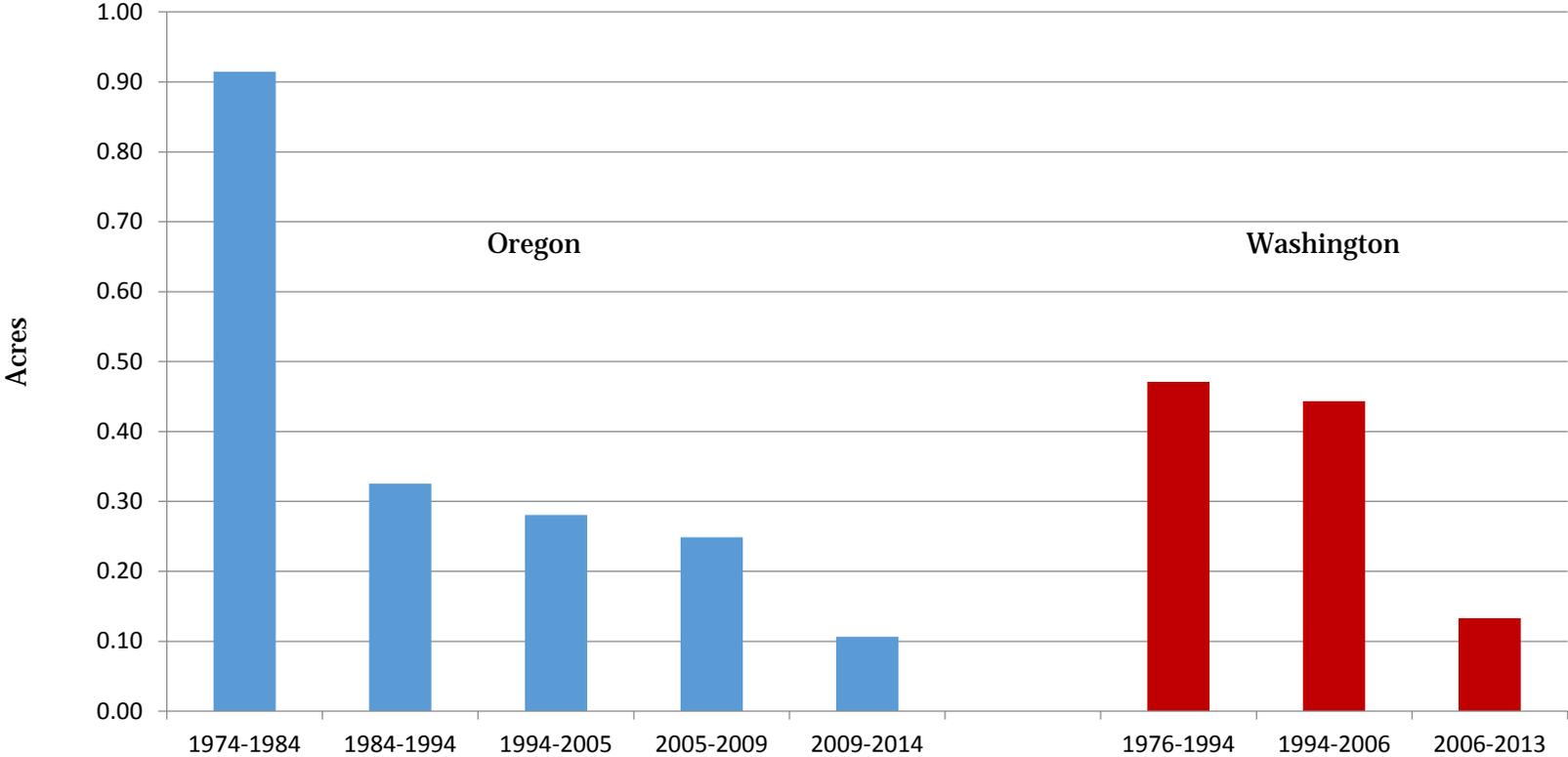
Change in Area of Non-Federal Land in Wildland Forest Use, By Owner Type (Oregon 1974 – 2014, Washington 1976 – 2013)

	Forest industry	Other private	Non-Federal public	All non-Federal owners
	<i>Change, in percent</i>			
Oregon	0%	-7%	-1%	-2%
Western Oregon	0%	-10%	-1%	-3%
