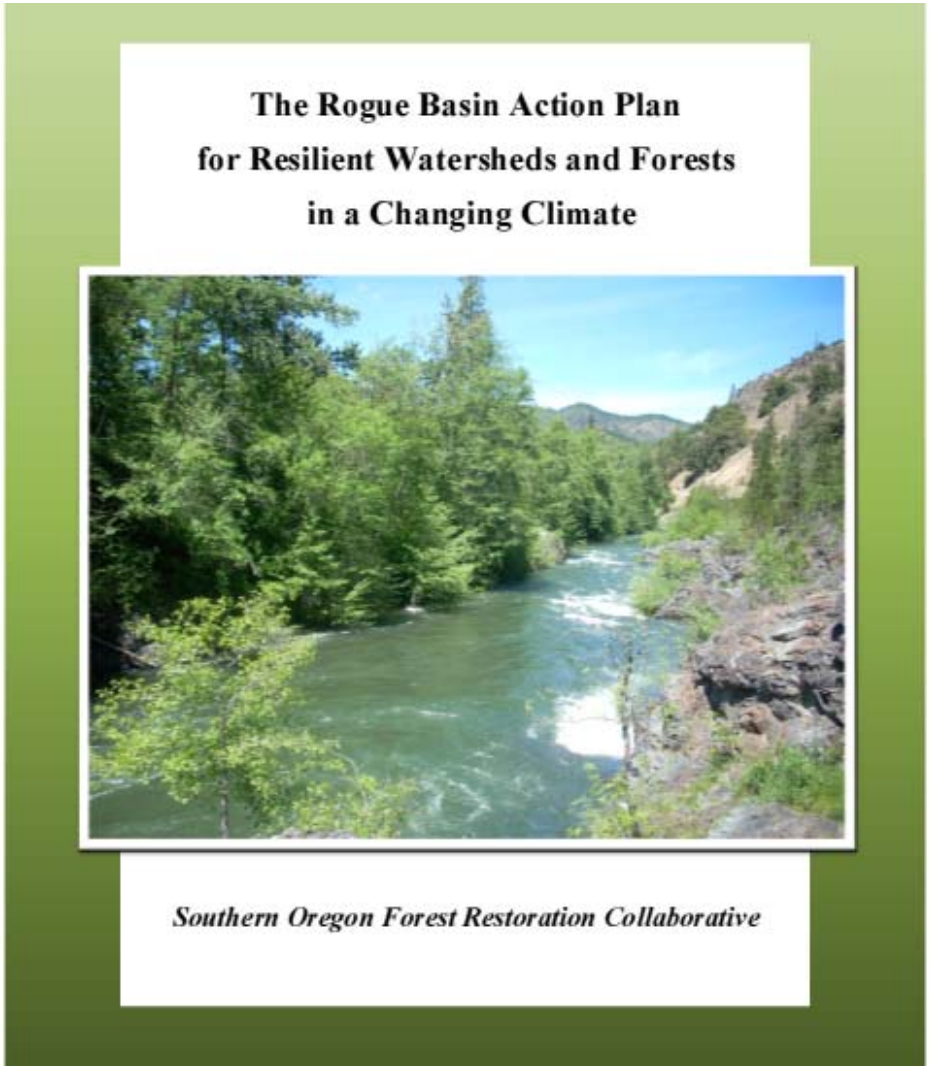
ADDRESSING THE IMPACTS OF CLIMATE CHANGE ON ECOSYSTEM BENEFITS IN A MANAGEMENT CONTEXT



- Planning Process
- Local Climate Change Impacts…happening NOW and their impact on Ecosystem Services
- Tools and partnerships to move forward to manage for nature’s benefits with a changing climate

Climate Solutions University: Four Step Adaptation Process

1. Community Leader Forms Team / Leads Team Engagement
2. Assessment of Forest, Water, Climate, and Economic Risks and Opportunities
3. Develop Local Action Plan
4. Implementation of Plan

Goal 1: Manage risk and reduce impacts of fire to forest ecosystems and restore forest structure and function

Goal 2: Manage Risk and Reduce Impacts of fire to communities

Goal 3: Manage and implement practices that ensure the highest water quantity and quality

Goal 4: Provide quantifiable ecological restoration and economic support for practices by incorporating an Ecosystem Services model to identify and focus on priority areas

What is an ecosystem service that you value where you live?

How will/is climate change affecting that?

