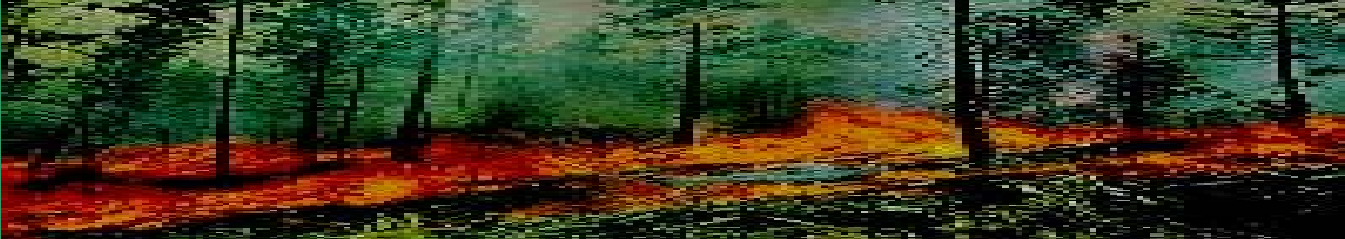


Integrating Landscape Restoration and CWPP

Two approaches:

One or more CWPP embedded in a larger landscape to achieve multiple objectives

CWPP that encompasses a larger landscape to achieve multiple objectives

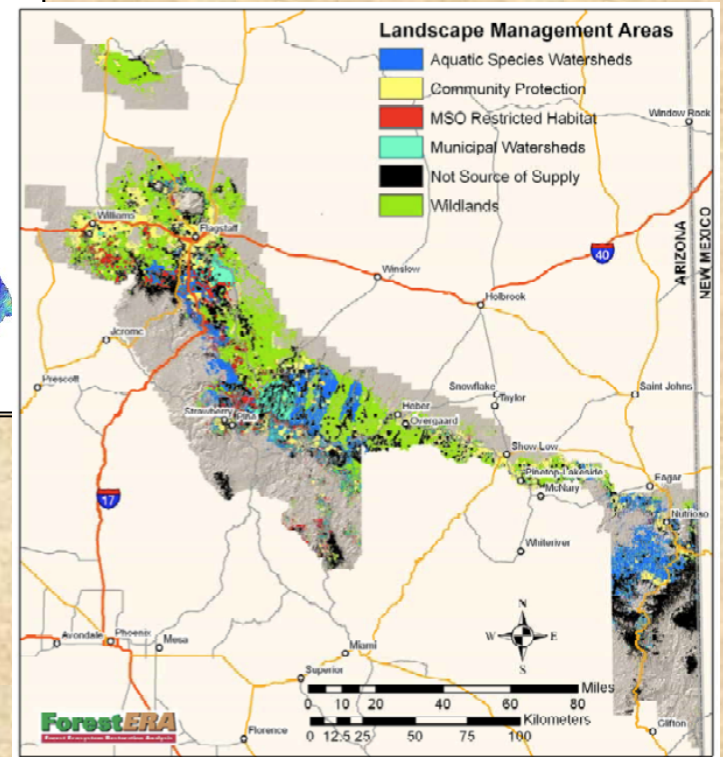
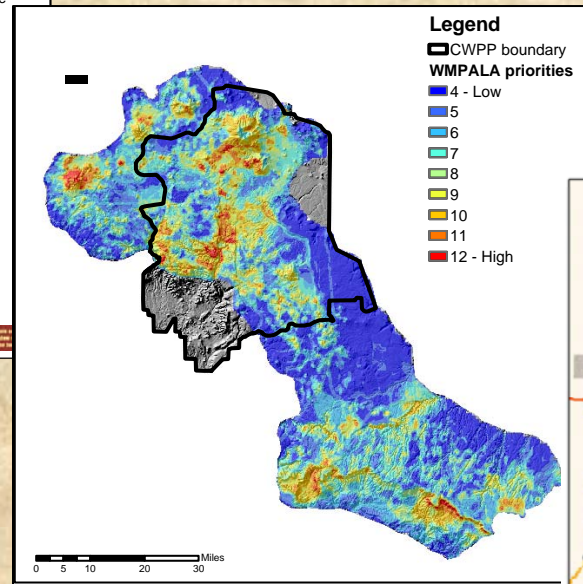
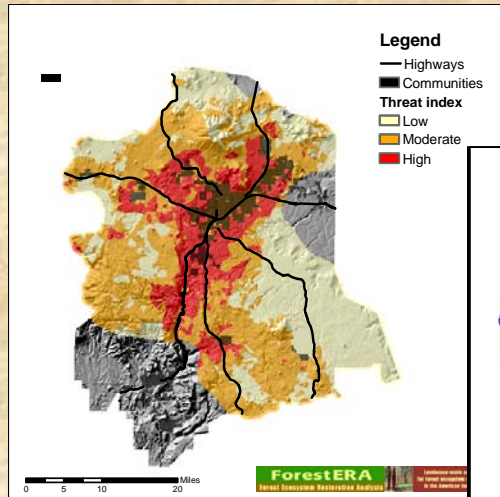


Why

Integrate CWPP and Landscape Restoration?

1. Better protection of community values and infrastructure
2. Ability to restore watershed and forest health
3. Efficiency: multiple objectives can be achieved
4. Context to set priorities for implementation
5. Cumulative effects for NEPA
6. Opportunity for biomass utilization
7. Large enough for a consistent “program of work”

Integrating CWPPs with landscape restoration efforts in northern Arizona



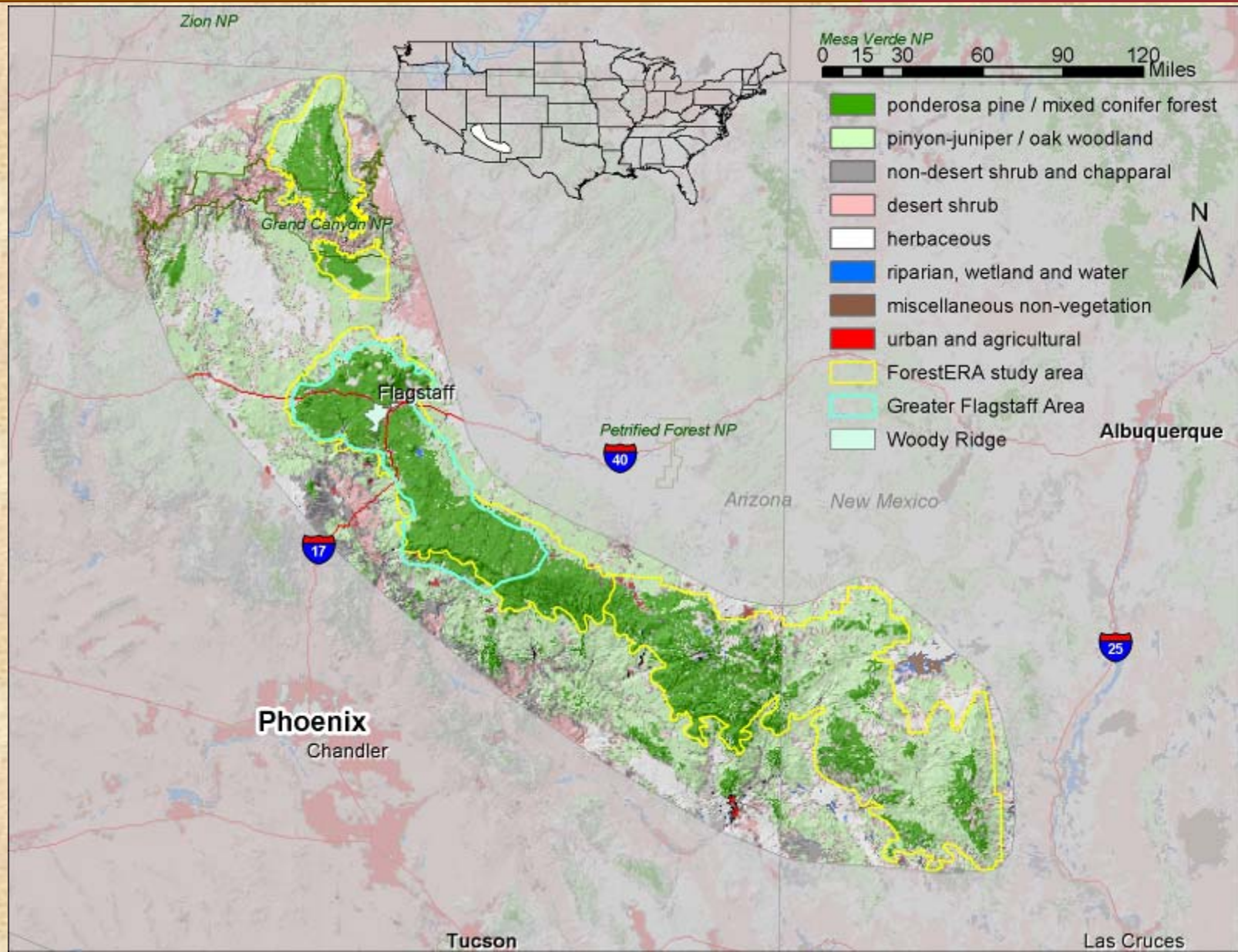
Landscape

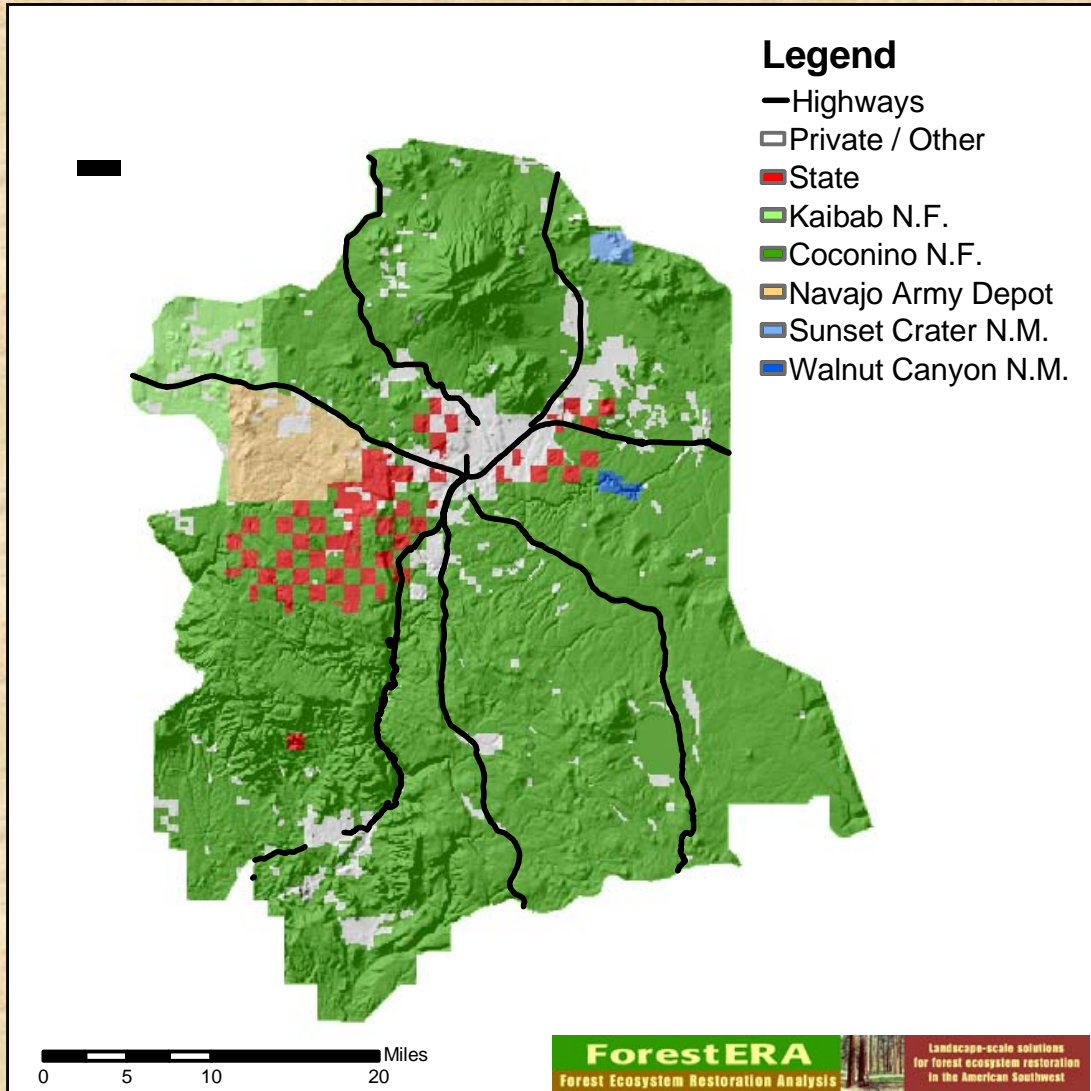
Regional

ForestERA

Providing a landscape-scale perspective on ecosystem restoration in Southwest forests