Eastern Oregon	0%	-4%	0%	-1%
Washington	-1%	-11%	-1%	-5%
Western Washington	-1%	-24%	-1%	-7%
Eastern Washington	-1%	-4%	-1%	-3%

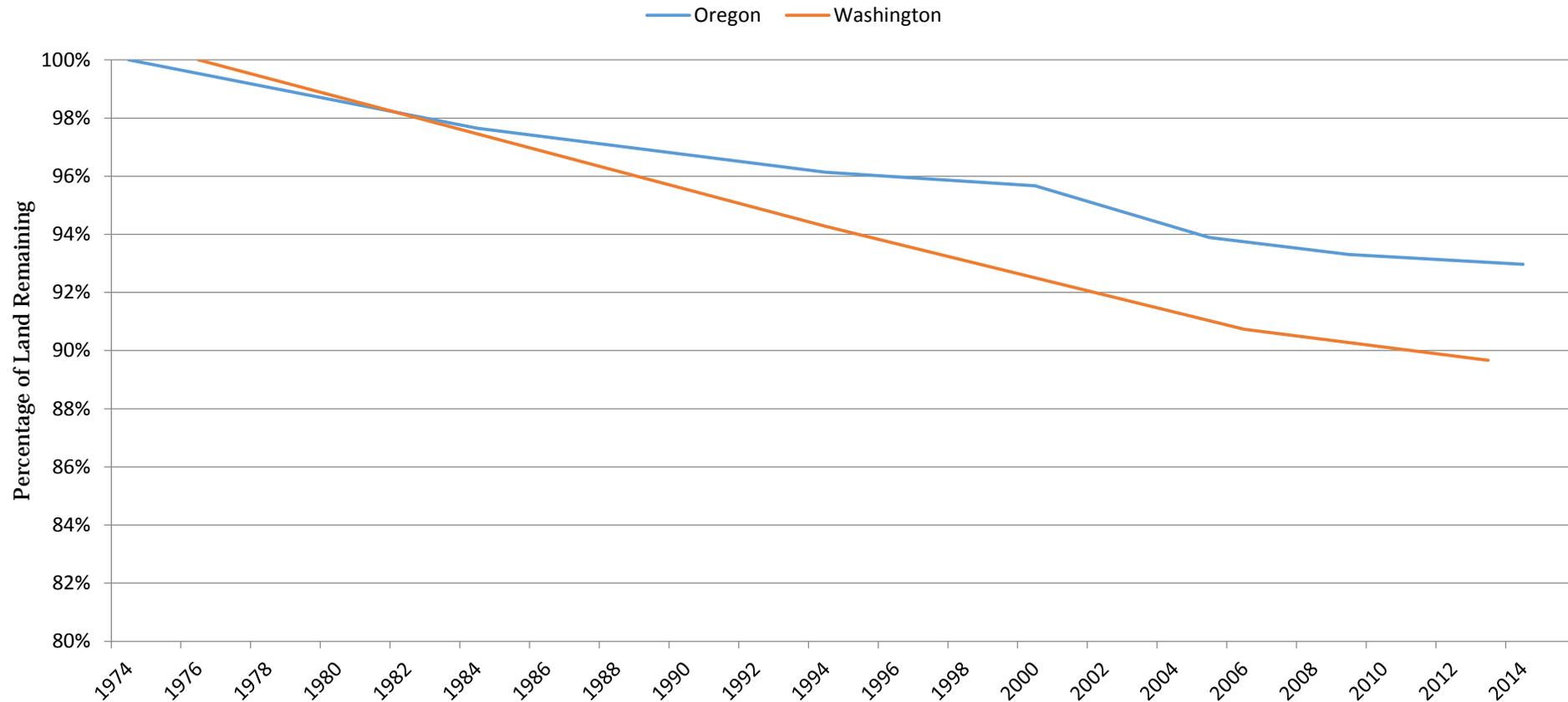
Non-Federal Land Remaining in Intensive Agriculture Use (Oregon 1974 – 2014, Washington 1976 – 2013)



