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A banner image showing a dense forest of tall evergreen trees under a clear blue sky. The text "blue mountains" is written in a large, white, lowercase sans-serif font across the top. Below it, the words "FOREST RESILIENCY PROJECT" are written in a large, bold, lime-green, uppercase sans-serif font.

# blue mountains FOREST RESILIENCY PROJECT

BLUE MOUNTAINS RESTORATION STRATEGY

# Collaboration Workshop

**Umatilla Forest Collaborative Group**

**Wallowa-Whitman Forest Collaborative**

**Blue Mountains Restoration Team**

*October 28, 2015, La Grande, OR*

# Regional Forester's Purpose Statement

## Blue Mountains Restoration Strategy

*Working with our partners, we will develop an approach to identify where the risk is greatest and the need to restore or impart resilience is most urgent....[The] team has been challenged to increase the pace and scale of treatments, and empowered to test innovative approaches to environmental analysis and documentation. We've committed to accelerating the pace and scale of active management on Blue Mountains National Forests to achieve an outcome of resilient landscapes while providing commercial outputs - timber and biomass - to sustain local infrastructure.*

**Jim Pena, Regional Forester, 2015**



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# Blue Mountains Forest Resiliency Project

Plan management activities to improve resiliency of the forested landscape, Tribal treaty resources, and adjacent communities; and contribute to local restoration industries.



**Prepare an environmental analysis that leads to implementable decisions**

- Challenges traditional planning processes
- Accelerated planning timeline
- Follows laws, regulations, policy



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# Benefits of the Blue Mountains Forest Resiliency Project

- All lands integrated assessment of restoration need
- Greater forest and community resiliency to fire under a changing climate
- Increased open canopied, and large tree/old forests
- Resilient habitat for fish, wildlife, and native plant species
- Jobs and supplemental economic benefits to communities
- Data and tools to support multi-partner planning, implementation, and funding of landscape scale restoration
- Improved wildfire management decision-making



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# Forest resiliency

## Project Purpose

- **Active restoration actions** on *dry forests* outside of existing project planning areas on the four Blue Mountains National Forests.
- **Strategic fuel treatments** on *all forest types*.



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**Broadscale Blue Mountains Assessment - All lands**



**Integration and Prioritization**

**Priority National Forest  
System Lands**

**Landscape treatment  
design**

**EIS Analyses**

**Decision**

Pre-NEPA  
Assessment

NEPA  
Analyses

Decision

What is the  
project  
design path  
from  
assessment  
to decision?

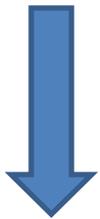


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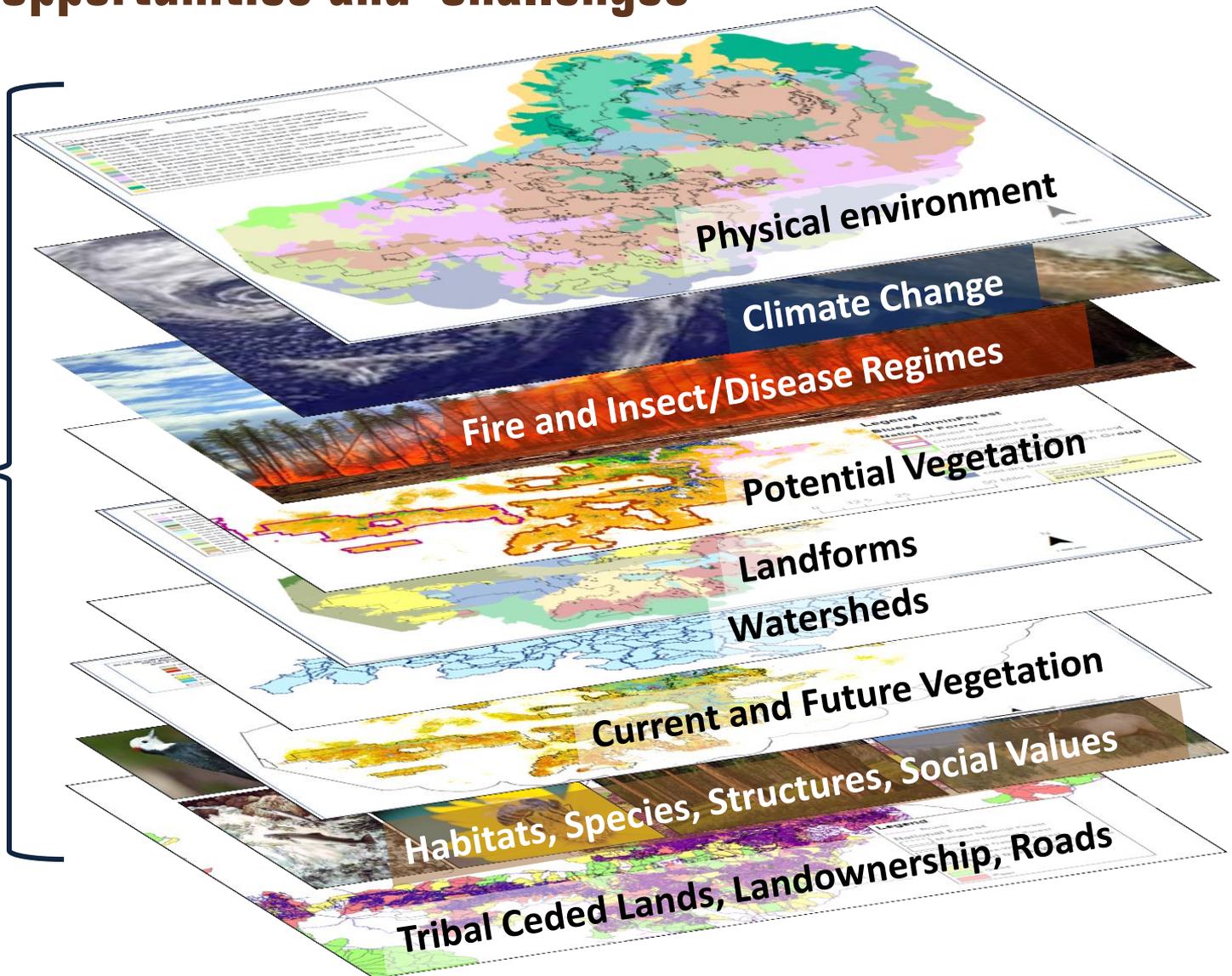
# Broadscale Assessment and Planning Framework

## Scientific Opportunities and Challenges

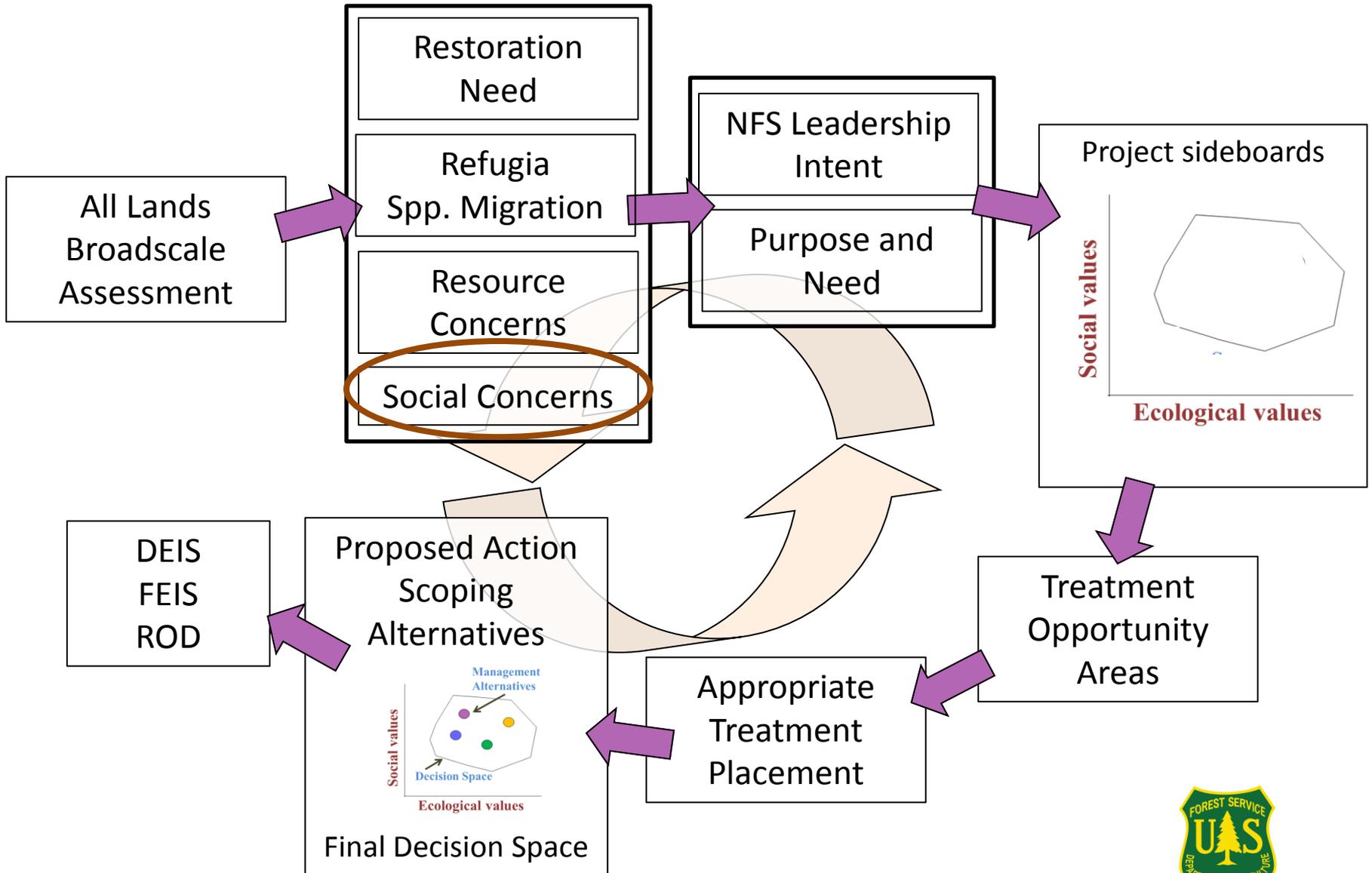
Ranges of variation in forest and disturbance regime conditions



Variations in treatment designs



# Assessment and Project Planning Flowchart



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# Focus Areas

## Drivers of forest resiliency

- Departure from RV
- Disturbance Regimes
- Climate change vulnerability of forest, species habitats, and long-term landscape permeability