Forest Ecosystem Restoration Analysis





Flagstaff CWPP

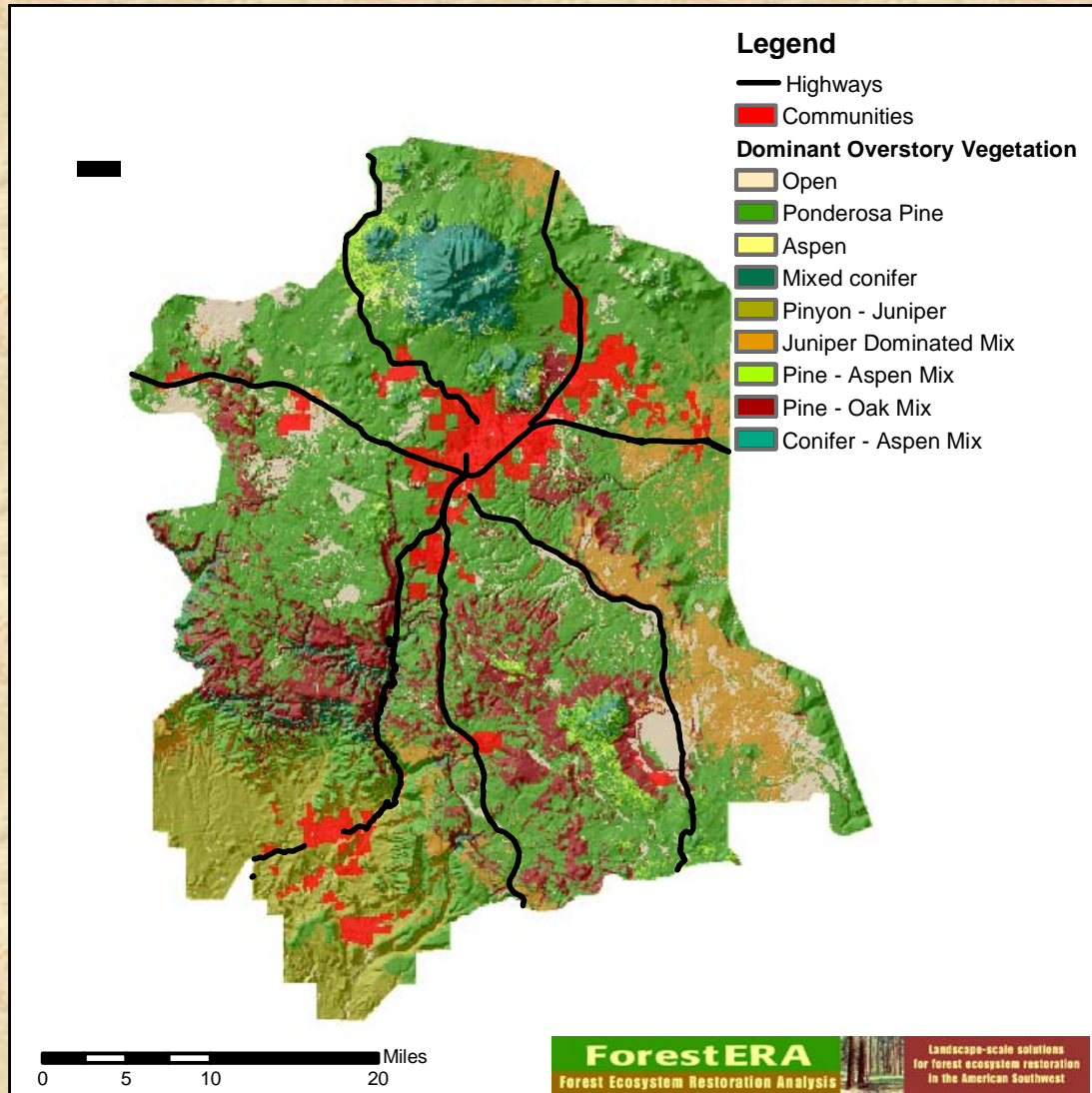
Area description

CWPP: 940,000 acres

USFS: 790,000 acres

Private: 82,000 acres

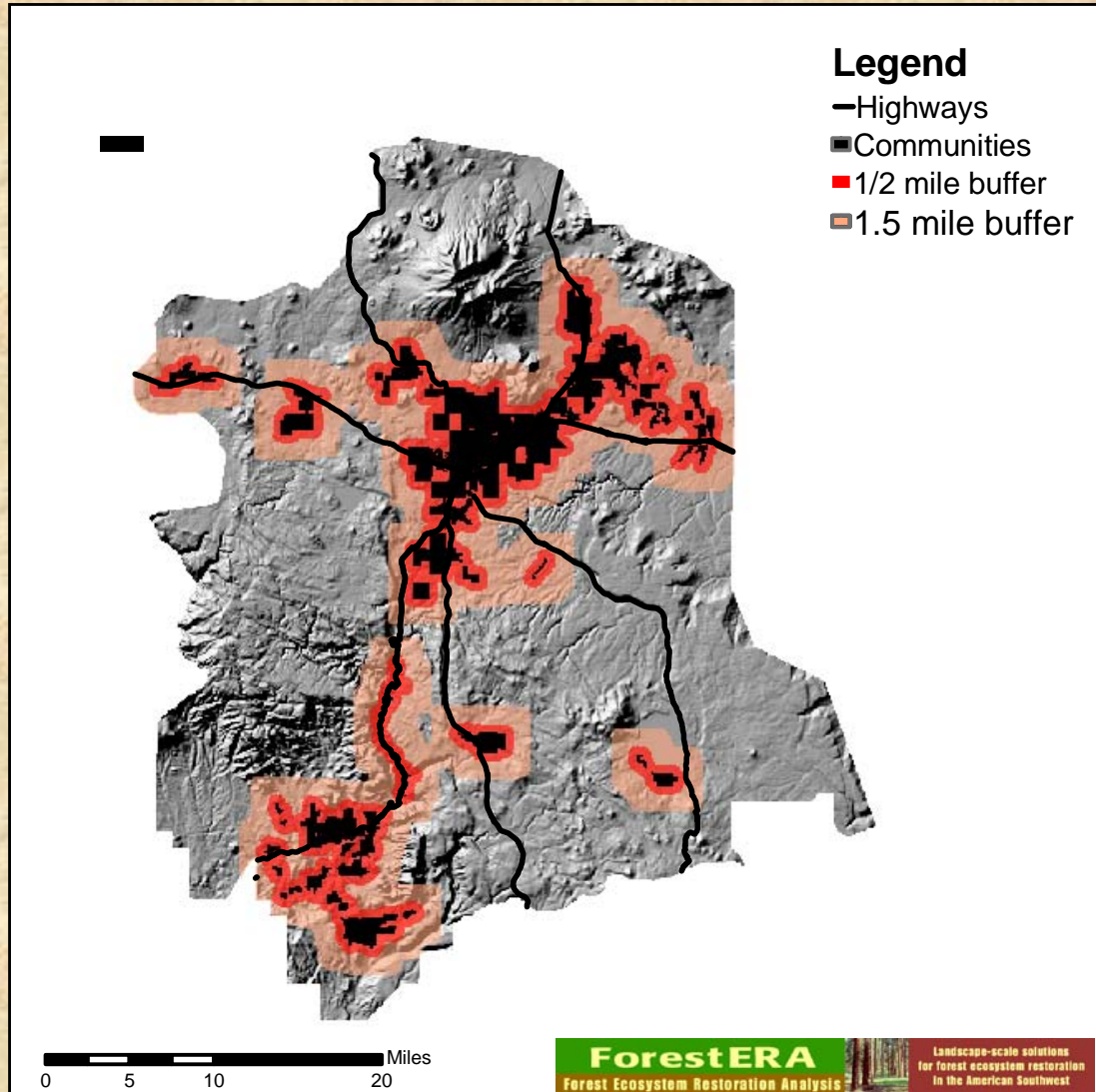
State: 35,000 acres



Flagstaff CWPP

Area description

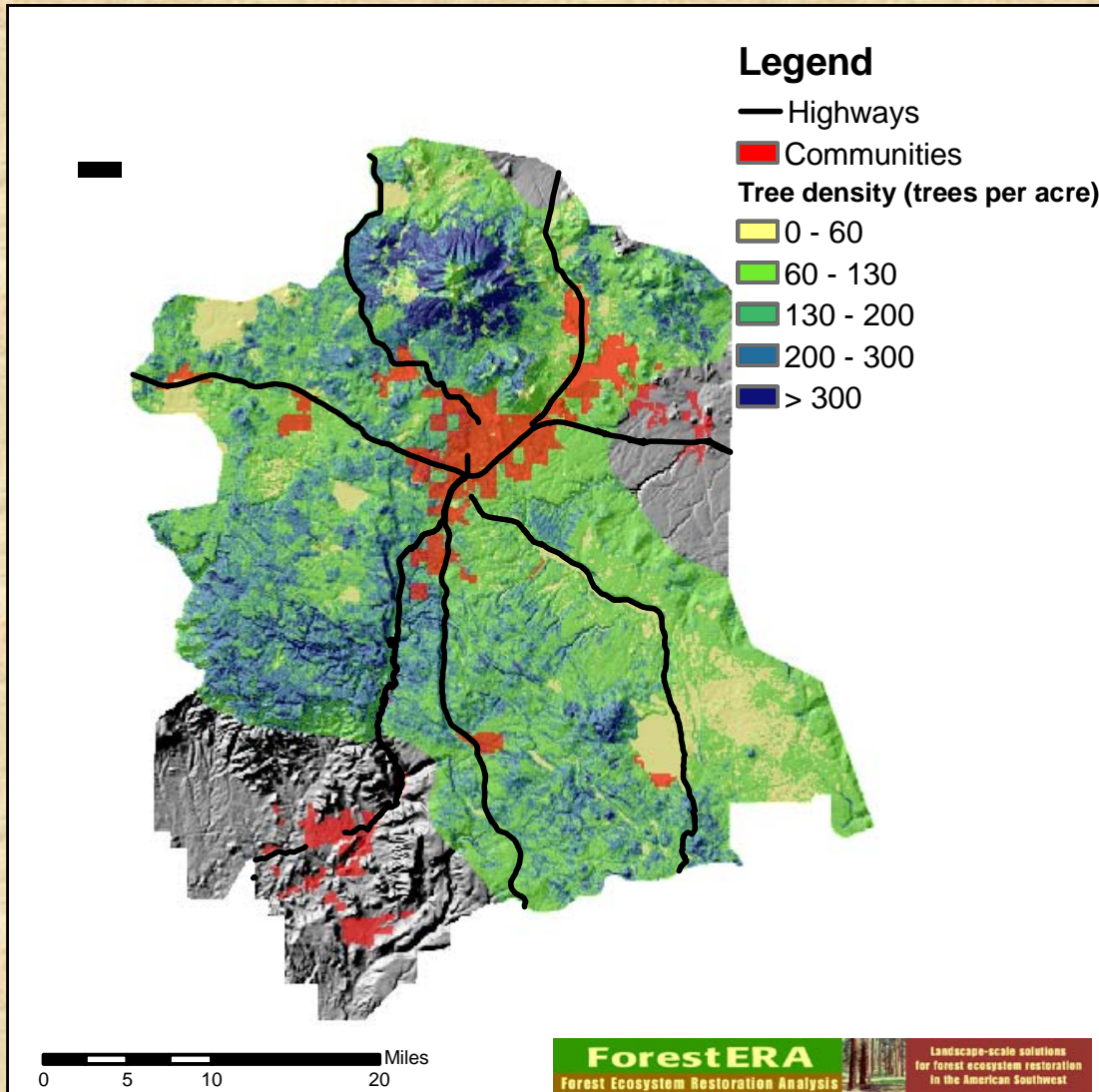
ForestERA overstory
vegetation layer +
National Landcover
Database



Flagstaff CWPP

Assessment of
current conditions

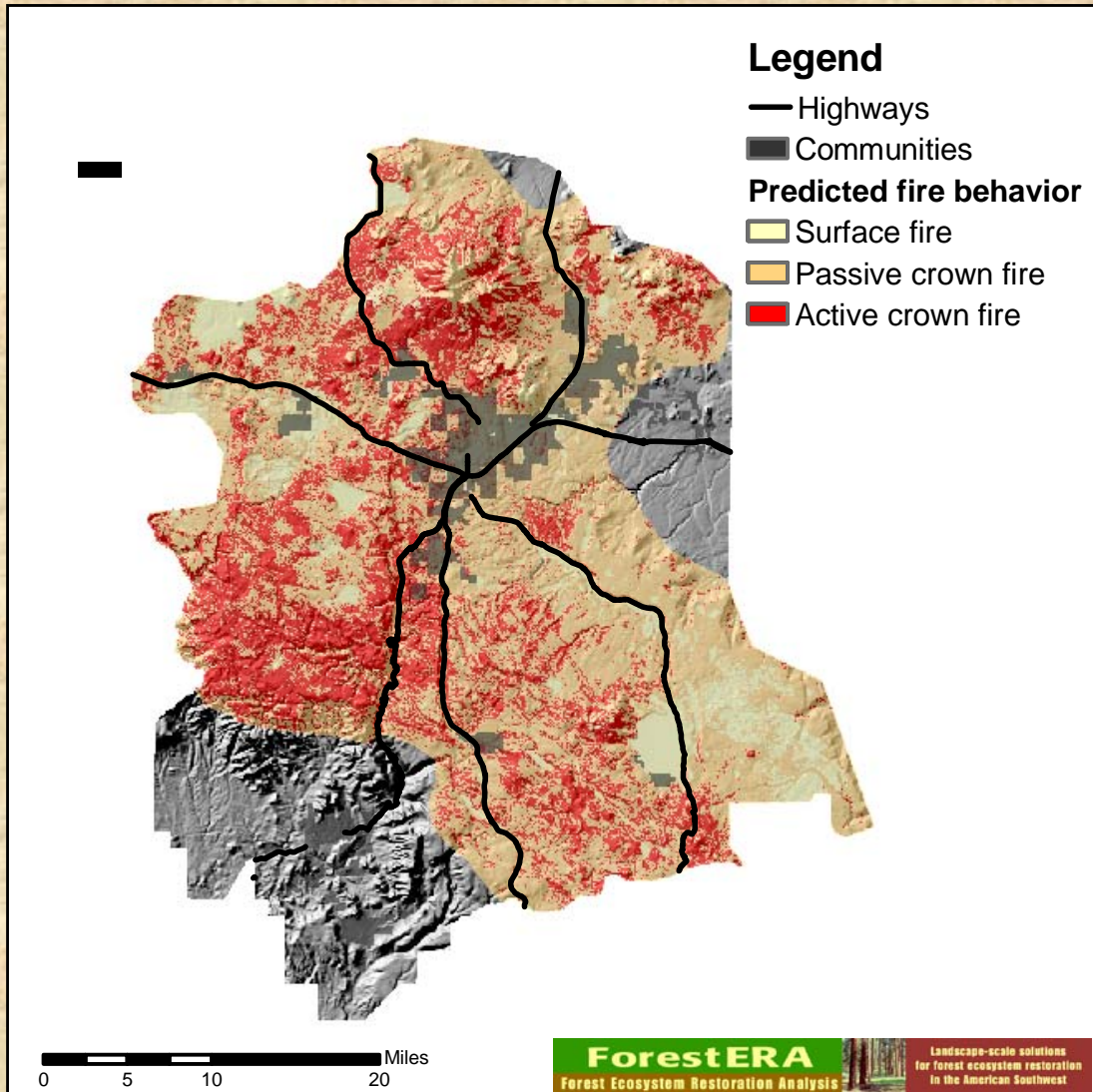
- 1/2 mile buffer
- 1.5 mile buffer
- HFRA WUI definition