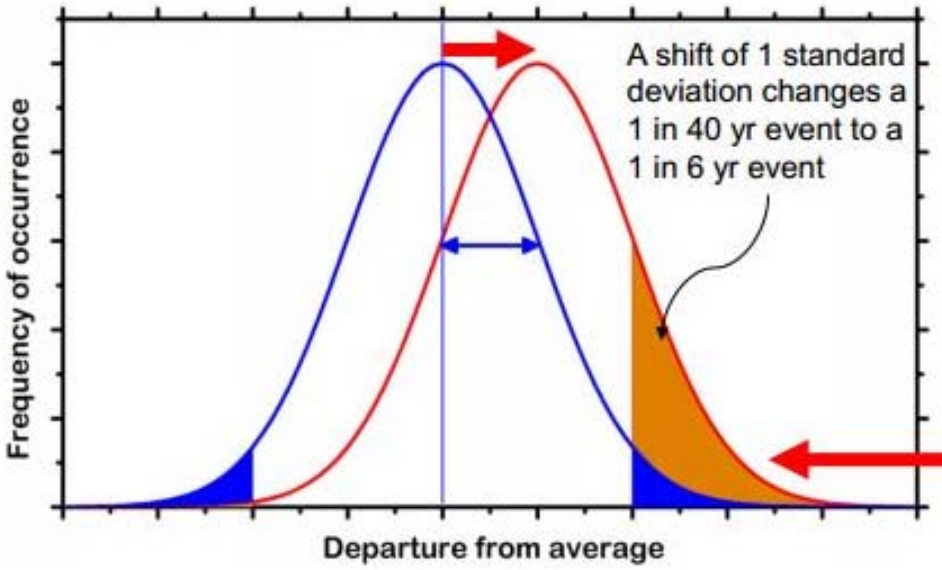
General Local Projections

2035-45 Winters 3.4^{0}F Summers 6.0^{0}F
2075-85 Winters 4.5^{0}F Summers 11.8^{0}F/15.0^{0}F

Winter may be wetter; summer months potentially no wetter to much dryer.

Extremes matter

Frequency, extent, and severity of disturbances may be affected by climate change, altering the mean and *variability* of disturbance properties.



A shift in *distribution* of disturbance properties has a larger relative effect at the *extremes* than near the mean.

It's all about the tail!

Dave Peterson, USFS

Wildfires

- **1^0F is the difference between a high fire year and a low fire year.**

300-400 % growth in fire severity and frequency projected for the Rogue Basin.

- **1^0F increase = 23% reduction in snowpack**

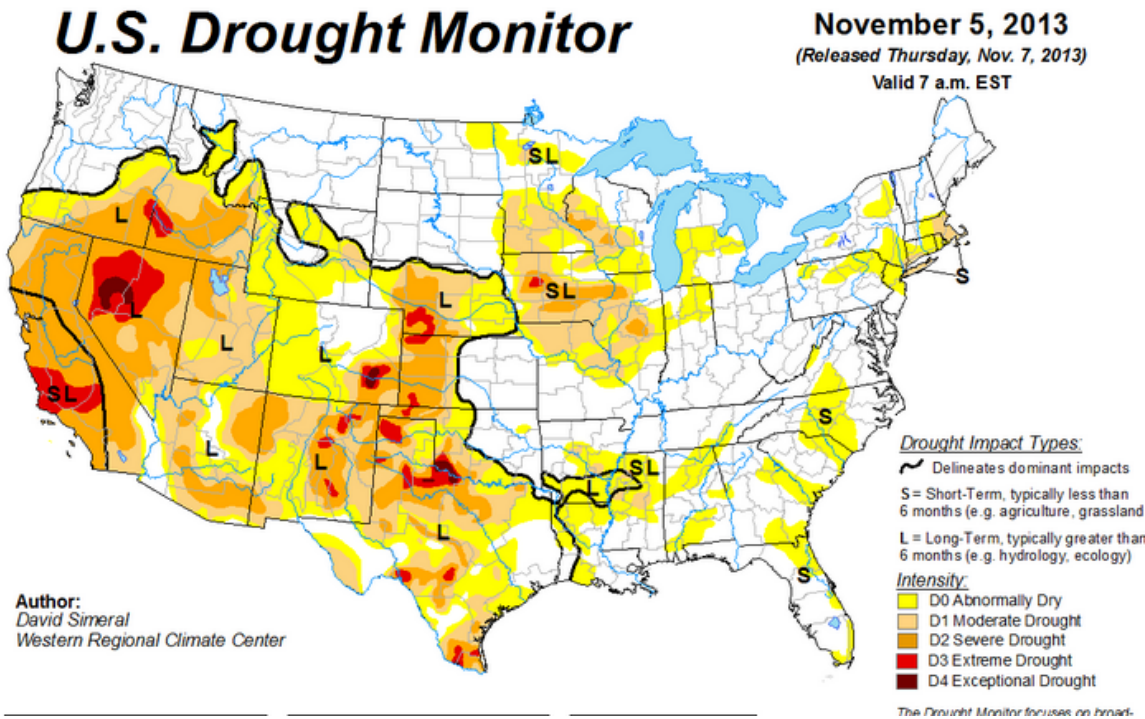

Fire Risk
• Health
• Water
• $$$
• Habitat
• WUI
• Emergency Services
• Public Safety