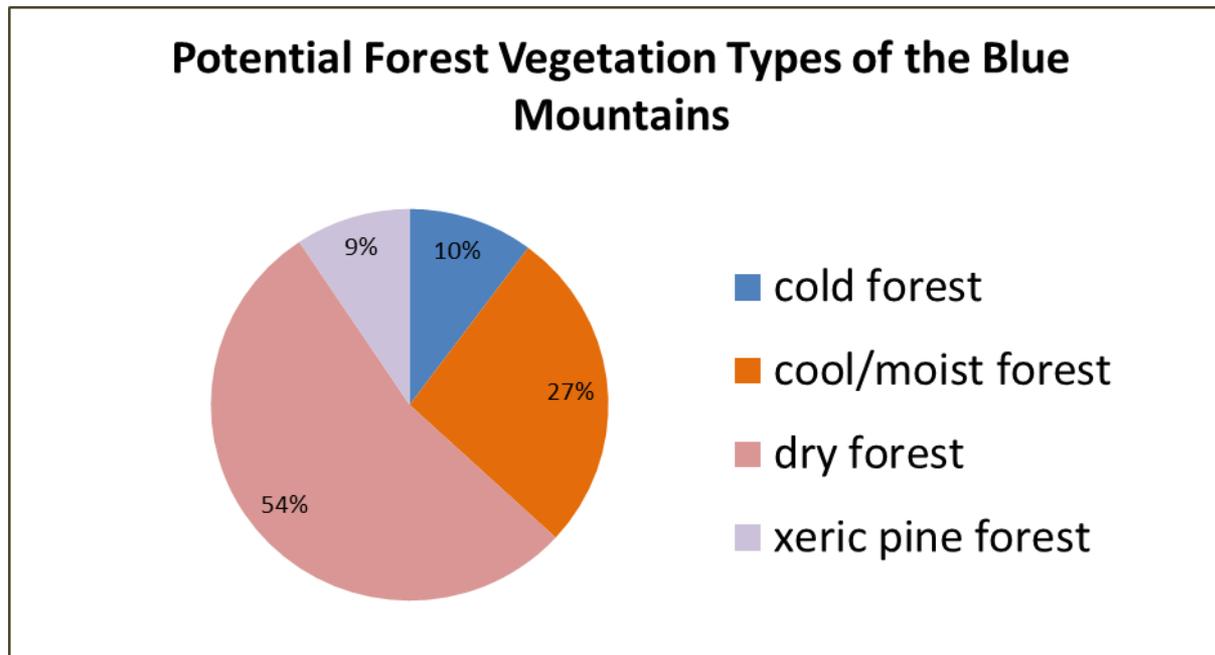


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# Drivers of forest resiliency

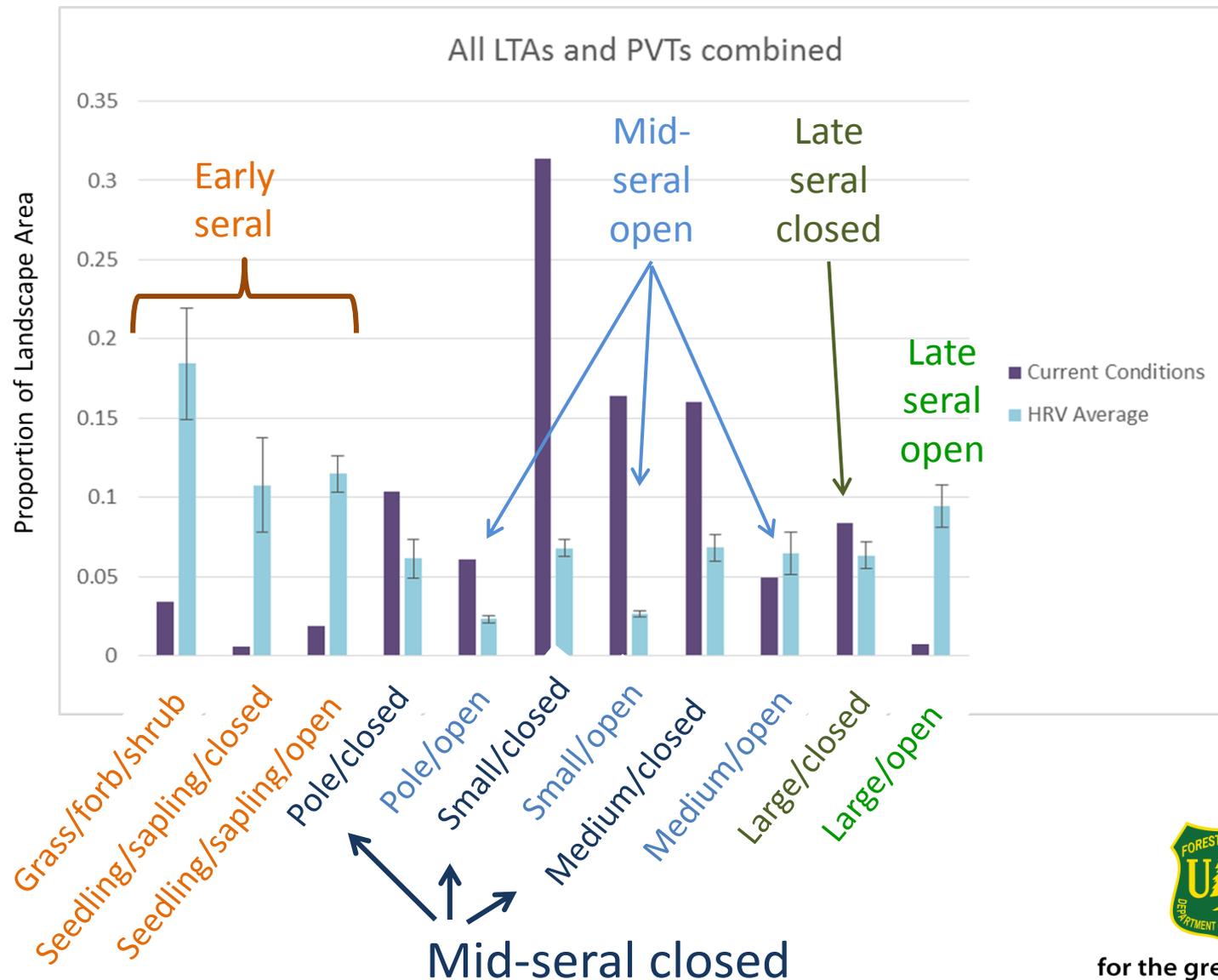
## Departure from RV

- Forest composition, pattern and structure



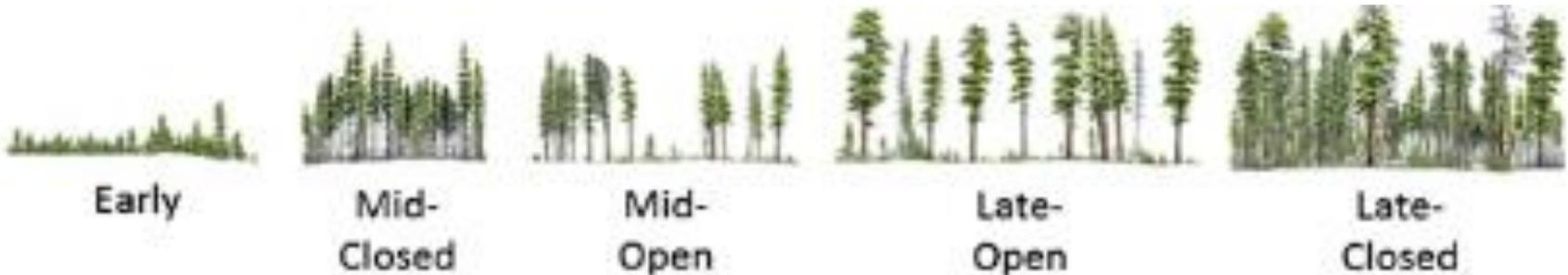
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# Drivers of forest resiliency



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# What do “seral classes” look like?

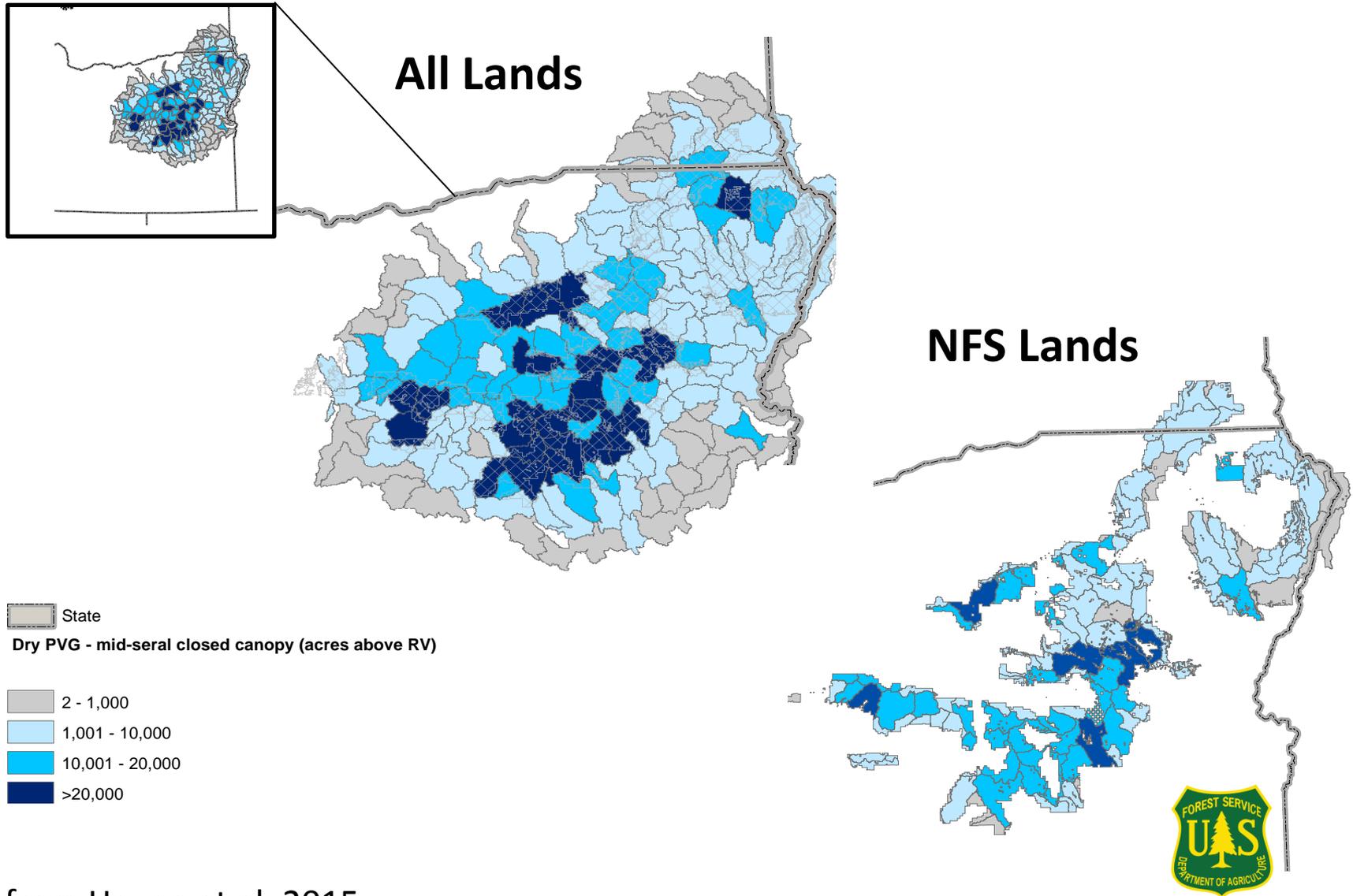


## Successional Classes

Grass/forb	About 5-20" dbh		>20" dbh	
	Greater than about 40-60% tree cover	Less than about 40-60% tree cover	Less than about 40-60% tree cover	Greater than about 40-60% tree cover

Adapted from Van Pelt 2008, as in: Haugo, R., C. Zanger, T. DeMeo, C. Ringo, A. Shlisky, K. Blankenship, M. Simpson, K. Mellen-McLean, J. Kertis and M. Stern . 2015. A new approach to evaluate forest structure restoration needs across Oregon and Washington, USA. Forest Ecology and Management 335: 37-50.

