

Arizona's Large Fires “Suppression vs. Restoration”

WESTCAS Fall 2011 Meeting

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Manager, Water Rights and Contracts

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THE PROBLEM – Unhealthy Forests



The Rodeo-Chediski fire destroyed more than 400 hundred homes



Since 2000, at least 1,501,654 acres of land throughout Arizona has burned in wildland fires.



Bark Beetles



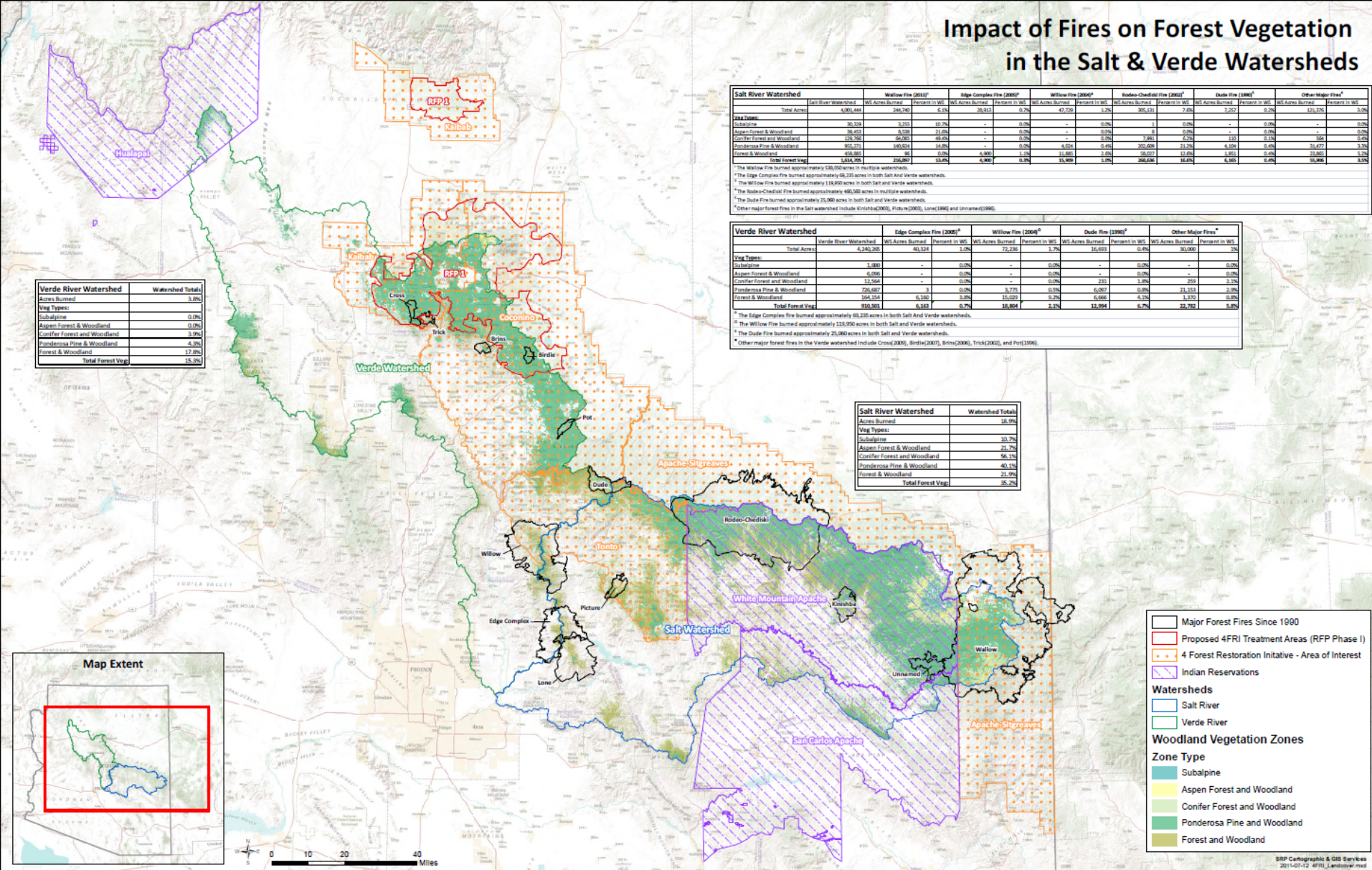
Post Fire Erosion

New Challenges for Water Management

- Today, 59% of SRP's 13,000-square-mile watershed lies within national forests as part of a plan to provide a renewable water supply for the Valley.
- Recent catastrophic wildfire and poor forest health conditions cause impacts to watersheds, water supplies, and water quality.