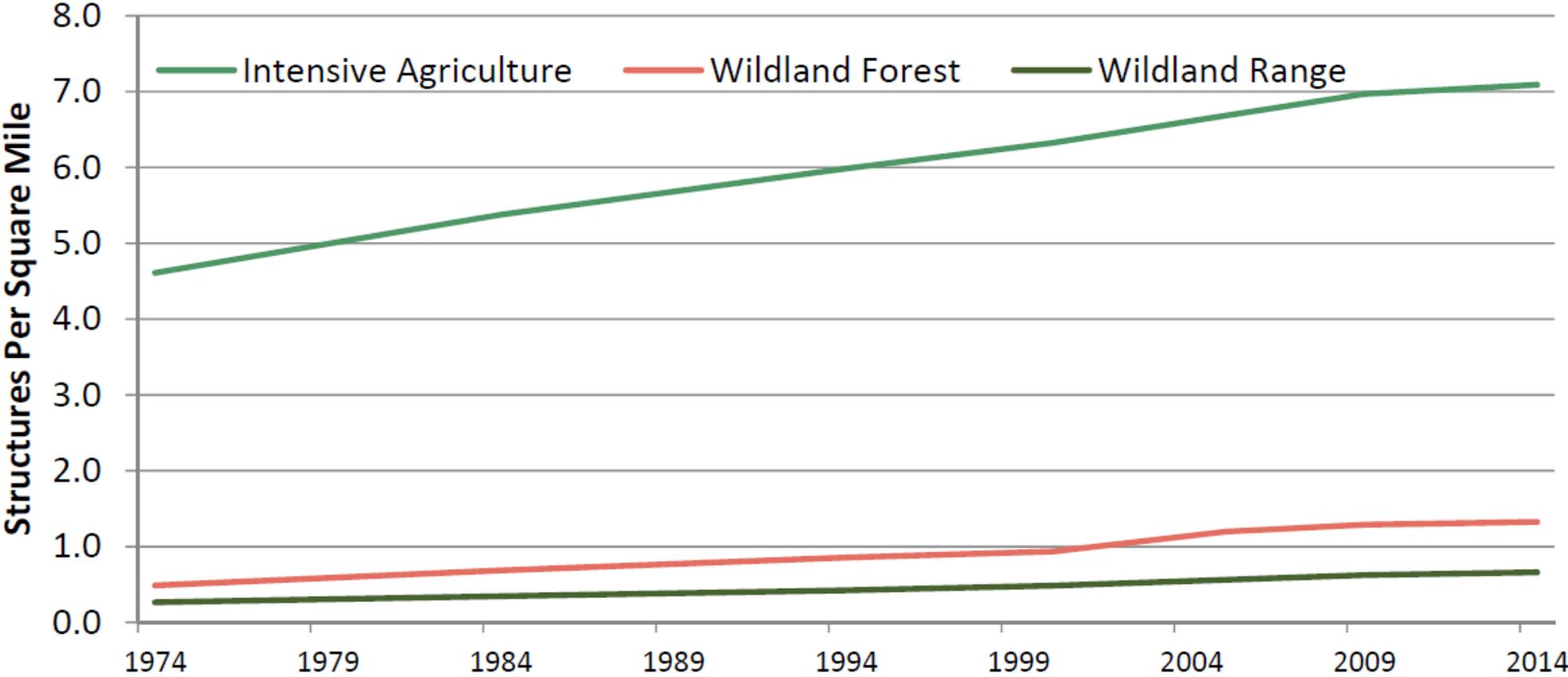
Average Area of Non-Federal Land Changing from Resource to Developed Uses, per New Resident (Oregon 1974 – 2014, Washington 1976 – 2013)



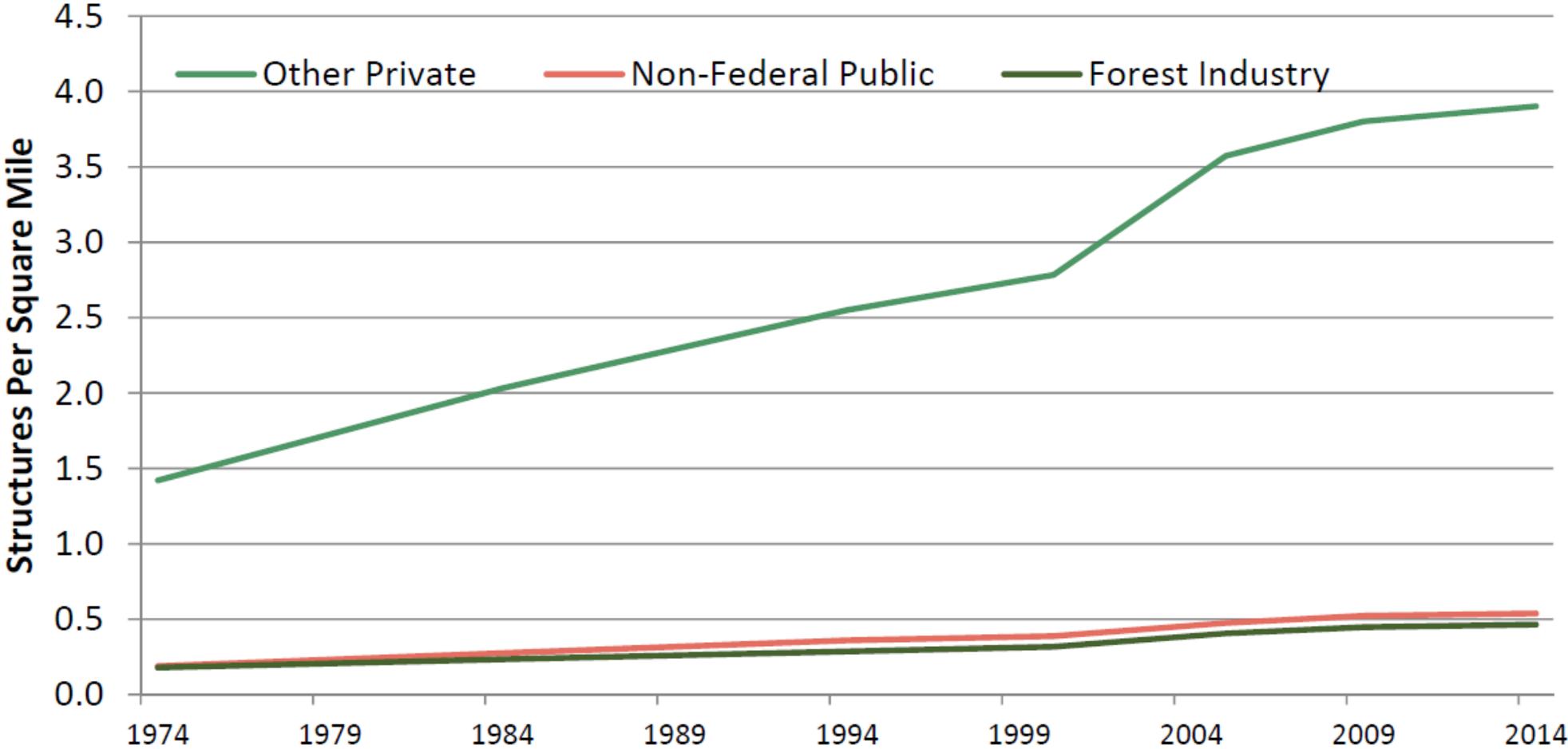
Non-Federal Land Remaining in Wildland Forest Use with Less Than 10 Residents per Square Mile (Oregon 1974 – 2014, Washington 1976 – 2013)



