Rim Country
Community Wildfire Protection Plan

Photo G. Hatch

Photo J. Schwennesen

Gila County, Arizona
October 2004

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Executive summary

The Rim Country Community Wildfire Protection Plan takes both a landscape and local view to ensure the safety of the extensive rural communities under the Mogollon Rim, in central Arizona. This region is characterized by a mix of dryland forest, mixed conifer and riparian ecotypes in broken to steep topography, dominated by the sharp cliffs dividing the northern part of the state from the lower elevations in the south. The forests are particularly adapted to, or influenced by, natural fire: the Ponderosa type is specifically adapted to frequent fires, and the Pinon-Juniper and Oak Chaparral types are at least partly the result of relatively recent fire suppression policy at the national level.

The great preponderance of the 298,000 acres within the 450 square miles of the proposed Protection Plan lies under the jurisdiction of the US Forest Service. Most of that is currently in fire hazard condition class 3, with at least three missed normal fire events and large accumulations of fuels. Tree density has increased a hundredfold in the last century.

There are at least 88 defined communities and 30,000 residents within 9 fire districts, all of which rank as significantly threatened by the accumulated fuels in the surrounding forest. Residents and local emergency services have been actively addressing wildfire danger through education, training, coordination and cooperation. Wildfire risk assessment has been carried out in detail. Emergency planning and coordination are up to date and comprehensive between agencies and departments.

However, the scale of the community protection task is enormous, considering that over 90% of the area is National Forest, where the dangerous fuel buildup has occurred. In short, these communities are surrounded by massive (average estimate of 37.5 tons per acre or 11.8 million tons total) amounts of accumulated fuels which must be aggressively removed, and soon, if a catastrophe is to be averted. The present drought, now in its ninth year, and consequent bark beetle mortality, adds a high degree of urgency to this already-critical situation.

Fortunately there is good research, science and expertise close at hand through the state's three universities and the USDA's Rocky Mountain Research Station in Flagstaff. While the results of their research have perhaps not received sufficient recognition by federal policymakers in the past (warnings of dire consequences to fire suppression policy in the West have been made for decades), the present fire crisis has underlined the necessity of a serious revamping of the approach to dryland forest management. It is not just human communities which are at risk; wildlife, watersheds and the forests themselves are in the balance. New approaches are needed for new times.

RIM COUNTRY COMMUNITY WILDFIRE PROTECTION PLAN (CWPP)
SITUATION SUMMARY: OCTOBER, 2004

Community:
Total land area under plan: …….…..450 sq. miles / 298,000 acres
90.4% of total is Federally controlled….……...…… 277,000 acres
9.6% of total is privately-owned…….…… 21,000 acres

Total CWPP population at seasonal peak..…… …….... 50,000
Full- and part-time residents..…… 30,000
Visitors and recreationists …… 20,000

Defined communities within the plan:……..…….. 88

Forest:
Ponderosa pine density, stems / acre, 1900 (USDA est.) ……..…….. 3 -10
Ponderosa pine density, stems / acre, 2000 (USDA est.) …… .. 300 – 1000+
(Similar density increases are noted for oak shrubland, mixed conifer, pinon-juniper and chaparral shrublands).

Mature conifers killed by bark beetle, Tonto N.F., 2002-2004 ……...……. 9.2 million

Average present fuel load in CWPP ……..…37.5 tons per acre / 11.8 million tons

Wildland-Urban Interface:
Managed buffer planned around forest communities: …….. … 1.5 miles
Managed buffer planned around desert communities:..…….…… 0.5 miles
Managed buffer planned along evacuation corridors: ……..……..0.5 – 1.0 miles

Priority and cost of forest fuel-reduction treatment*:
Highest risk, most urgent priority… ……...…….. 157,500 acres / $63 million
High risk, less urgent priority..……..…..135,800 acres / $19 million

- these raw costs are estimated for direct fuel reduction treatments only. They do not include the costs for improving access roads or ensuring adequate water supplies, or the support costs for increasing fire /emergency preparedness. Neither do they account for on-going data gathering / delivery / update, monitoring, plan administration, etc.

A. INTRODUCTION

Goal: the goal of the Rim Country Community Wildfire Protection Plan is for vital, healthy and dynamically stable human communities, built upon a similarly vital, healthy and dynamically stable forest which is strongly resistant to wildfire, and wherein the positive role of fire is understood and managed for the benefit of all.

Photo by Gary Hatch

Community of Strawberry, Arizona

1. Overview

The Rim Country Community Wildfire Protection Plan is the comprehensive local response to a number of real-life conditions which are known to be truly dangerous to life and habitat. Federal, state, county, local and Tribal governments, public utilities and local private businesses, and individual citizens, have joined together to confront the urgency of an unprecedented wildfire threat.

Over past decades, it has become clear that the possibility of a major disaster, in the form of uncontrollable forest fires, has grown enormously. The 3 largest wildfires in Arizona's history have occurred in each of the past three years: Rodeo-Chediski 2002 (468,638 acres), Aspen 2003 (84,750 acres), Willow, 2004 (119,500 acres). The conditions which resulted in those fires, continue to worsen here along the Mogollon Rim. The tree density has changed from 3-10 per acre in 1900, to, in many cases, over 1000 per acre today. This is further

multiplied by a protracted drought and massive tree mortality due to bark beetle infestation. Literally, there is no other time in the area's recorded history with such high potential for disaster.

The Rim Country Community Wildfire Protection Plan provides the structure in which to integrate a broad range of agencies and organizations and their resources, with the need for local community action. The term "community" is especially significant, as we encompass the spectrum of organizations from municipalities, unincorporated villages to the Federal government; local businesses to volunteer fire departments. Each entity, within the structure of the Community Wildfire Protection Plan, contributes to the survival and functioning of this community.

Photo by Carol Osman Brown
Community meeting to discuss the Community Wildfire Protection Plan, Beaver Valley, September, 2004

2. The forest and associated ecotypes

More than 80 years of forest fire research (ref. RMRS-GTR-120, April, 2004) emphasizes that the Western dryland pine forests, mixed woodlands and riparian and associated forest types which cover a substantial area of northern Arizona, are fire-adapted and fire-dependent to a degree beyond other forest types in America. It is now recognized that frequent fire is the key to dryland forests' long-term health. This could not be more different from the wet, temperate forests of Europe and the eastern US which have historically provided our models for forest management. In those forests, fire has been perceived as a threat to productivity, a destabilizing and negative force which reduces forest potentials. Subsequent longstanding Federal policies on fire exclusion, timber harvesting and livestock grazing have resulted in millions of acres of forest containing a high accumulation of flammable fuels, compared to

conditions prior to the 20th century. Now, forests with high stem density and fuel loading, combined with extreme weather conditions, have led to severe, large wildfires.

