Adaptive Management on the Malheur National Forest

Region 6 Forest Collaboratives Workshop
March 31, 2016
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This morning:

1. The Malheur National Forest
2. What does an adaptive management framework look like on the Malheur NF?
3. Multi-party forest vegetation and fuels monitoring
## Malheur National Forest

### Pine and mixed conifer types

<table>
<thead>
<tr>
<th>Type</th>
<th>Acres</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moist grand fir</td>
<td>111,030</td>
<td>8</td>
</tr>
<tr>
<td>Dry grand fir</td>
<td>460,115</td>
<td>35</td>
</tr>
<tr>
<td>Douglas fir</td>
<td>189,102</td>
<td>14</td>
</tr>
<tr>
<td>Dry ponderosa</td>
<td>304,361</td>
<td>23</td>
</tr>
<tr>
<td>Xeric ponderosa</td>
<td>244,663</td>
<td>19</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,309,272</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### CFLRP Investment

<table>
<thead>
<tr>
<th>Year</th>
<th>Million $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-2015</td>
<td>2.5</td>
</tr>
<tr>
<td>2016</td>
<td>4</td>
</tr>
</tbody>
</table>

### Collaborative group

<table>
<thead>
<tr>
<th>Group</th>
<th>Convened</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMFP</td>
<td>2006</td>
</tr>
<tr>
<td>HCRC</td>
<td>2008</td>
</tr>
</tbody>
</table>
Old model of forest planning:

Standards and guidelines for large management areas... reflects large scale (coarse grained) disturbance dynamics?

Problems: What if ecological, economic and social objectives are not easily realizable at these coarse scales? What about new information?

Northwest Forest Plan
Land Allocations

- 30% Congress Reserved
- 30% LSRs
- 16% Matrix
- 11% Riparian Reserves
- 16% AMAs
- 6% Admin. Withdrawn
- 1% Managed LSRs
Adaptive management framework

ASSESSMENTS
- Acquire and synthesize emerging information
- Multi-scale characterization of conditions
- Multi-scale modeling of outcomes
Three peer-reviewed journal articles in preparation:

*Historical and contemporary fire-climate relationships in the southern Blue Mountains, Oregon, USA.*

*Influence of fire disturbance history and biophysical heterogeneity on forest structure in the southern Blue Mountains, OR, USA.*

*Successional accretion along a productivity gradient following fire exclusion in the southern Blue Mountains, Oregon, USA.*

Other papers planned:

*Evidence of fire severity in different forest types*

*Historical and contemporary distribution of tree size classes by species in different forest types*
Adaptive management framework

On the Malheur: Forest structure/composition varies at small scales

Still uncertainty about interactions of climate and future disturbance in different forest types.
Solution: Adaptively manage
Adaptive management framework

**ASSESSMENTS**
- Acquire and synthesize emerging information
- Multi-scale characterization of conditions
- Multi-scale modeling of outcomes

**STRATEGIES**
- Goals, objectives and desired future conditions
- Current conditions
- Foreseeable stressors
- Appropriate management tools
- Standards and guidelines for using tools
Strategy: Facilitate future processes (fire, endemic scale insect attack, succession) with mechanical thinning and burning across a broad range of forest types and monitor results.
ASSESSMENTS
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IMPLEMENTATION
- Stakeholder collaboration
- NEPA planning
- NEPA decisions
- On-the-ground operations
Adaptive management framework
Adaptive management framework

**MONITOR**
- Develop monitoring questions and plans
- Measure biophysical outcomes
- Measure socio-economic outcomes
- Evaluate stakeholder expectations/values

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**EMERGING CONDITIONS**
- Changing climate and disturbance regimes
- Changing social and/or economic conditions
- Changing stakeholder expectations
- New technology
- New technical or scientific methods or information
Adaptive management framework

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Monitoring: Need new assessments
Monitoring: Need new strategies
Monitoring: Need different implementation
Multi-party monitoring

Forest Vegetation and Fuels (FVF) Monitoring Program: OSU, BMFP, HCRC, MNF

Monitoring design:

Treated units: 2-6 per planning area

Untreated units: 1-4 per planning area

Plots on evenly spaced grid:

Minimum 2 plots per unit.

Maximum 25 plots per unit.
Multi-party monitoring

Tree measurements:
- Species
- DBH
- Height
- Height to fine fuel
- Crown class

(Decay class)
Multi-party monitoring

Surface fuel measurements:
Counts of 1-, 10-, and 100-hour fuels.
Counts and diameter of 1000-hour fuels

Transects:
1-, 10-, 100-, and 1,000 hour fuels
Multi-party monitoring

Surface fuel measurements:
Duff and litter depth at four points

Transects:
Duff and litter fuel loading
Multi-party monitoring

Understory measurements:
Up to three canopy intercepts and one surface intercept by species/ground cover at 25 points x 2

Transects:
Understory composition
Multi-party monitoring

Understory measurements:
Ocular estimates of shrub, herb and forb loading.

Microplots:
Understory fuel

[Diagram showing microplots of varying sizes (0.01 ac, 0.1 ac, 0.25 ac)]
Multi-party monitoring

General stand characteristics:

Four photos

Photo points:
Multi-party monitoring

Historical vs. contemporary trees >21 inches DBH in two project areas

Galena

Marshall Devine

Species

ABGR
LAOC
PIPO
PSME

Number of trees >21 in DBH (per .25 acre)

Current
Historical
Multi-party monitoring

CFLRP Planning Area:
27 planning areas
800,000 total acres

2014-2015 monitoring:

Network of 259 permanent plots
33 units
5 planning areas

Total annual budget:
~$75,000