Impact of Fires on Forest Vegetation in the Salt & Verde Watersheds



SRP Cartographic & GIS Services
2011-07-12 4FRI_Landcover.mxd

Map of Fires on Forest Vegetation in the Salt & Verde River Watersheds



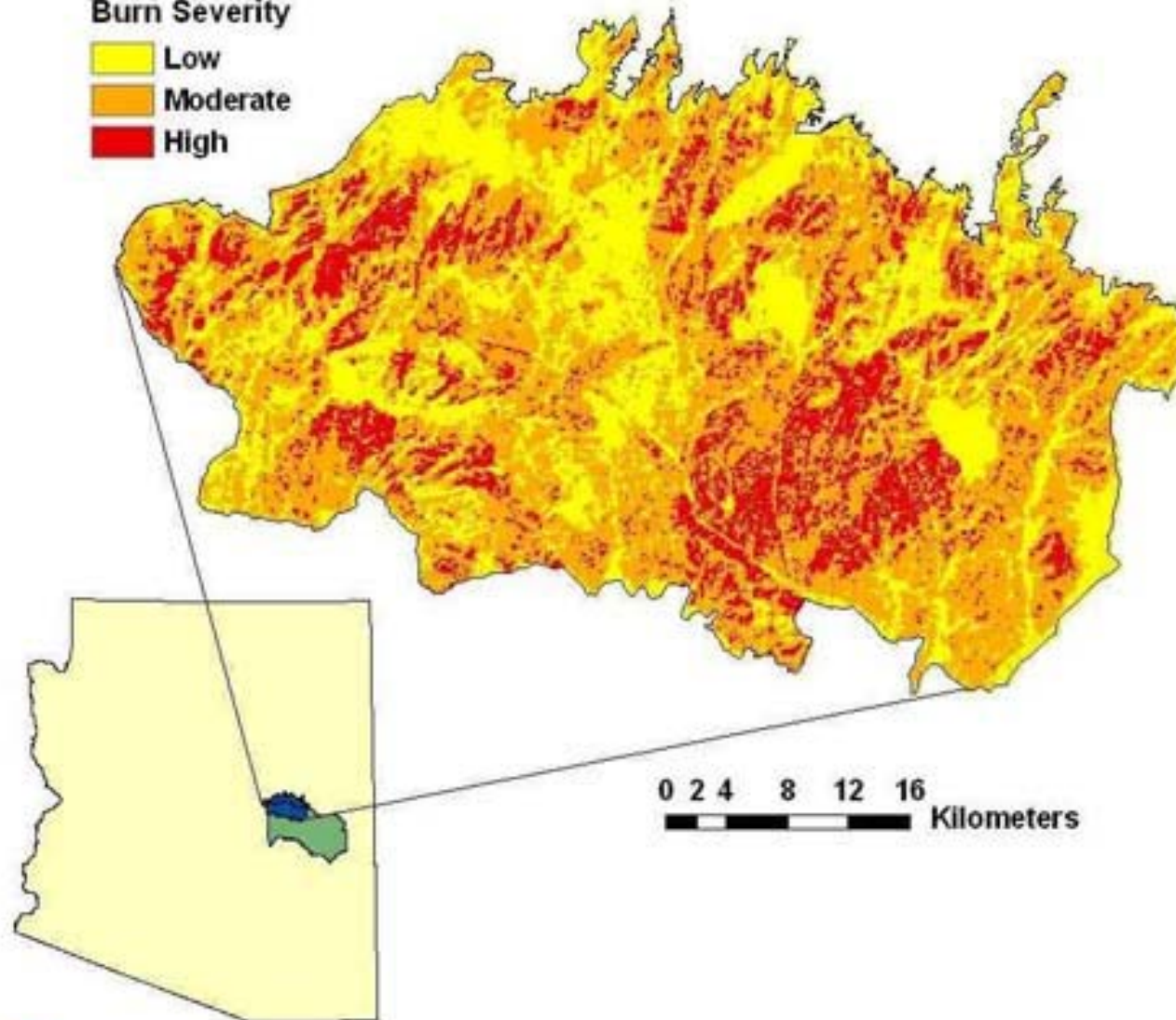
Rodeo-Chediski Fire

- Was the Largest Wildfire in Arizona history at the time. Largest on the Salt Watershed.
- Total Acreage Burned: **485,616 Acres**
- Total SRP Watershed Burned: **315,775 Acres**



Burn Severity

- Low
- Moderate
- High



- Rodeo-Chediski Burn Area
- White Mountain Apache Tribe Lands







Wallow Fire

Became the Largest Wildfire in Arizona history
Fire Started May 29, 2011; 100% contained July 8, 2011

- Total Acreage Burned: **545,000 Acres**
- Total SRP Watershed Burned: **200,000 Acres**



Wallow Fire

- Fire reported at 2:09 pm on May 29, 2011
- Human caused
- Extreme fire behavior with long range spotting up to 3 miles
- Rapid fire growth due to continuous red flag conditions