# Departure of Dry PVG mid-seral closed Scaled from All Lands to NFS Lands



Data from Haugo et al. 2015

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# Drivers of forest resiliency

## Disturbance Regimes

Key  
drivers  
of RV

- Fire frequency, severity, size and intensity
- Insect & disease outbreak size and intensity
- Past, current and future active management



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**1991**



**2011**

**Wildfire Suitability and Climate Change**

**2031**

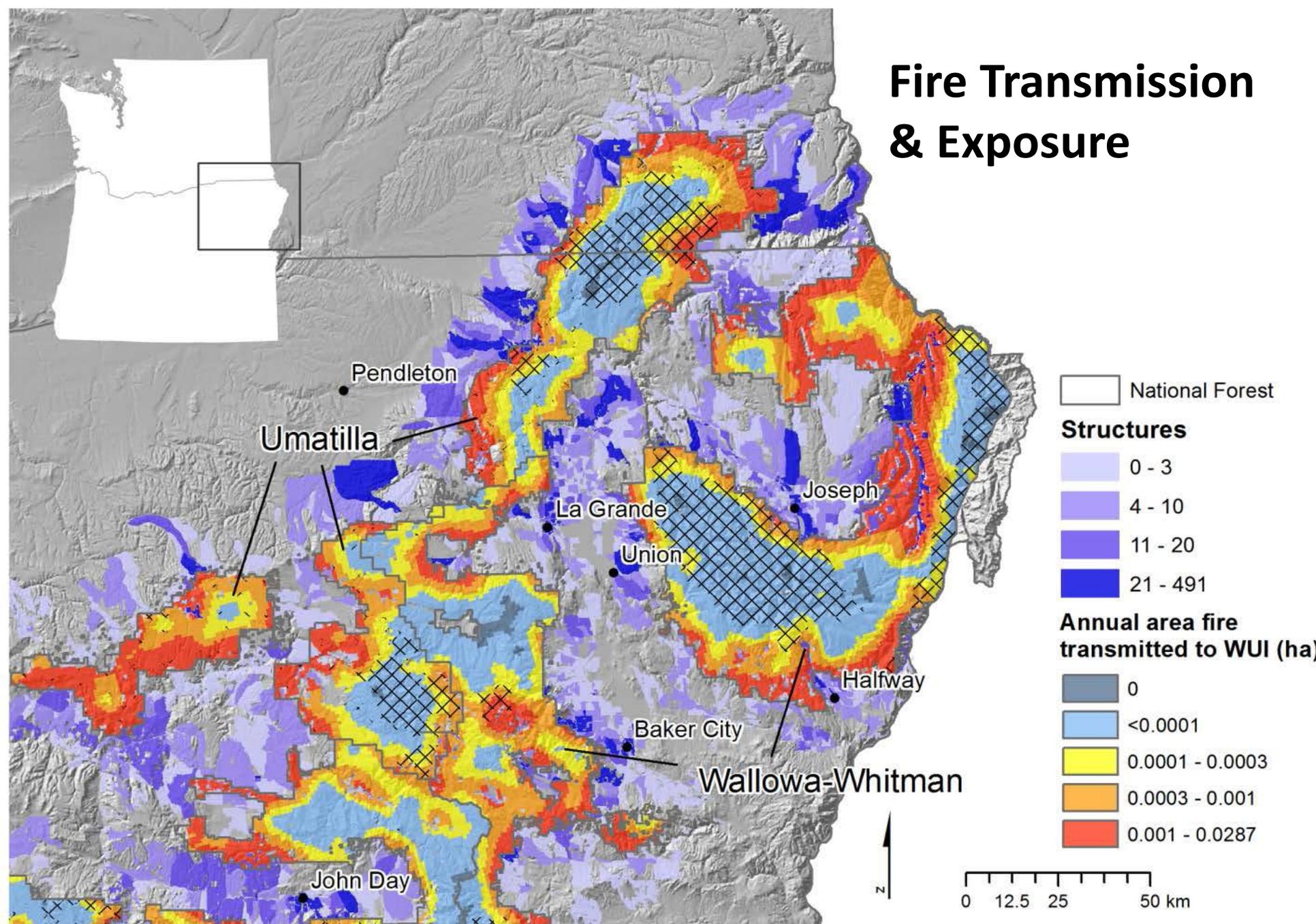
**2051**

Ray Davis 2015

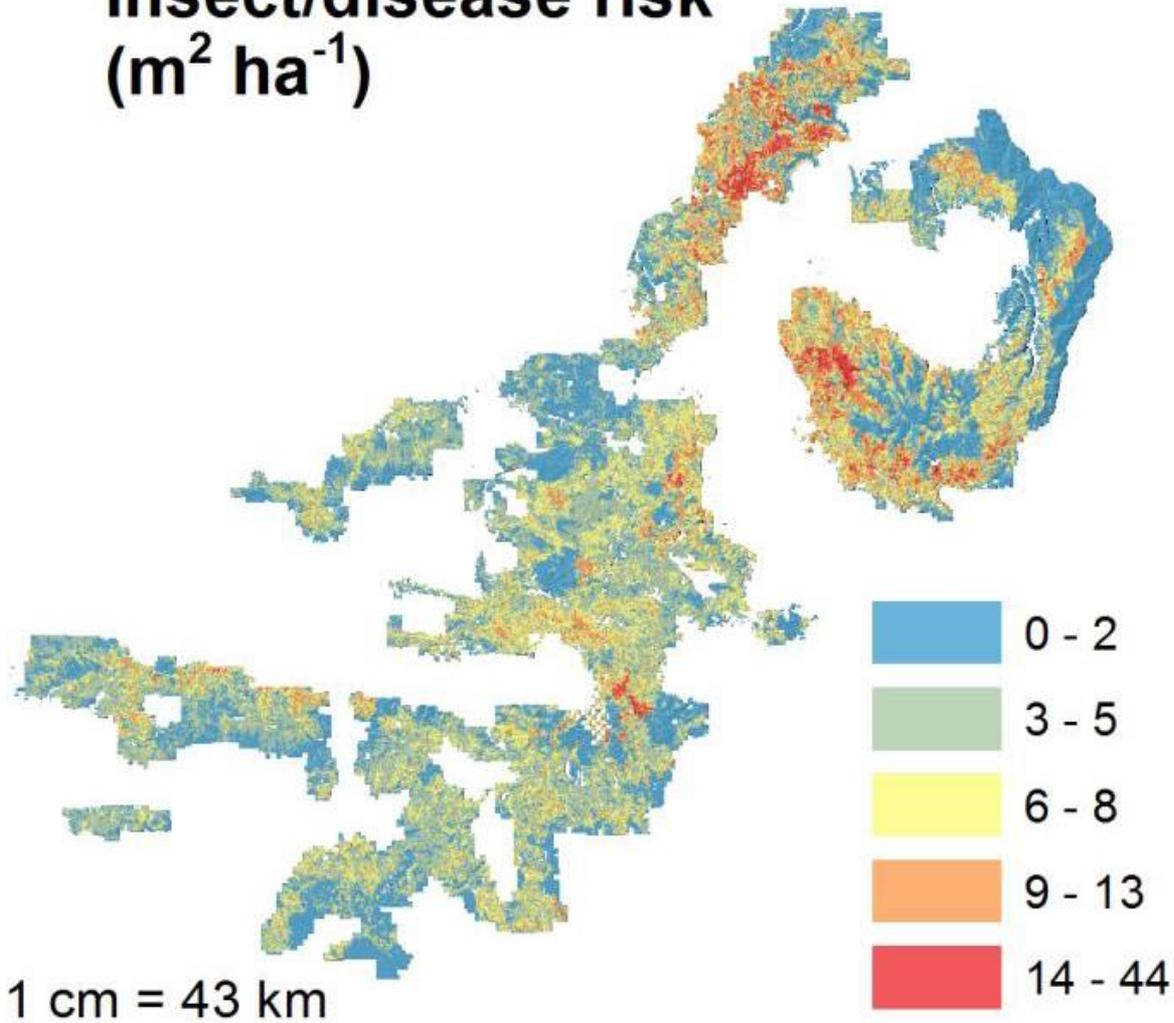


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# Fire Transmission & Exposure



# Insect/disease risk (m<sup>2</sup> ha<sup>-1</sup>)



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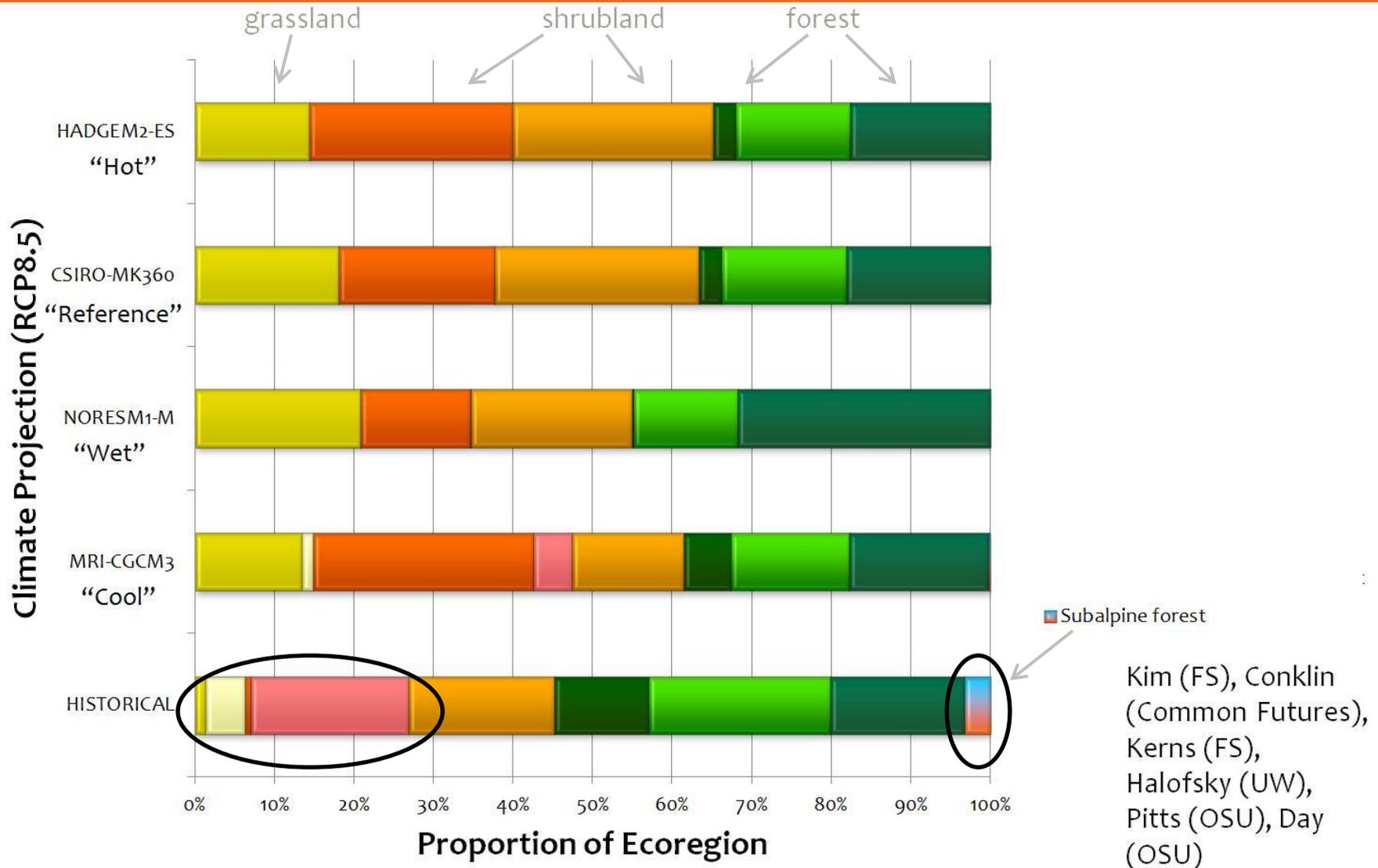
# Drivers of forest resiliency