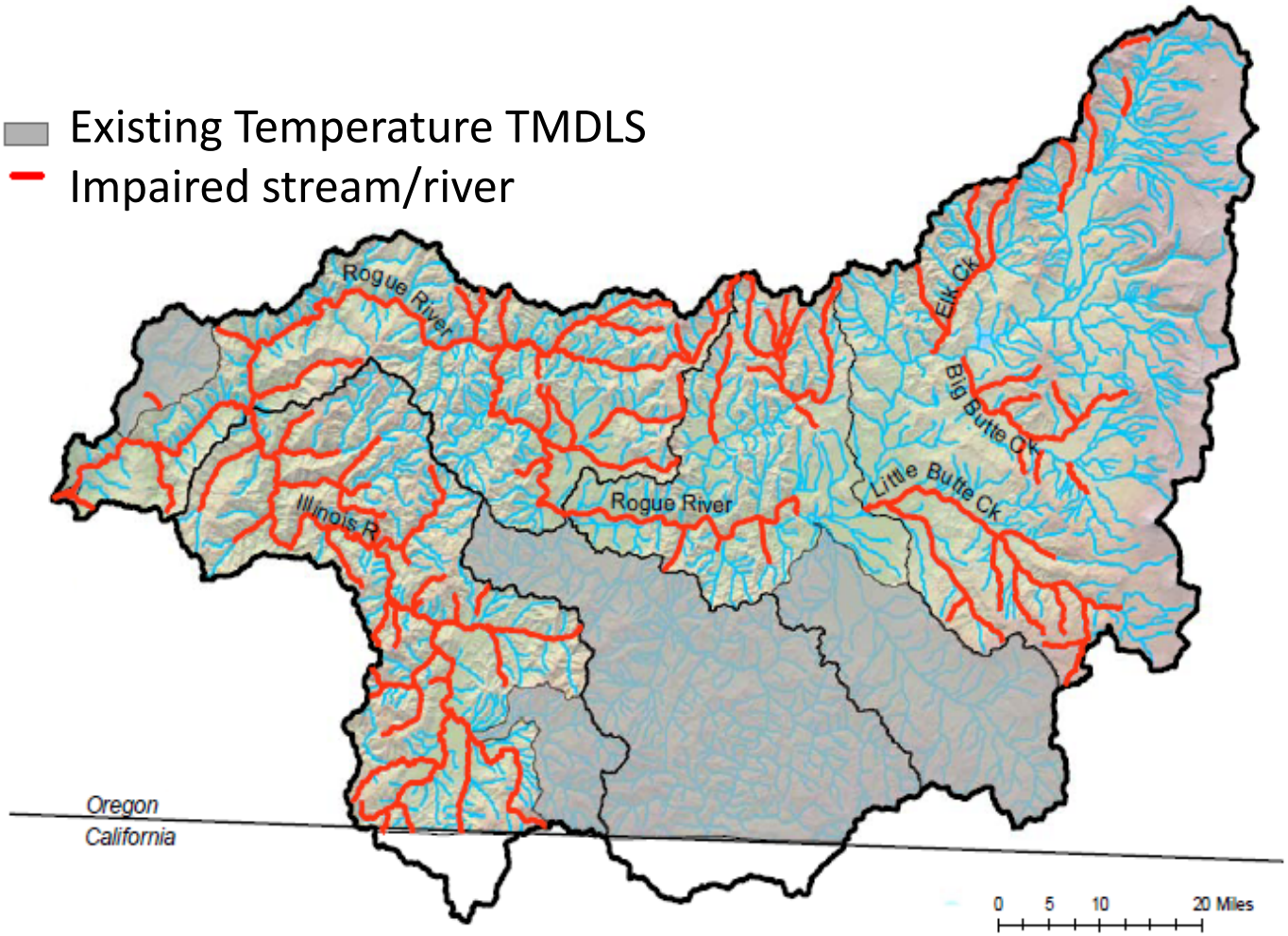
http://www.summitpost.org/mt-mcloughlin-oregon-cascades/215314

Source: Katu.com. December 2005 Flooding in Grants Pass

Extreme Weather Events

- $$$
- Water Quality
- Water Quantity
- Emergency Services
- Public safety and health