Flagstaff CWPP

Assessment of current conditions

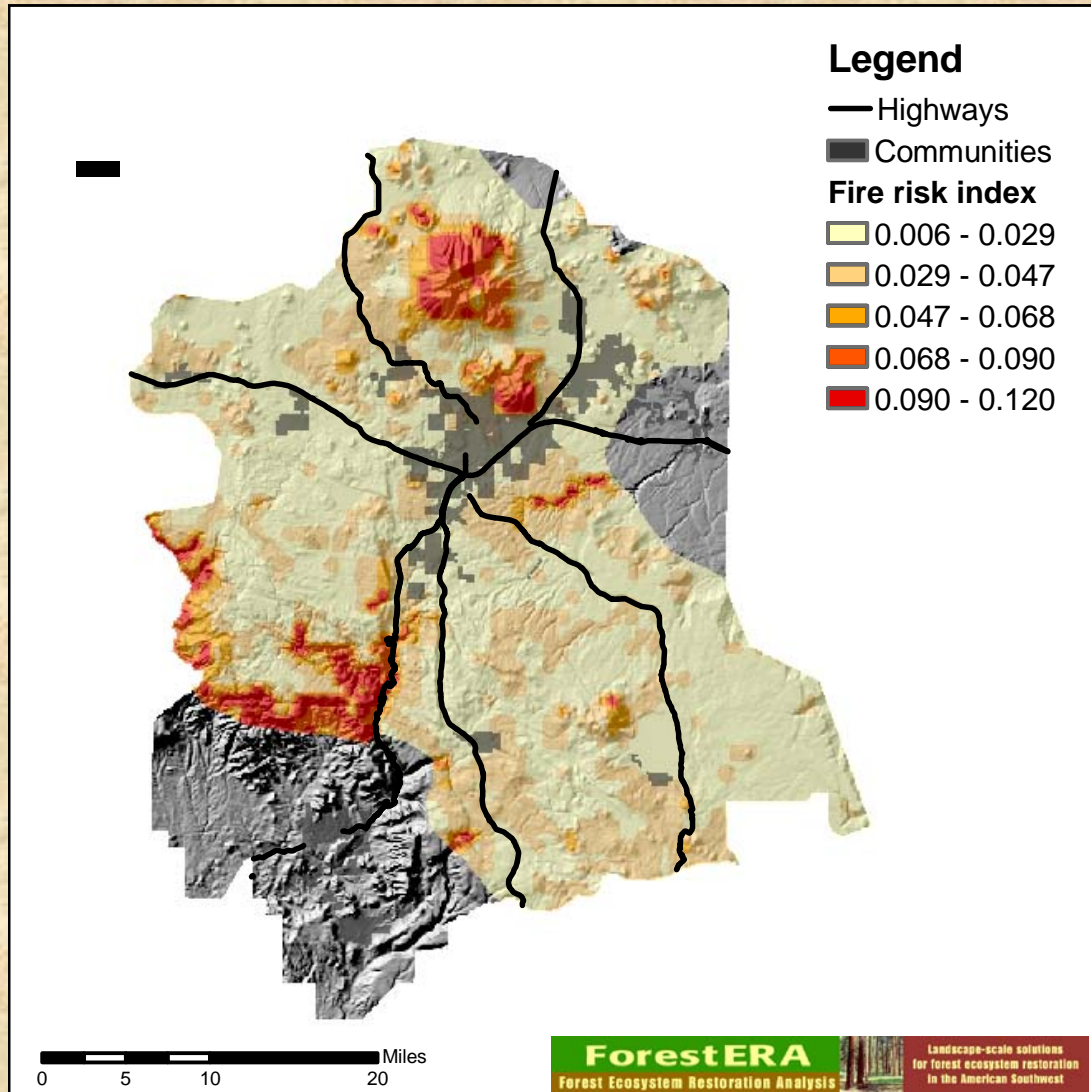
➤ Tree density



Flagstaff CWPP

Assessment of current conditions

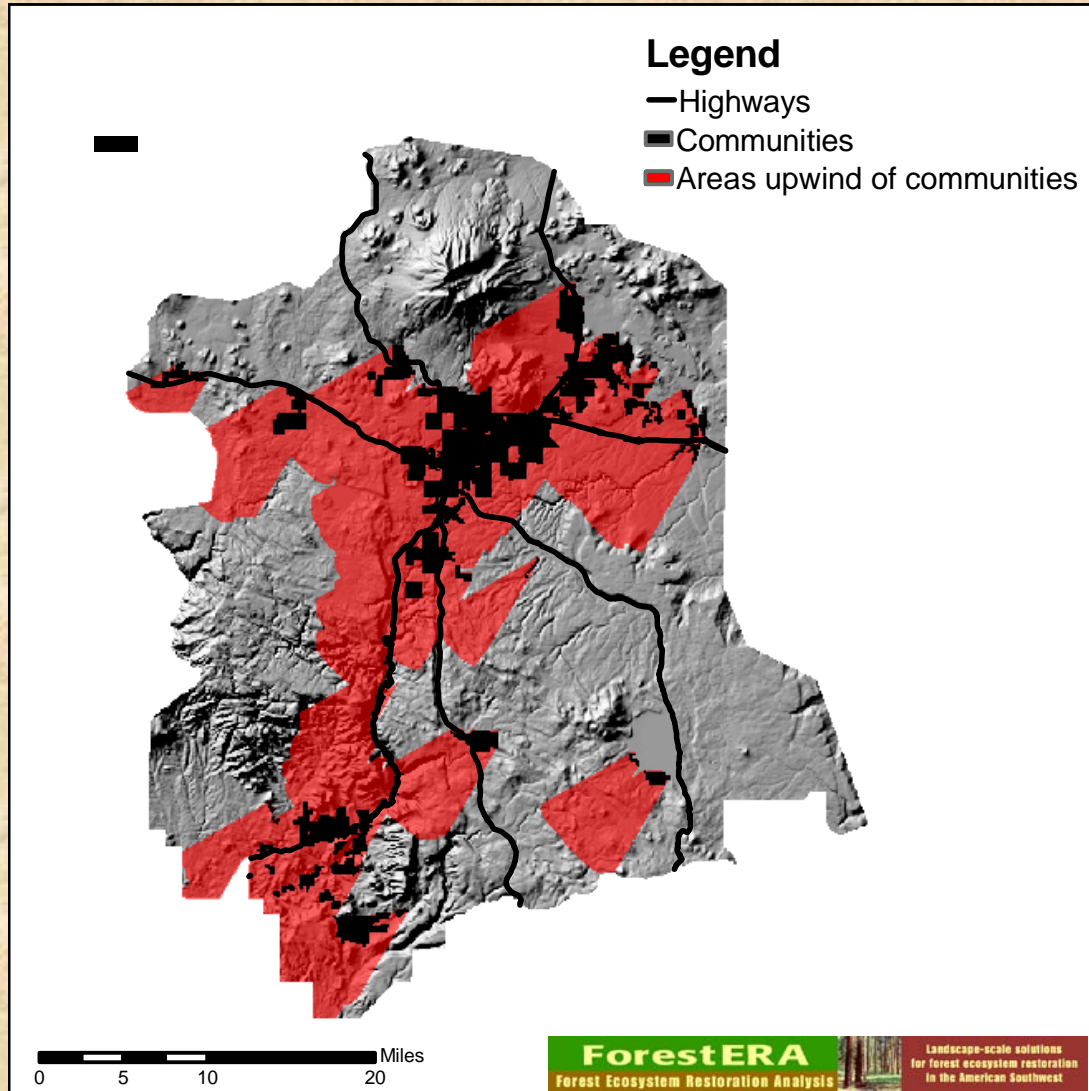
- Fire behavior
- Fire hazard
- Fire risk



Flagstaff CWPP

Assessment of current conditions

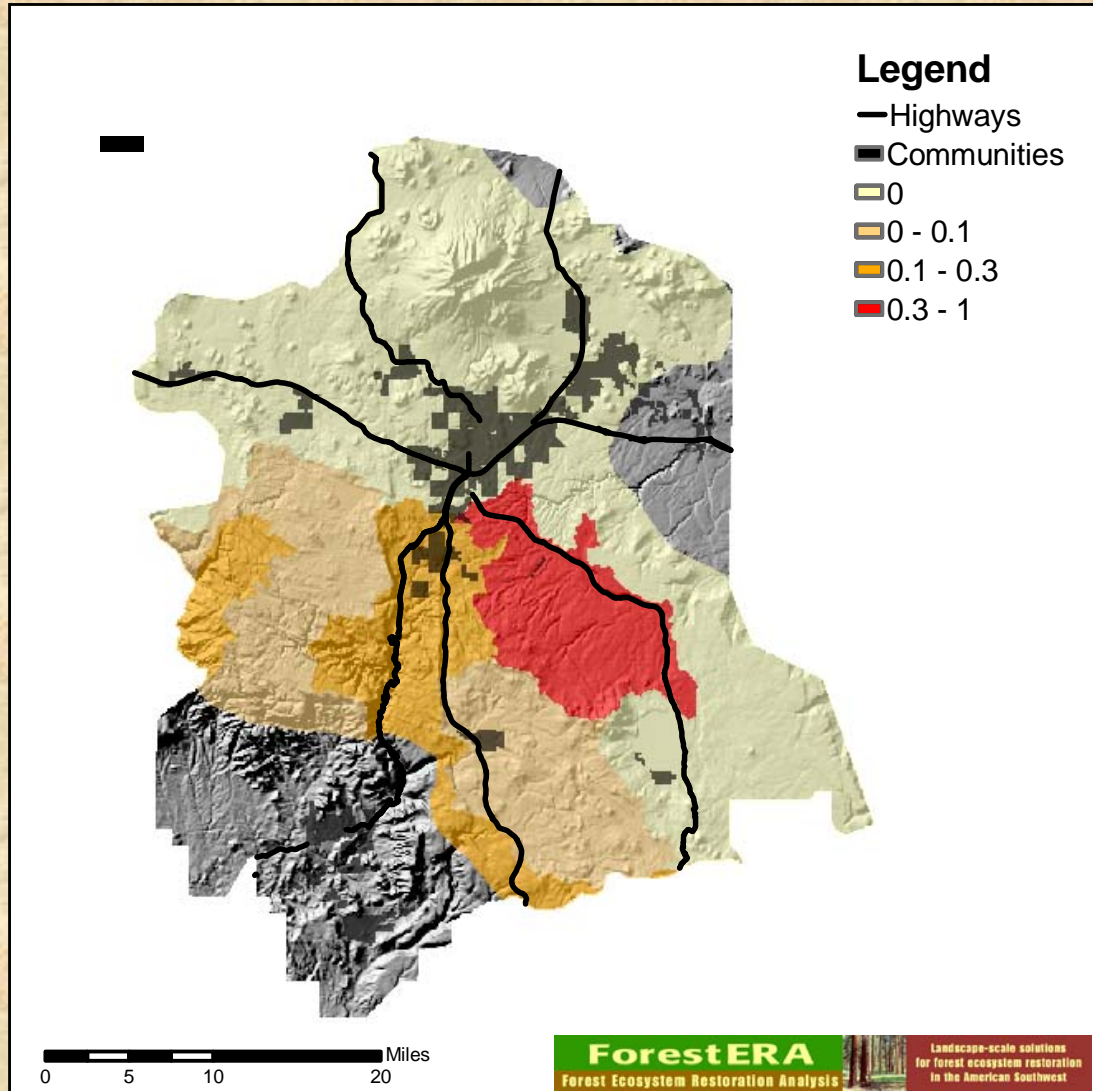
- Fire behavior
- Fire hazard
- Fire risk



Flagstaff CWPP

Assessment of
current conditions

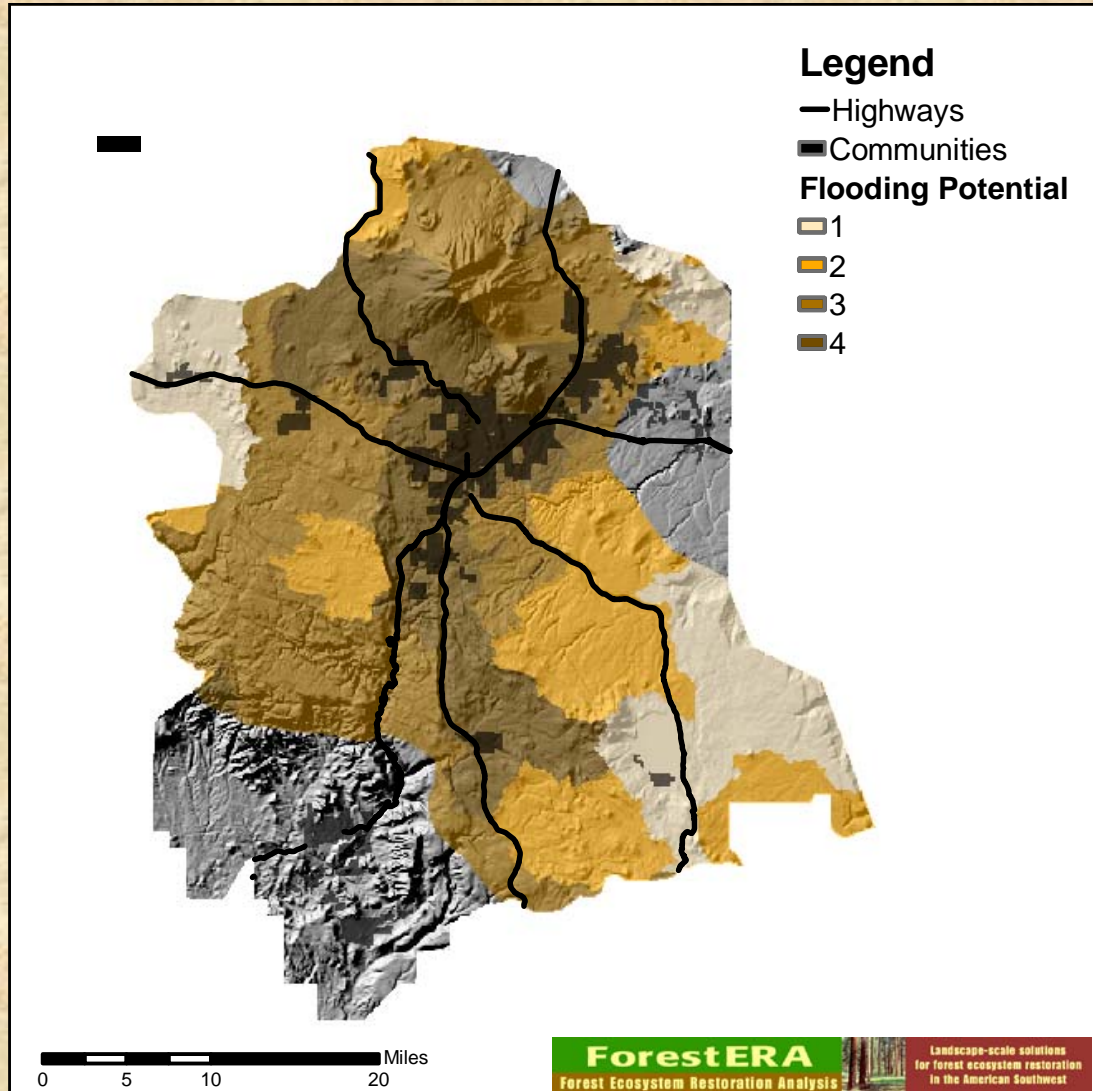
➤ Areas upwind of
communities



Flagstaff CWPP

Assessment of current conditions

➤ Municipal
watersheds



Flagstaff CWPP

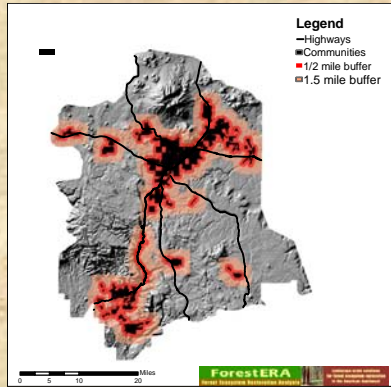
Assessment of current conditions

➤ Post-fire
flooding potential

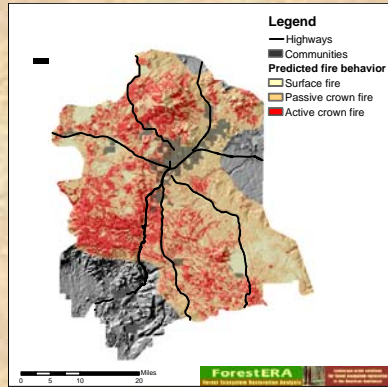
ForestERA

Providing a landscape-scale perspective on ecosystem restoration in Southwest forests

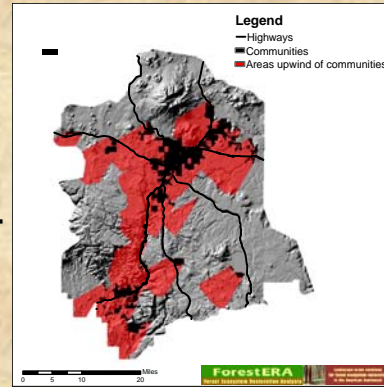
Forest Ecosystem Restoration Analysis



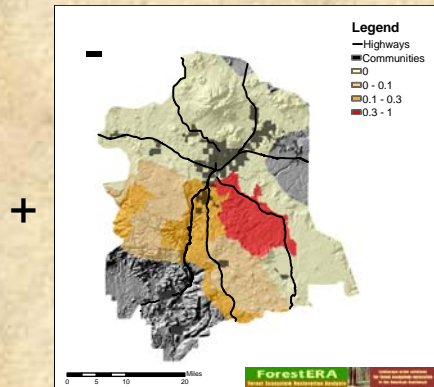
Community proximity (X3)



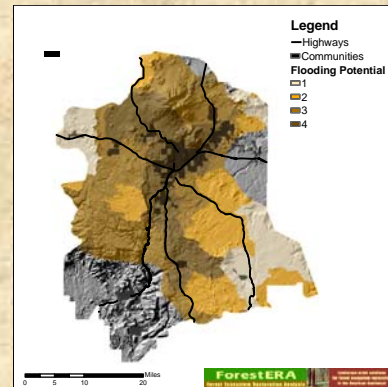
Fire behavior (X2)



Upwind vector (X3)



Municipal watersheds (X1)