**Climate change vulnerability  
of forests, species habitats,  
and long-term landscape  
permeability**

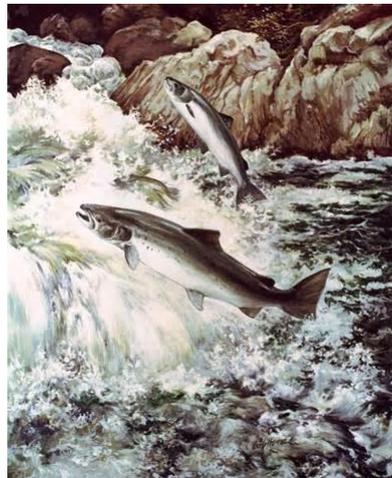


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# Veg Type Shift, Historical to 2071-2100



# How do we integrate the metrics of resiliency to encourage a persistent forested landscape?



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# Management Framework

## *The What:*

- **Maintenance** of Ecological Processes
- **Restoration** to move toward a more natural conditions
- **Control** to maintain systems in a particular state

*Rieman et al. 2010*

## *The How:*

- **Natural and managed fire**
- **Active management**
- **Insect/disease disturbance**
- **Forest growth**



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# Active Management and Forest Growth to Reduce Departure

		Deficit successional class (S-Class) <i>Currently under-represented compared to reference condition</i>				
		Early Devl.	Mid Closed	Mid Open	Late Open	Late Closed
Excess successional class <i>Currently over-represented compared to reference condition</i>	Early Devl.		Grow without fire	Grow with fire	Grow with fire	Grow without fire
	Mid Closed	Opening / high fire		Thin / low fire	Thin / low fire + grow with fire	Grow without fire
	Mid Open	Opening / high fire	Other disturbance + growth		Grow with fire	Grow without fire
	Late Open	Opening / high fire	Other disturbance + growth	Overstory thinning		Grow without fire
	Late Closed	Opening / high fire	Other disturbance + growth	Overstory thinning	Thin / low fire	

	= Disturbance Only
	= Succession Only
	= Disturbance then Succession

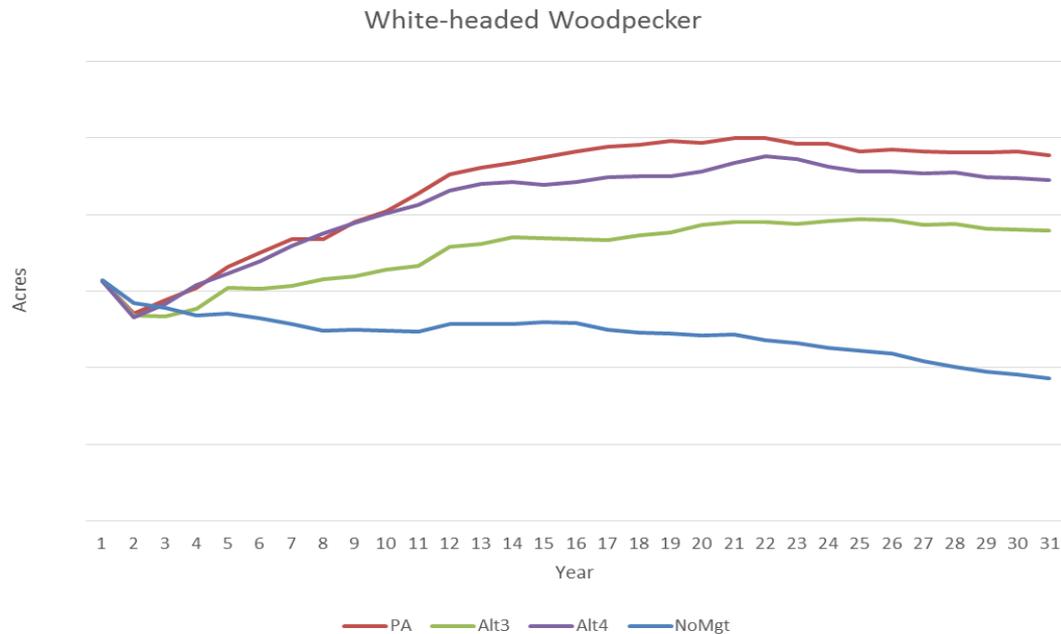
“Disturbance” includes natural disturbances and active management



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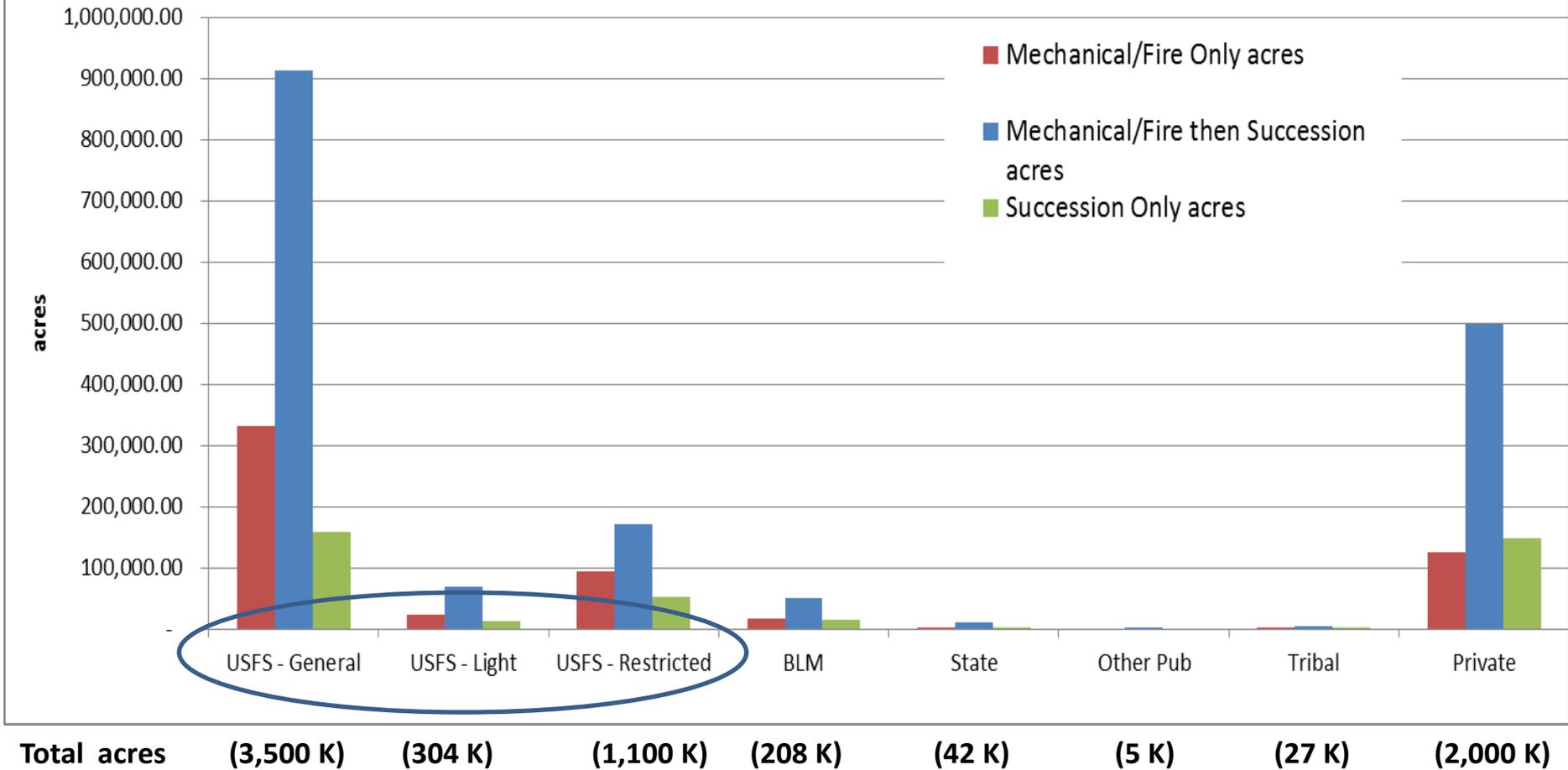
# What are the key metrics of forest resiliency?

- Plant and animal species habitats
- Refugia for biodiversity
- Landscape “permeability” for species migration
- Snags and large wood



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# Active Management and Growth Needs by Ownership – Blue Mountains



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BLUE MOUNTAINS RESTORATION STRATEGY

# Alternative management schemes

# Forest resiliency

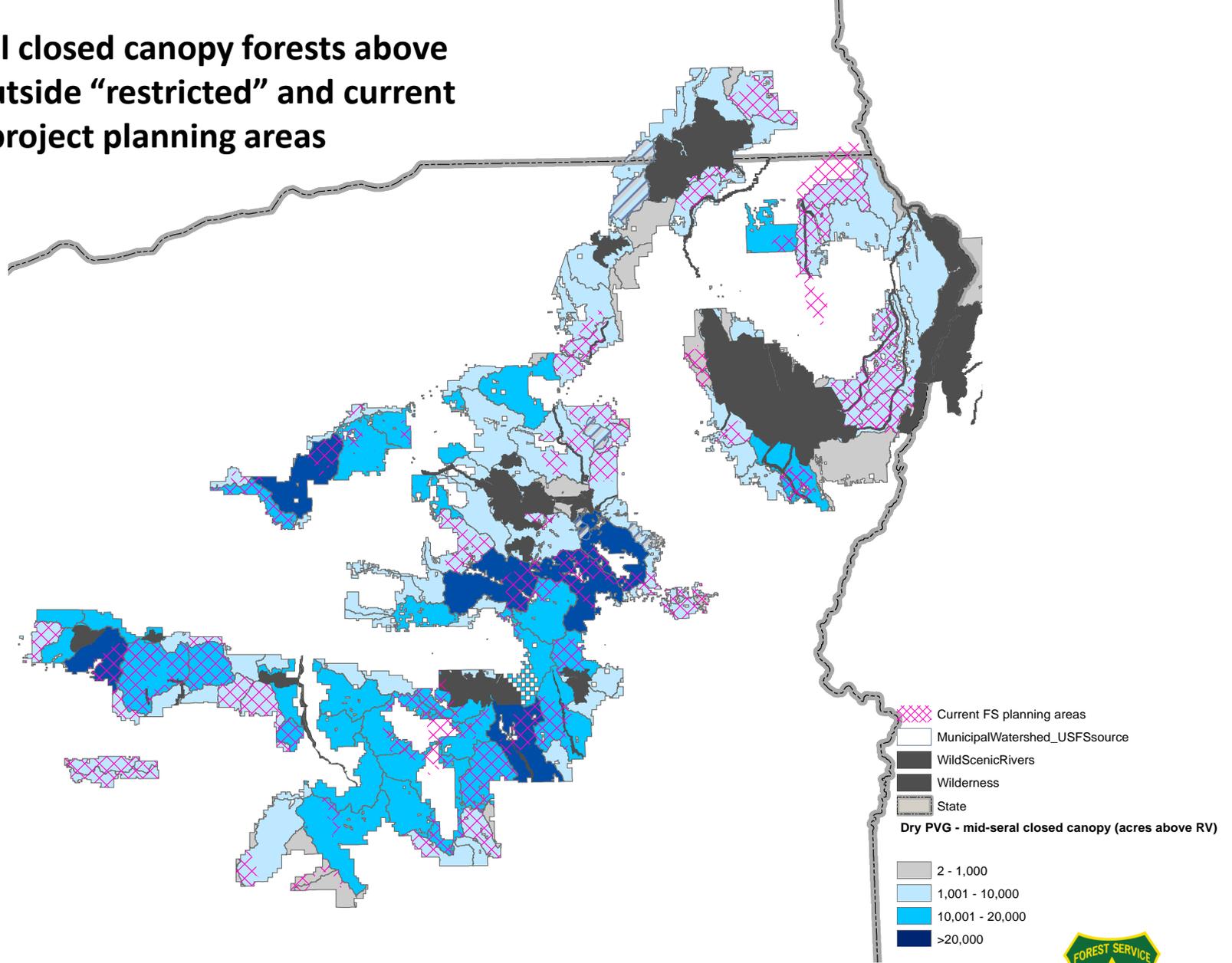
## Project Purpose

- **Active restoration actions on *dry forests***
- **Strategic fuel treatments on *all forest types*.**