The adjacent lower-elevation ecotypes, Pinon-Juniper forest and Chaparral shrubland, also owe their present prominence to fire, more specifically to its suppression. Photographic and research documentation indicate that since fire suppression became general national policy in the early 1900s, large areas of Arizona's open grasslands and savannas have suffered from a massive surge in the spread of these woody species which previously were held in check by frequent grassland fires. They have characteristics which add considerably to dangerous wildfire potential: large amounts of volatile resins; small-diameter, dry, woody stems and branches; vigorous resprouting from basal crowns; well-aerated, open tops; aggressive competitors for soil moisture; and the ability to thrive in close proximity or under the canopy of other species.

Adding insult to injury, in Arizona we are experiencing the longest continuous drought in modern history, nine years and counting, and this stress to the forest has resulted in yet another level of fire hazard crisis, as bark beetle infestations have killed 9.2 million conifers on the Tonto National Forest alone, from 2002 to 2003 (ref. USFS). The overall result for the Rim Country is an average combustible fuel load of 37.5 tons per acre. (ref. RPAP)

Photo by Gary Hatch
Bark Beetle kill in Ponderosa and mixed-conifer stands north of Payson, Arizona, 2004

3. The people

As in many other areas of the Southwest, over the last thirty years Arizona's Rim Country has witnessed a large increase in human population which continues to result in rapid growth. This region is well-known for its rugged natural scenery, open space and pleasant climate, factors which appeal to a great many urban dwellers as well as to long-time residents. In the past, residents tended to make their livings directly from the land, from wood products,

livestock, hunting and mining. Now, more people who move to this area build vacation homes, retire here or commute to jobs in the hotter climate of Phoenix. This has created an entire class of dwellings which are only occupied part-time, and a large amount of undeveloped land held by absentee owners. This is of considerable significance to the wildfire danger of the area, as the structures often do not receive adequate maintenance, and owners are often not available to help with community efforts to reduce fire hazards.

An important aspect of the human movement from the hot desert cities toward the forest is the general desire for solitude. This has led to a tendency for small, widely-scattered communities or single residences which are difficult to organize or protect in the event of a wildfire disaster. It has caused the people to be resourceful and independent, but also made emergency coordination and coherent planning on a large scale, difficult.

To address this problem in Gila County, the Regional Payson Area Project (RPAP) formed in November 2000. Its purpose has been to provide a forum for, and facilitate the effective cooperation of, local emergency officials and services. This group dovetails naturally with similarly-focused groups in neighboring forest regions: the Greater Flagstaff Forest Partnership; the Prescott Area Wildland-Urban Interface Commission; and the Ponderosa Fire Advisory Council.

Residents of the Rim Country include not only some 30,000 full-time inhabitants, but also a large and growing part-time, seasonal population scattered among 88 small forest communities. In addition to these, there are up to 20,000 recreationists who swell the population on summer weekends and holidays to 50,000 or more.

4. The plan

This Community Wildfire Protection Plan incorporates the efforts of individual property and business owners, fire districts, local, county and state governments, and the U.S. Forest Service. This has been a collaborative effort with the goal to create synergy to resolve the issues of forest health, and to control the damaging impact of wildfires on our rural communities. Actions range from increased public awareness, education and property owners' creating defensible spaces, to construction of fuel breaks and thinning of overgrown forest on Federal land, to the adoption and enforcement of sensible land development and fire safety codes, to improving fire service response capabilities.

We intend to apply the best available resource management principles to ensure the recovery and long-term good health, functioning and productivity of forest resources. We recognize that only in this way can our communities survive. Everything from the significance of soil microorganisms, soil surface management and livestock grazing to seeding, thinning and controlled burning, is being examined in the light of long-term forest ecosystem health. Many years of research by the USDA Rocky Mountain Research Station and the state's three public universities are to be included in project efforts.

Photo by J. Schwennesen

Healthy Ponderosa forest, Mogollon Rim, October, 2004

5. Principles

The Rim Country Community Wildfire Protection Plan is guided by the same six operating principles as those so well expressed in the Greater Flagstaff Area Community Wildfire Protection Plan:

1. *Scientific Framework:* the reduction of hazardous fuels is based upon known fire risk, fire behavior, and threats to values at risk.

2. *Social / Political Framework:* social concerns play a major part in defining treatments and their locations.

3. *Operational Framework:* emphasis must be placed on strategic fuel treatments designed to protect key values at risk, which will serve as anchor points for landscape-scale treatments.

4. *Ecosystem Framework:* hazardous forest fuels management should be understood within the context of overall ecosystem management goals.

5. *Economic Framework:* implementation and maintenance of proper forest fuels management greatly outweighs costs.

6. *Ethical Framework:* the need to act immediately to reverse the dangerous downward spiral of forest and land health, to reduce the probability of catastrophic fires and their devastating impact on the lives and livelihoods of all species.

B. THE COMMUNITY

1. General perspective

The Rim Country CWPP is necessarily both extensive and inclusive. Residences in the area consist of dispersed, small enclaves of houses, more or less defined villages, or even remote single dwellings, all within the forests and woodlands, and along the forest streams. The area under the Protection Plan includes approximately 450 square miles of the northern part of Gila County, most of which lies within the jurisdiction of the Payson Ranger District, Tonto National Forest, U.S. Forest Service. There are at least 88 named communities on 20,598 acres of private lands within this area, with a seasonal population of over 50,000 people.

2. The Wildland-Urban Interface (WUI)

Seven of the nine Fire Districts participating in this Community Wildfire Protection Plan have one or more communities listed on the August 17, 2001 Federal Register, as Wildland-Urban interface communities at high risk from wildfire.

A widely-used conventional definition of the wildland-urban interface is: "Where structures and flammable vegetation meet and/or intermix." This definition has proven to be somewhat limiting, however, and current research has offered others. Summerfelt (2001) expands the definition: "An area in and around a neighborhood or community where the immediate or secondary effects of a wildfire threaten values at risk, and will be a serious detriment to the area's overall health and sustainability". This describes an area of much broader scope than simply where man-made structures are placed at risk, and recognizes the equal importance of watersheds, soils, landscape ("view shed"), wildlife habitats, and air quality.