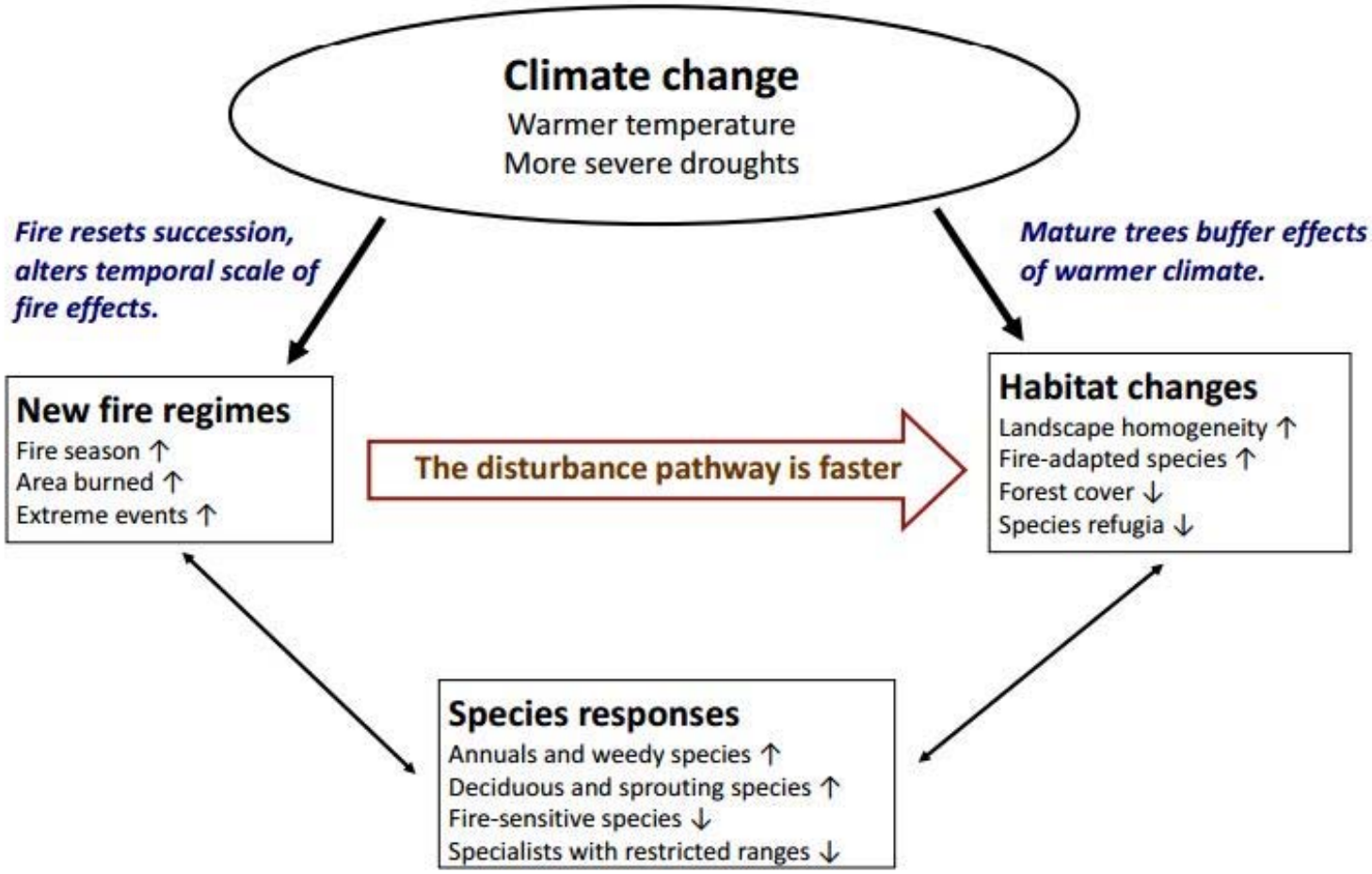




Increasing stream temperatures

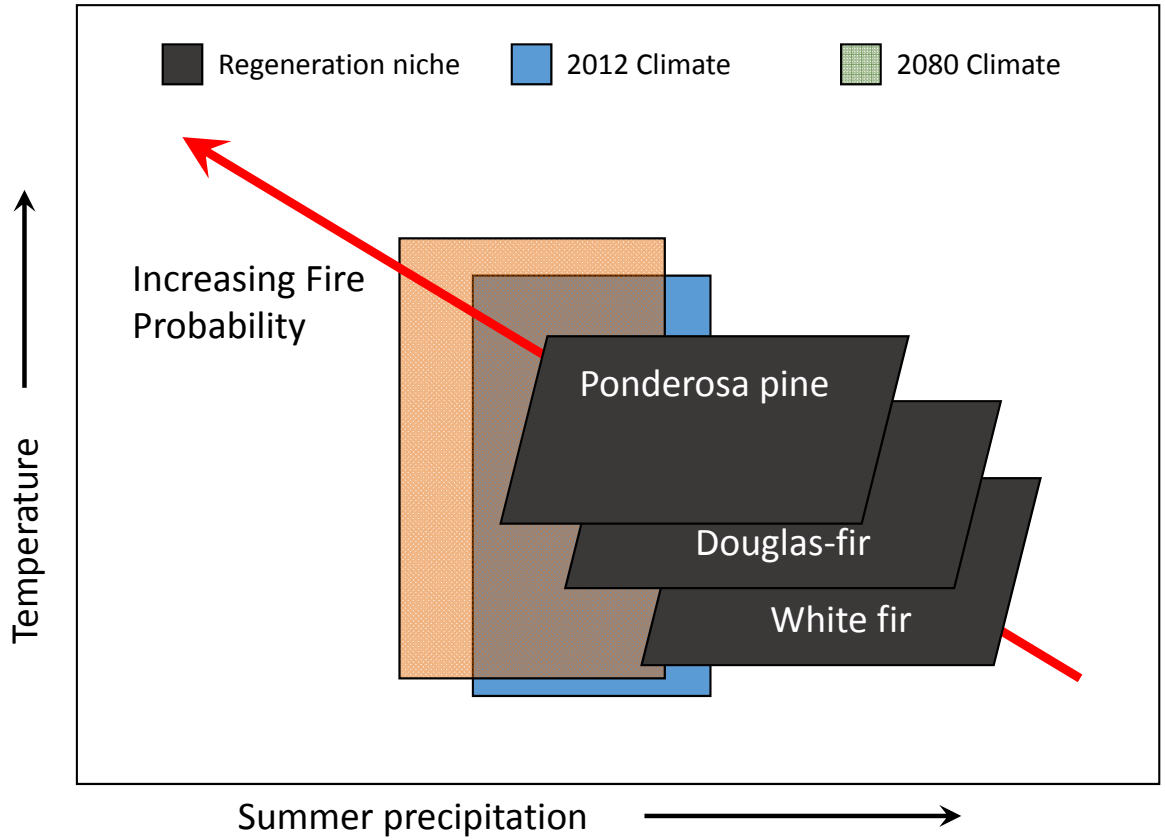
Species at Risk

Disturbance drives ecosystem change



Dave Peterson, USFS

Forest Regeneration, Fire Frequency, and Climate



- Mean summer temperature up 1-6° F (2035-45) ; 5.6-11.8° F (2075-85)
- Summer precipitation down by -.65" to -.34" (2035-45) ; -.75" to -.12" (2075-2085) K.A. Conjour Consulting, 2011
- Climate change will increase drought and fire frequency Whitlock et al. 2003, Westerling et al. 2006