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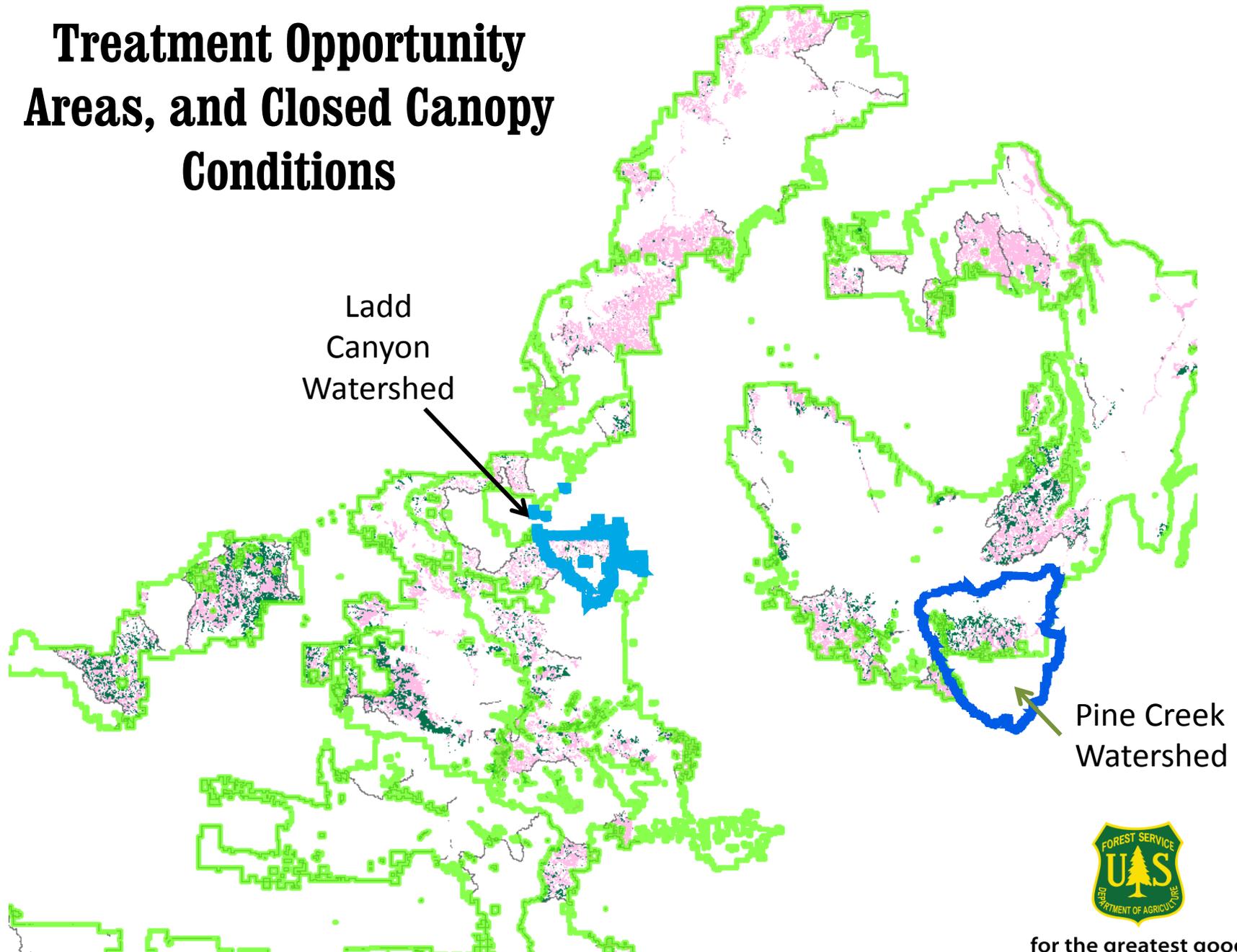
# Mid-seral closed canopy forests above the RV outside "restricted" and current project planning areas



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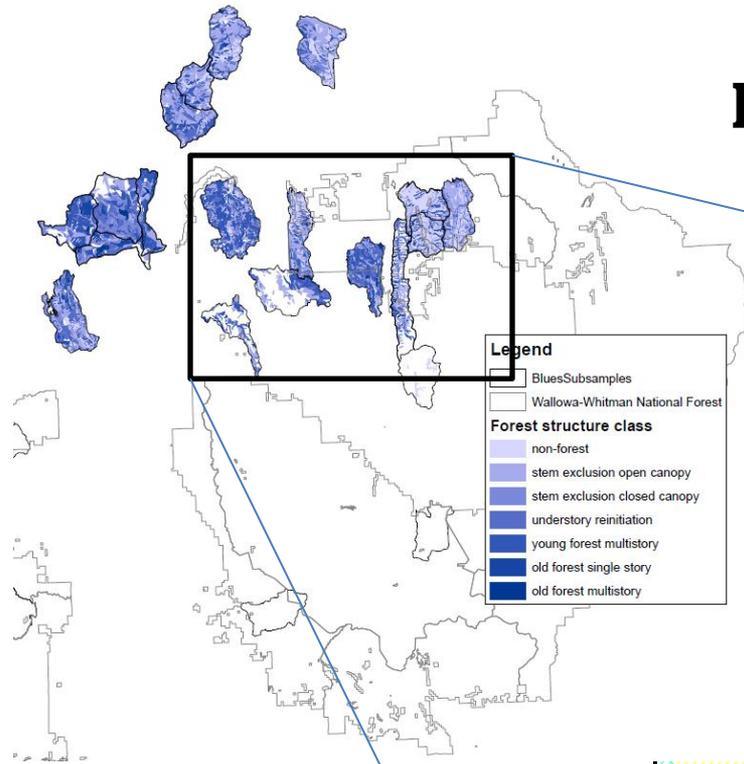
# Treatment Opportunity Areas, and Closed Canopy Conditions



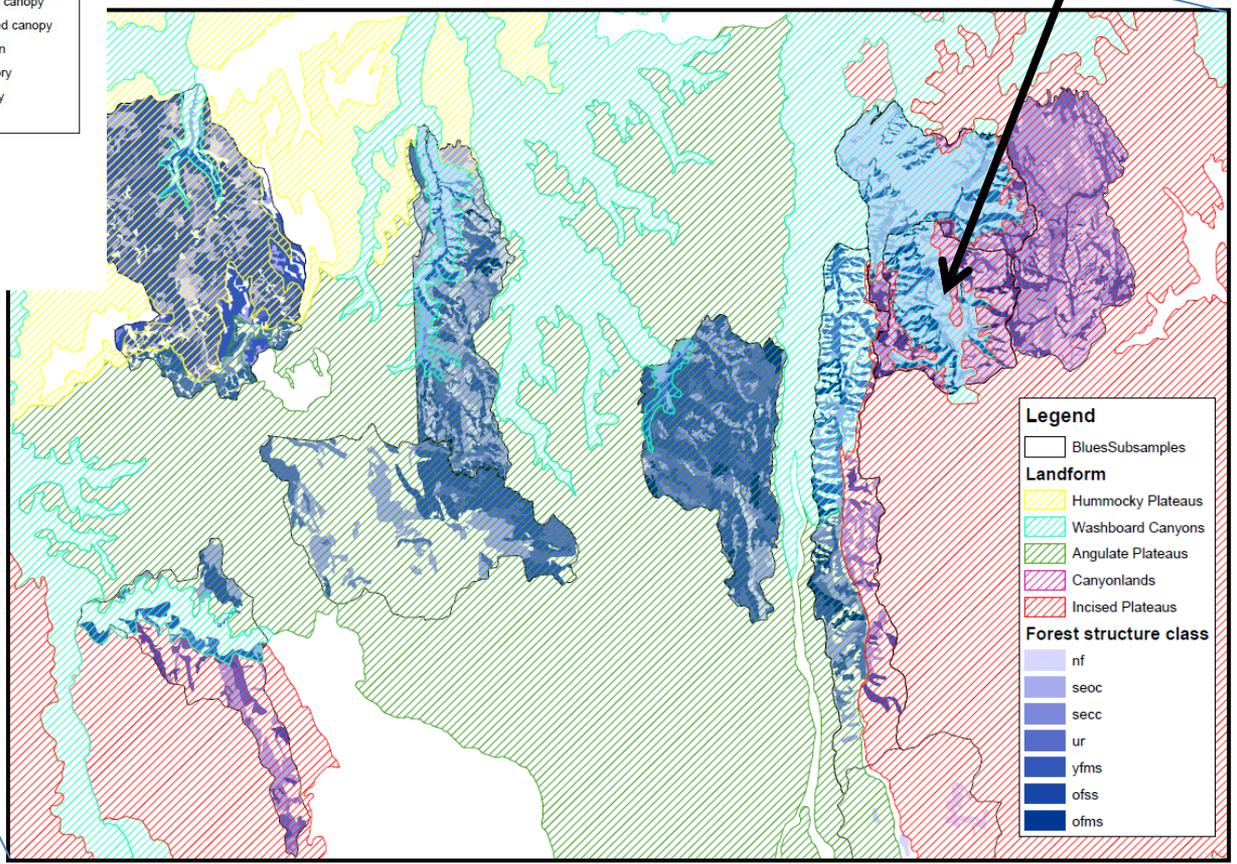
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# Treatment Design

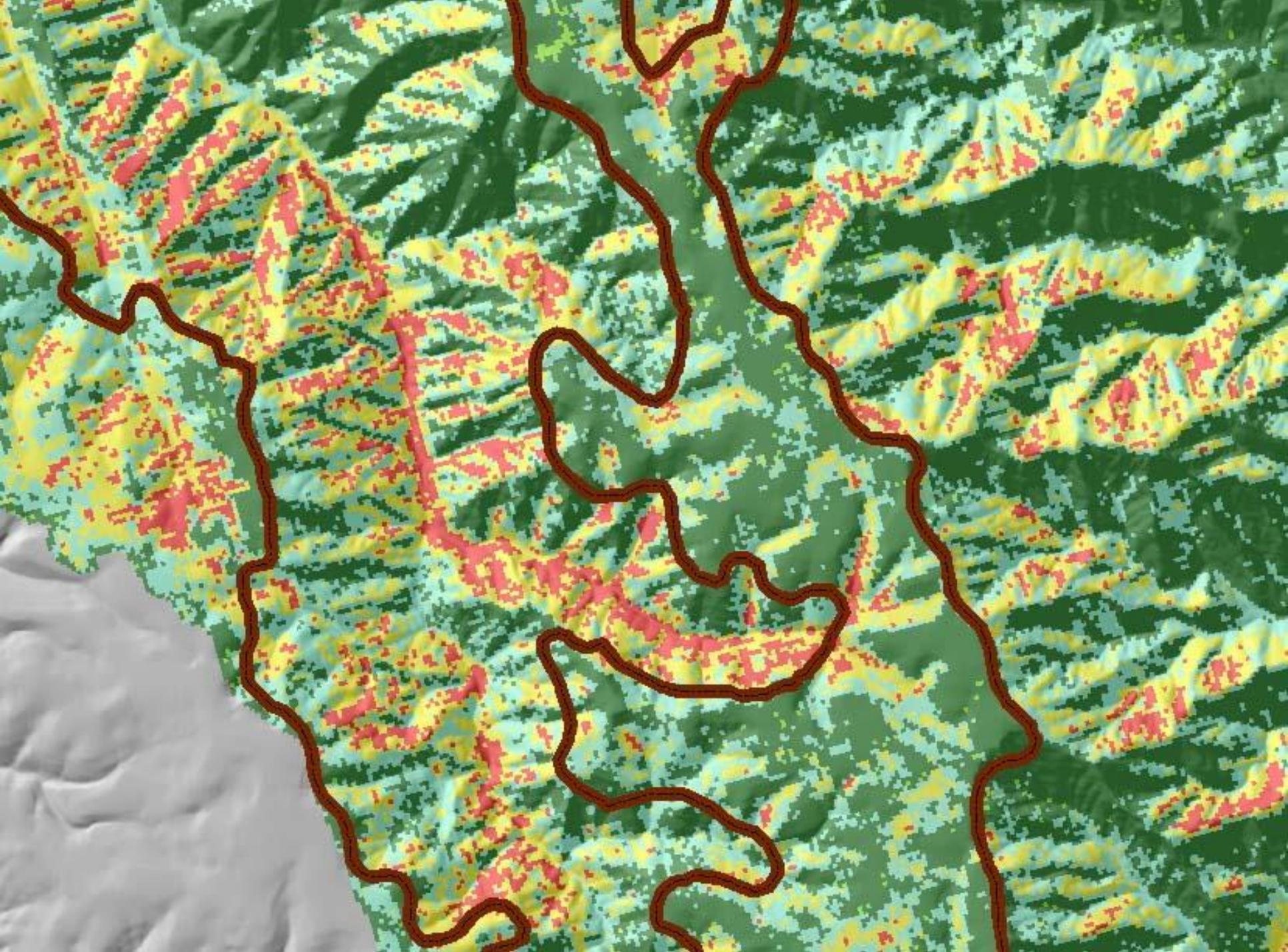
## Landform Associations and Reference Forest Patterns from 1930s-50s Historical Photos