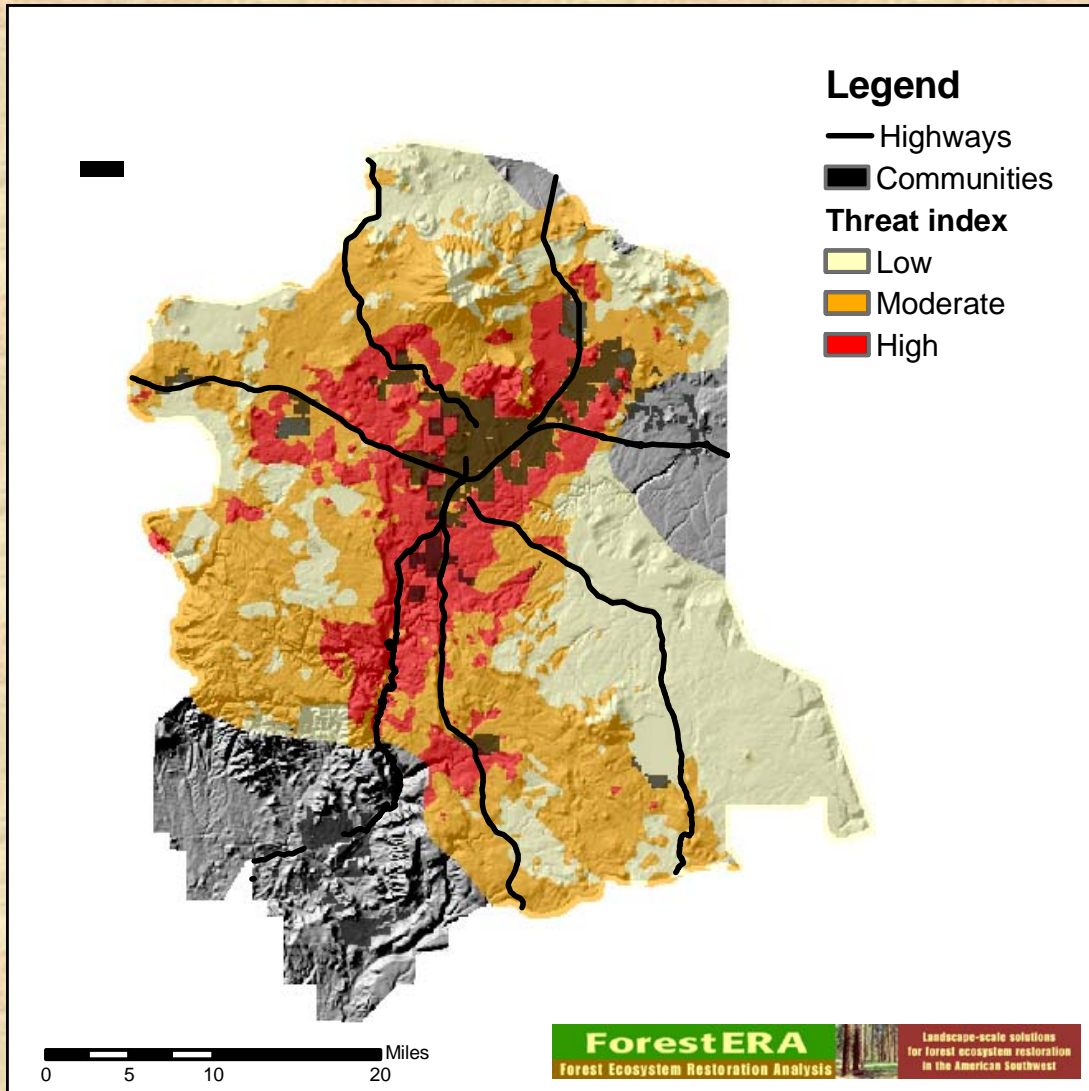


Flooding potential (X1)

Flagstaff CWPP Threat analysis

➤ Simple Additive Weighting-based overlay process

➤ 1/2 day, real-time



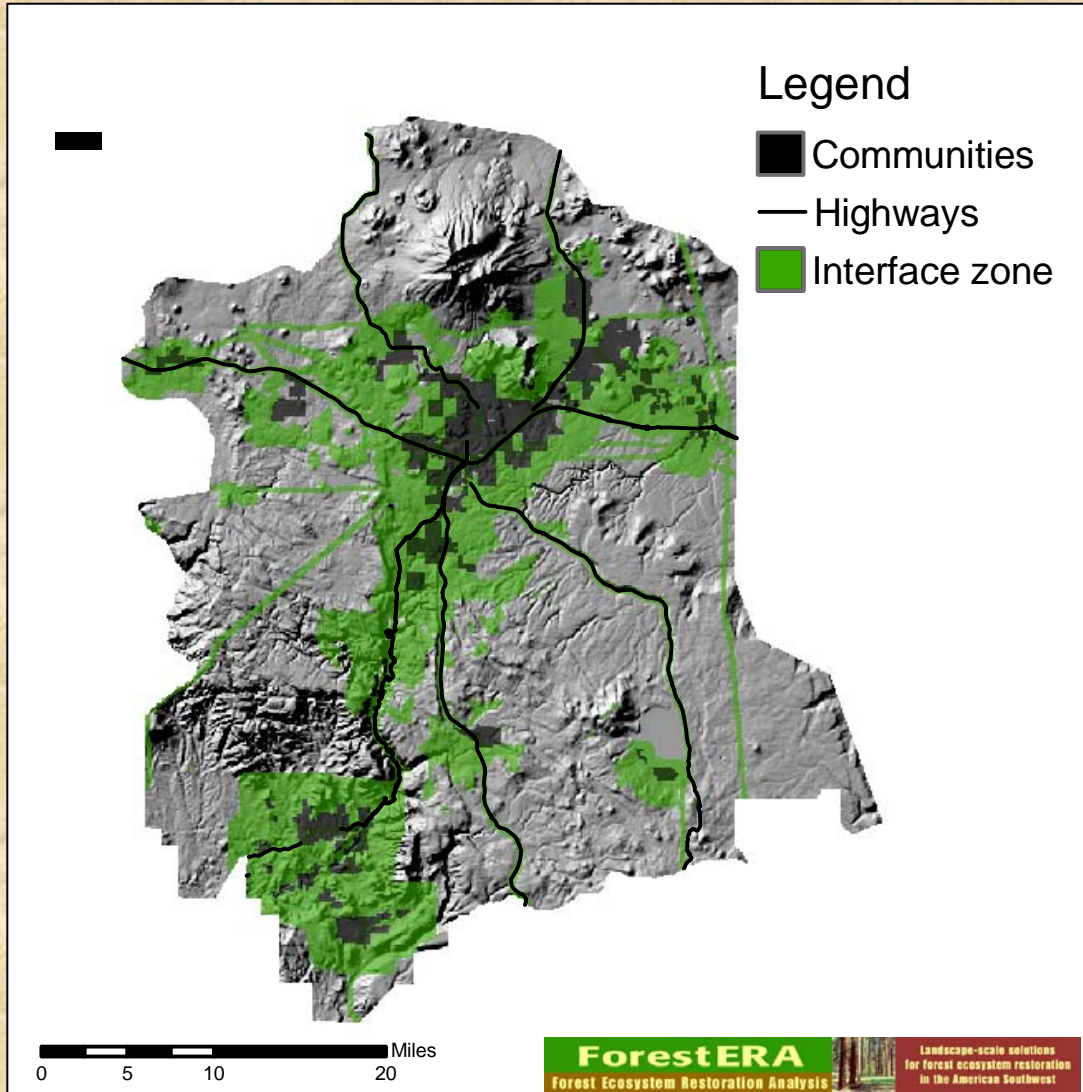
Flagstaff CWPP

Threat analysis

➤ High threat:
135,000 acres

➤ Moderate threat:
355,000 acres

➤ Low threat:
280,000 acres



Flagstaff CWPP

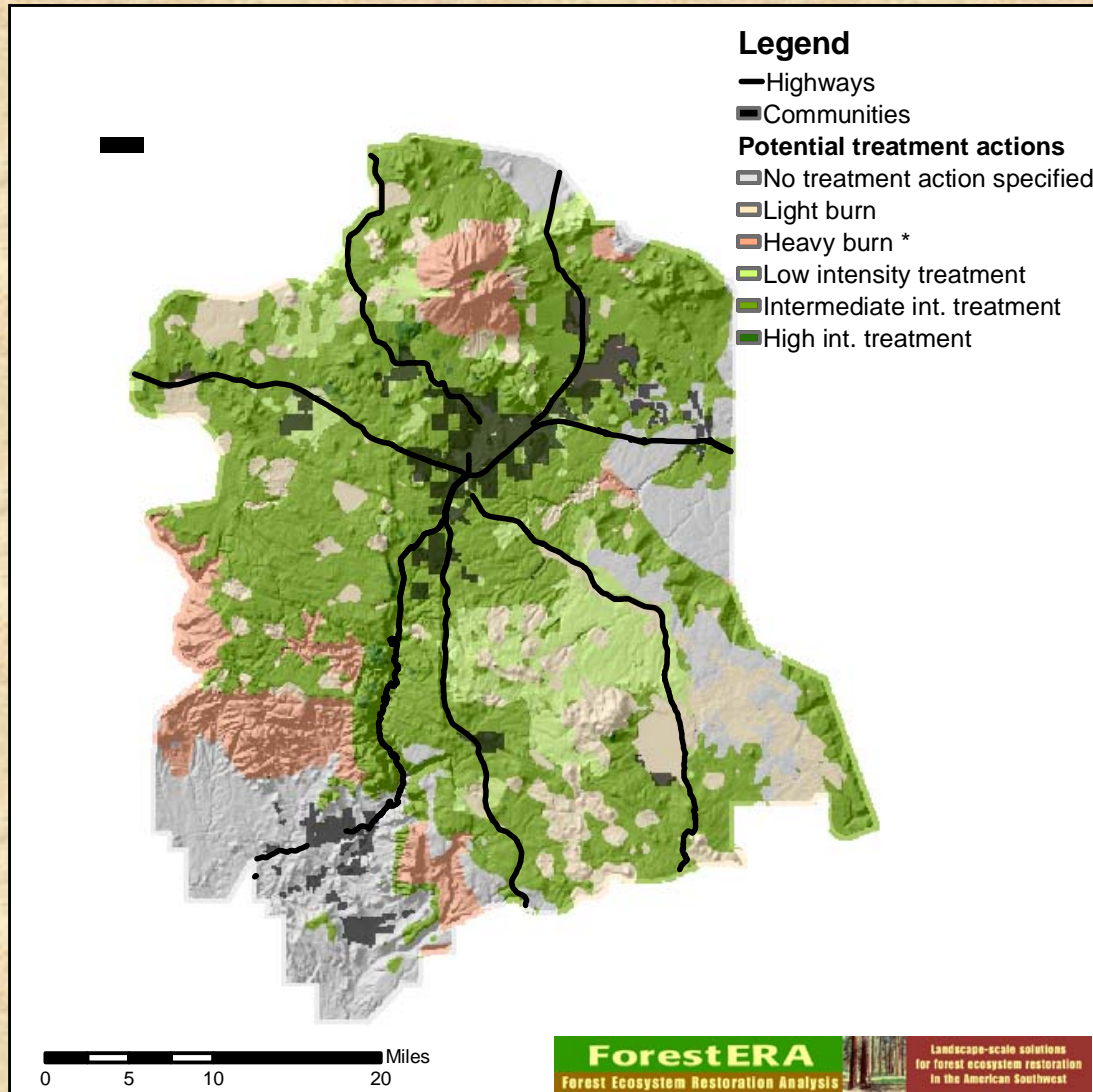
Interface zone

➤ Community protection zones:

- Sedona + O.C. ~ 67,000 + 2100 acres
- Parks, Mormon Lake, Cosnino ~ 36,000 acres

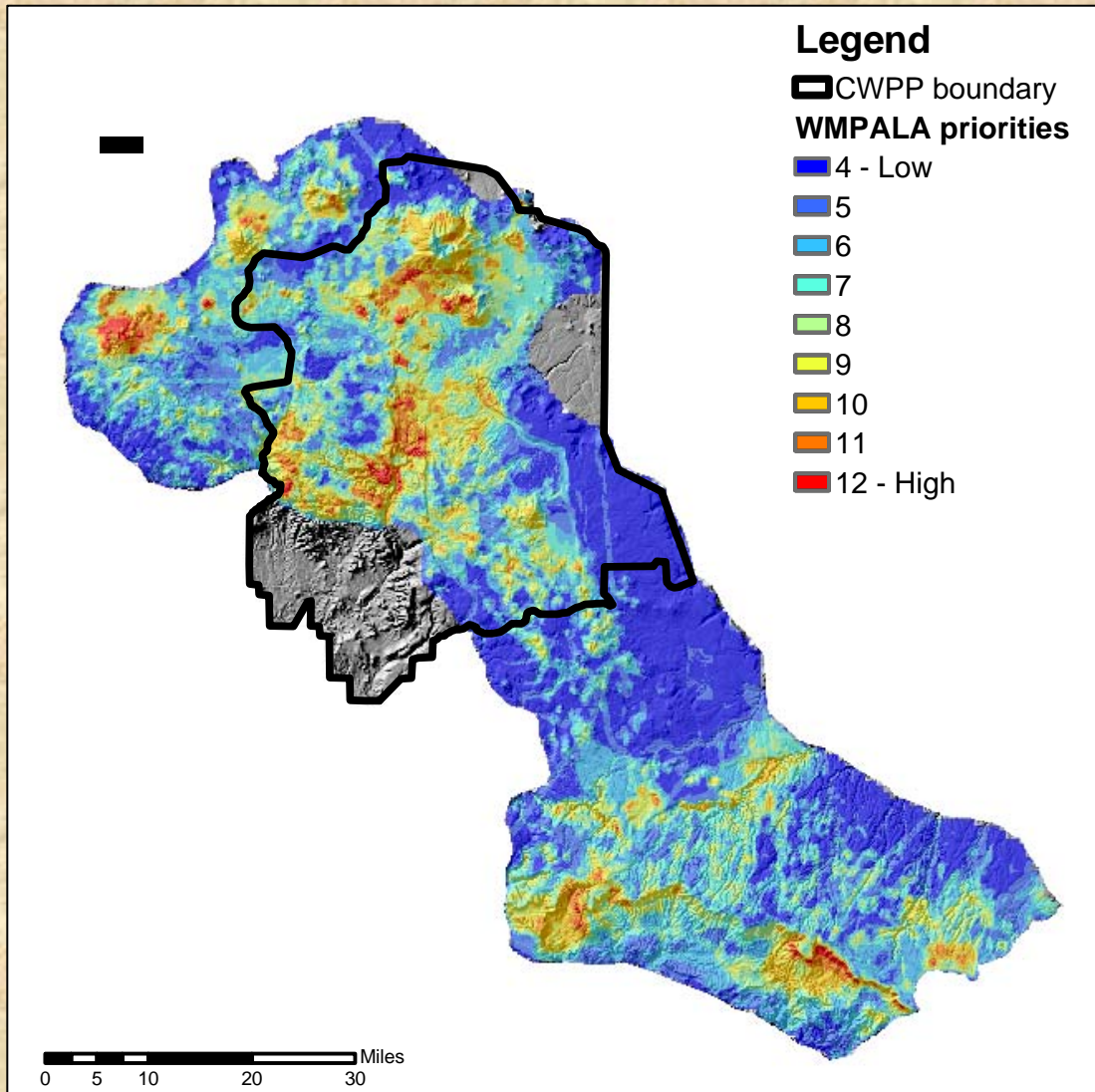
➤ Infrastructure (1/8 mi.):
P.L. – 43,000; Hwy – 42,000 acres; Towers – 1300 acres