Tools and partnerships to move forward

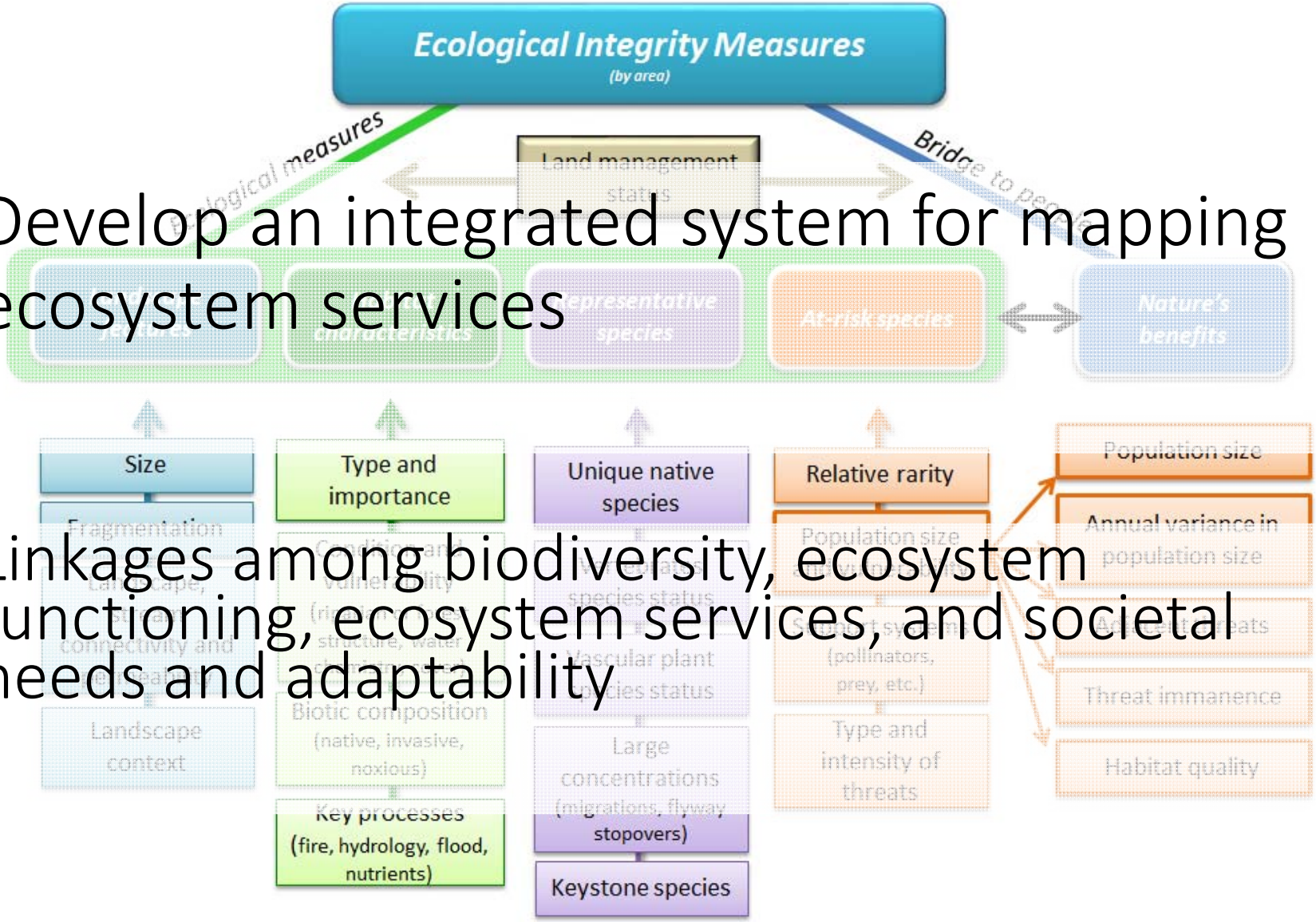
Watershed Councils

A Call to Action

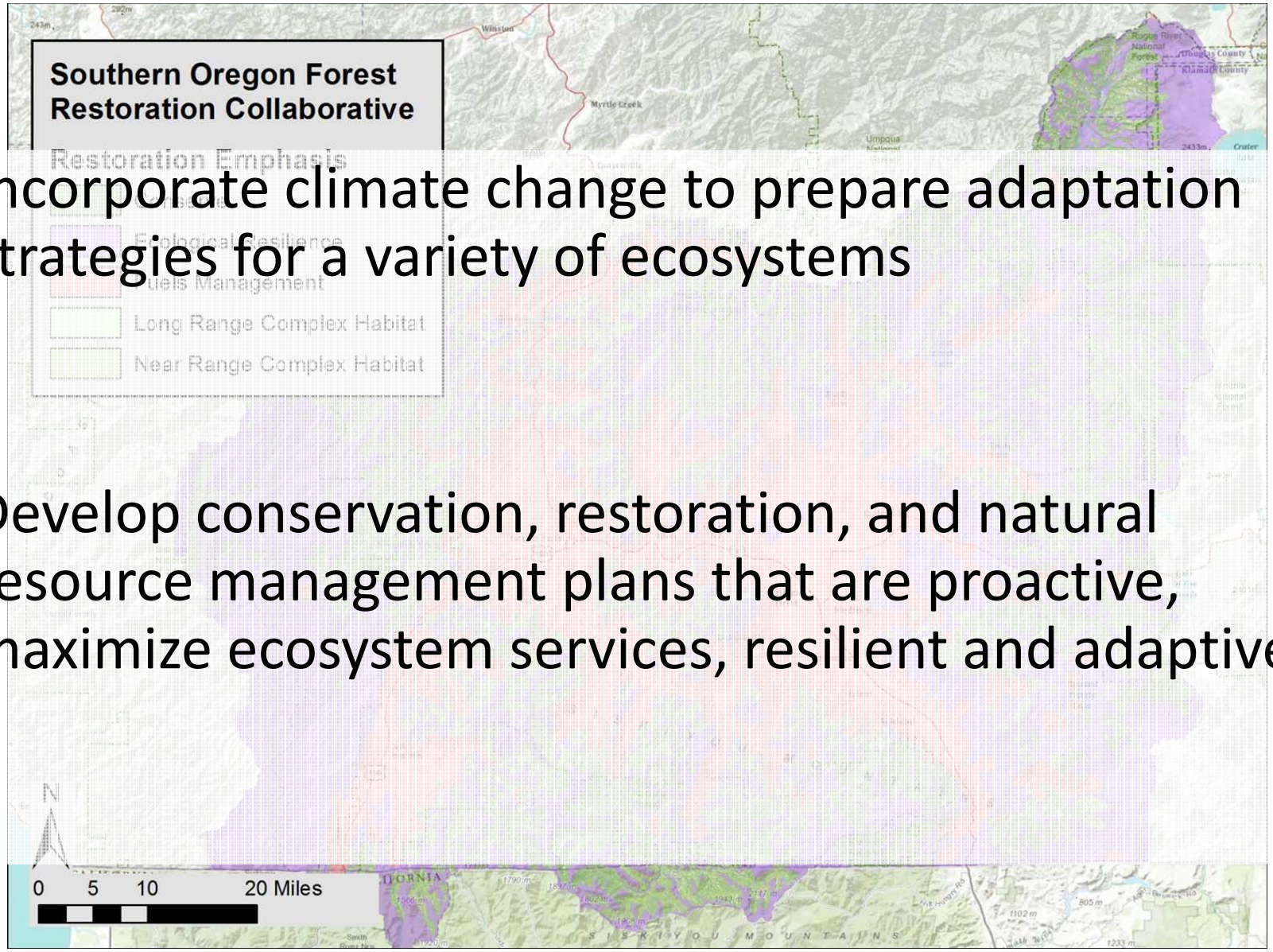
"We need to make progress on…the link between biodiversity and ecosystem services in order to reduce uncertainty in our predictions of the consequences of climate change. This will enable us to implement actions that will build resilience into the delivery of nature's Services…"