Lower Joseph  
Creek Project

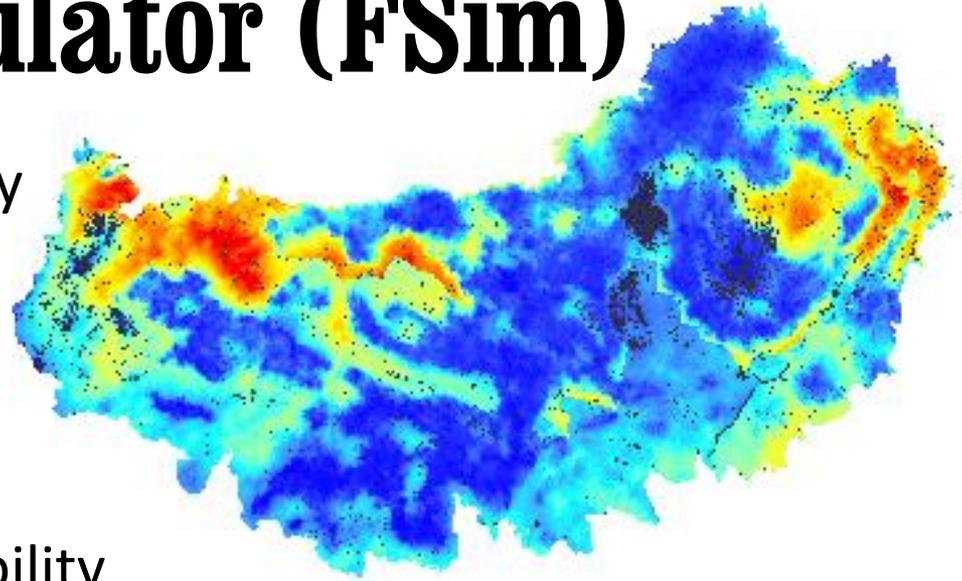
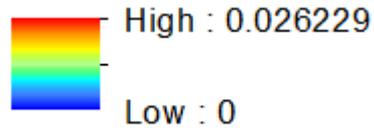