Courtesy of the Southwest Fire Consortium



Noon in Greer

Photo: Jayson Coil

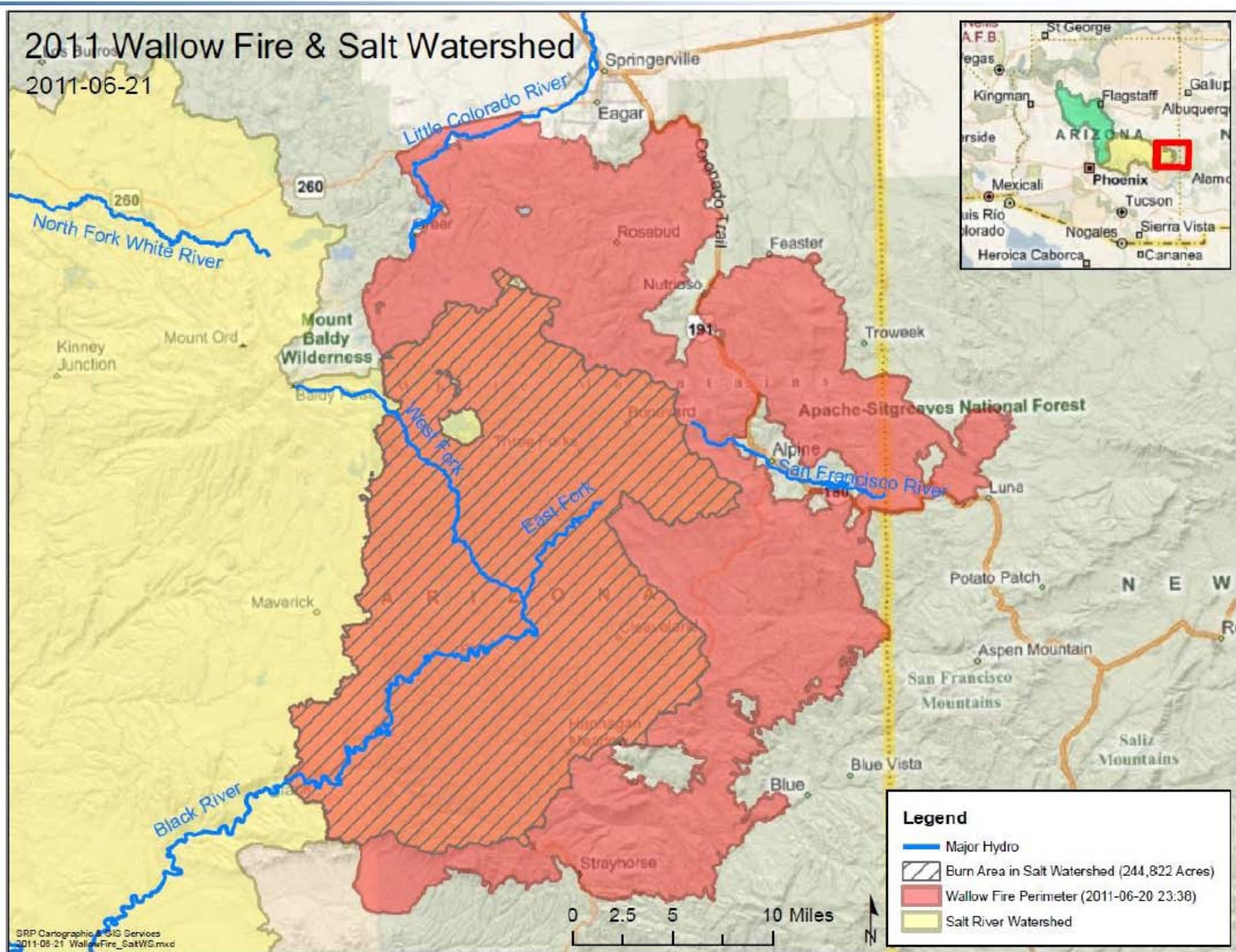


Courtesy of the Southwest Fire Consortium



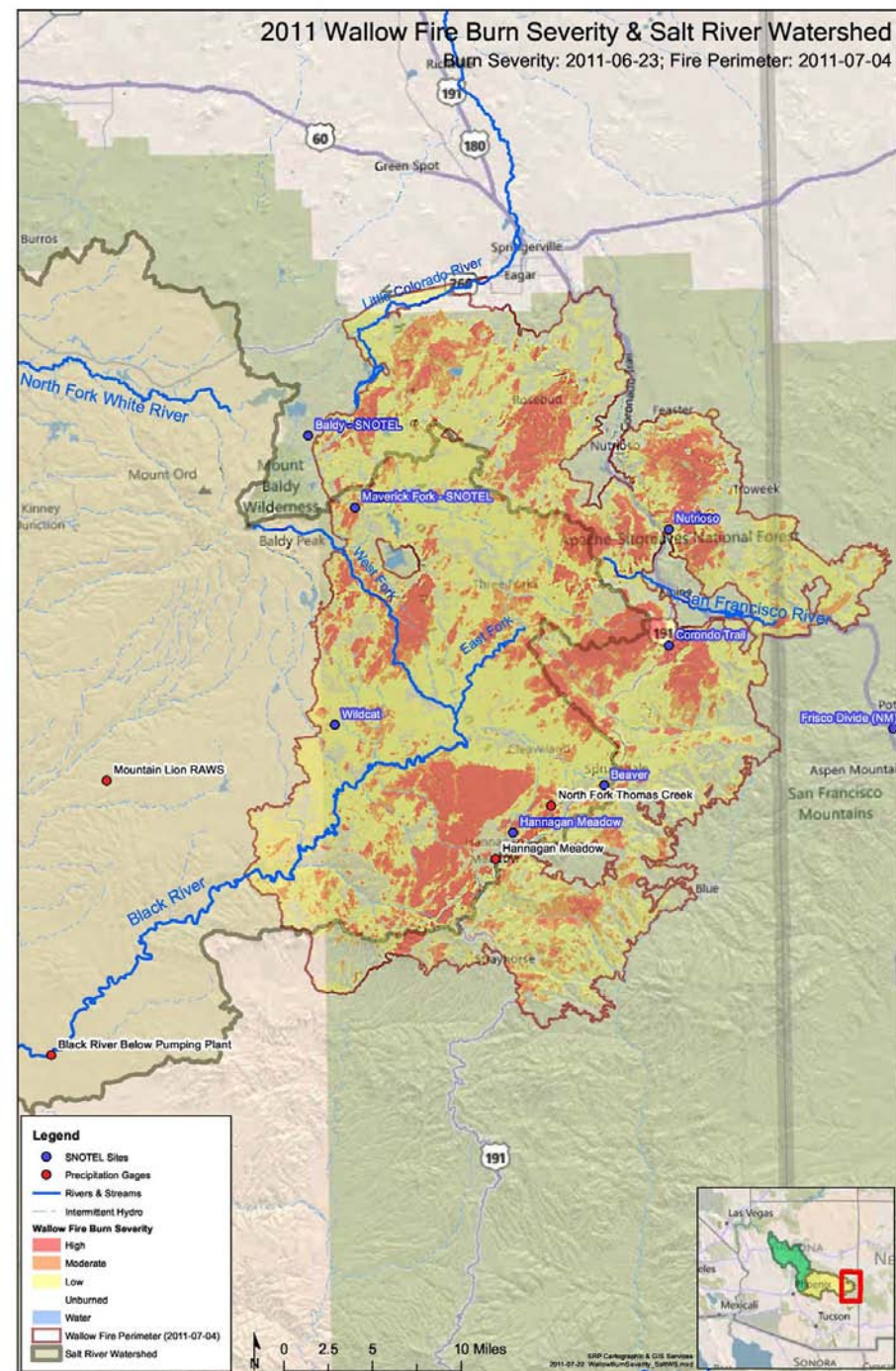
2011 Wallow Fire & Salt Watershed

2011-06-21



2011 Wallow Fire Burn Severity & Salt River Watershed

