Forest structure restoration needs across Washington and Oregon: Update and expansion

A joint effort of The Nature Conservancy and USDA Forest Service, Pacific Northwest Region
Ryan Haugo, Chris Zanger, Tom DeMeo, Chris Ringo, Ayn Shlisky, Kori Blankenship, Mike Simpson, Kim Mellen-Mclean, Jane Kertis, Mark Stern
A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA

Ryan Haugo, Chris Zanger, Tom DeMico, Chris Ringo, Ayn Shilsky, Kori Blankenship, Mike Simpson, Kim Mellens-McLean, Jane Kerlin, Mark Stern

Article Info

1. Introduction

Ecological restoration has become a dominant paradigm for the management of many public forests across the United States (USDA Forest Service, 2015a). Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed (Sprague, 2004). Within western states, this present focus on restoration is largely in response to the widespread degradation of terrestrial and aquatic habitats and uncharacteristic fire, insect, and disease outbreaks resulting from a century or more of wildfire suppression, intensive harvesting, grazing, and mining (Brown et al., 2004; Franklin et al., 2008; Herzog and Agee, 2003; Herzog et al., 2005; North et al., 2009; Peterson et al., 2005; Schoennagel et al., 2004). Since 2010 $20 to

Eastern Washington Forest Health: Hazards, Accomplishments and Restoration Strategy

A Report to the Washington State Legislature

October 2014
Where, how much, what kinds of forest management?
Western Washington?
1. Mapping & classification of “forest systems” = *ILAP*

2. Modeled NRV reference conditions = *LANDFIRE BpS*

3. Landscape unit delineation = *HUCs*

4. Current conditions = *GNN*  
   *(year 2012)*
Relative Abundance per Strata, %

S u c c e s s i o n a l  C l a s s e s
Successional Classes

Relative Abundance per Strata, %

- Mid-Open
- Late-Open
- Mid-Closed
- Early
- Late-Closed

Reference Condition – mean
Reference Condition – 2 SD range
Current Condition
Relative Abundance per Strata, %

- **Reference Condition** – mean
- **Reference Condition** – 2 SD range
- **Current Condition**
- **Deficit Conditions**
- **Excess Condition**

**Successional Classes**

- **Early**
- **Mid-Closed**
- **Mid-Open**
- **Late-Open**
- **Late-Closed**
Disturbance Only Transitions

Disturbance then Succession Transitions

Succession Only Transitions

“Disturbance”
“Disturbance”

Photos: John Marshall
Accelerating Succession
Western WA Results:

52% of all forests departed from HRV

Disturbance Only: 260,000 ac.

Disturbance then Succession: 507,000 ac.

Succession Only: 3.5 million acres
Disturbance Restoration Needs

- WA North Cascades: 5%
- WA West Cascades: 7%
- WA Coast: 5%
- WA Northeast: 37%
- WA Columbia Basin: 23%
- OR Coast: 31%
SUCCESSION RESTORATION NEED

FOREST RESTORATION NEEDS IN WASHINGTON & OREGON

MAP LEGEND

SUCCESSION RESTORATION NEED (%)

- 60.1 - 100
- 40.1 - 60
- 20.1 - 40
- 0

OTHER:
- Map Zones & Analysis Area
- County Boundary
- State Boundary

Data Sources: GNN 2012 current condition and reference condition data from Haugo et al. 2015, reference restoration needs methods from Haugo et al. 2015.

OCTOBER 14, 2015
Successional Restoration Needs

- WA North Cascades: 20%
- WA Northwest: 29%
- WA Coast: 36%
- WA Northeast: 32%
- WA East Cascades: 19%
- OR Coast: 28%
## Washington Coast Ownership

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Total Acres</th>
<th>Disturb. Only</th>
<th>Disturb. then Succ.</th>
<th>Disturb. then Succ. Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>2,571,453</td>
<td>0%</td>
<td>6%</td>
<td>43%</td>
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<tr>
<td>USFS General</td>
<td>117,775</td>
<td>1%</td>
<td>6%</td>
<td>18%</td>
</tr>
<tr>
<td>USFS Restricted</td>
<td>492,297</td>
<td>2%</td>
<td>3%</td>
<td>10%</td>
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<tr>
<td>Ownership</td>
<td>Total Acres</td>
<td>Disturb. Only</td>
<td>Disturb. then Succ.</td>
<td>Disturb. Only Succ.</td>
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<tr>
<td>-------------------</td>
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<td>---------------</td>
<td>---------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Private</td>
<td>2,634,375</td>
<td>0%</td>
<td>5%</td>
<td>34%</td>
</tr>
<tr>
<td>USFS General</td>
<td>485,947</td>
<td>6%</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>USFS Restricted</td>
<td>792,844</td>
<td>6%</td>
<td>3%</td>
<td>9%</td>
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</tbody>
</table>
“Old Growth”
Questions and Discussion

Conservation Gateway: http://bit.ly/1sIDqa1
Ecoshare: http://ecoshare.info/products/r6-analysis/
Keep in mind...

- NOT silvicultural prescriptions
- Local landscape evaluations incl. spatial patterns critical
- This is only one input for regional prioritization – aquatics, wildlife, composition, fire, Insects and Disease...
- Updated mapping / reference conditions could change results.
<table>
<thead>
<tr>
<th></th>
<th>Early Devl.</th>
<th>Mid Closed</th>
<th>Mid Open</th>
<th>Late Open</th>
<th>Late Closed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Early Devl.</strong></td>
<td></td>
<td>Grow without fire</td>
<td>Grow with fire</td>
<td>Grow with fire</td>
<td>Grow without fire</td>
</tr>
<tr>
<td><strong>Mid Closed</strong></td>
<td>Opening / high fire</td>
<td>Thin / low fire</td>
<td>Thin / low fire + grow with fire</td>
<td>Grow without fire</td>
<td></td>
</tr>
<tr>
<td><strong>Mid Open</strong></td>
<td>Opening / high fire</td>
<td>Other disturbance + growth</td>
<td>Grow with fire</td>
<td>Grow without fire</td>
<td></td>
</tr>
<tr>
<td><strong>Late Open</strong></td>
<td>Opening / high fire</td>
<td>Other disturbance + growth</td>
<td>Overstory thinning</td>
<td>Grow without fire</td>
<td></td>
</tr>
<tr>
<td><strong>Late Closed</strong></td>
<td>Opening / high fire</td>
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*Deficit S-Class*

Currently under-represented compared to reference condition

- Excess S-Class
  - Currently under-represented compared to reference condition
  - Currently over-represented compared to reference condition

- Disturbance Only
- Succession Only
- Disturbance then Succession