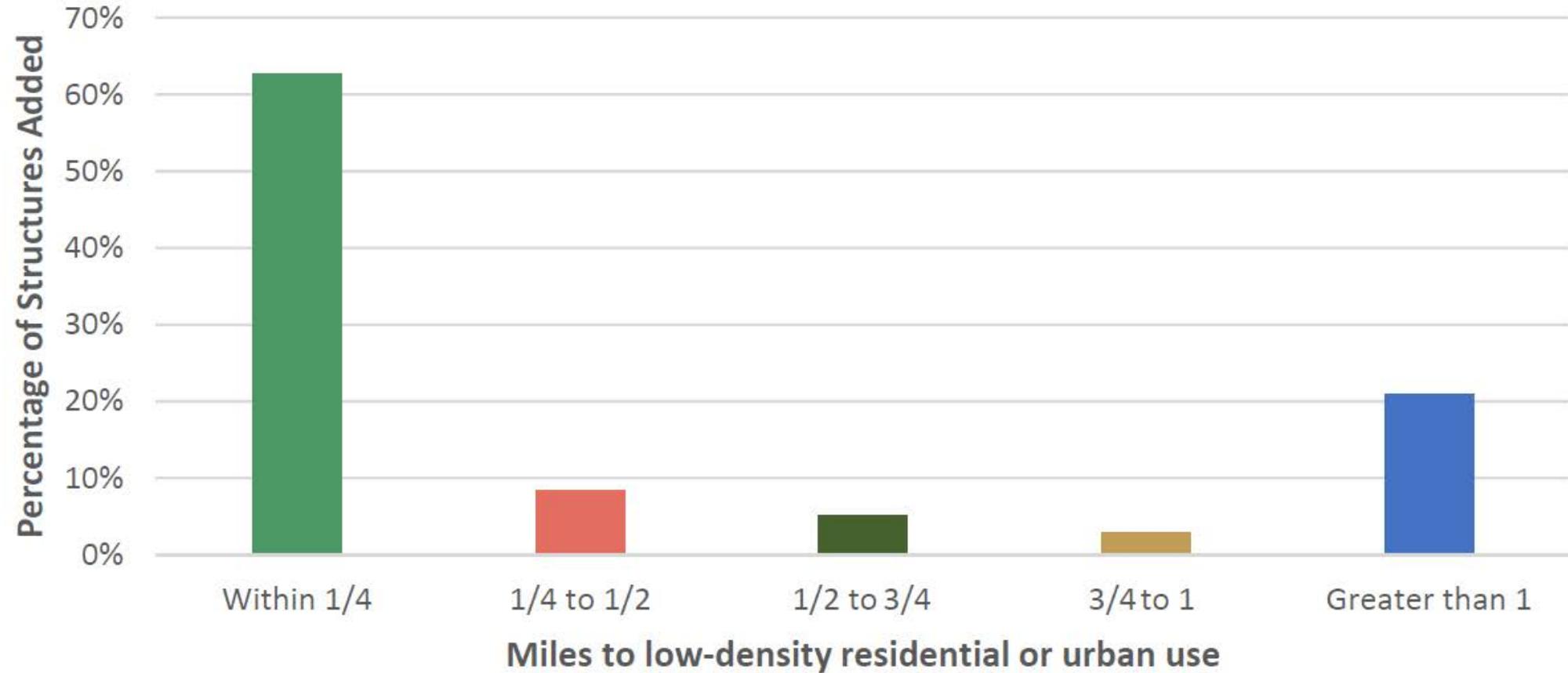
Structures per Square Mile on Non-Federal Land in Resource Uses, Oregon 1974 - 2014



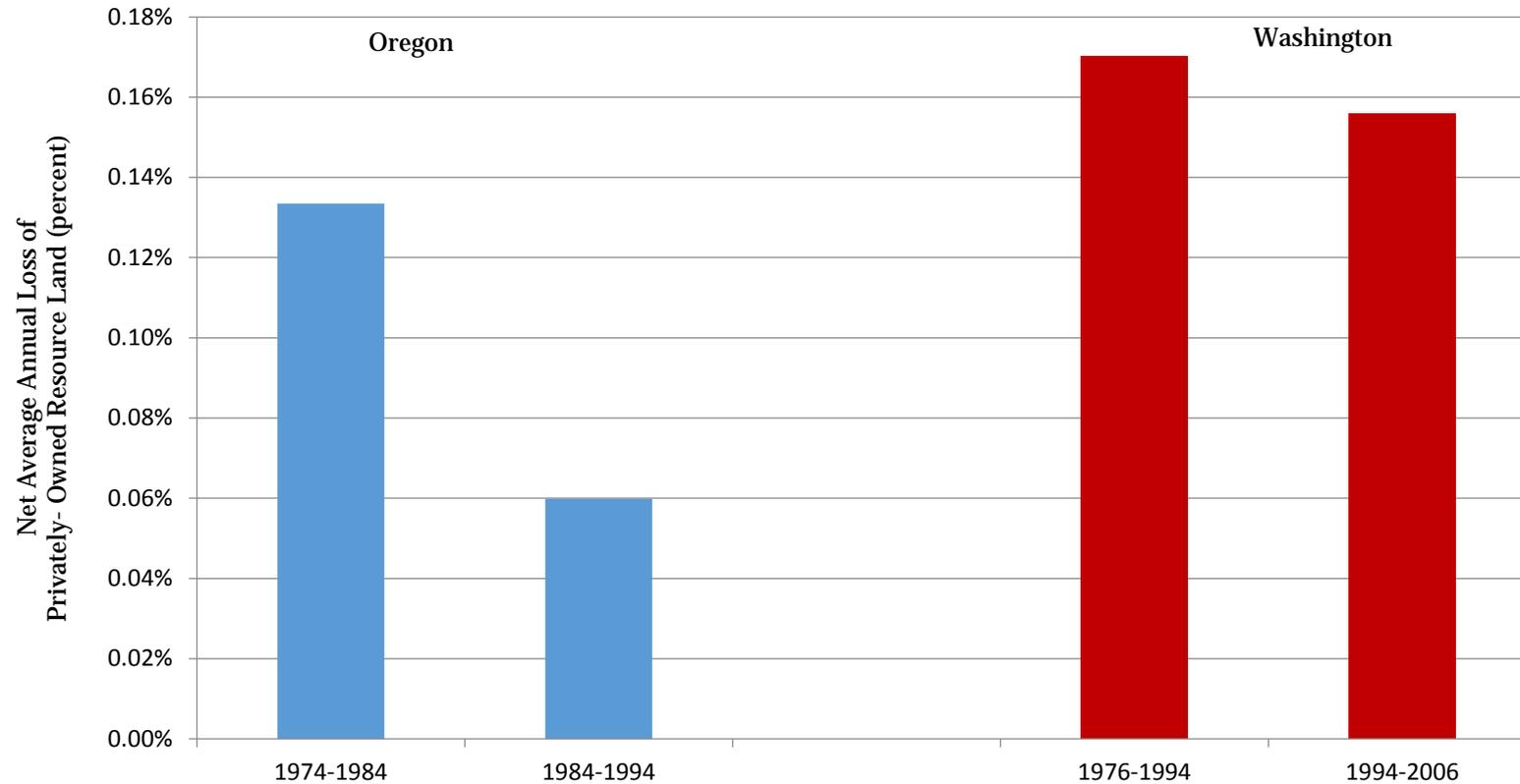
Structures per Square Mile on Non-Federal Land in Wildland Forest Use, by Ownership Class, Oregon 1974 - 2014