Burn Severity: 2011-06-23; Fire Perimeter: 2011-07-04



Wallow Fire Burn Severity

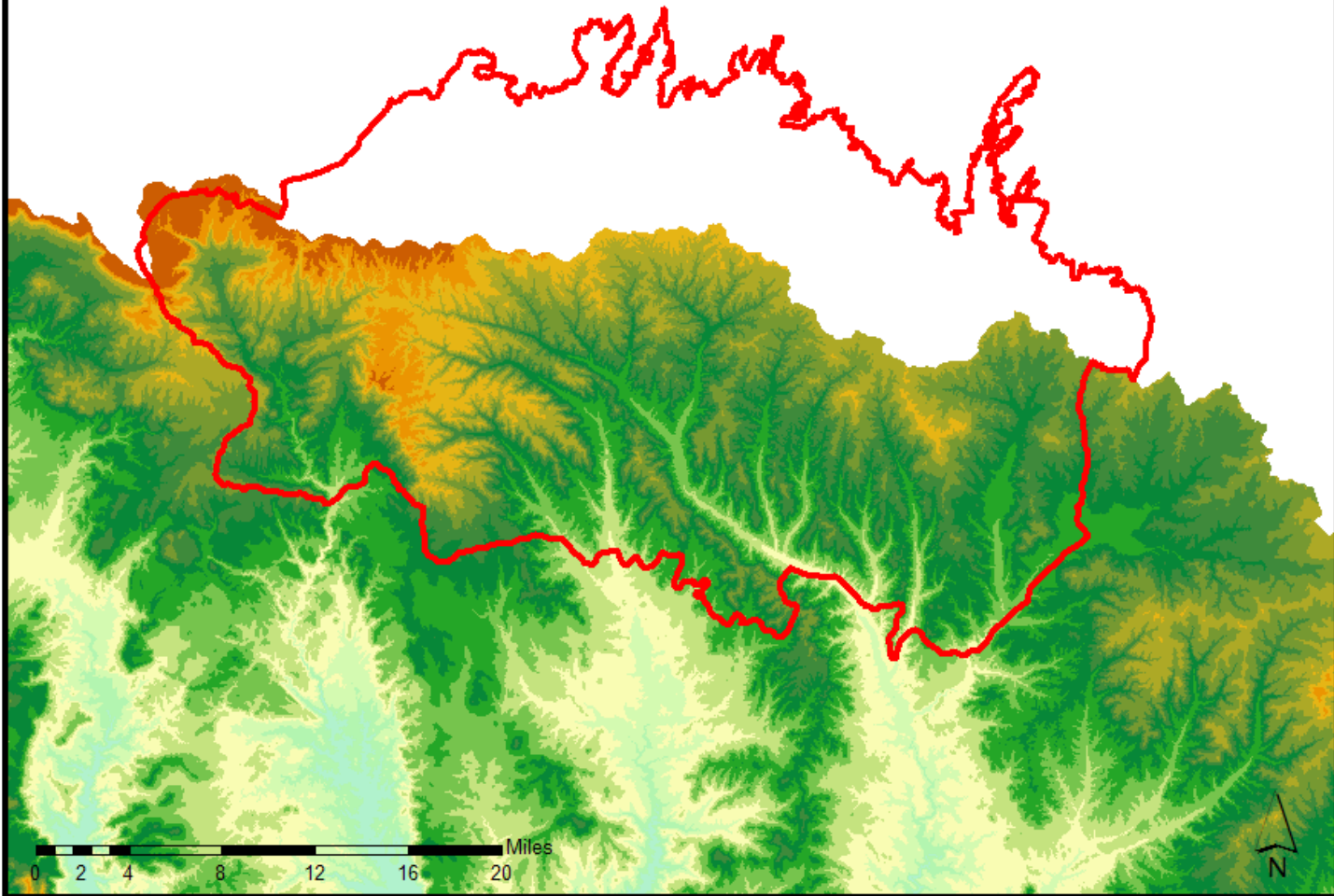
Severity	Acres	Percent in WS
High	43758	1.09
Moderate	30,3001	0.75
Low	126,965	3.17
WS Total Burned	200,724	5.02

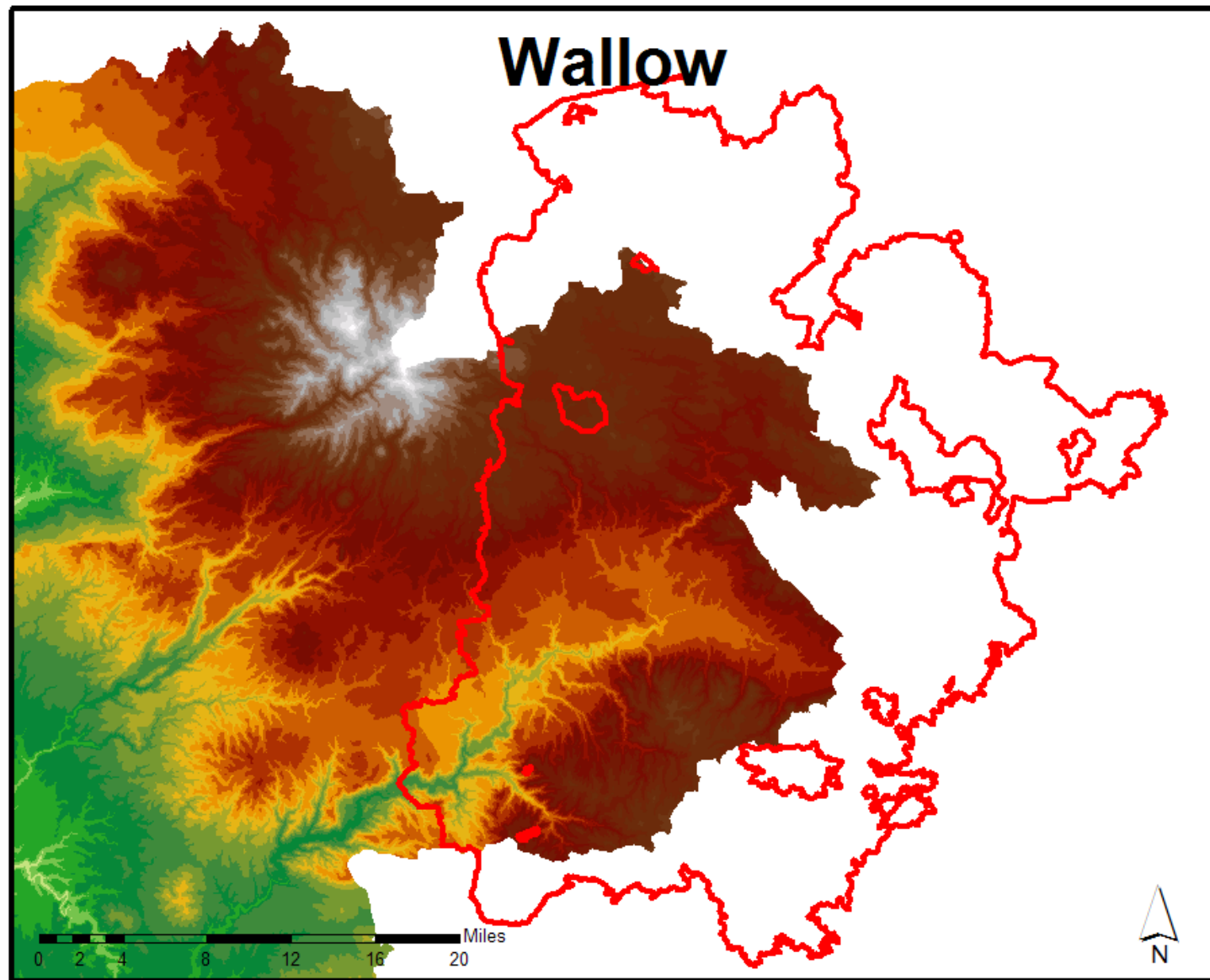
Severity	Percent
High /Moderate	30
Low	70