The Rim Country Community Wildfire Protection Plan organizing group has taken into account the mix of hazards to dwellings surrounded by dense forest: slope, weather and prevailing winds (SW), fuels accumulations, wildfire behavior (spotfire distances, crown fires, low humidity, wind speeds) and placement of habitations, all of which affect the initial cautionary ½ mile zone suggested by the federal Healthy Forest Initiative guidelines. As a result of the above, recognizing the particular characteristics of Arizona's dryland forests, the Protection Plan core team and the US Forest Service have concluded that a minimum 1 ½ -mile Wildland-Urban Interface buffer is necessary. In the lower elevations where the Interface abuts desert fuel types, it was reduced to ½ mile. One exception to this latter was around Gisela. In their public meeting, there was concern about a thick cottonwood/ mesquite bosque area to the south of town – the WUI was expanded to include it.

3. Community character

The present character of the Rim Country community began to be defined in the mid-19th century, when the first small, scattered towns became established to support the industries of the era: ranching, mining and timber. These were industries that generated income, products and livelihoods, directly or indirectly, for most of the people living in the area at the time. The tendency was set early on, for communities to remain small and scattered throughout the natural forested landscape.

Since then there has been a gradual but steady shift in the nature of residents, as the growing urban areas of the state have led to increasing numbers of people with the means and desire to live here, without necessarily needing to derive a livelihood. Escape from the Valley's summer heat; recreation; investment, retirement and real estate speculation have become strong motivators for present residents.

Ninety percent (90.4%) of the land area within the Rim Country Community Wildfire Protection Plan is under the direct control of the U.S. Forest Service. Such Federal control, along with their administrative links with other Federal agencies such as Department of Interior, Bureau of Indian Affairs and U.S. Fish and Wildlife Service, give the perception that all other involved parties must operate within the USFS framework. Indeed, their technical guidance and support is specifically requested by the Healthy Forests Restoration Act on behalf of threatened communities. However, the same Act specifies that Community Wildfire Protection Plan communities are legally and morally the motive force for Plan development and that where fire threats to communities exist, the Forest Service must work with the Protection Plan.

4. Fuel hazard reduction efforts

Recommendations have been developed and implemented to educate the public within the Rim Country communities about actions they can take to reduce the ignitability of structures and homes. Five burning pits have been made available and staffed with RPAP volunteers to facilitate the safe disposal of dangerous amounts of cut vegetation free of charge. Gila County has reduced rates for brush and other vegetation disposal at the Buckhead Mesa Landfill and has also opened Sundays, free of charge, also staffed by RPAP volunteers. In excess of 11,000 tons of brush have been brought to pits for disposal since 2002.

Arizona Governor Napolitano through coordination with the Arizona State Land Department, Fire management Division (ASLD) has provided two Department of Corrections (DOC) inmate crews trained in brush removal/fuel reduction to work in the Payson and Pine areas. The program in Pine provides a unique opportunity to homeowners for fuel removal and fire hazard reduction within their community and directly on their property. Projects in the Payson area have been completed on town-owned property adjacent to neighborhoods or critical town infrastructure (i.e. utility, radio and cell phone tower sites).The State Land Department provides technical assistance and program coordination, with Corrections crews providing labor for cutting and clearing work. Brush removal varies from 30 – 70% depending on the project site. For example, the Arizona Department of Corrections crews have accomplished the following in the Pine area:

Portals III subdivision:

- 33 private lots (20 acres)

Portals IV subdivision:

- 19 acre preserve area treated
- 51 private lots
- 1 easement area
- 1 common area

Randall property- 13 acres

Carlyon property- 5 acres

In Pine/Strawberry the US Forest Service has treated a minimal 300' fuel break on the town's perimeter. This fuel break is included in the 22,065 acres (7% of the area) the Forest Service has treated in the last 7 years within the Protection Plan area.

Hundreds of public education programs have been offered throughout the Rim Country through the cooperation of Gila County Community College, the Town of Payson, the Fire Districts and Regional Payson Area Project. Media avenues have been used including the local AM (KMOG), FM (KRIM) and the local-access cable-TV Channel 4. Many homeowner associations and service groups have received presentations concerning fire-defensible space. A continuation and expansion of these education/awareness programs is planned.

It should be noted that the Forest Service has worked with local Fire Departments to allow homeowners, adjacent to the Forest boundary, who have met the FireWise™ guidelines on their own property to obtain approval to remove dead materials within a 100' zone along the boundary.
The Diamond Star Fire Department has developed an innovative program to assist homeowners in making their properties FireWise™. Chain saws, sharpening and safety equipment can be loaned to homeowners and training provided. Two Urban Interface Fuels Specialists have been hired and are available to do onsite fuels assessments, at no cost to property owners. They can also be hired to clear brush from private property at cost. The Department has purchased equipment and operated it at cost, to haul brush away. This allows the Fire Department to have 2 extra firefighters when needed during peak fire season and keeps them constructively occupied in off-peak times.

In the spring of 2004 the Payson Fire Department completed an assessment of twelve neighborhoods (1100 properties) on the perimeter of Payson, and as part of this effort distributed the "Living With Wildfire" brochure. The assessment method was the basis of the assessment process used in the Community Wildfire Protection Plan.

Even with all these efforts, in 2003-2004 the equivalent of 137 acres (0.6% of the area) were treated out of the 20,598 acres of private land under the Protection Plan. At this rate it will take 150 years just to treat the <u>private</u> land, <u>once</u>. By then, of course, the first parts of the area will have overgrown again and the hazard will not have diminished.

C. THE PROCESS

"We've dodged the [catastrophic fire] bullet so many times – it's getting like Russian roulette"

Gary Hatch, Chief, Diamond Star Fire Department

STEP ONE: Convene Decisionmakers

The Regional Payson Area Project (RPAP) was formed in November 2000 to address the rapidly rising concern about the dangers that catastrophic wildfire presents to this area. The Rodeo-Chediski Fire in May of 2002 made the need even more apparent. As residents of the Rim Country we knew that it was merely a question of time before a similar fire would be literally at our own doorsteps. The subsequent Willow Fire in May of this year (2004) confirmed our concern. The 119,500 acre wildfire approached to within two miles of the municipal boundaries of the Town of Payson before it was stopped, and was an imminent threat to the communities of Strawberry and Pine. Some 30,000 people, and their possessions and livelihoods, were in grave danger.

The RPAP group has brought together representatives from Gila County, all the Fire Districts in the Rim Country, the Arizona State Land Department, the US Forest Service and University of Arizona Cooperative Extension. The group has met monthly to develop and promote strategies for communities and property owners to plan and implement fuel reduction activities on private land. The Northern Gila County Fire Chiefs' Association and RPAP also help to coordinate the response to wildfire emergencies.

The Regional Payson Area Project produced the "Conceptual Forest Health and Fire Risk Reduction Plan" which was completed and published in November, 2002. A Community Wildfire Protection Plan Core Team from RPAP and other interested publics began meeting in May 2004 to prepare the Rim Country Community Wildfire Protection Plan.