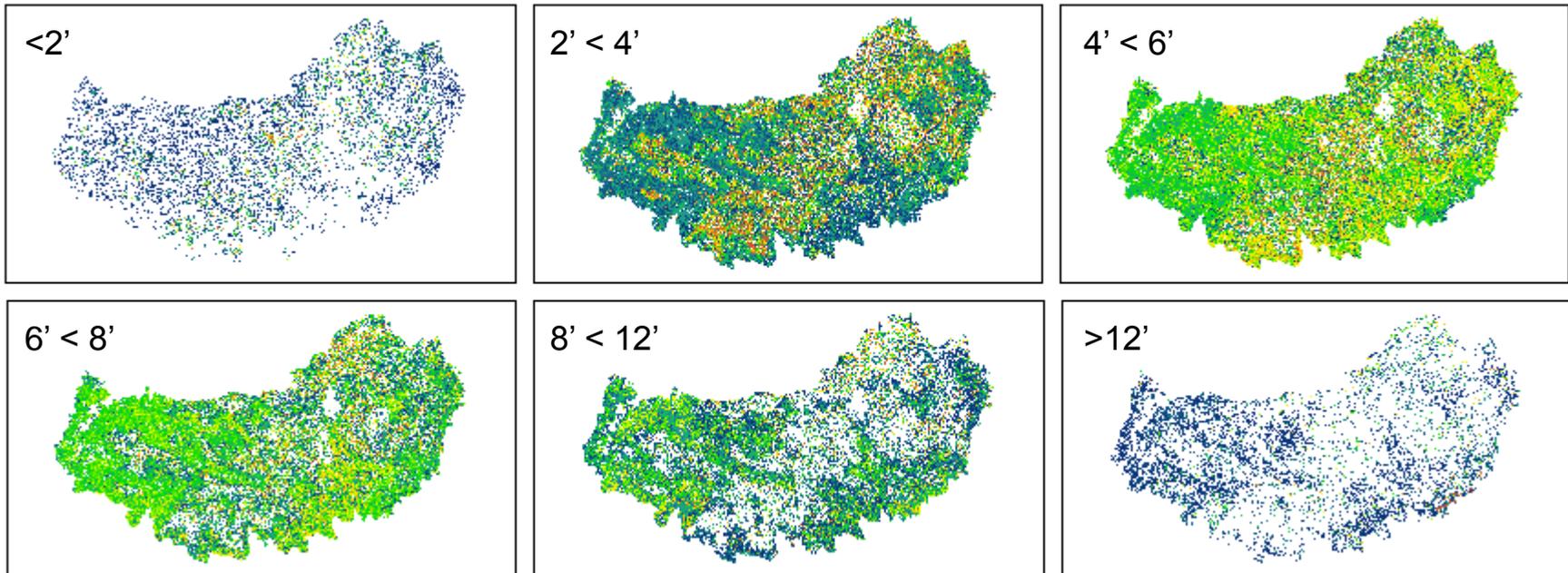


# Large Fire Simulator (FSim)

Burn probability



Conditional flame length probability



# Large Fire Simulator (FSim)

## Wildfire transmission

Existing conditions

Post-treatment

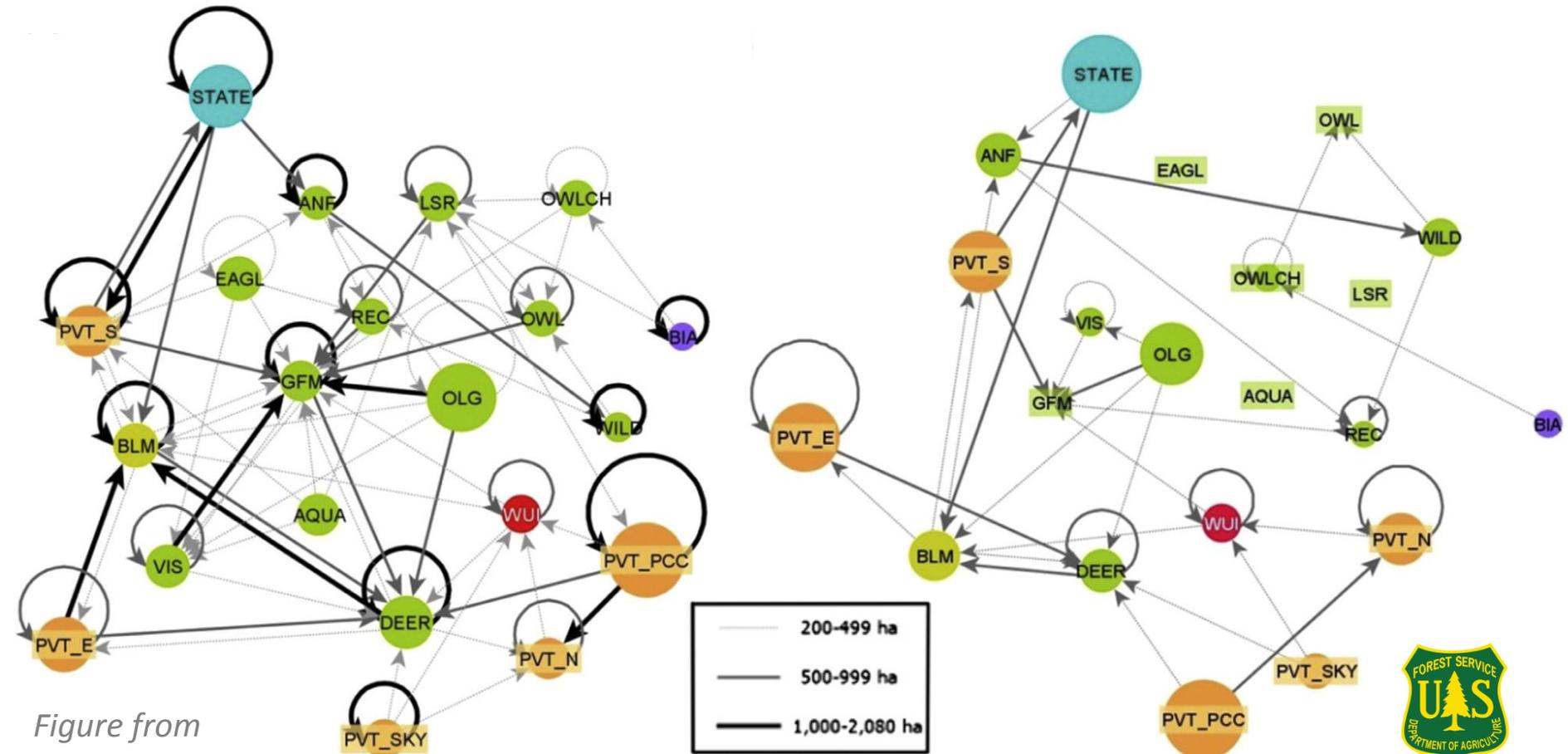


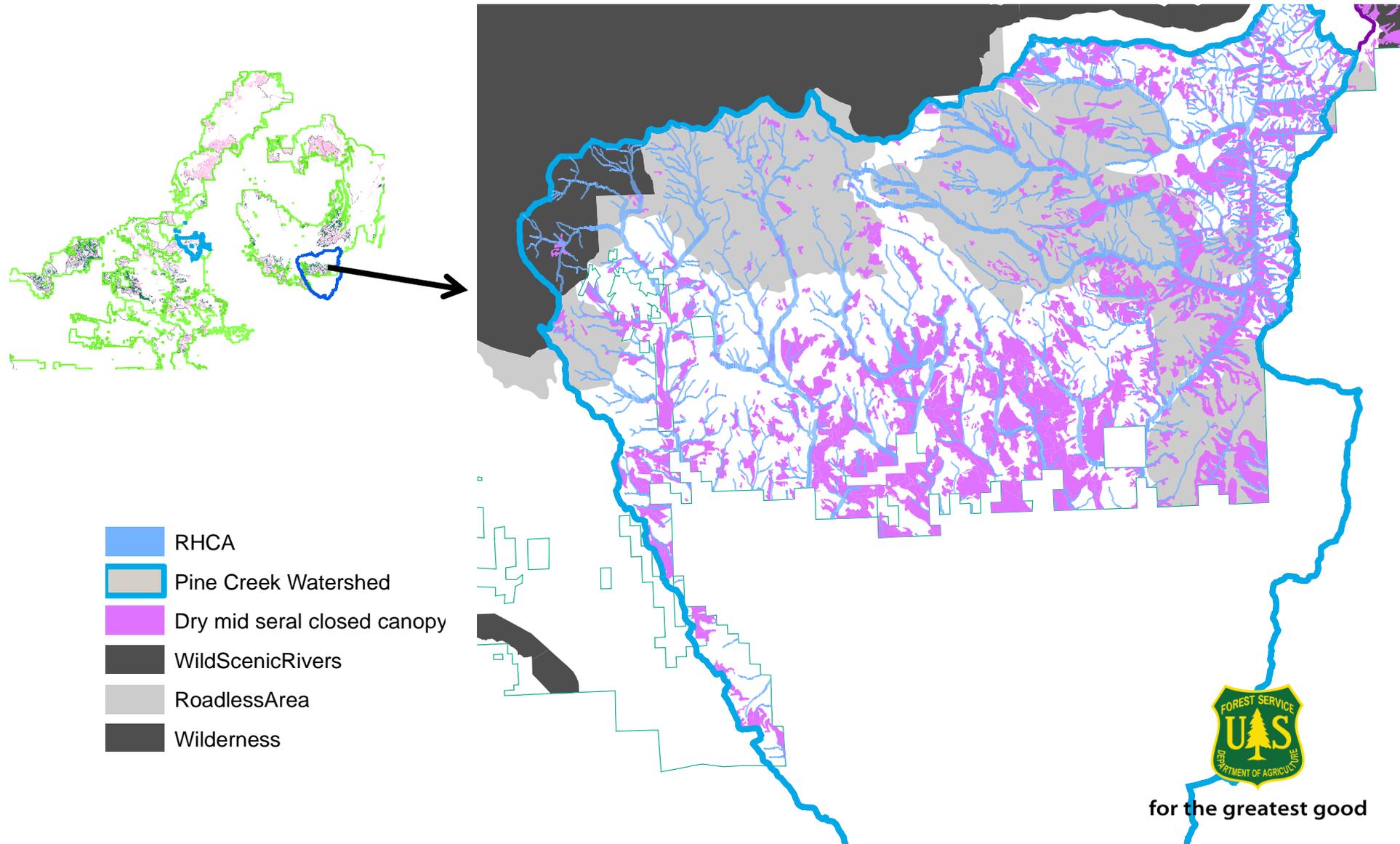
Figure from  
Ager et al. 2014



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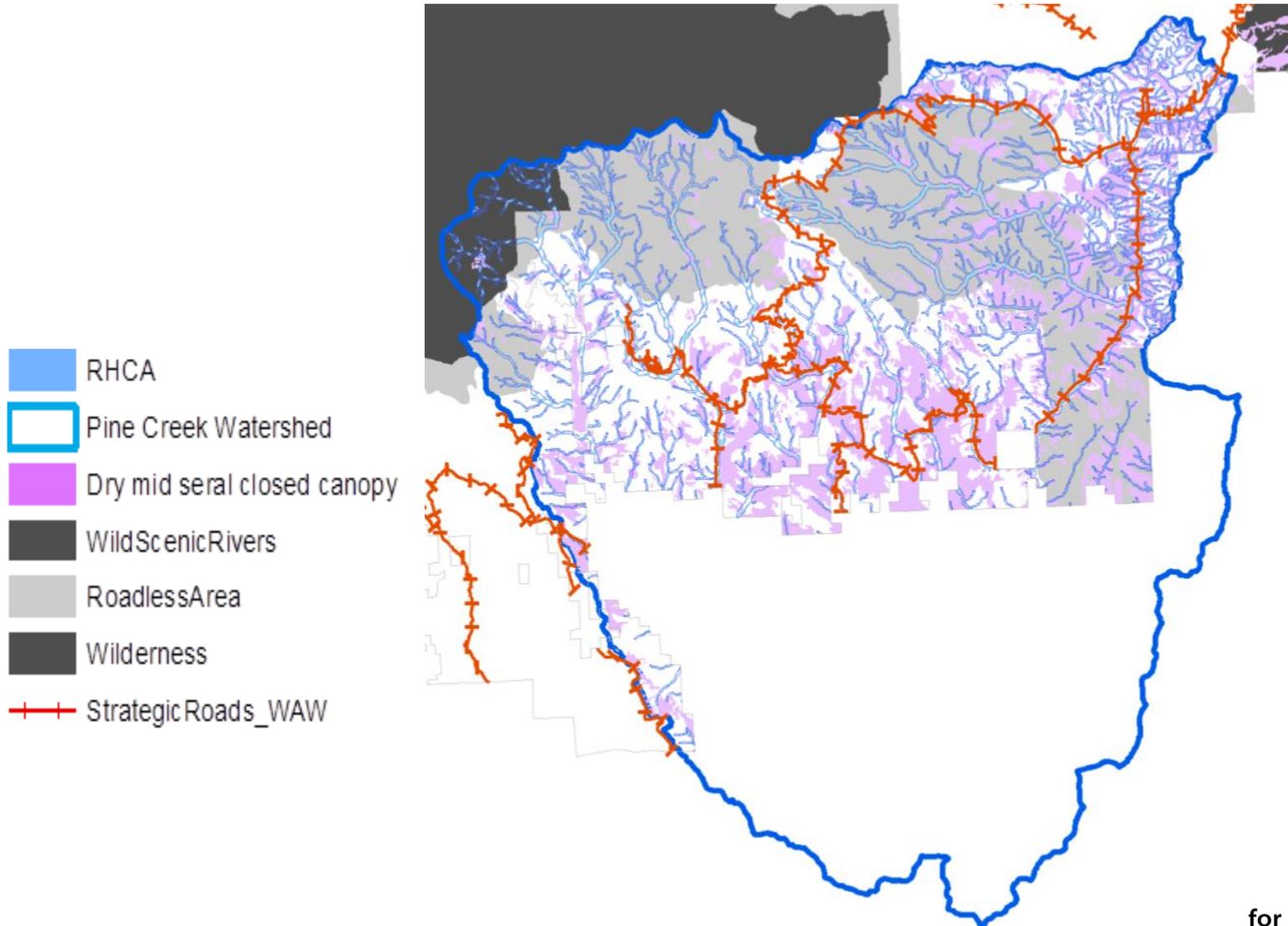
# Pine Creek Watershed Example