Differences between Wallow Fire and Rodeo-Chediski Fire

- Location / Elevation
- Higher precipitation
- More vegetation cover
- Pre-existing Conditions – Watershed and Reservoir

Rodeo-Chediski





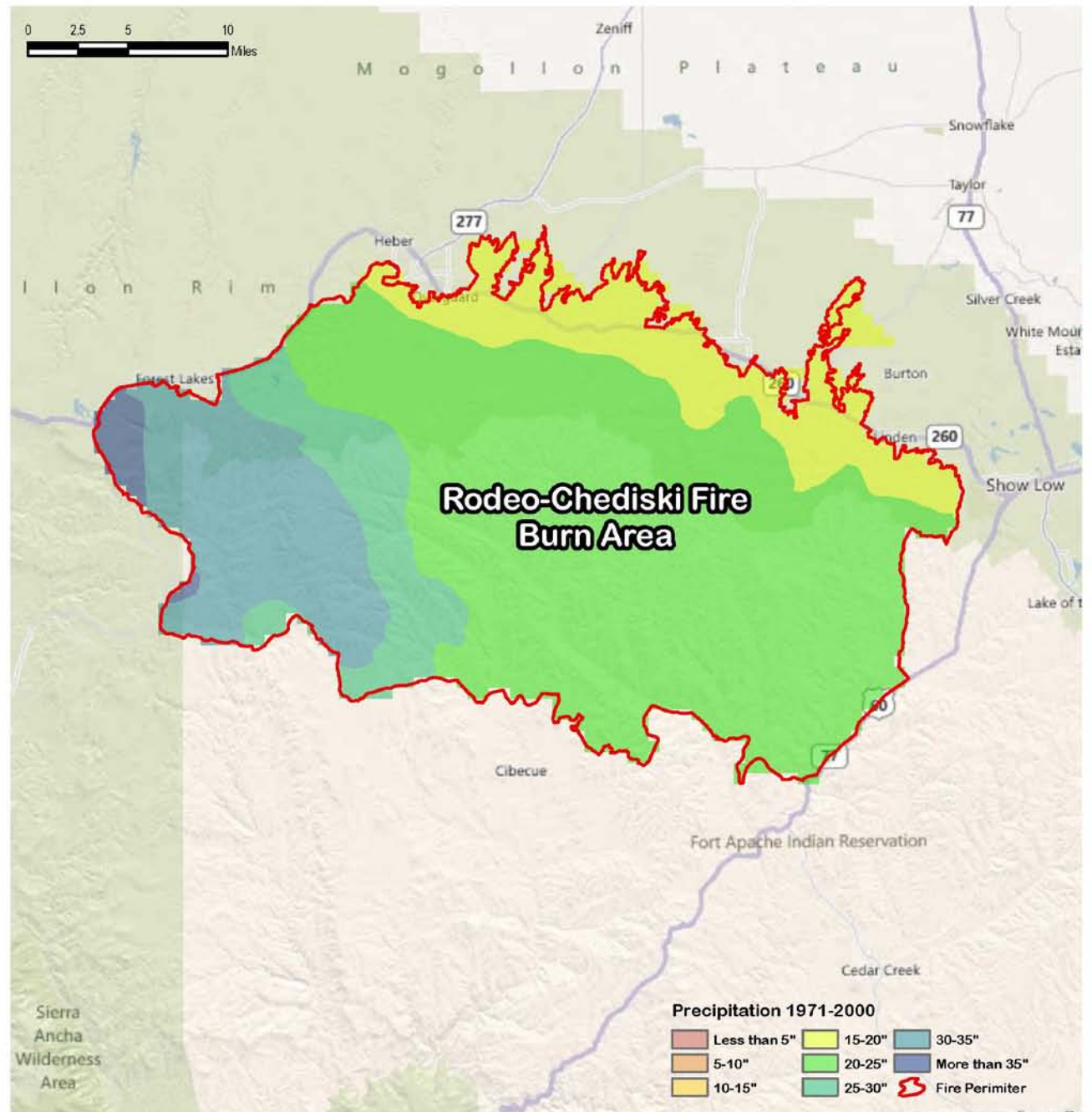
Average Precipitation on the Rodeo-Chediski Fire Burn Area:

23.82 inches

Source: PRISMS 1971-2000
Precipitation Data



PRISM_30yr_RodeoWildfire.MXD, 9/22/2011



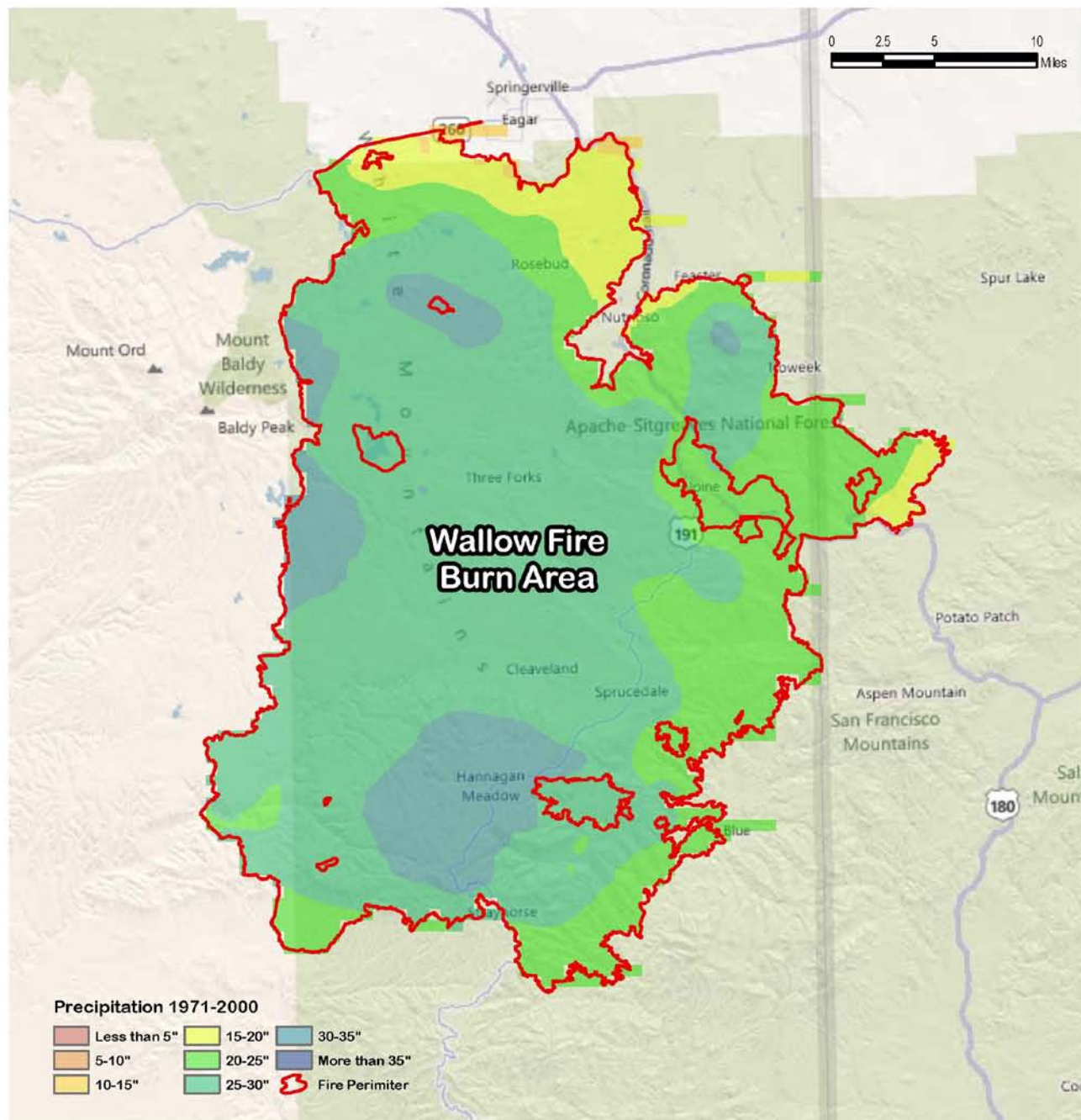
Average Precipitation on the Wallow Fire Burn Area:

26.08 inches

Source: PRISMS 1971-2000
Precipitation Data



PRISM_30yr_WallowWildfire.MXD, 9/22/2011





Roosevelt Lake Elevation and storage



Rodeo-Chediski Fire

July 15, 2002

Elevation: 2040 ft

Storage: 202,531 af

Wallow Fire

July 15, 2011

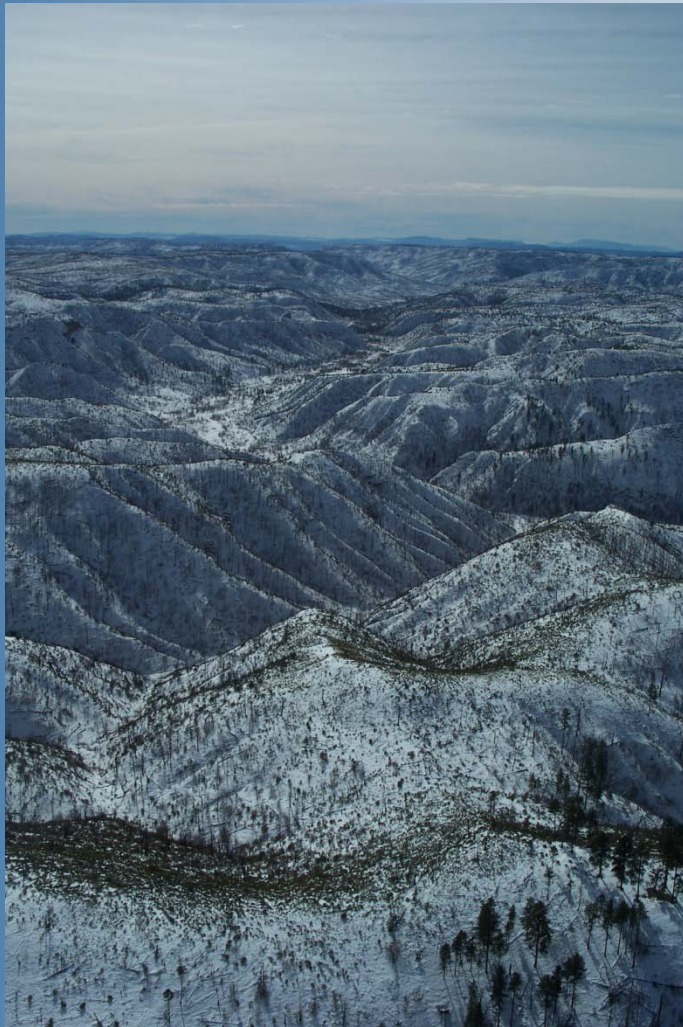
Elevation: 2135 ft

Storage: 1,345,467 af



February 23, 2009 – Rodeo-Chediski Burn Area





January 6, 2011



February 24, 2010

Carrizo Creek





January 6, 2011 – Near Showlow







Mitigation



Wallow Fire Behavior

Near Nutrioso, AZ



4 Forest Restoration Initiative



Initial Stakeholder Group

Arizona Forest Restoration Products
Arizona Game and Fish Department
Arizona State Forestry Division
Arizona Eastern Counties Association
Center for Biological Diversity
Coconino County Board of Supervisors
Coconino Natural Resources Conservation District
Coconino Rural Environment Corps
Ecological Restoration Institute
Flagstaff Fire Department
Forest Energy Corp.
Gila County
Graham County
Grand Canyon Trust
Greater Flagstaff Forest Partnership
Greenlee County Board of Supervisors
Northern Arizona Wood Products Association
Natural Resources Working Group
The Nature Conservancy
Navajo County Board of Supervisors
Northern AZ Logging Association
Northern Arizona University Forest Ecosystem Restoration Analysis (ForestERA)
No. AZ Wood Products Association
Pioneer Association
Rocky Mountain Elk Foundation
Rocky Mountain Research Station
Sierra Club
Southwest Sustainable Forests Partnership
US Fish and Wildlife Service
Public



4FRI Background

Overview of the 4FRI

Address current issues:

- Departure from historical conditions
- Larger, hotter, more destructive wildland fires
- Agency inability to treat forests fast enough with “business as usual” approach

Focus areas:

- Appropriate thinning of trees to reduce density and improve forest structure
- Return of frequent, low-intensity fire
 - Prescribed fire
- Support sustainable forest products industry(ies)
 - Promote economic development
 - Offset costs of forest thinning





Landscape Scale

- Plan and implement restoration treatments across an area of 2.4 million acres



Sustainable Industries

- Total area for mechanical treatment: ~1 million acres over ~20 years
- Treat ~30,000 additional acres/year, primarily through stewardship contracts

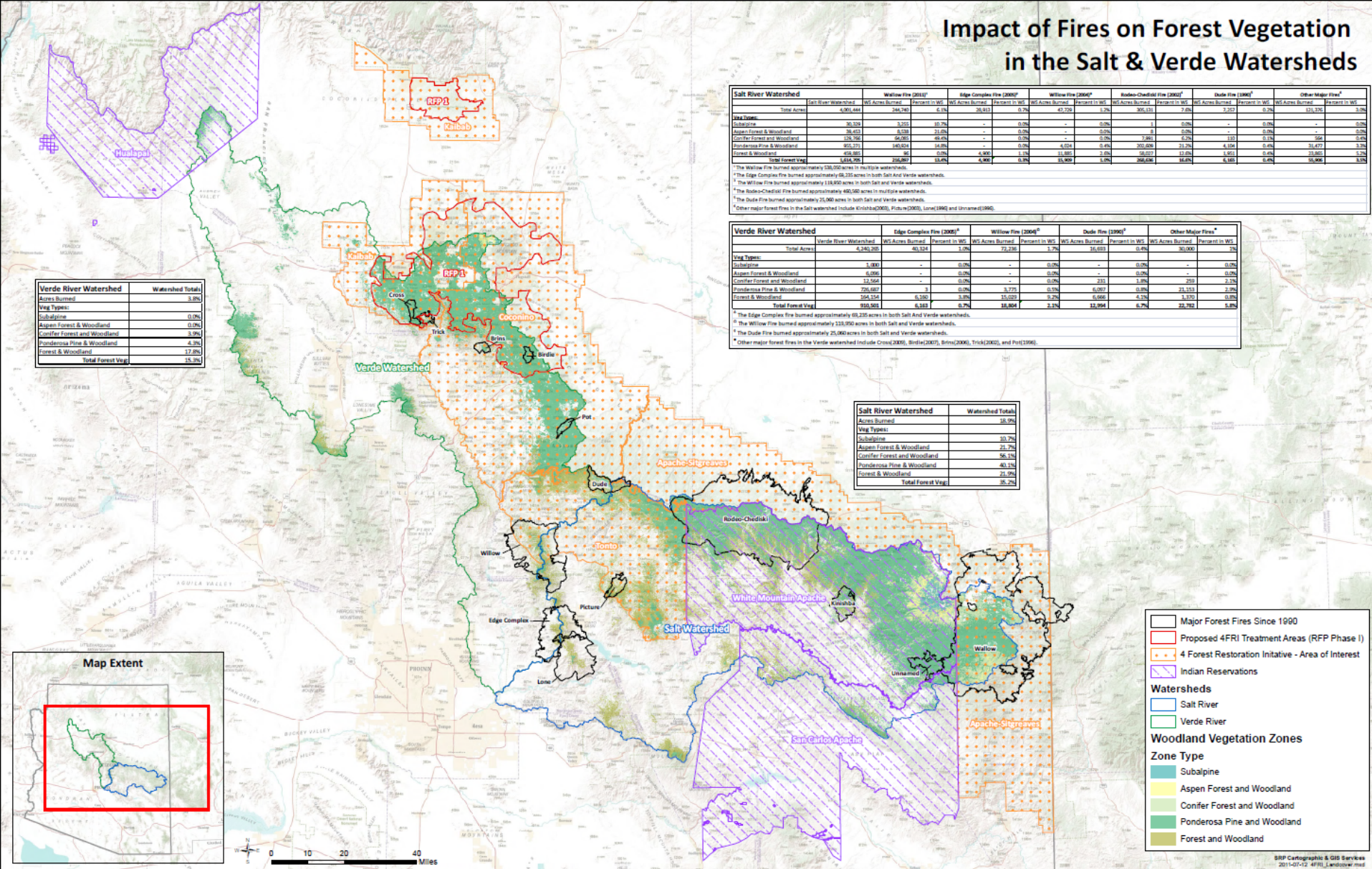


Accelerated Treatments

- In combination with USFS normal program (~17,000 acres/year), treat nearly 50,000 acres/year of ponderosa pine forest across the four forests