Mooney et al. 2009. Biodiversity, Climate Change, and Ecosystem Services

Develop an integrated system for mapping ecosystem services



Linkages among biodiversity, ecosystem functioning, ecosystem services, and societal needs and adaptability



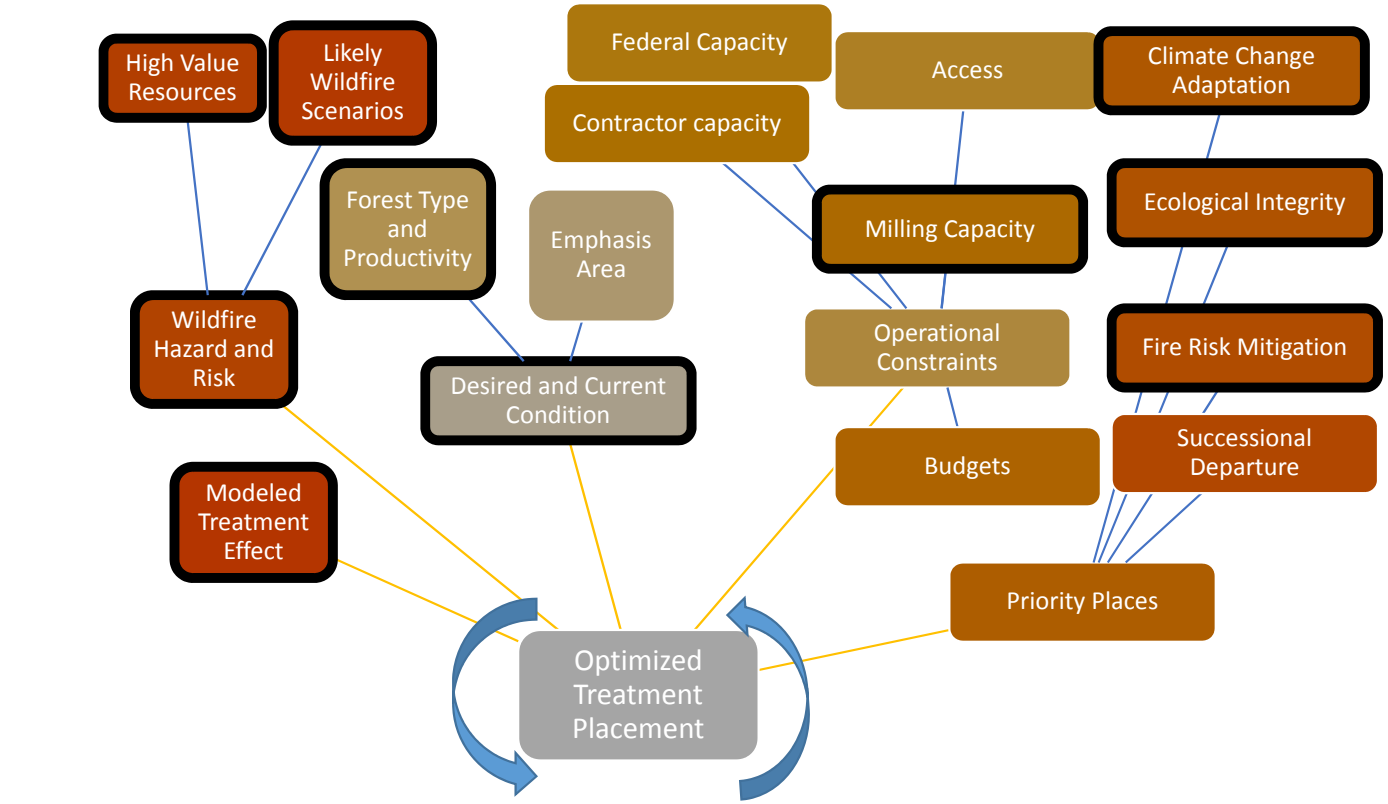
- Incorporate climate change to prepare adaptation strategies for a variety of ecosystems

