Land Use Change on Non-Federal Land in Oregon and Washington: 2018 Update

Presented to the Oregon Board of Forestry
September 5, 2018
Salem, Oregon
Background

- ODF studies land use change in Oregon (since 1974) and Washington (since 1976) in collaboration with the U.S. Forest Service, DLCD, ODA, ODFW, and the Institute for Natural Resources

- A sample-based approach is used to quantify land use type and structure density on non-Federal land in both states

- Project years:
Some Key Questions

• How successful has statewide land use planning been at preserving resource lands (i.e., forest, farm, and range lands) from development?

• How have land use patterns varied as population has increased?
  • Oregon’s population increased by 74% (1.7 million) in the study period
  • Washington’s population increased by 89% (3.2 million)

• How have land use trends been impacted by the 2007 recession and subsequent recovery?
Methods

• Analysts assess aerial imagery at each sample point
  • Oregon – 37,775 sample points
  • Washington – 44,554 sample points

• Each sample point is assigned to one of eight land use classes, and surrounding structures are counted
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 Classes: Examples
Land Use Classes: Examples
Current Land Use
(Oregon 2014, Washington 2013)
Land Use Change
Oregon’s Land Area and Conversions of Resource Land

- Oregon has converted 2.6% of its non-Federal resource land (704,000 acres) to developed uses since the 1970s.
- In comparison, Washington has converted 4.5% (1.3 million acres).
Non-Federal Land Remaining in Resource Uses

Statewide Non-Federal Land in Forest, Farm or Range Use

Comparing Western OR to Western WA

Comparing Eastern OR to Eastern WA

Dashed lines: full implementation of comprehensive land use planning
Non-Federal Land Remaining in Wildland Forest
## Change of Wildland Forest By Landowner Type

<table>
<thead>
<tr>
<th>Location</th>
<th>Forest industry</th>
<th>Other private</th>
<th>Non-Federal public</th>
<th>All non-Federal owners</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oregon</strong></td>
<td>0%</td>
<td>-7%</td>
<td>-1%</td>
<td>-2%</td>
</tr>
<tr>
<td>Western Oregon</td>
<td>0%</td>
<td>-10%</td>
<td>-1%</td>
<td>-3%</td>
</tr>
<tr>
<td>Eastern Oregon</td>
<td>0%</td>
<td>-4%</td>
<td>0%</td>
<td>-1%</td>
</tr>
<tr>
<td><strong>Washington</strong></td>
<td>-1%</td>
<td>-11%</td>
<td>-1%</td>
<td>-5%</td>
</tr>
<tr>
<td>Western Washington</td>
<td>-1%</td>
<td>-24%</td>
<td>-1%</td>
<td>-7%</td>
</tr>
<tr>
<td>Eastern Washington</td>
<td>-1%</td>
<td>-4%</td>
<td>-1%</td>
<td>-3%</td>
</tr>
</tbody>
</table>
Non-Federal Wildland Forest with Less Than 10 Residents per Square Mile

AGENDA ITEM A
Attachment 11
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Trends After Land Use Planning and Economic Recession
Land Use Change
Before and After Land Use Planning

Acres of Resource Land Converted to Developed Uses

<table>
<thead>
<tr>
<th>State</th>
<th>Period</th>
<th>Acres Converted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>1974 – 1984</td>
<td>300,000</td>
</tr>
<tr>
<td></td>
<td>1984 – 2014</td>
<td>500,000</td>
</tr>
<tr>
<td></td>
<td>1974 – 1984 (10 Years)</td>
<td>Pre Land use</td>
</tr>
<tr>
<td></td>
<td>1984 – 2014 (30 Years)</td>
<td>Post Land use</td>
</tr>
<tr>
<td></td>
<td>1994 – 2013 (19 Years)</td>
<td>Post Land use</td>
</tr>
</tbody>
</table>
Effect of Land Use Planning:
Net Average Annual Loss of Private Resource Land

![Bar chart showing net average annual loss in percent for Oregon and Washington over different time periods.]

- Oregon:
  - 1974-1984: 0.13%
  - 1984-1994: 0.06%

- Washington:
  - 1976-1994: 0.17%
  - 1994-2006: 0.16%
Trend since 2007 Recession:
Net Average Annual Loss of Private Resource Land

- Oregon
- Washington

1994-2006
2006-2013
Exploratory Analysis: Land Use, Water Quality, and Fish Habitat
Land Use Change and Fish Habitat

Puget Sound Area

Land in wildland forest use in 1994 but converted to more developed uses* by 2013 (Washington) or 2014 (Oregon)

Other land within drainage basins of habitat streams

Land not within drainage basins of habitat streams and/or Federally-owned land

*More developed uses: low-density residential, urban, intensive agriculture, mixed forest/agriculture, or mixed range/agriculture

Portland/Vancouver Metro Area
Where to Find More Information

• *Forests, Farms and People: Land Use Change on Non-Federal Land in Oregon, 1974-2014* (Lettman et al., 2016)

• *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](https://www.fs.fed.us/pnw/pubs/pnw_gtr881.pdf)

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