TOTAL: 280,655



Flagstaff CWPP Implementation strategies

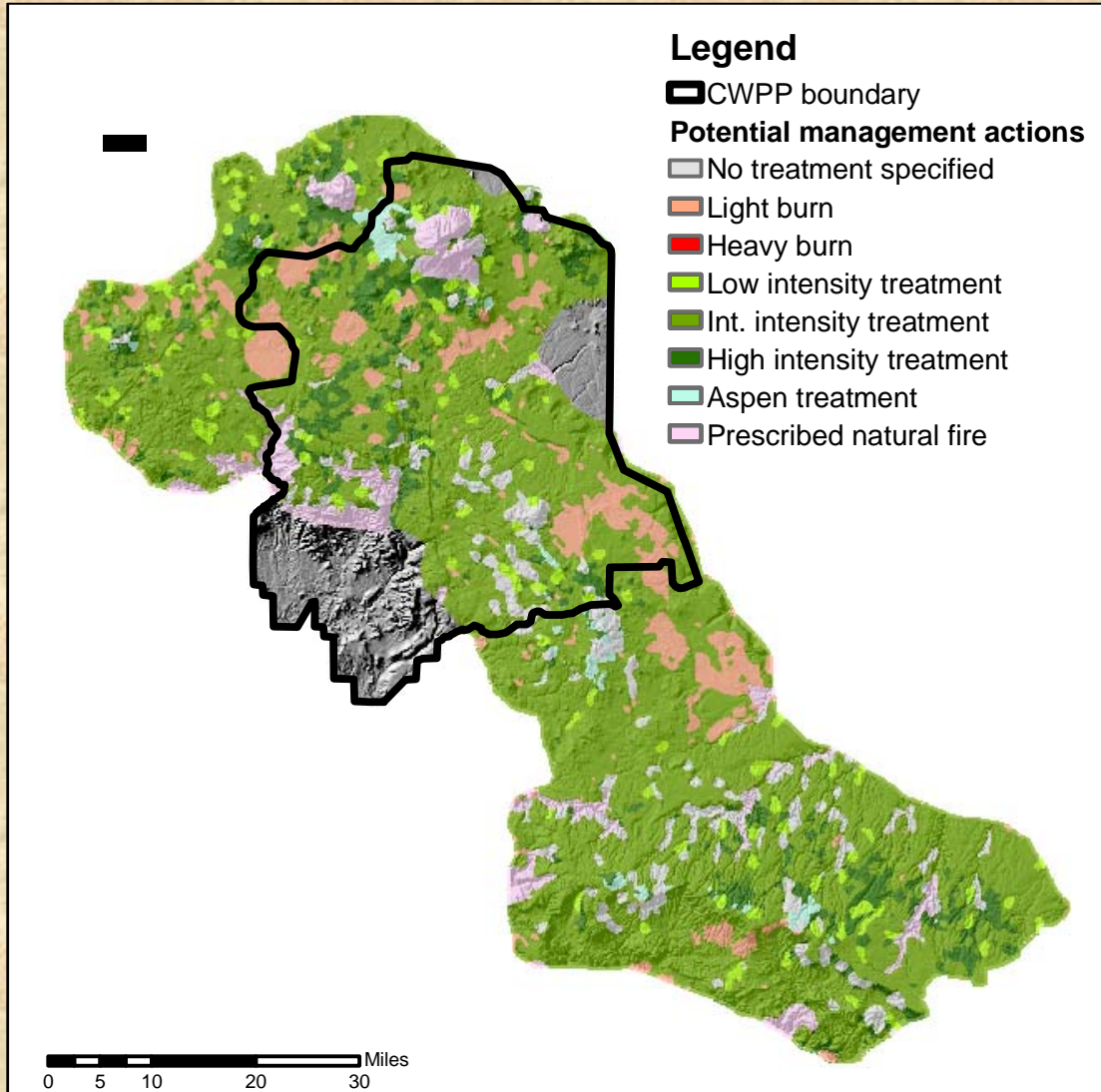
- Facilitated session using CWPP objectives, evaluation criteria, and maps to define management guidelines (1/2 day)



Flagstaff CWPP

Placement within a
broader landscape
context

➤ WMPALA
priorities



Flagstaff CWPP

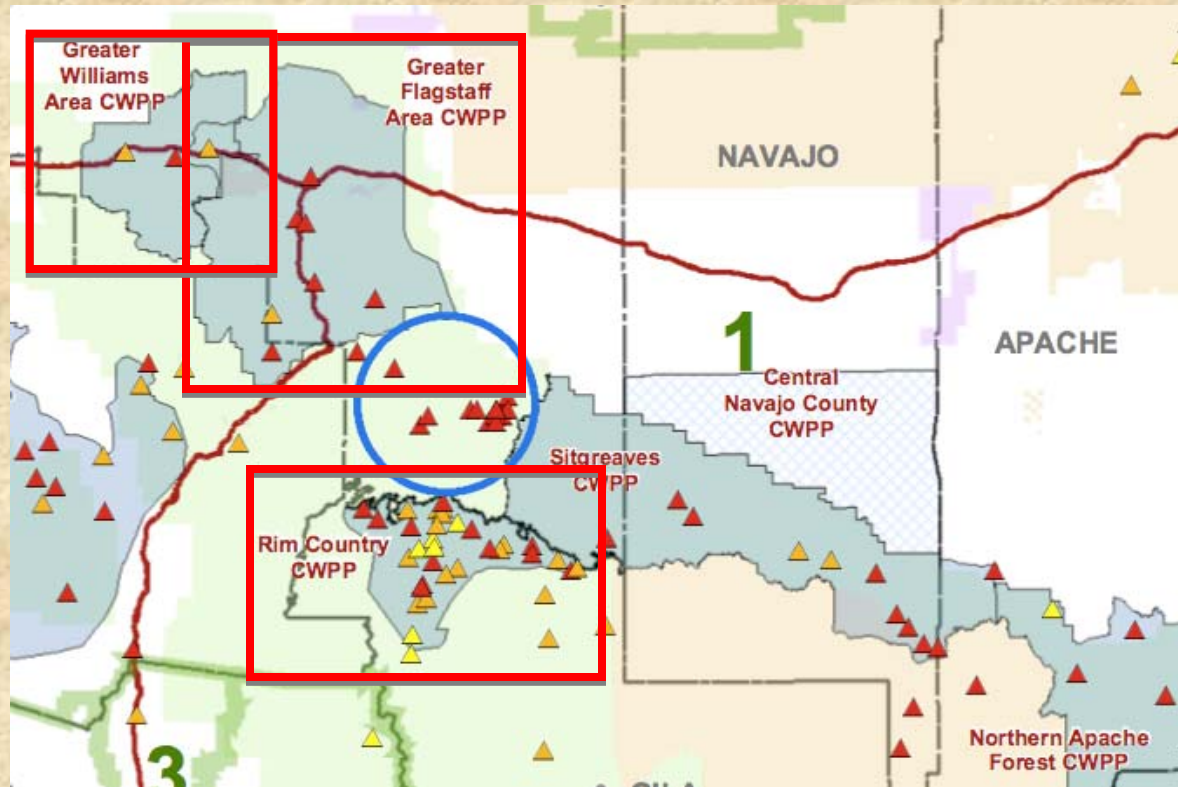
Placement within a
broader landscape
context

➤ WMPALA
management actions

FOREST ERA

Providing a landscape-scale perspective on ecosystem restoration in Southwest forests

Forest Ecosystem Restoration Analysis

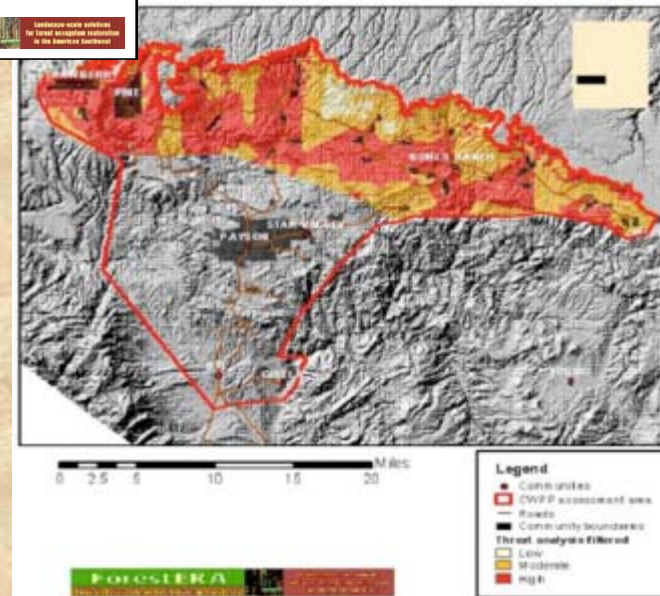
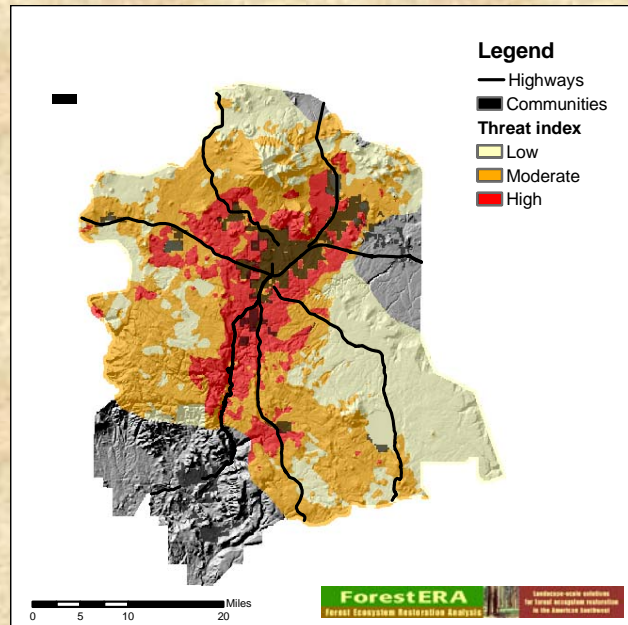


Mogollon Rim CWPPs

ForestERA

Providing a landscape-scale perspective on ecosystem restoration in Southwest forests

Forest Ecosystem Restoration Analysis



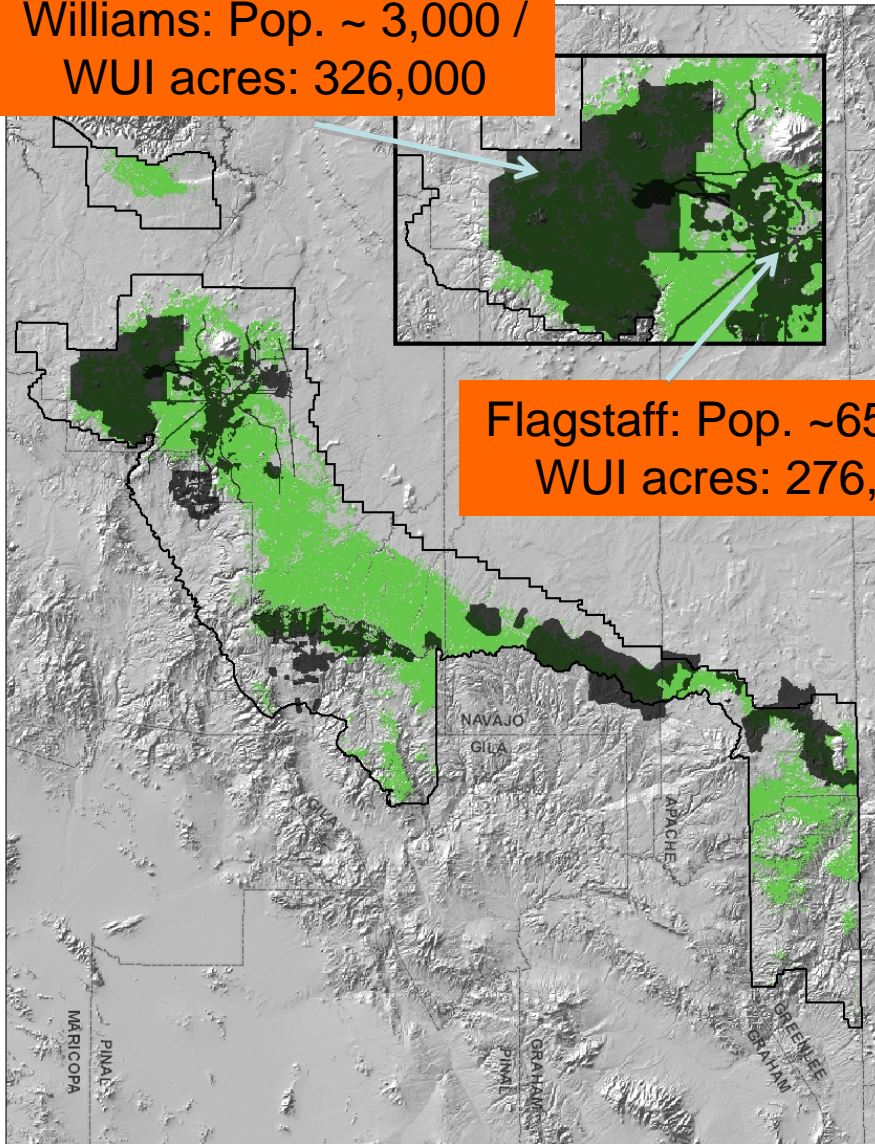
Flagstaff + Rim Country CWPP

Similar datasets

Somewhat similar
analysis process,
results

Williams: Pop. ~ 3,000 /
WUI acres: 326,000

Flagstaff: Pop. ~65,000 /
WUI acres: 276,000



Flagstaff + Williams CWPPs

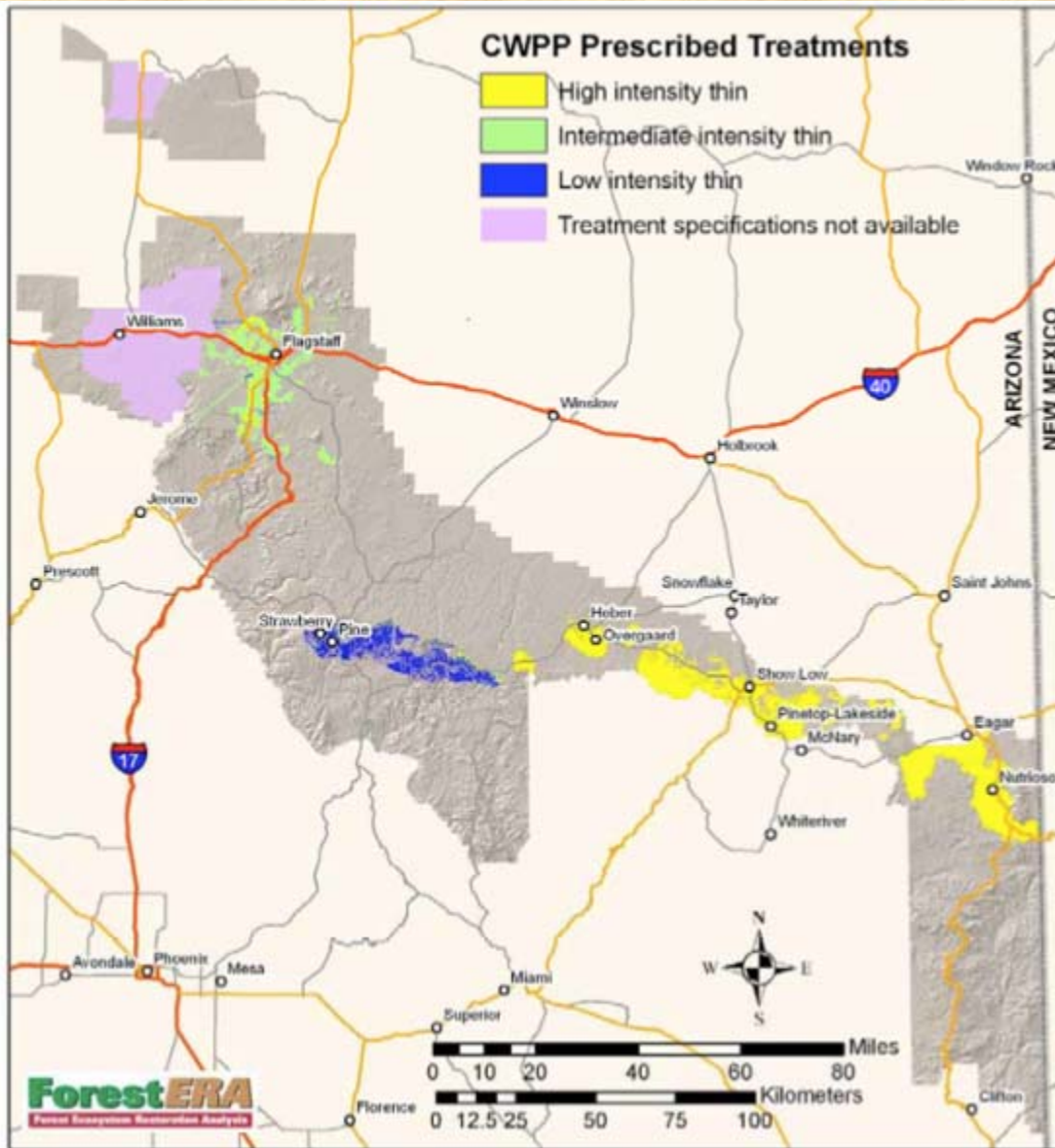
Dissimilar datasets
and analysis process

Dramatically
dissimilar results

Forest ERA

Providing a landscape-scale perspective on ecosystem restoration in Southwest forests