- Develop conservation, restoration, and natural resource management plans that are proactive, maximize ecosystem services, resilient and adaptive

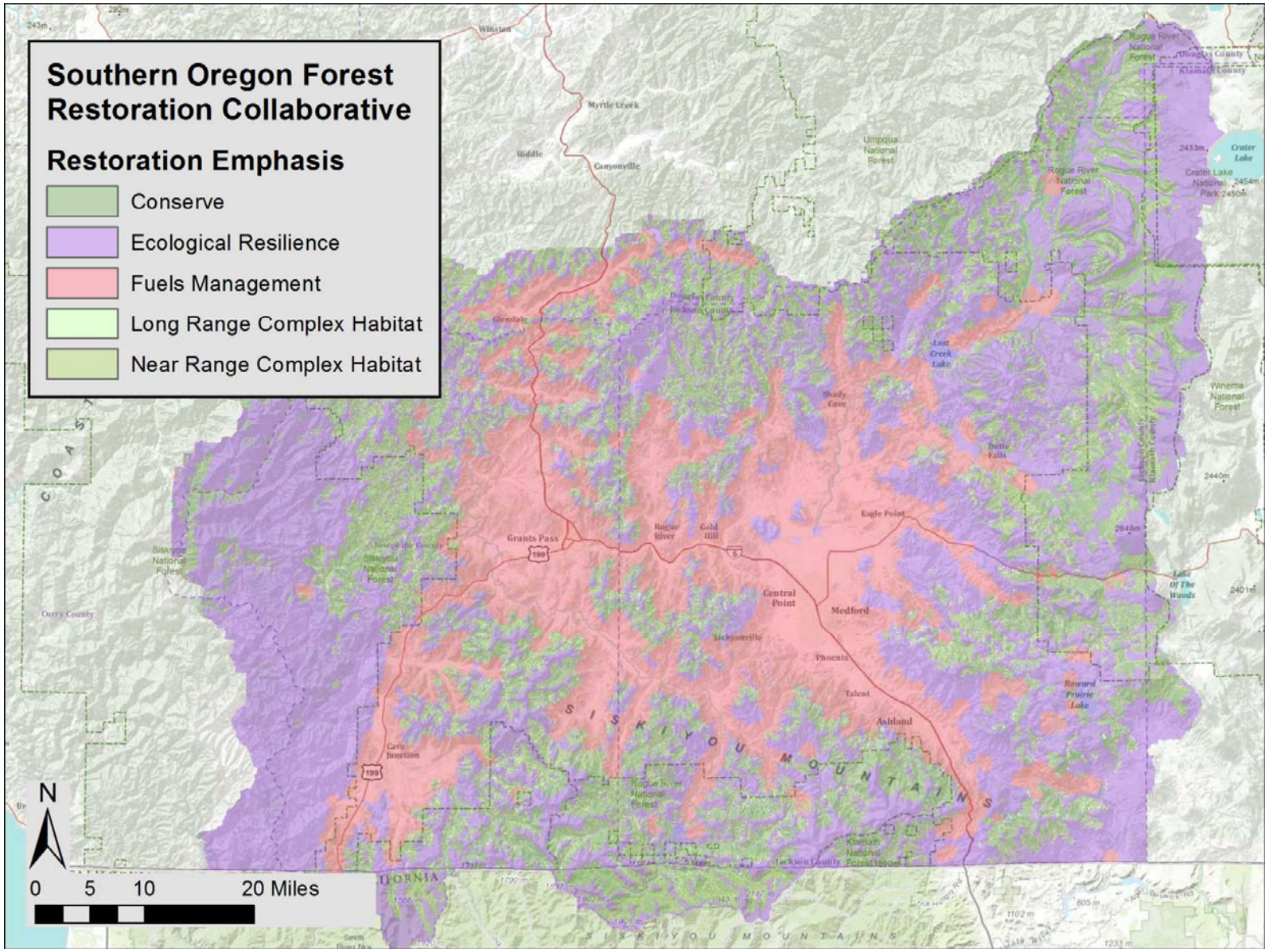
Southern Oregon Forest Restoration Collaborative's Cohesive Forest Restoration Strategy

Key Layers	Rationale
Regional and National Priorities	Existing regional and national priorities should help inform local decisions.
Wildland Fire Potential	Modeled fire potential across the landscape
Values and Effects of Potential Wildland Fire	Quantified and mapped values and their exposure to wildland fire potential (risk), allows explicit evaluation of treatment need and prioritization
Successional Classes	Landscape resilience is evaluated by the proportion of seral structural classes by vegetation type
Collaboratively Defined Management Zones	Collaboratively defined and mapped management direction to sustain key values at risk, emphasis areas define desired future condition (e.g. complex forest, ecosystem resilience, or community safety)
Tree Density and Composition	The difference between existing and desired future condition identifies work needed and potential excess volume
Access	Existing and planned transportation network
Climate Change	Identify key areas for climate adaptation as a high priority based on species climate envelopes, geophysical limitations, and changing fire probability
Existing Land Use Allocation	Determines types of activities that may be possible