Impact of Fires on Forest Vegetation in the Salt & Verde Watersheds



Map of Fires on Forest Vegetation in the Salt & Verde River Watersheds



Industry Engagement

- The utilization of restoration by products is necessary to offset treatment costs (\$500-\$1000/ac)
- Industries must have ability to utilize small-diameter wood
- New industries, capable of utilizing large quantities of wood must be able to develop quickly

Improving Water Quality

- Studies demonstrate
 - Improved ecosystem = natural regime
 - Reduced sedimentation and silting of reservoirs
 - Less severe spike in flows (one year rain/100 yr. runoff)
 - Less erosion/ash flow/impact on wildlife

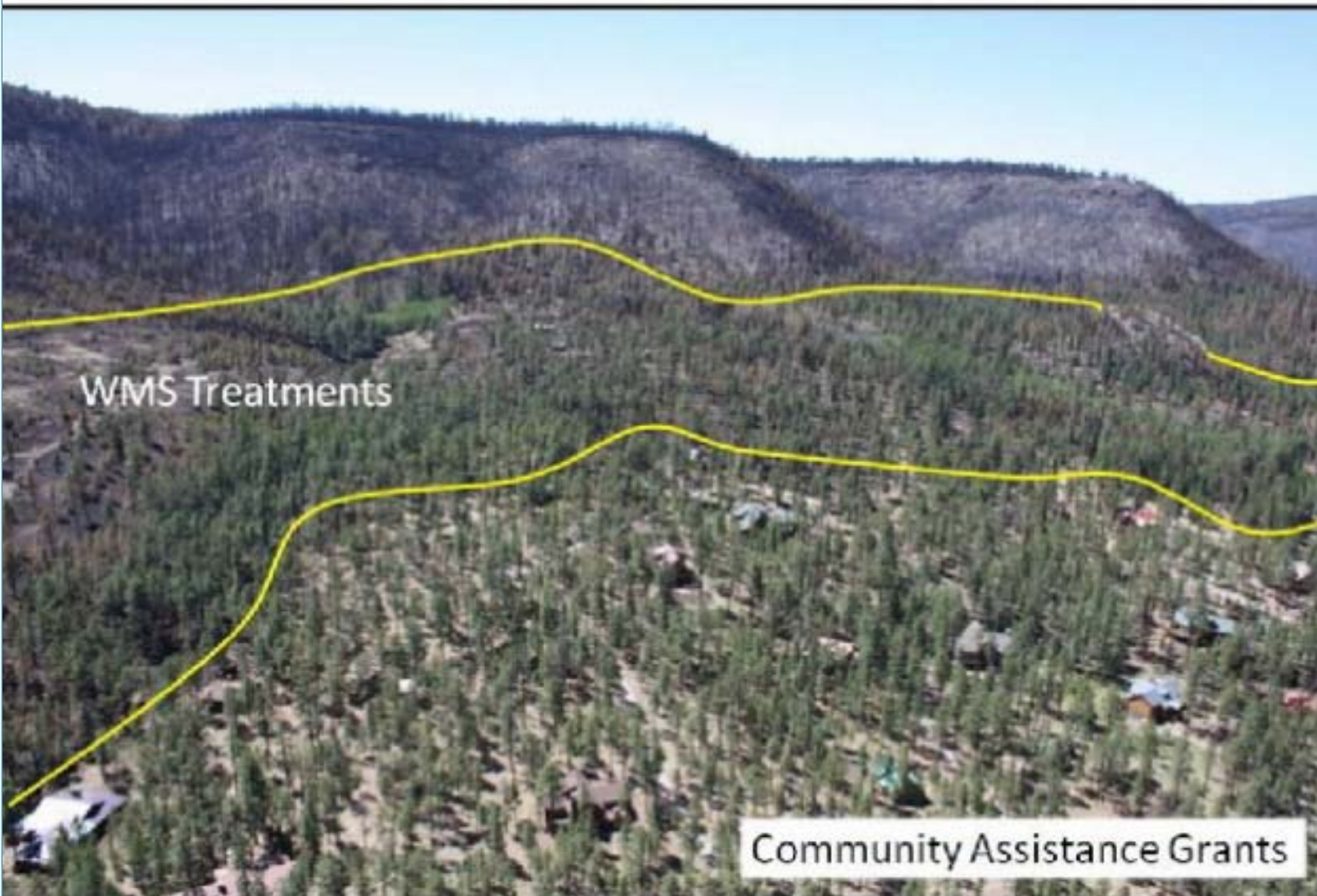
Water Supply

- Increased Water Yield
 - Groundwater recharge
 - Less sublimation losses
 - Increased snow cover
- Improved ecosystem
 - Restoration treatments will better prepare the landscape to adapt to changes in temperatures and moisture

Cost Savings

- **Restoration Costs** (includes thinning and prescribed burns)
 - \$500 to \$1,000 per acre
 - Economic benefit for forest industry (maintenance)
 - Recreation/aesthetic benefits
- **Recovery Costs** (fire suppression, mitigation, recovery)
 - Los Alamos fire: \$26,000 per acre
 - Buffalo Creek/Hayman fire: \$52 million for suppression and recovery
 - Wallow fire suppression costs over \$100 million
 - Rodeo/Chediski fire total costs \$308 million (suppression 15% of total)

East side of Greer



Courtesy of the Southwest Fire Consortium



Alpine home below fuel treatment



Courtesy of the Southwest Fire Consortium



Fire in Greer within treatment area



Courtesy of the Southwest Fire Consortium



QUESTIONS?



www.eri.nau.edu

www.fs.fed.us/r3/kai/