Forest Ecosystem Restoration Analysis



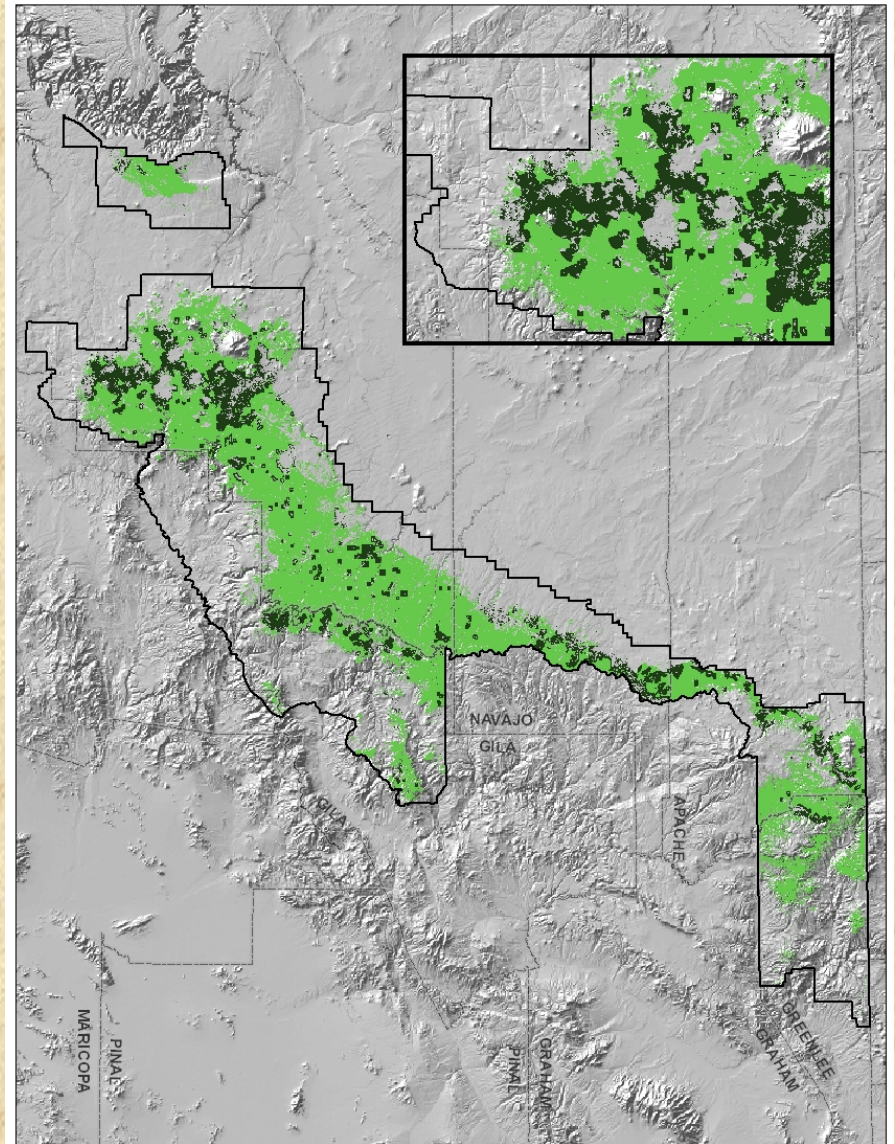
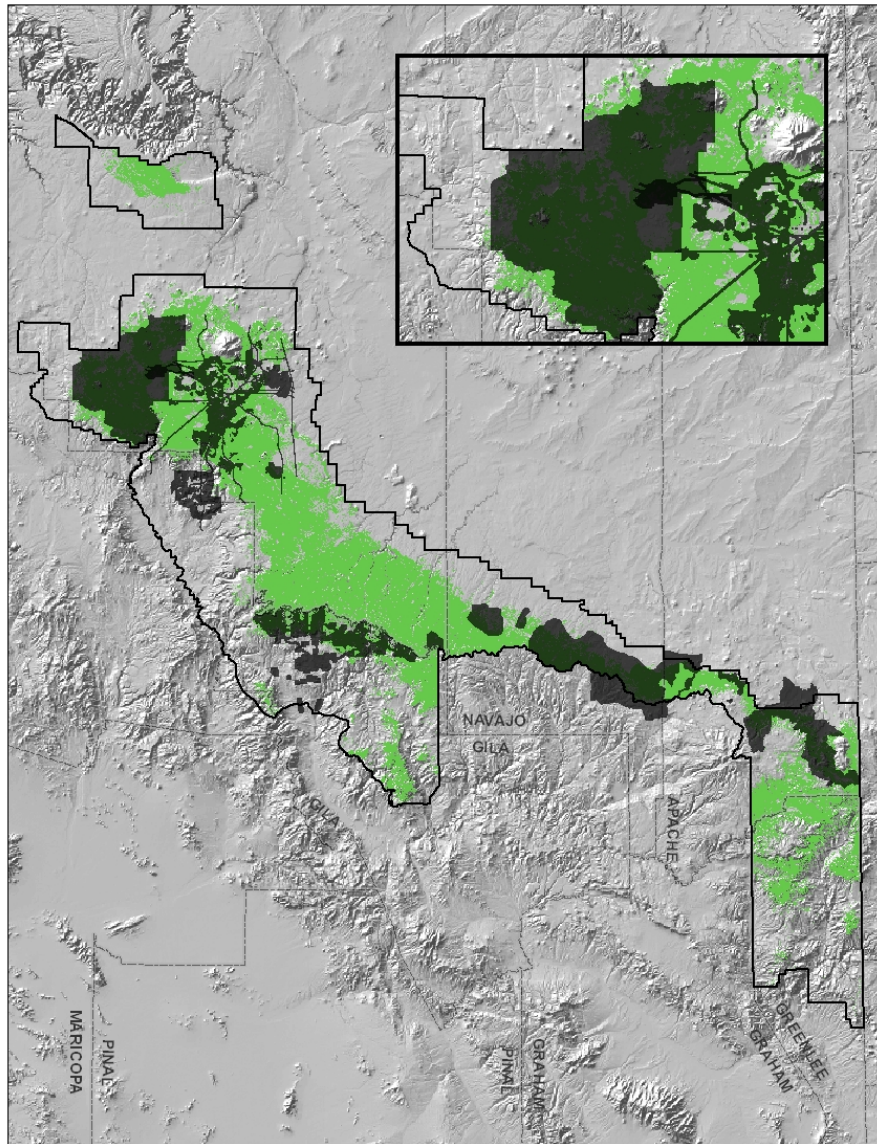
Northern Arizona CWPPs

?

FOREST ERA

Providing a landscape-scale perspective on ecosystem restoration in Southwest forests

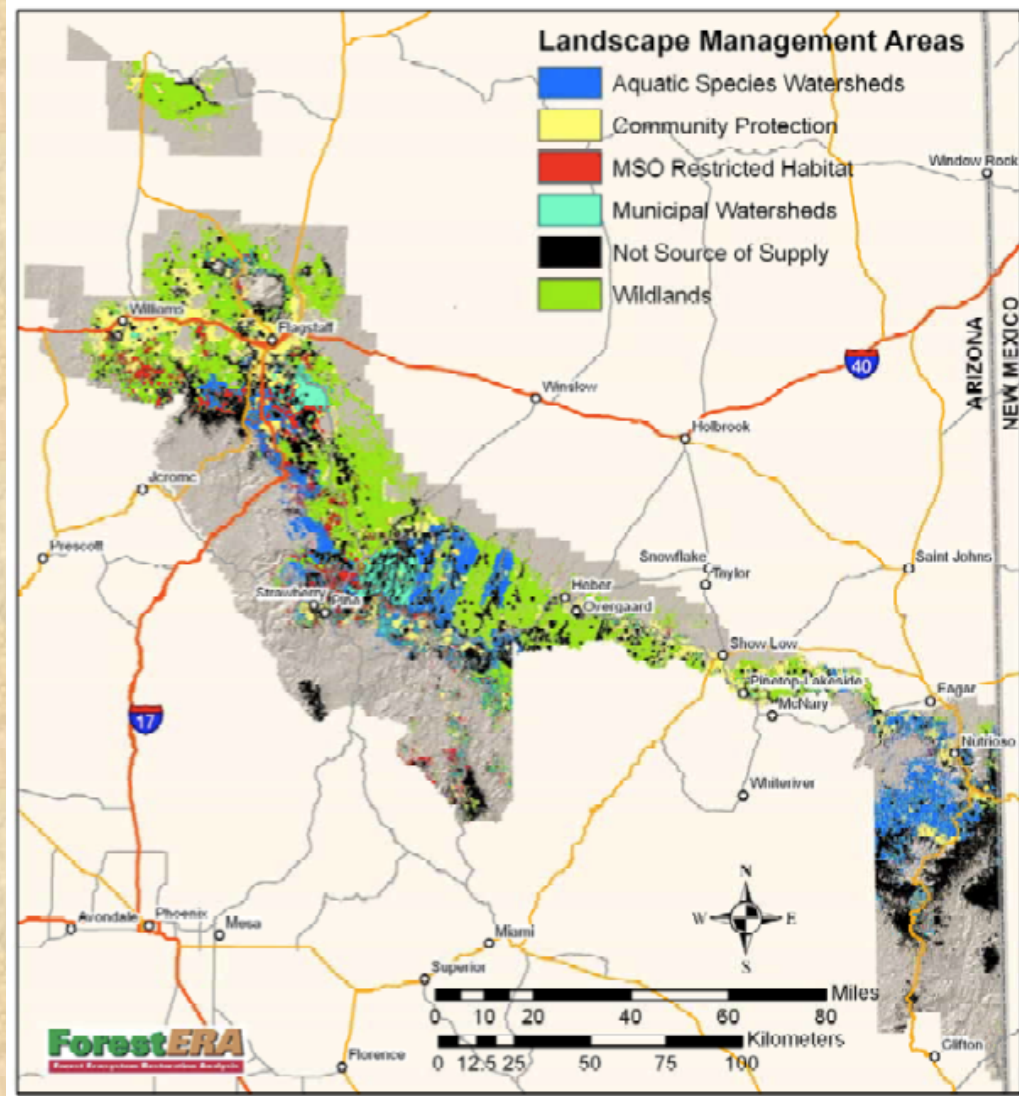
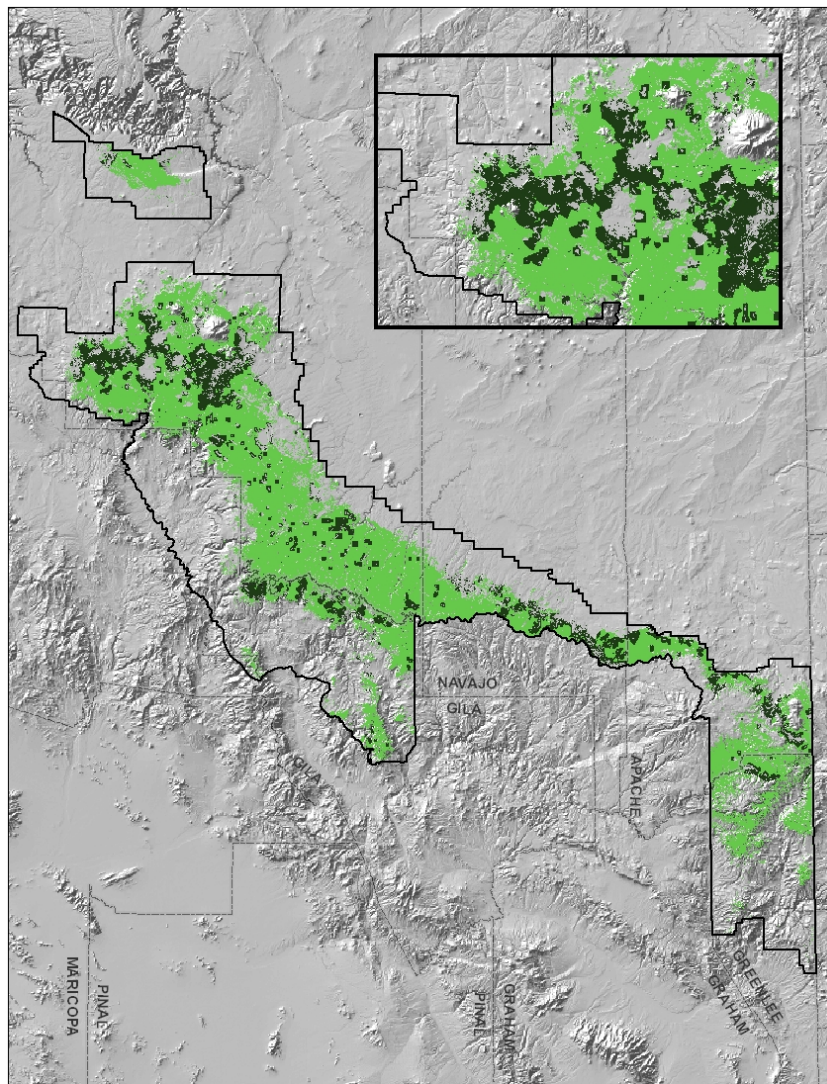
Forest Ecosystem Restoration Analysis



Forest ERA

Providing a landscape-scale perspective on ecosystem restoration in Southwest forests

Forest Ecosystem Restoration Analysis



Lessons learned

1. Consistent foundational datasets are necessary
1. Partnerships with information providers are very important
1. Coordination, communication between communities is difficult but ultimately very helpful
1. Scoping out beyond direct WUI/priority zone is helpful

Signal Peak Landscape Analysis



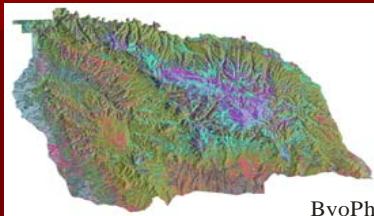
Landscape Assessment Objectives

- Assess ecological issues and prioritize restoration needs at the scale of landscape disturbances
- Integrate ecological objectives (T&E species, fire reintroduction) w/social objectives (cwpp, economics)
- Effectively assess cumulative affects of proposed restoration
- Increase NEPA efficiency by covering more ground and eliminating redundancy of many small scale analyses

Landscape Assessment Objectives

- Create a reservoir of restoration projects for an extended period of time.
- Incorporate projects into agency program of work
- Leverage long-term funding opportunities.
- Coordinate restoration by-product supply to allow for long-term business planning and economic development by community-based restoration businesses.

Signal Peak Area



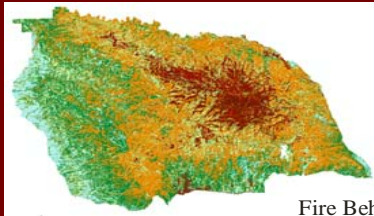
ByoPhysical Settings



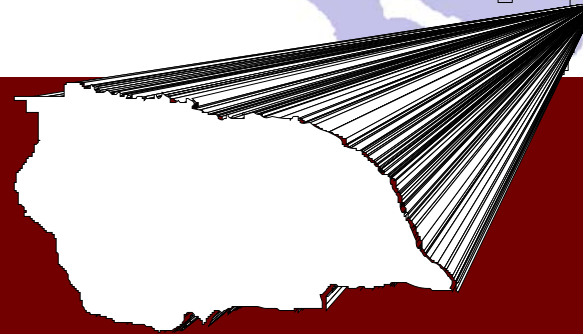
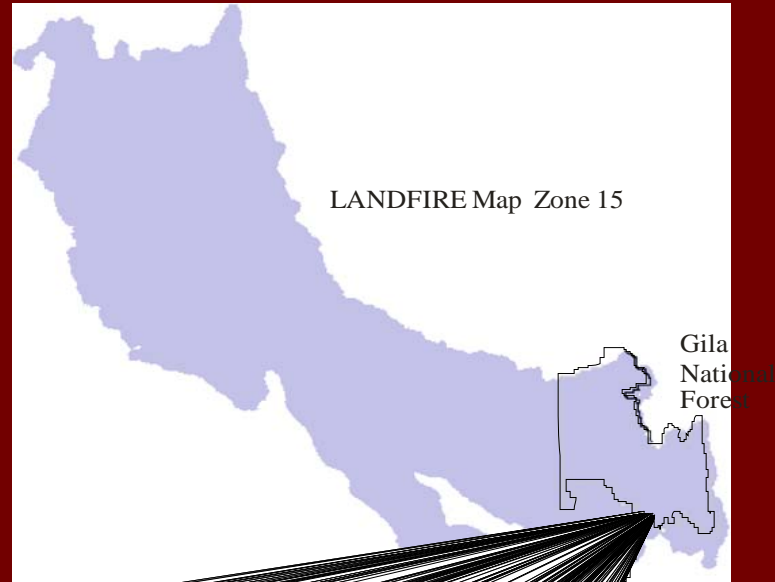
Fire Regime Condition Class



Existing Vegetation



Fire Behavior Fuel Model 13



Signal Peak Project Area

Signal Peak Landscape Assessment

- Assessment area included mixed ownership of about 300K acres.
- Included 1 large watershed and parts of 2 adjacent watersheds with interrelated issues.
- Included all agencies, local industry, and conservation groups.
- Priorities for protection/restoration included WUI areas, MSO PACs, and re-introduction of landscape fire.