STEP TWO: Involve Federal Agencies

The U.S. Forest Service has had representatives at the Regional Payson Area Project and Community Wildfire Protection Plan meetings since their beginnings in 2000. Gila County has the largest percentage of federally administered land in the entire state (96%), and the second highest in the nation. The Tonto National Forest is the dominant land-holder at 90.4%, and will be largely responsible for implementing the priorities established by the Community Wildfire Protection Plan.

Currently the local fire departments coordinate their efforts with the US Forest Service. The Payson Fire Department has taken the lead in producing the urban maps necessary to prepare the Community Wildfire Protection Plan, and the Forest Service has for its part identified and described a number of Analysis Areas for the establishment of hazardous forest fuels reduction projects.

Northern Arizona University has received Congressional funding to establish the ForestERA project. Its purpose is to acquire the best possible data at a landscape scale, to evaluate the values and risks of the forests of the greater Mogollon Rim. This is in order to help scientists and the public to prioritize the best possible management decisions.

The U.S. Bureau of Land Management has contributed secondarily through discussions of the ecological restoration process, as facilitated by Northern Arizona University's Ecological Restoration Institute. Likewise, the U.S. Fish and Wildlife Service has been instrumental in supplying data on wildlife, especially forest-dwelling endangered species, for the restoration maps used in the public presentations of the Protection Plan.

The U.S. Department of Agriculture's Rocky Mountain Research Station continues to provide the most current research data on forest management, and advice and guidance on wildfire behavior and restoration practices.

STEP THREE: Engage interested parties

The core Rim Country CWPP planning group consists of the nine local fire districts; the Town of Payson; Gila County Administration; the Arizona State Land Department; the U.S. Forest Service; Arizona Partnership for Forest Health; and the Regional Payson Area Project. In addition there has been participation from Arizona Game and Fish Department; Tonto Apache Tribe; University of Arizona Cooperative Extension; Northern Arizona University's ForestERA program; and representatives of the insurance and construction industries.

The general public has been invited to participate, continually informed through local radio and newspaper articles, and directly addressed through a series of public meetings conducted during the month of September 2004 in all fire districts within the intended Protection Plan area.

University of Arizona Cooperative Extension has held 34 workshops for nearly 2,000 people, providing continuous outreach information to property owners and Rural Fire Districts. This has encouraged a coordinated effort to make rural homes, businesses and other structures resistant to wildfire damage.

The Fire Chiefs have engaged in continuous information efforts within their districts, to inform all citizens of the hazards of wildfire, the responsibilities of property owners to make their property wildfire-resistant, and location of emergency escape routes. The Gila County Sheriff's Office and the Payson Police Department have prepared evacuation plans for their respective communities.

Broadly speaking there is no one, full-time or part-time resident, who does not hold a vital interest in the management of the fire danger and by extrapolation, the forest itself. The draft Community Wildfire Protection Plan was presented in each Fire District before the document was finalized.

STEP FOUR: Establish a Community Base Map

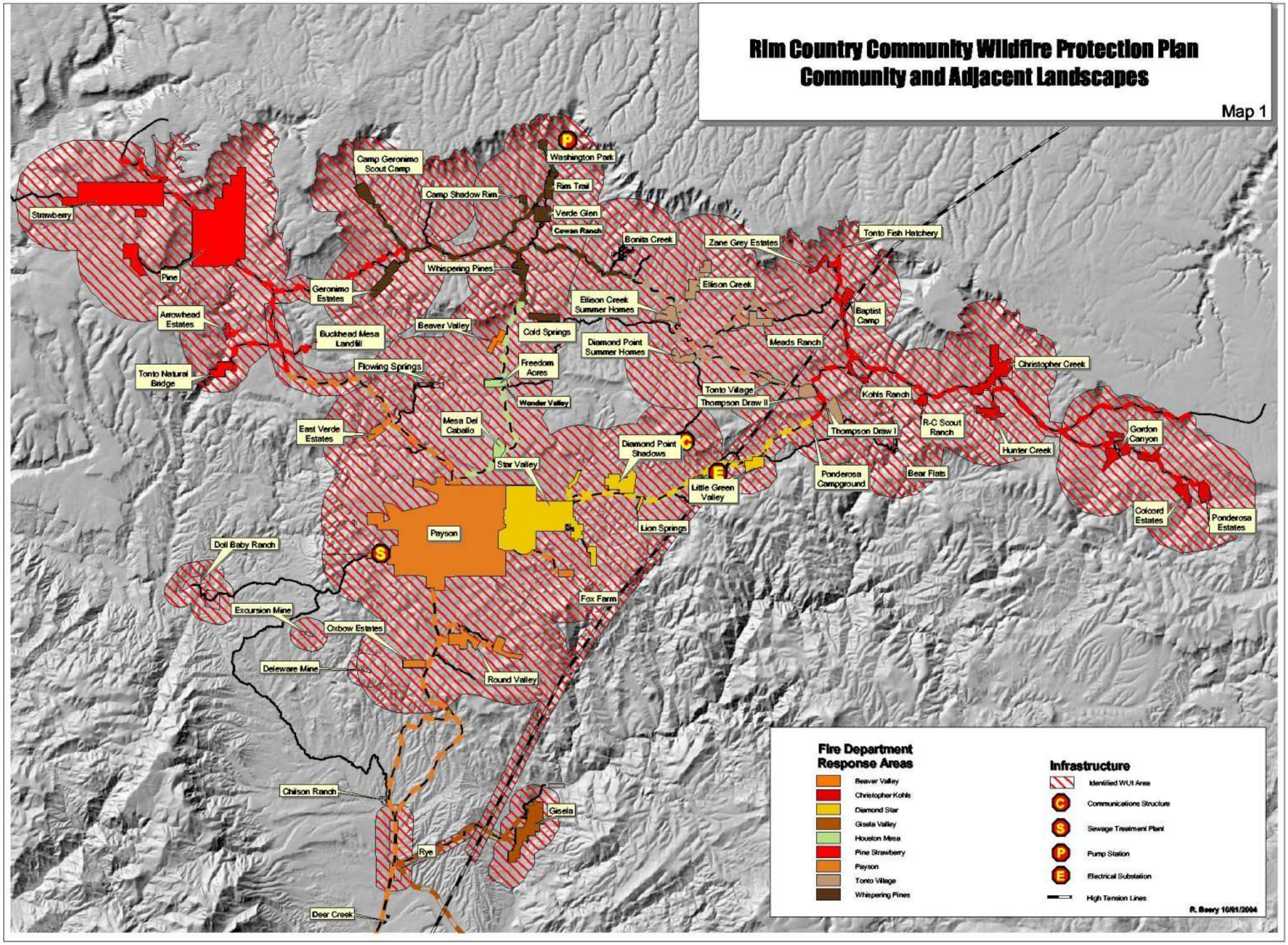
The core team has used available technology and local expertise to develop a Protection Plan base map:

Map 1, *Communities and Adjacent Landscapes,* in the Rim Country indicates:

- inhabited areas at risk from wildfire
- by color-coding, which Fire District takes responsibility for fire protection for each community. There are 10 communities which are not within a Fire District
- an initial Wildland-Urban Interface (WUI) zone -It is planned that this initial WUI will evolve over time as results from treatments are examined and more data becomes available to both predict and monitor fire hazard in the area.