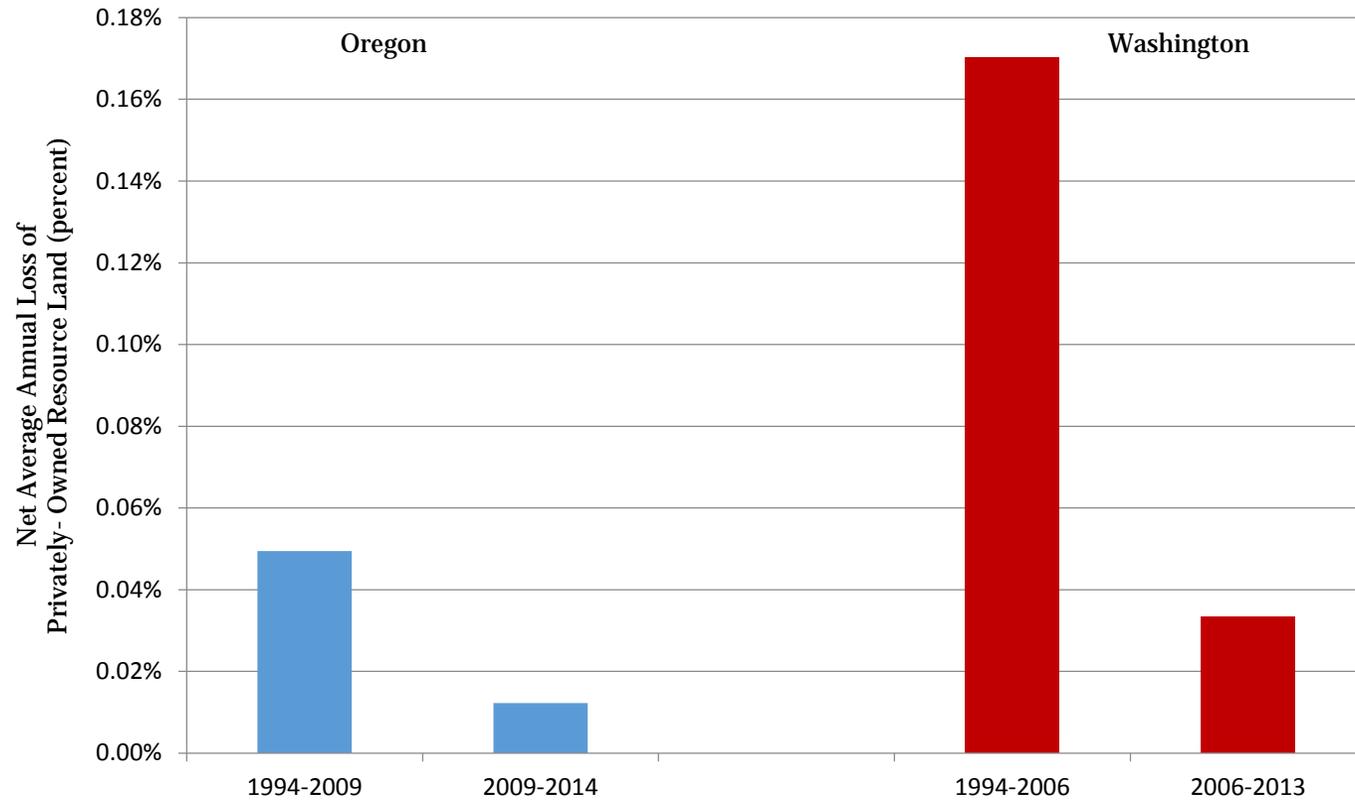
New Structures on Private Land in Wildland Forest Use, by Distance to More Developed Uses, Oregon 2005 - 2014



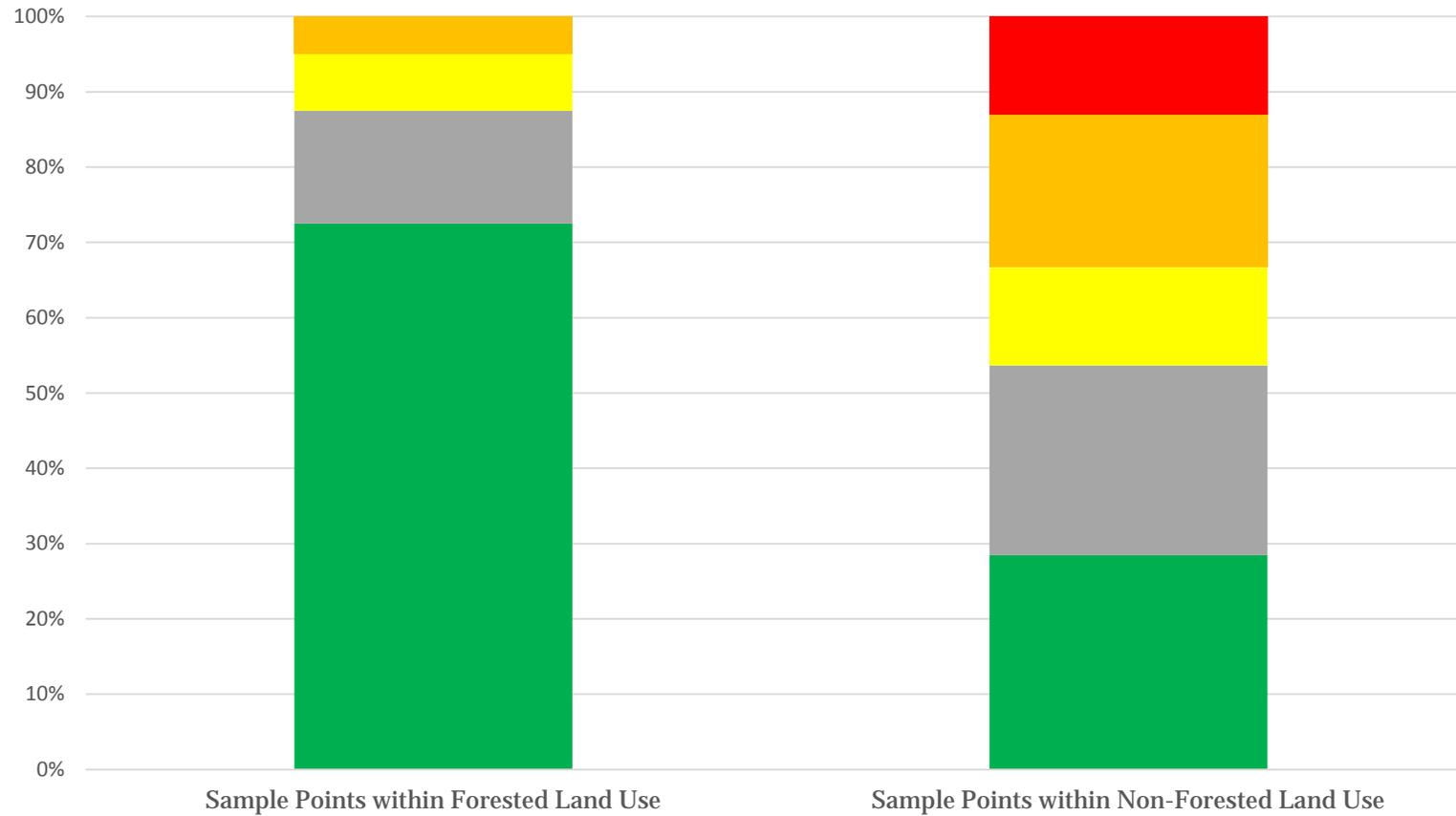
Net Average Annual Conversion of Private Land from Resource Uses to More Developed Uses, Before and After Implementation of Land Use Plans



Net Average Annual Conversion of Private Land from Resource Uses to More Developed Uses, Before and After the Great Recession



Ongoing Work: Land Use and Water Quality



Legend: ■ Excellent ■ Good ■ Fair ■ Poor ■ Very Poor
Average Oregon Water Quality Index Condition (Water Year 2014)

Where to Find More Information

- *Forests, Farms and People: Land Use Change on Non-Federal Land in Oregon, 1974-2014* (Lettman et al., 2016)
 - Available at: <http://inr.oregonstate.edu/biblio/forests-farms-people-land-use-change-non-federal-land-oregon-1974-2014>
- *Changes in Land Use and Housing on Resource Lands in Washington State, 1976-2006* (Gray et al., 2013)
 - Available at: https://www.fs.fed.us/pnw/pubs/pnw_gtr881.pdf
- Coming soon: *Land Use Change on Non-Federal Land in Oregon and Washington: 2017 Update*
- Contact: Dan Hubner, dhubner@fs.fed.us