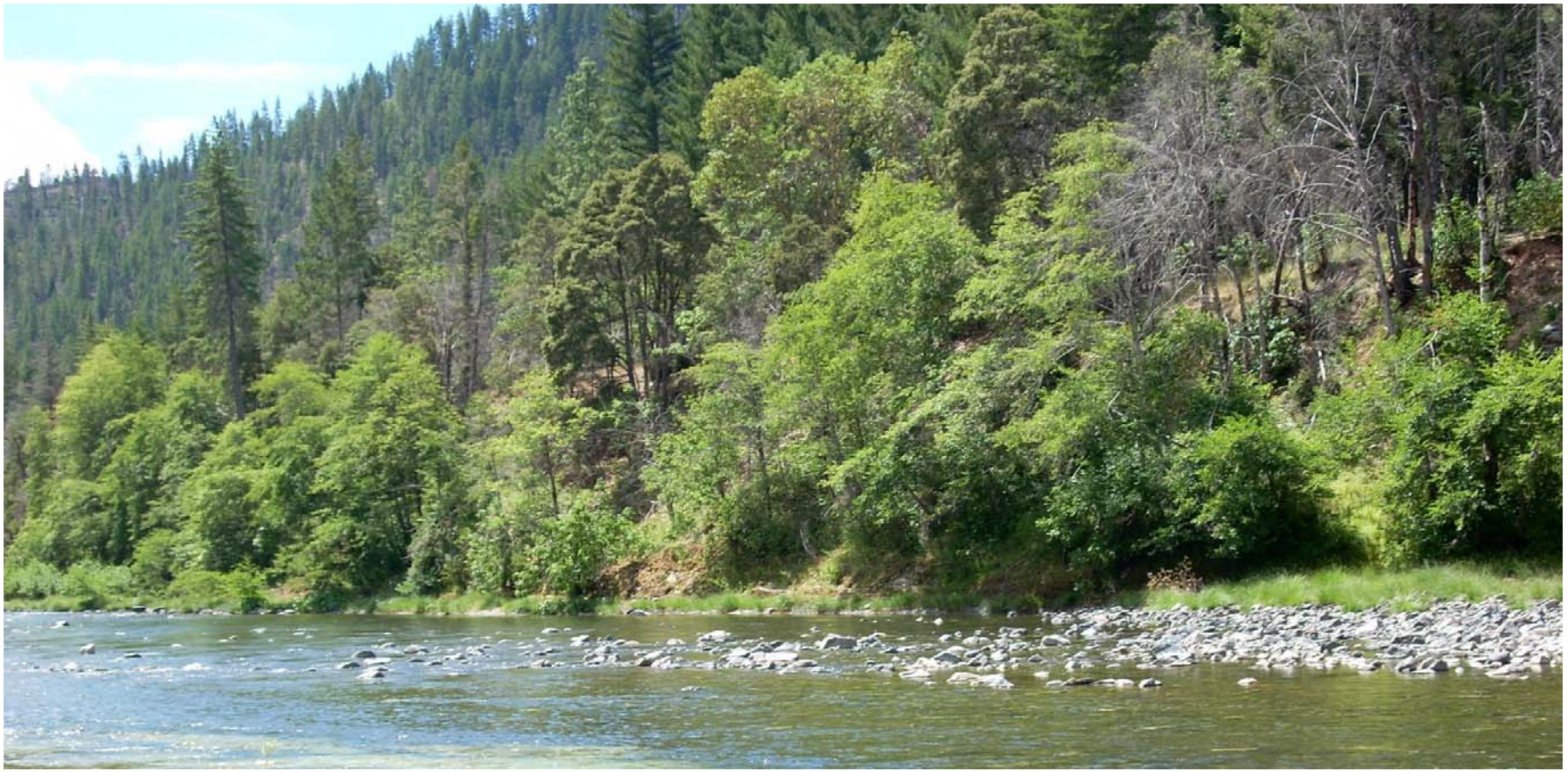
Integrated Project Planning unit scale (10-1,000 acre) – IN DEPTH



Healthy Resilient Forests, Enduring Wildlife Habitat, Dependable Timber Supply, Fire Adapted Communities


Southern Oregon Forest Restoration Collaborative
Restoration Emphasis
Conserve
Ecological Resilience
Fuels Management
Long Range Complex Habitat
Near Range Complex Habitat
N
0 5 10 20 Miles
Grants Pass
Medford
Central Point
Ashland
Talent
Phoenix
Jacksonville
Eagle Point
Rogue River
Gold Hill
Cave Junction
Myrtle Creek
Riddle
Canyonville
Glendale
Winston
Rogue River National Forest
Umpqua National Forest
Siskiyou National Forest
Winema National Forest
Crater Lake
Crater Lake National Park
Lost Creek Lake
Shady Cove
Butte Falls
Lake Of The Woods
Howard Prairie Lake
Curry County
Douglas County
Jackson County
Klamath County
SISKIYOU MOUNTAINS

Working to integrate forest restoration strategy with watershed councils and in stream restoration prioritization



How are you incorporating climate change projections into ecosystem services?

- Projects?
- Management plans?
- Prioritization?

Questions?

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http://www.forestrestorationcollaborative.org/

Interested in the Climate Solutions University's **Climate Plan Development Program**?
Contact Recruitment Coordinator Josh Dye josh@mfpp.org
For information: http://www.mfpp.org/csu/

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- Jackson County Planning- Craig Anderson
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- The people speaking here today
- Many others…