Rim Country Community Wildfire Protection Plan
Community and Adjacent Landscapes

Map 1



STEP FIVE: Develop a Community Risk Assessment

Photo by E. Schwennesen

"We all live in fear"
Olive Matus – owner of the Creekside Restaurant and Saloon for 34 years, Christopher Creek

Personnel from all the Fire Districts in the Rim Country have been out in their communities gathering and coordinating information. From this, they developed unified Urban Assessment Strategy Maps for the entire area. The risk assessment process was developed by the Payson Fire Department using the NFPA and FireWise™ models.

5a. FUEL HAZARDS:

Using data from Rocky Mountain Research Station, US Forest Service and ForestERA, it is calculated that within the area of the Rim Country Wildfire Protection Plan, excluding the urban zone, there are presently an estimated 11.8 *million tons* of accumulated fuels, or about 37.5 tons per acre.

Map 2, *Vegetative Fuels,* identifies vegetation types on Federal and non-Federal land within or near all the Rim Country communities.

Map 3, *Dry Forest Treatment and Condition Class*, evaluates the vegetative fuels and identifies US Forest Service environmental assessment boundaries and treatment areas. There are 3 condition classes:

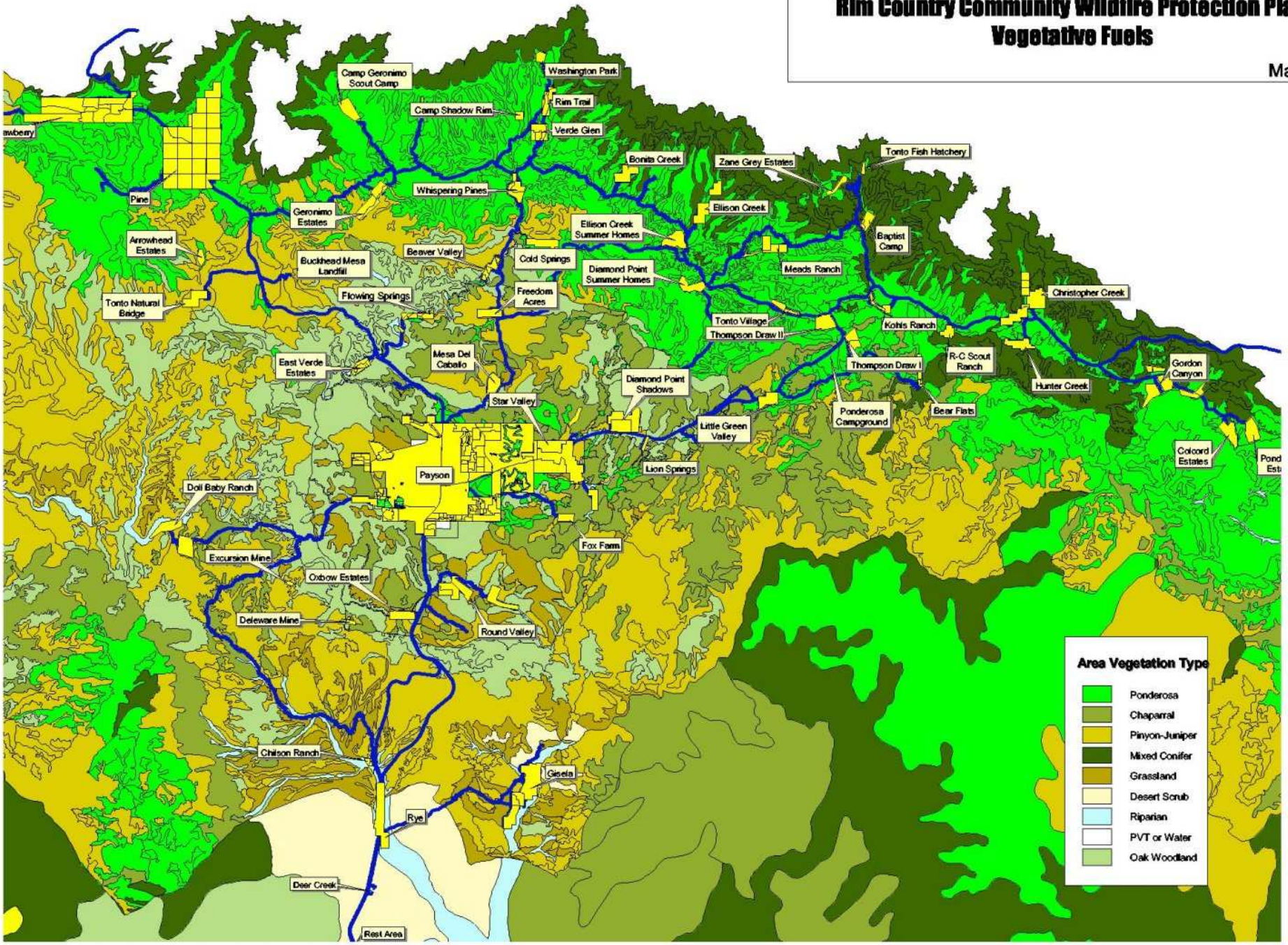
1 - forest with a normal fire regime - moderate fuel hazard
2 - forest has missed at least one natural fire cycle – high fuel hazard

3 - forest has missed 3 or more natural fire cycles – extreme fuel hazard

The US Forest Service Regional Fire Center has evaluated all vegetation types in the Rim Country Community Wildfire Protection Plan – all areas that have not been treated, nor had recent (within 10 years) wildfire, are condition class 3: extreme fuel hazard.