Steps for Landscape Assessment and Planning

- Complete landscape scale assessment
- Complete collaborative large scale NEPA analysis
- Assess utilization and economic development potential of restoration treatments
- Establish a rigorous long-term monitoring and education program

Landfire GIS Layers



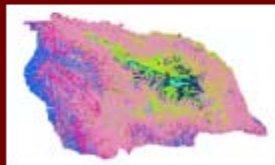
Digital Elevation Model



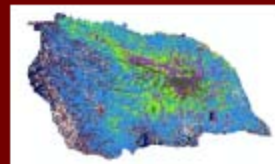
Slope



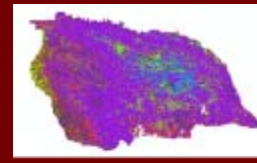
Aspect



BioPhysical Settings



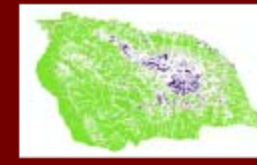
Existing Vegetation



Succession Class



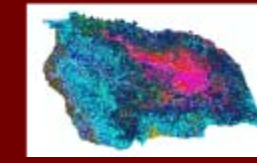
Canopy Cover



Canopy Base Height



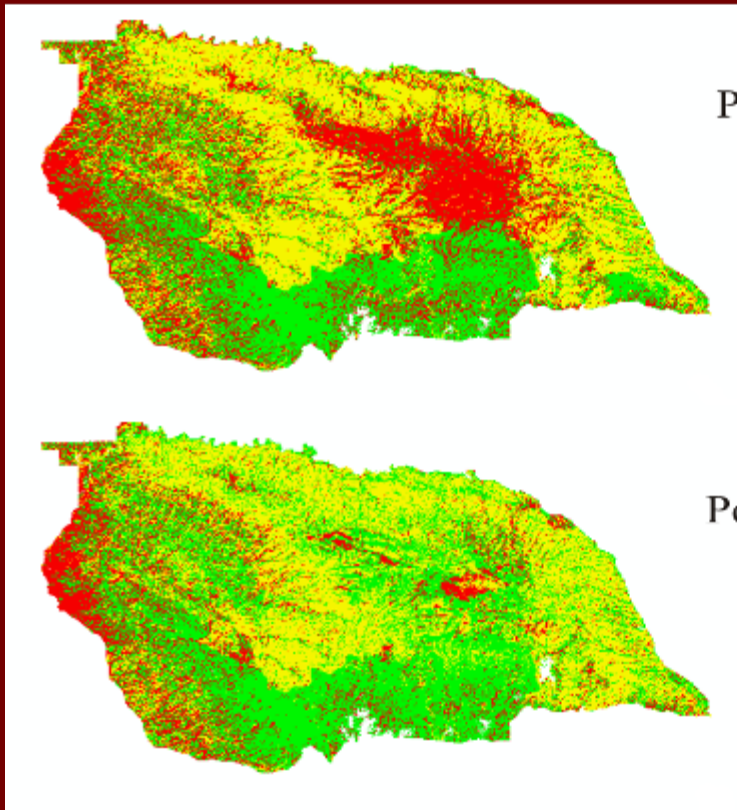
Canopy Bulk Density



Fire Behavior Fuel Model 13

Signal Peak Assessment-Objectives

- Identify fire risk at landscape scale

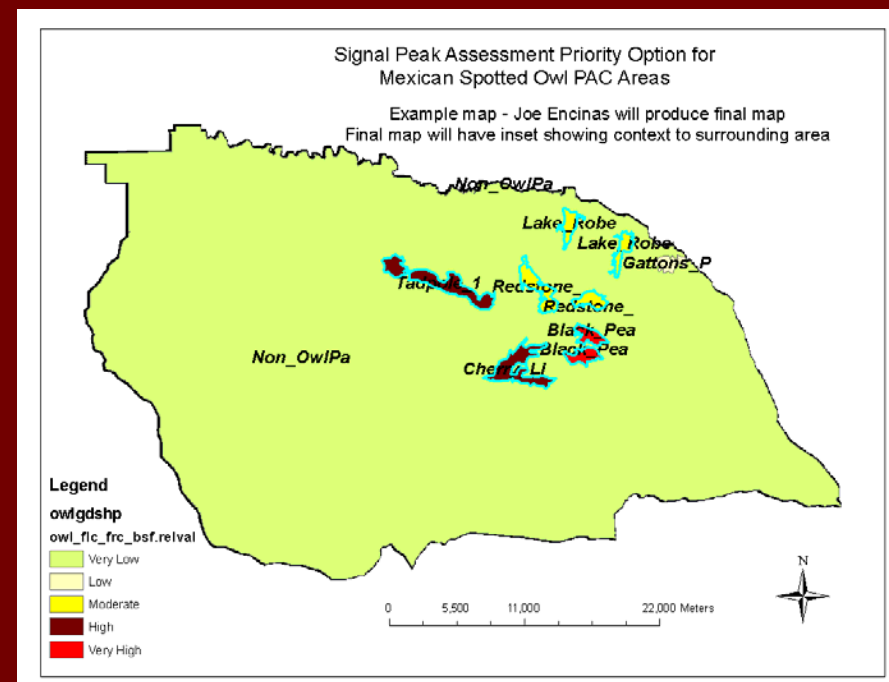
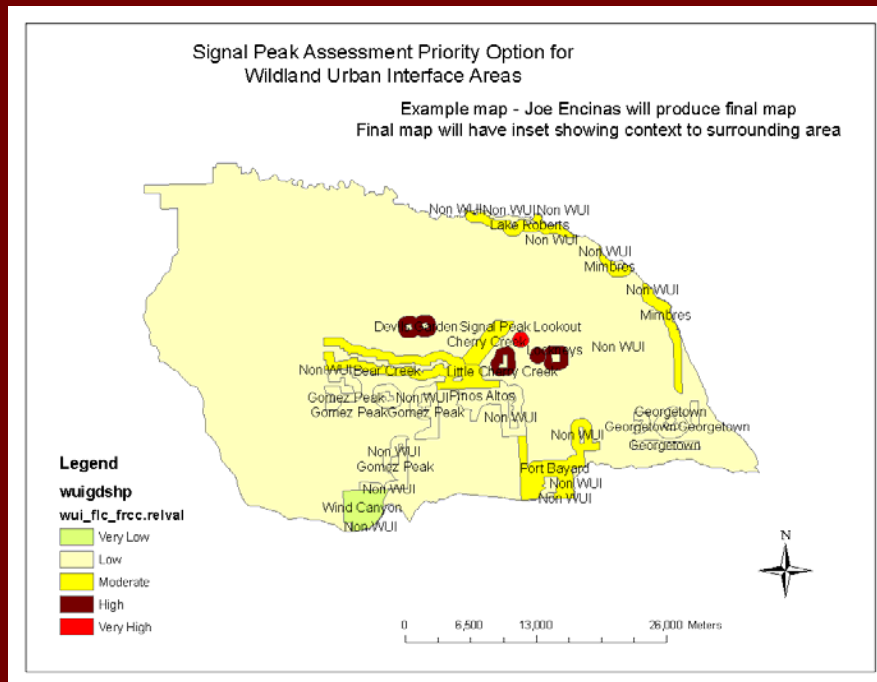


Preliminary Stand FRCC

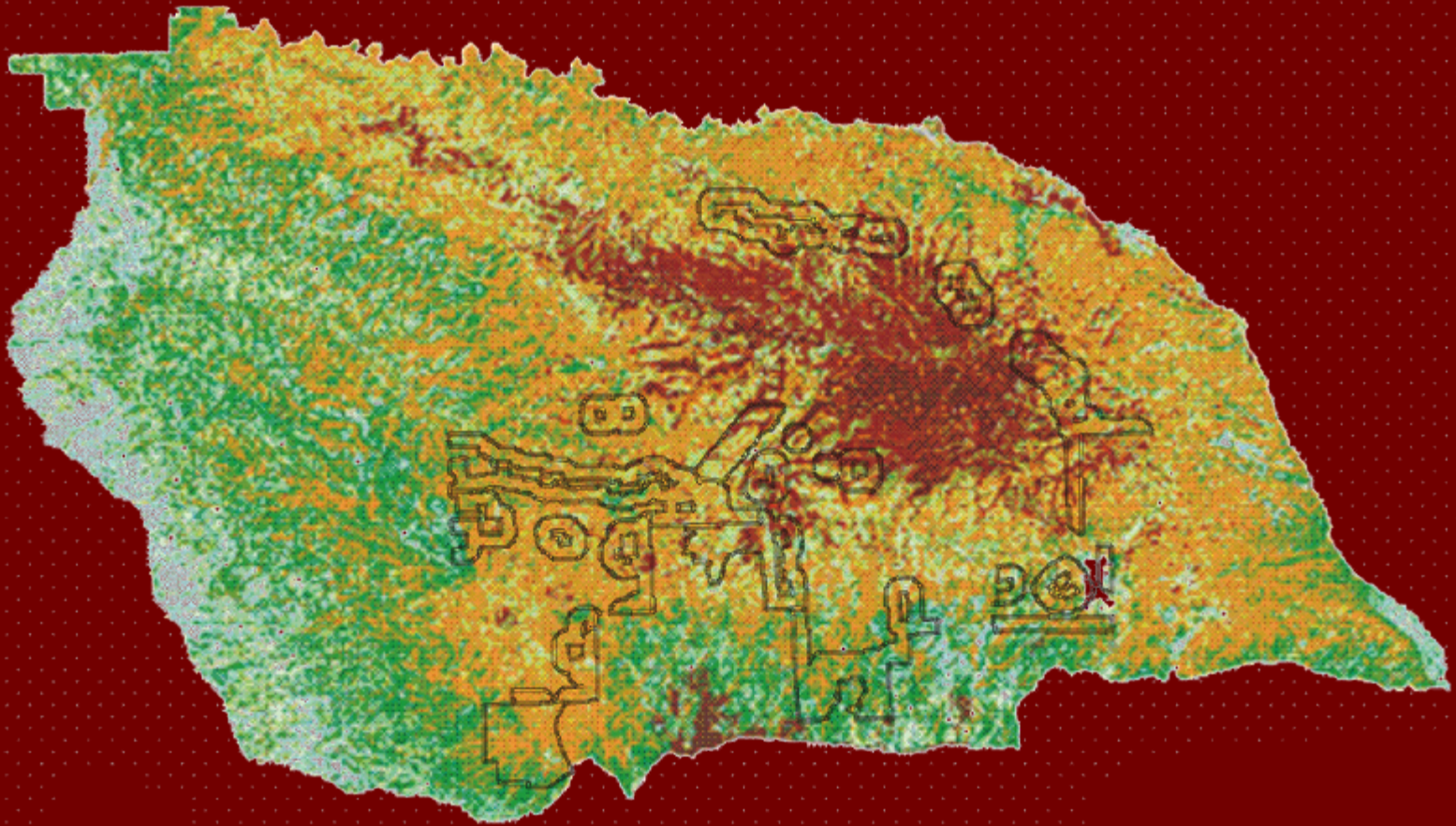
Post Management Stand FRCC

Signal Peak Assessment Objectives

- Integrate WUI and T&E species with fire risk



Integrate and prioritize strategic restoration treatments



Signal Peak Nepa Analyses

- Will analyze restoration treatments (mechanical thinning and burning) across 27,000 priority acres.
- Wildlife (MSO and goshawk) surveys, archeological survey, timber stand exams were funded and contracted by CFRP recipient
- GNF is funding and contracting for EA.
- Preliminary proposed action includes 6000 acres of mechanical thinning and 21,000 acres of prescribed burning (in several burn blocks)

Signal Peak Economic Assessment...

- Evaluation of long-term treatment costs, including cost reductions associated with economic development and expansion of markets.



Signal Peak Economic Assessment

- Evaluation of restoration byproduct and economic development potential associated with mechanical thinning



Signal Peak Economic Assessment...

- Evaluation of community economic benefits offered by employment, tax assessments, local circulation of revenues and wages, fire prevention value, etc



Signal Peak Ecological Monitoring and Education Program

- Establish long-term monitoring plots at landscape scale including burn only plots.



Ecological Monitoring and Education Program

- Invest in local long-term monitoring capacity.
- Engage general public through field trips and media outreach



Signal Peak Ecological Monitoring and Education Program

- Engage local youth in monitoring process.
- Develop ecological restoration curriculum.



Landscape Planning Recommendations

- **Assess** ecological issues and **prioritize** restoration needs
- **Integrate** ecological and social issues
- Effectively **assess cumulative affects**
- **Increase NEPA efficiency** by planning at landscape scale
- **Create a pipeline** of restoration projects

Landscape Planning Recommendations

- **Incorporate** projects into agency program of work
- **Leverage** long-term funding requests.
- **Coordinate** restoration by-product supply to allow for **long-term business planning and economic development**

