Restoring Fire to Build Resilience in Western US Forests

Matthew Hurteau
Climate System

Forests ← Disturbance
Carbon Carrying Capacity
A legacy of fire suppression

Larger, hotter wildfires
Fire-exclusion and CCC

Hurteau (2013)
Decadal Wildfire Increase

Southwest +462%
Projected Warming & Drying
Managing for Disturbance Stabilizes C

Hurteau et al. (2019)
Treatments Across the Sierra

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Accelerated</th>
<th>Distributed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understory thin</td>
<td>25% per decade</td>
<td>12% per decade</td>
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<tr>
<td>Prescribed fire</td>
<td>10-30 year return interval</td>
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Liang et al. (2018)
Treatment = Lower Cumulative Emissions

• Accelerated:
  – 42% lower wildfire emissions

• Distributed:
  – 31% lower wildfire emissions

Liang et al. (2018)
Dinkey Creek

- 4 Climate models
- High emissions (RCP 8.5)
- Treatments:
  - No-management
  - Naïve
  - Optimized

Krofcheck et al. (2018)
Determining Optimal Placement

Krofcheck et al. (2018)
Optimized = lower thinning losses

Krofcheck et al. (2018)
Fire severity reduction is equal

Krofcheck et al. (2018)
Collaborators & Funding

• Bruce Hungate
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