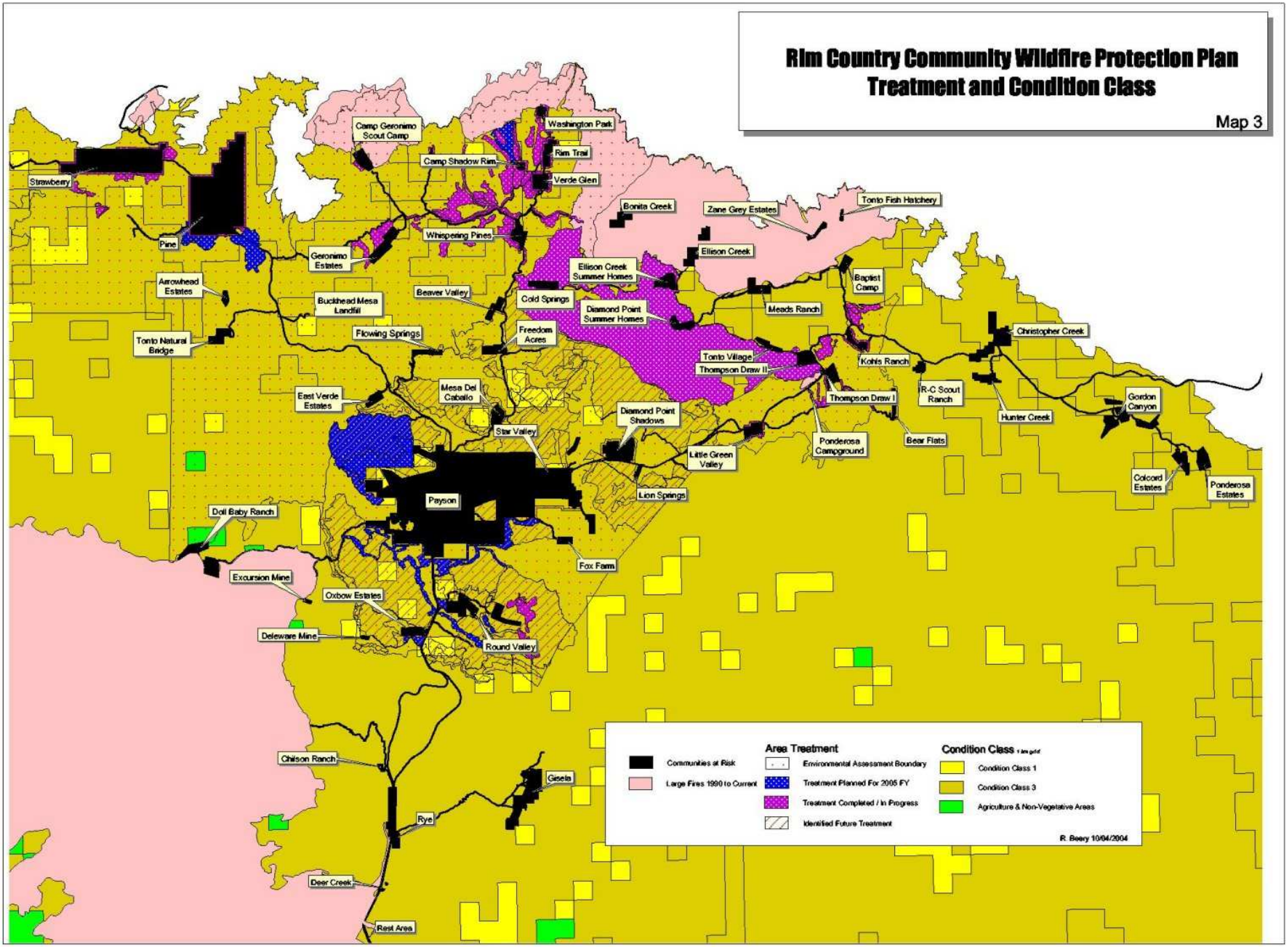
Rim Country Community Wildfire Protection Plan
Vegetative Fuels

Map 2



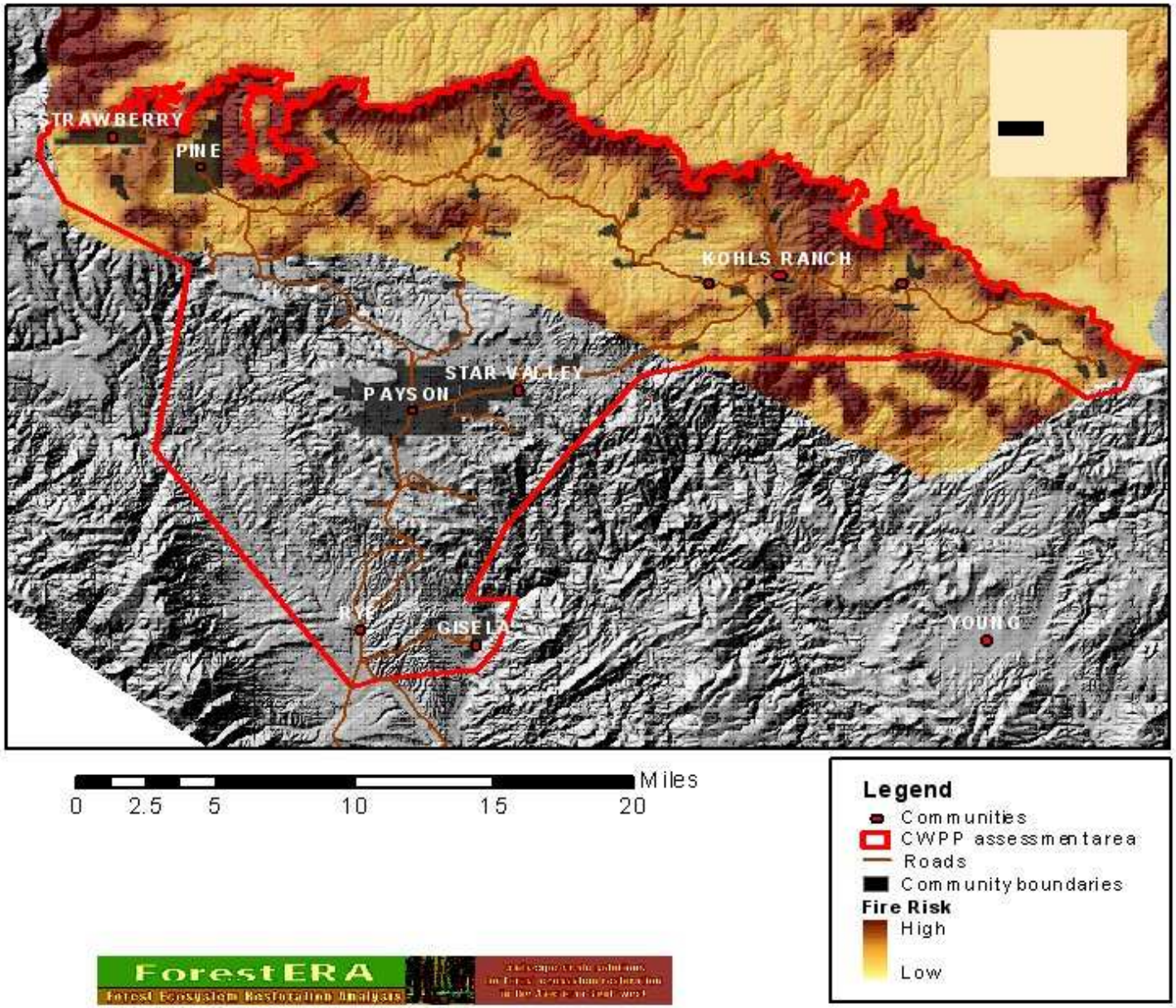
Rim Country Community Wildfire Protection Plan
Treatment and Condition Class