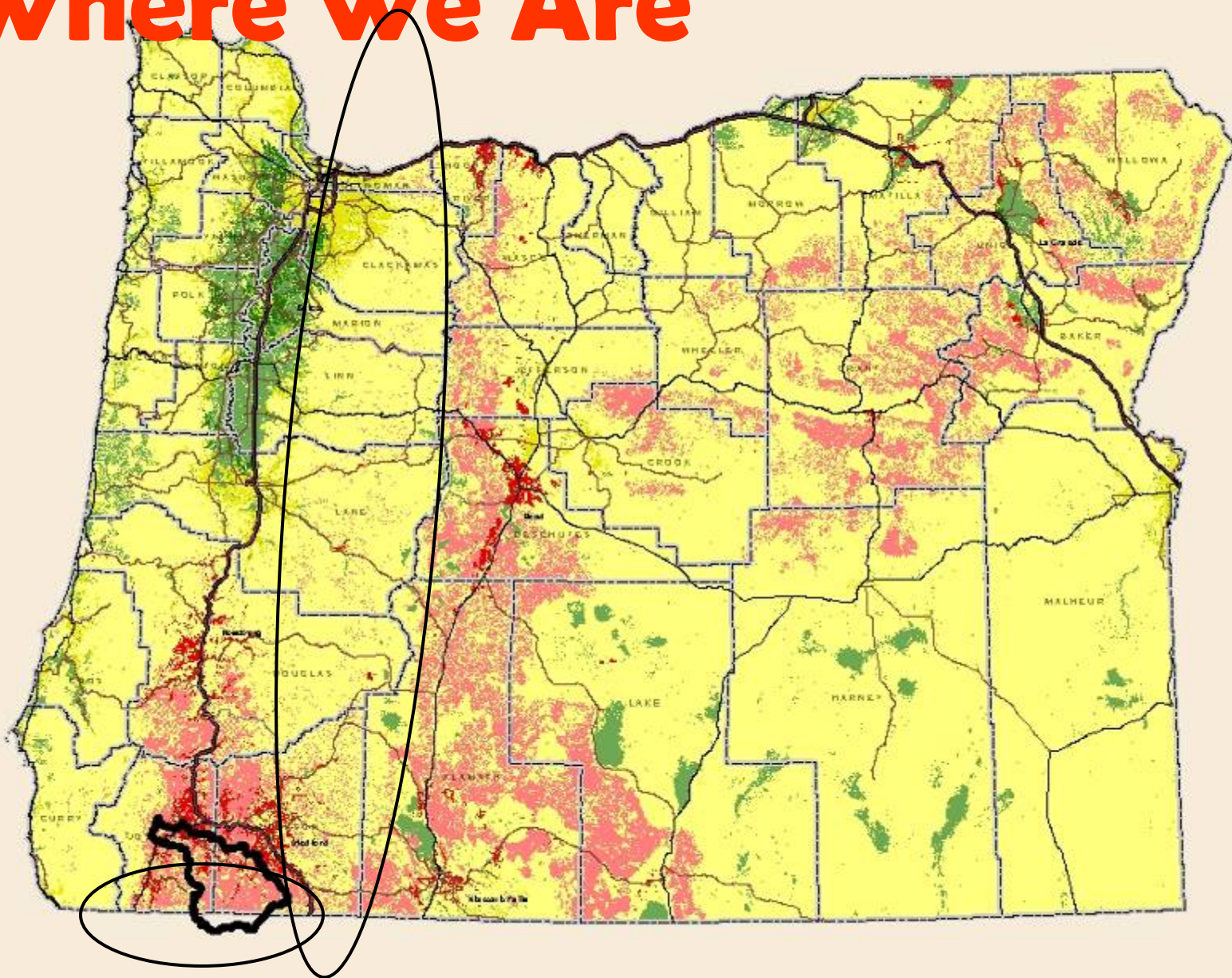




RESTORATION ***& the Applegate*** **Fire Plan**

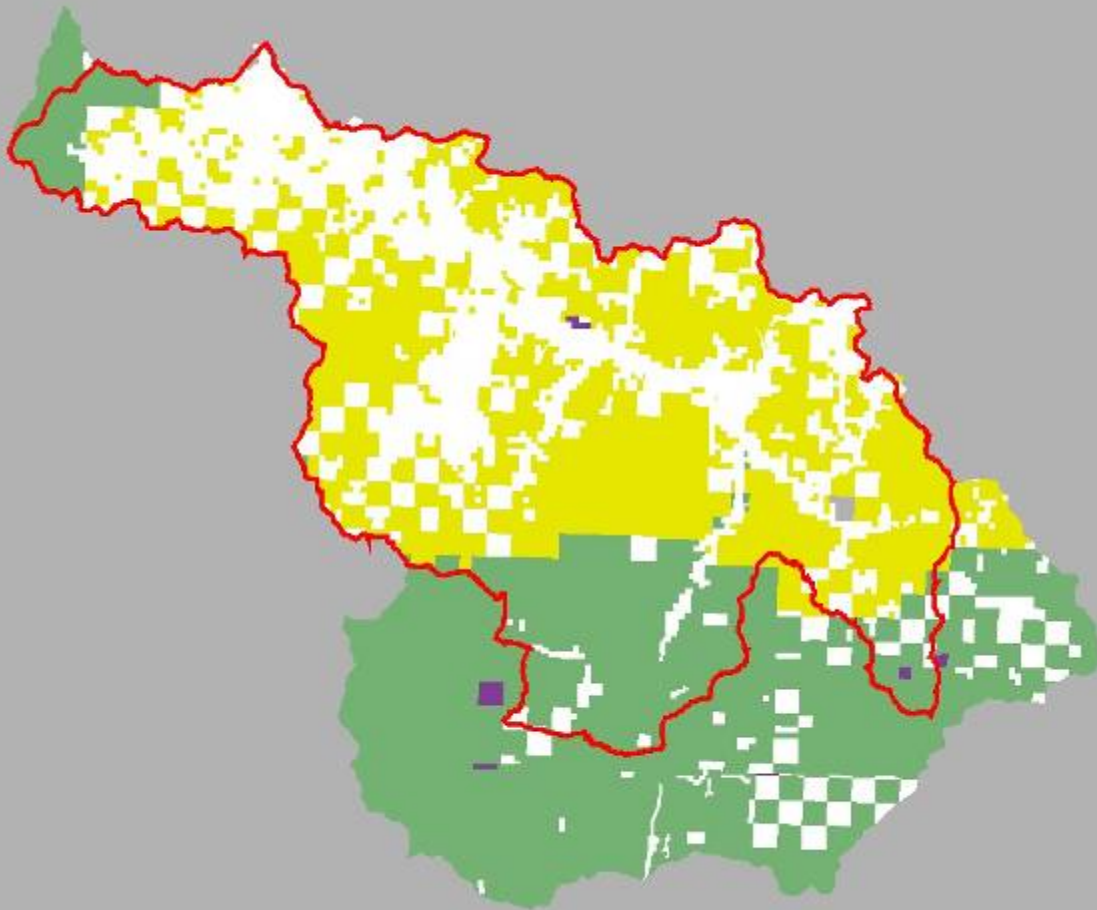
By
Sandy Shaffer
Applegate, OR
March, 2008

Where We Are





APPLEGATE WATERSHED:
4th field of the Rogue River
492,716 acres





Social History

1992: Applegate Partnership

1994: Northwest Forest Plan & AMA

1994: Watershed Health Assessment

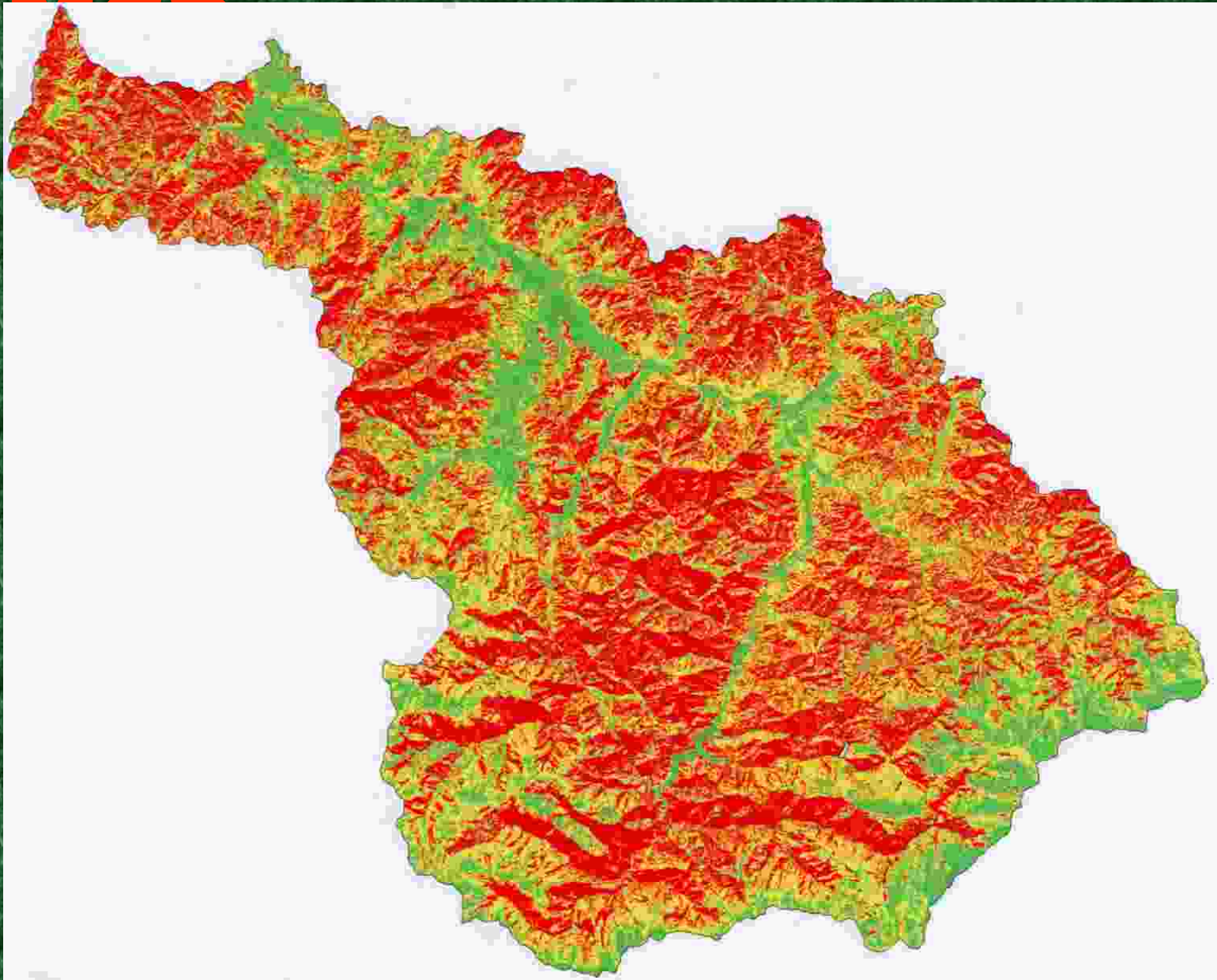
1994: Applegate R. Watershed Council

1998: AMA Management Guide

2001: Began Applegate Fire Plan



2002 Wildfire Hazard Map





Collaboration *Was Automatic*

- ◆ 28 Partners in Fire Plan process
- ◆ Community members on all committees
- ◆ Over 40 public meetings in 9 months
- ◆ Wrote Fire Plan for private residents
- ◆ Fire Plan printed & distributed to all interested residents

Methods & Analysis

- ◆ We set Fire Plan Goals:
 - to respect, restore & protect our lands
 - to increase private land stewardship
 - to restore fire-adaptive ecosystems
 - to have more fire-resilient forests
- ◆ We implemented them by:
 - Fuels projects for private & federal lands
 - Included variety of treatment options
 - 4-point monitoring program
 - Strong public education component

Learnin' to Burn



OUTCOMES

- ◆ >35,000 acres of fuels treated in 5 years
- ◆ >90% of homes have defensible space
- ◆ 3 out of 4 do work because "it's the right thing to do" = increased personal responsibility for the land
- ◆ Private landowners begging the feds
- ◆ Fire District has grants; projects w/ BLM
- ◆ Prescribed fire & federal fuels work more acceptable to the community



Challenges Identified

- ◆ Public education takes time & money
- ◆ Increased numbers of new rural residents
- ◆ Need more federal dollars dedicated to fuels & restoration projects
- ◆ Fuels allocation by politics, not fire hazard severity or condition class?

Recommendations...

- ◆ Write plans for private landowners; give them a tool.
- ◆ Assess all lands – public and private.
- ◆ Be definitive! ID projects on the ground, not just areas.
- ◆ ID projects at multiple scales: both temporal and spatial!



In Summary...

- ❖ Be *INCLUSIVE*, rather than just collaborating.
- ❖ A strong relationship between local partners can be invaluable, especially during a wildfire event.

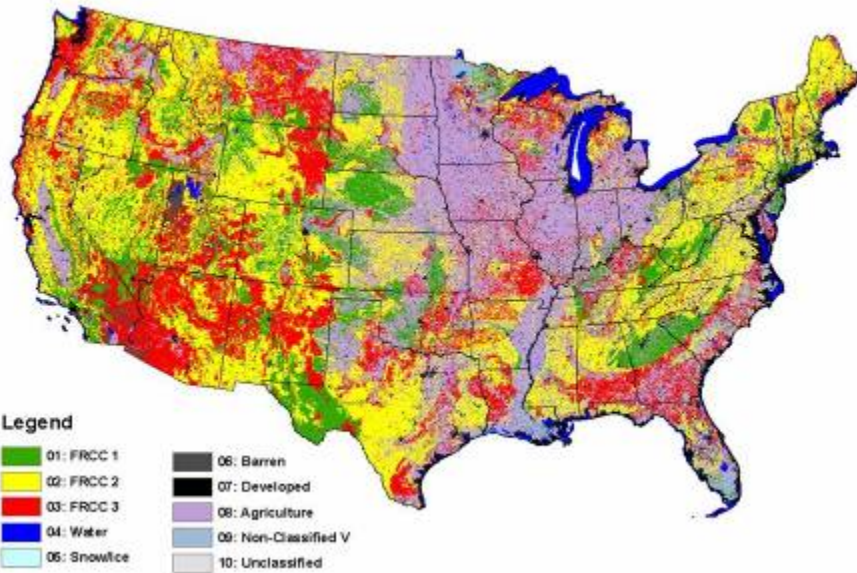
“It’s Our Fire Plan!”



LANDFIRE

Fire, Landscapes and People: A Conservation Partnership

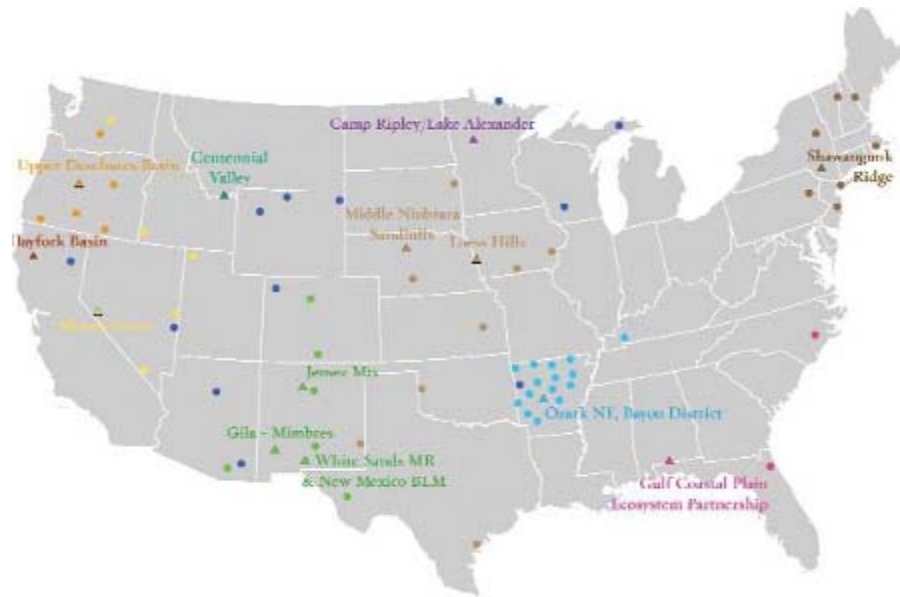
LANDFIRE Rapid Assessment Fire Regime Condition Class



- Science
- Scientist-Manager Collaboration
- Adaptive Management
- Planning tools

- Capacity-building
- Fire Training and Education
- Policy
- Fire Learning Networks
- Risk management
- On-the-ground conservation action

US Fire Learning Network



8 Regional Networks

15 Demonstration sites

80 Landscapes in progress

> 76 Million acres

> 500 Partners

Leveraged more than \$12 million to support restoration activities

Treated more than 450,000 acres to date



FLN Process

- 1. Develop collaborative vision and goals; use landscape-scale ecological models**
- 2. Create spatially-explicit desired future landscape conditions; including restoration priorities and strategies**
- 3. Plan for implementation by identifying capacity needs; monitoring strategy; top barriers; collaborative priorities; responsibilities and schedules**
- 4. Make tangible progress in one or more priority actions; monitoring and adaptive management**



Scale Matters

Achieve multiple objectives by scaling up to a landscape size that integrates the variety of concerns and interests in CWPP, diverse ownerships and different agency missions



Why integrate landscape restoration with CWPP?

Because it is practical:

- Protect and integrate community values, infrastructure and natural resources
- Restore watershed and forest health
- Clarify where multiple objectives can be achieved
- Enable priority setting for implementation
- NEPA efficiency; and can assess cumulative effects
- Operational efficiency
- Opportunity for biomass utilization
- Large enough for a consistent “program of work”



Recommendations

1. Plan at landscape scale to find solutions to problems that are intractable at smaller scales, but can be overcome at larger scales when multiple objectives and landownership differences are integrated across boundaries
2. Provide models and tools to integrate rigorous science with collaborative community process; bring technical expertise to the table including scientists, private landowners, and local knowledge
3. Create enough consistency between CWPP's that they can be woven together for landscape restoration



How to Achieve CWPP Consistency

1. Create voluntary guidelines for common:
 - a. data sets to describe current conditions and track changes in condition (e.g. LANDFIRE)
 - b. framework and language to describe desired future landscape conditions (e.g. Fire Learning Network)
2. Create an on-line clearinghouse of CWPPs and landscape plans so “neighbors” can easily obtain plans from other communities