## Treatment design



# Pine Creek Watershed Example

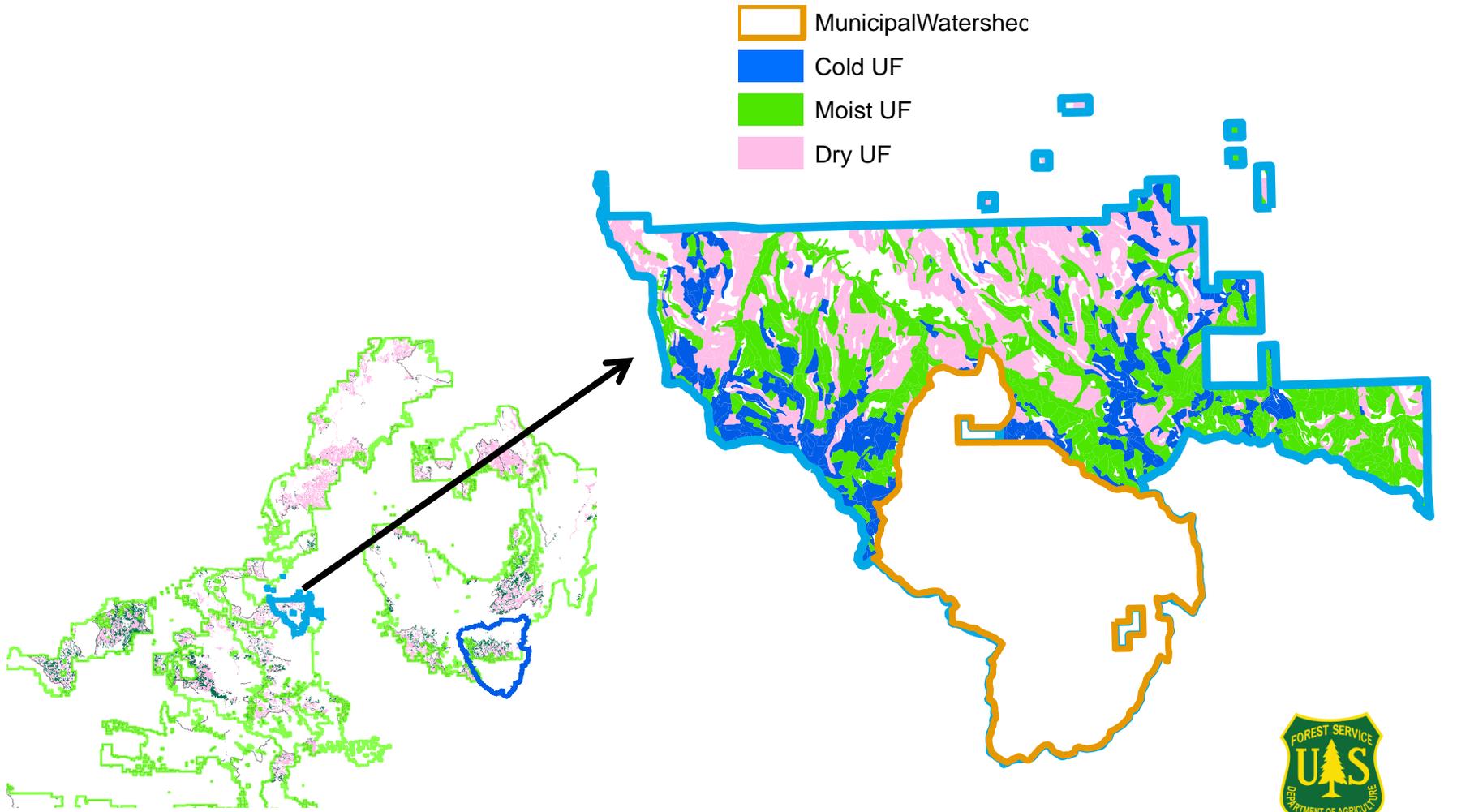
## Strategic fuel treatments



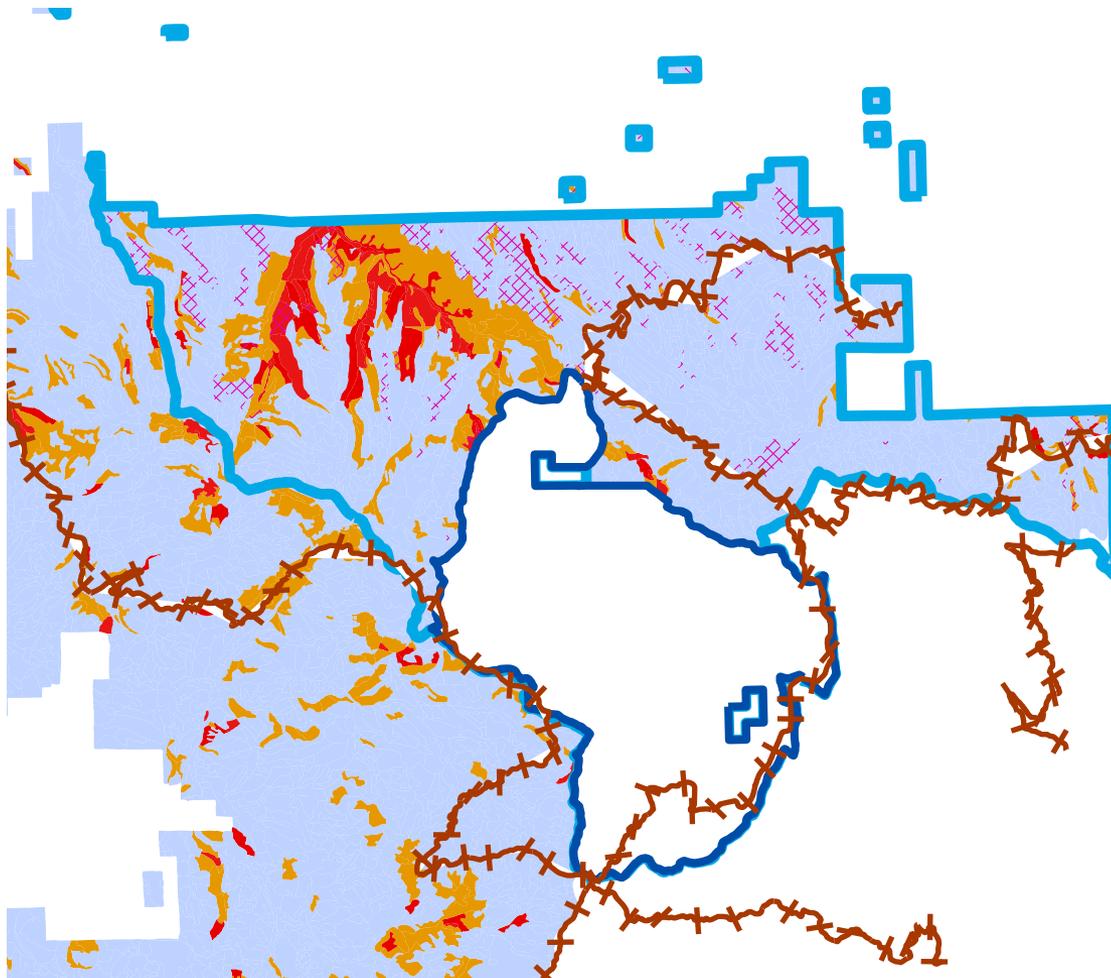
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# Ladd Canyon Watershed Example

## Treatment design



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— StrategicRoads\_WAW

▭ MunicipalWatershed

**Dry mid-seral closed canopy**



**Average Flame Length**

0 - 4

5 - 8

9 - 12

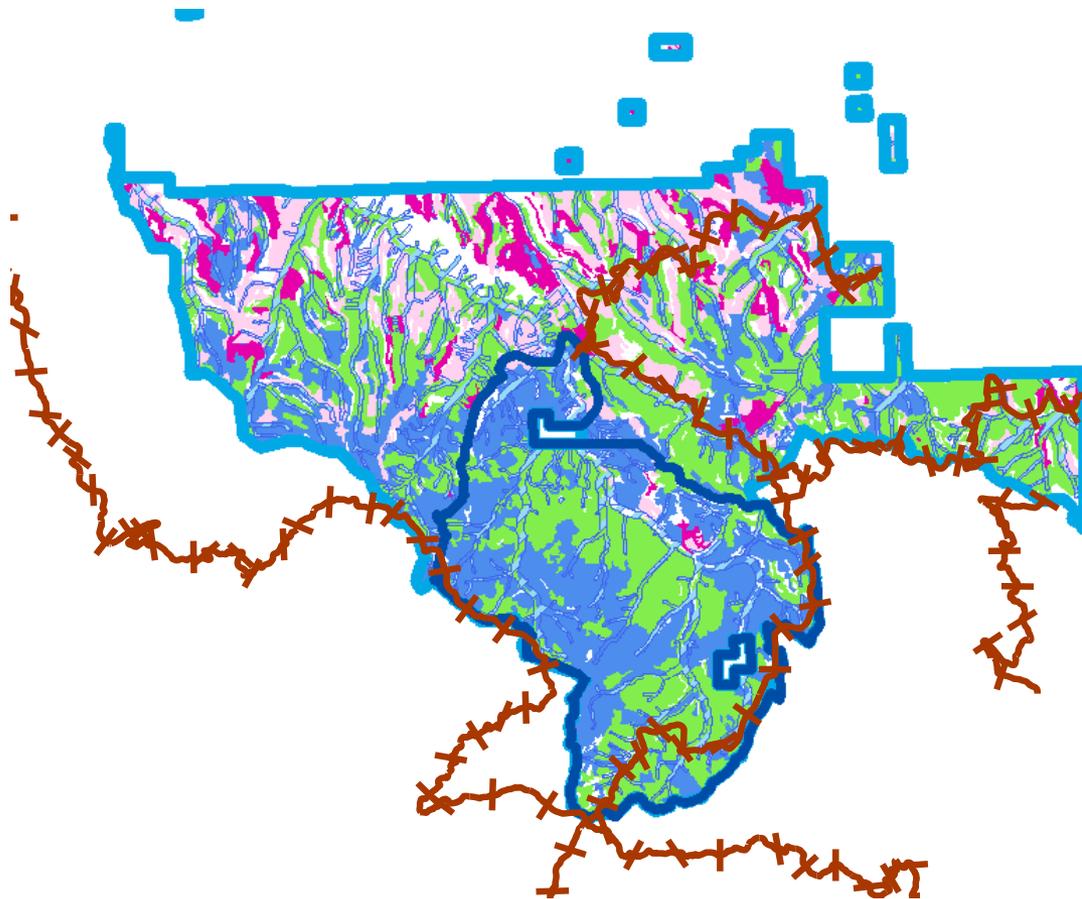
13 - 76



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# Ladd Canyon Watershed Example

## Strategic Fuel Treatments



- Strategic Fuel Treatment
- ▭ Municipal Watershed
- Dry mid-seral closed canopy**
- ▭ ladd\_RHCA
- PVG**
- ▭ Cold UF
- ▭ MOIST UF
- ▭ Moist UF
- ▭ Dry UF
- ▭ dry UF

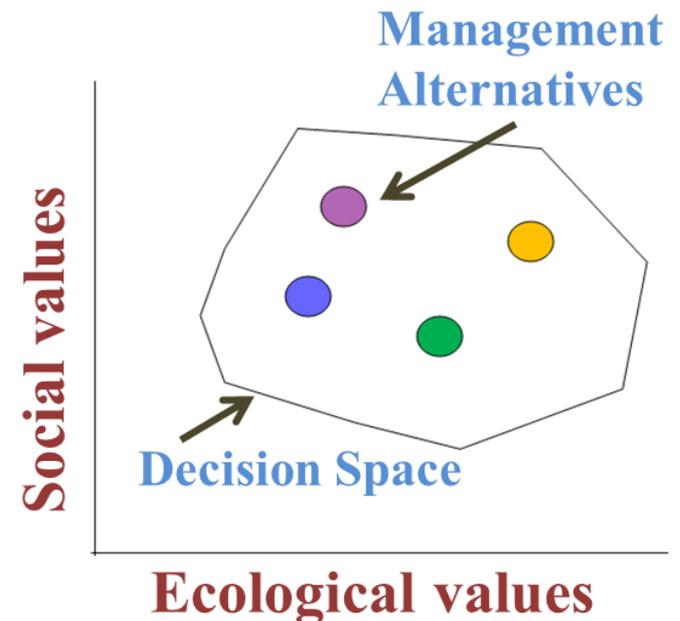


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# Planning Issues and Decision Space

## Opportunities and sideboards on science applications

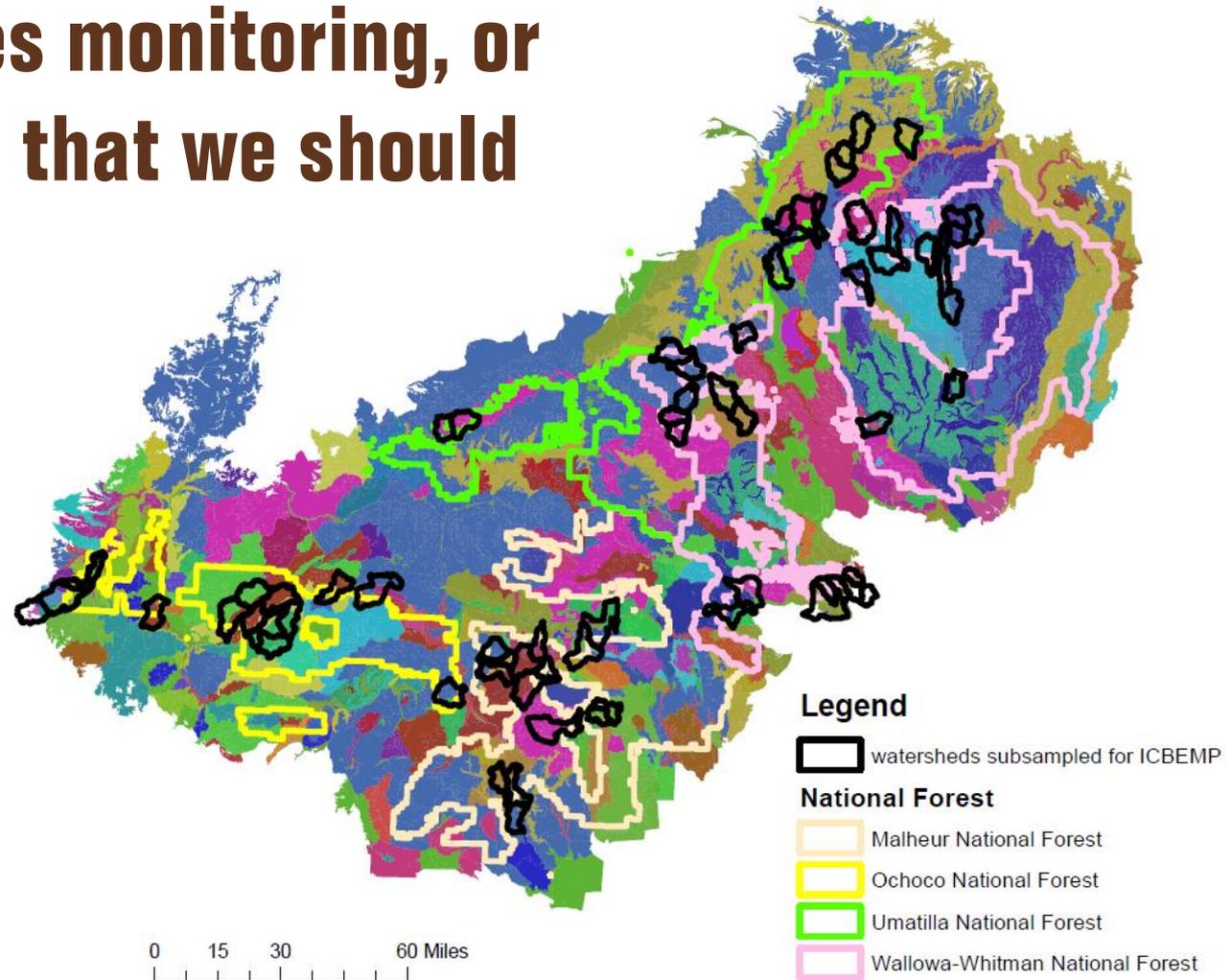
- Leadership intent/purpose and need
- Forest Plan Standards and Guidelines
- ESA
- PACFISH/INFISH
- Access Management
- Conservation of large tree structure
- Tribal Trust Responsibilities
- Clean Water Act
- Cohesive Wildfire Strategy
- Collaboration



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# LEARNING

What metrics are the collaboratives monitoring, or interested in that we should consider?





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BLUE MOUNTAINS RESTORATION STRATEGY

## Questions and Discussion

**Thank you for your participation**

Follow our project at:

*[www.fs.usda.gov/goto/bluemountainsforestresiliency](http://www.fs.usda.gov/goto/bluemountainsforestresiliency)*