Map 3



5b. RISK OF WILDFIRE OCCURRENCE

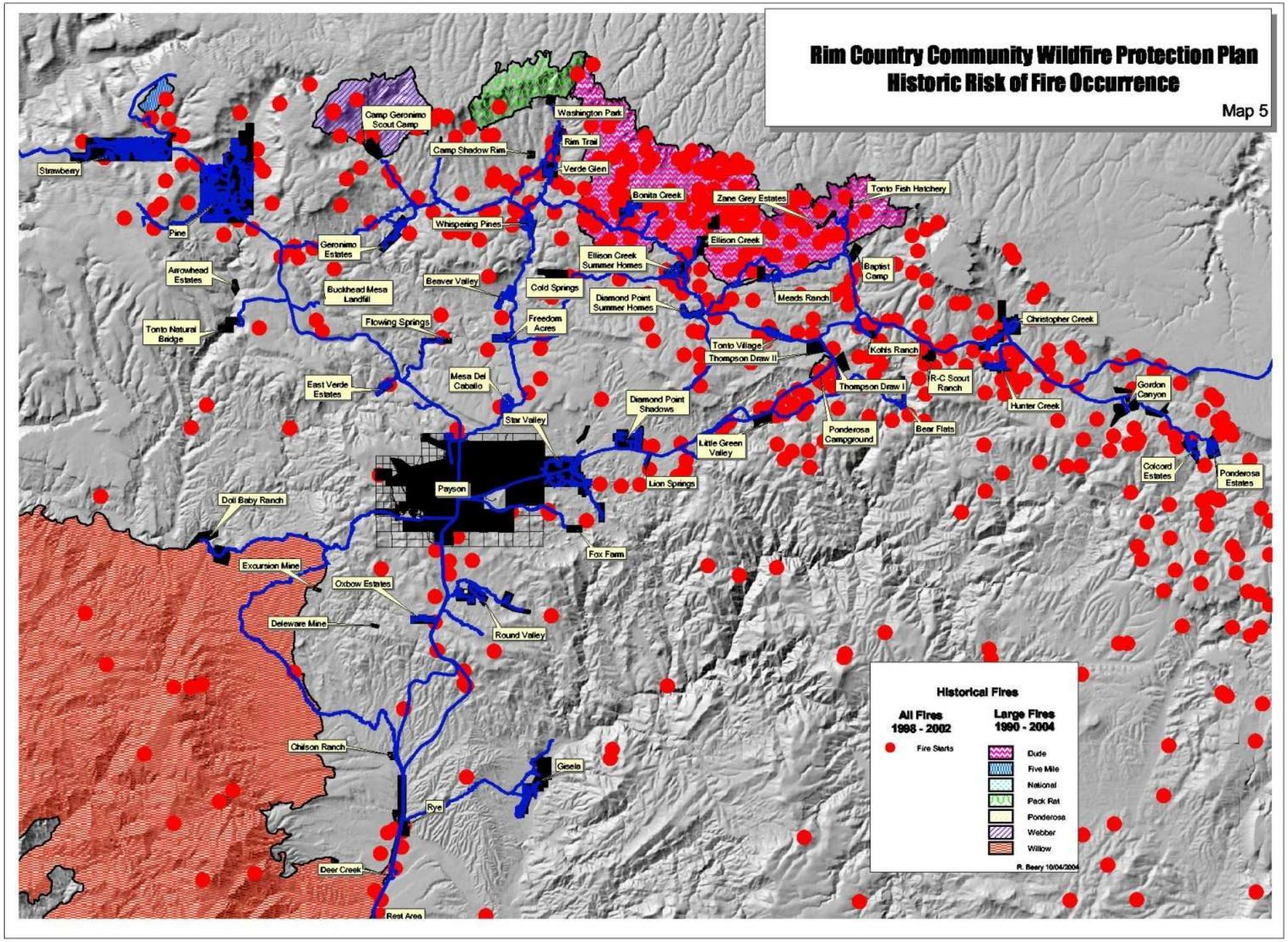
Northern Arizona University ForestERA's data, for the northern half of the RPAP footprint is displayed on **Map 4,** *Fire Risk*. It predicts the greatest likelihood of wildfire occurrence to be along the Rim, due to the large number of historical lightning strikes in relation to vegetation types, terrain and human influences. These predictions are corroborated by **Map 5,** *Historic Risk of Wildfire Occurrence*, which are the large fires from 1990-2004 and indicates known fire starts from 1998-2002:



Map 4. Rim Country Community Wildfire Protection Plan

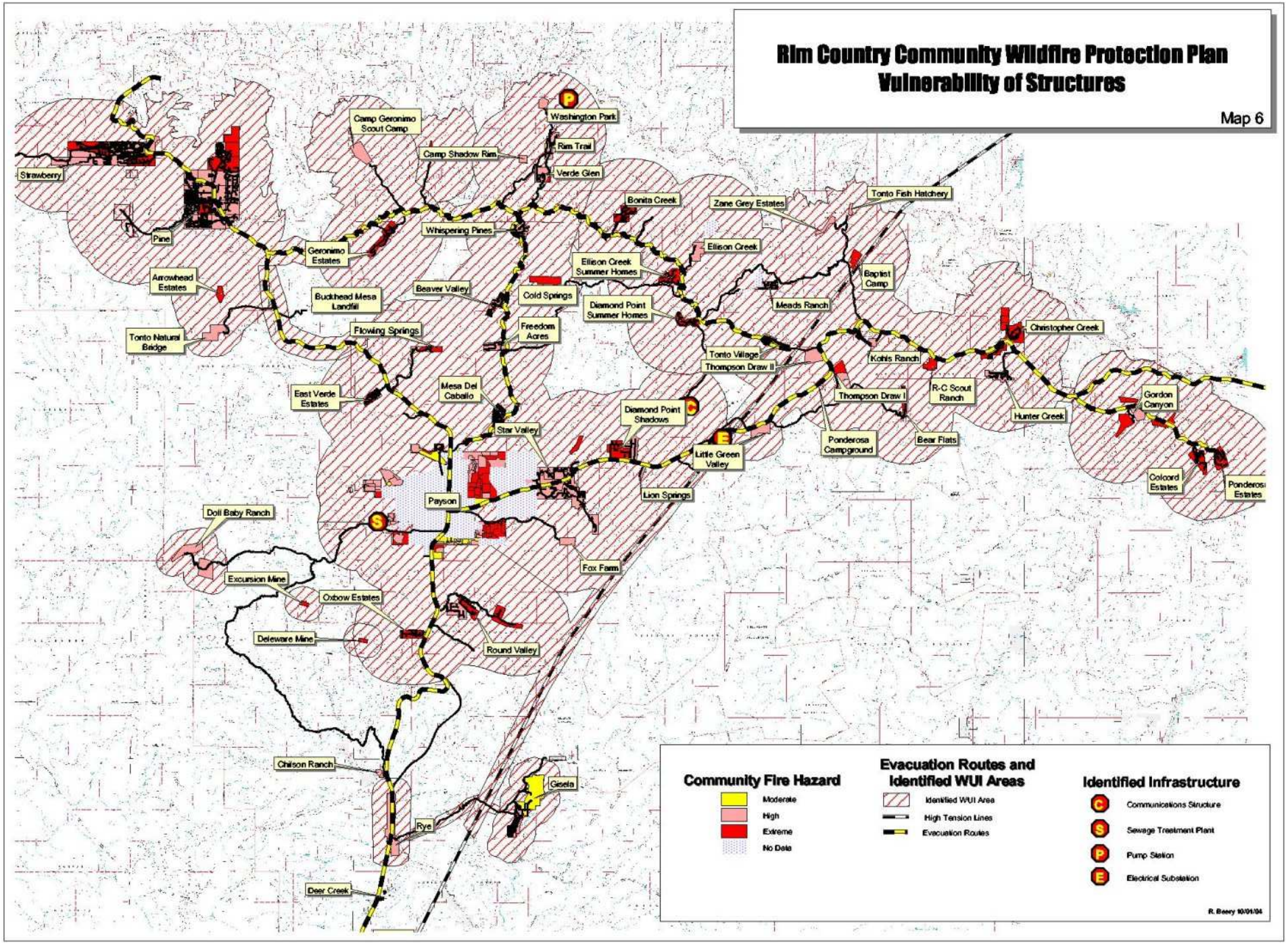
Fire Risk

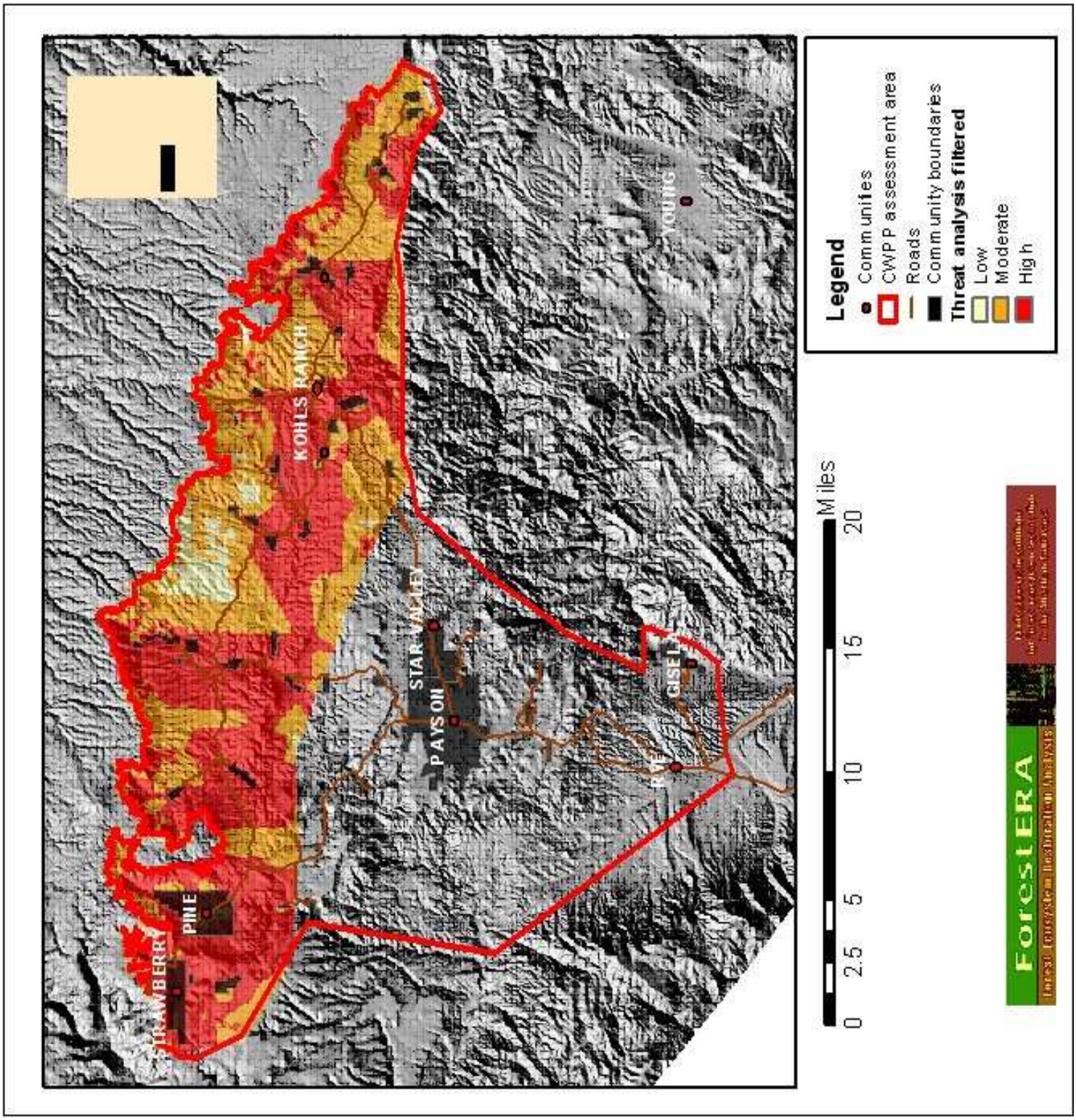
The fire risk layer is a prediction of the relative chance of a large fire (> 50 acres) starting based on an analysis of historical large fire ignitions in relation to vegetation type, terrain, and human influences. The layer predicts the probability of a large fire (> 50 acres or 20 ha) starting in each pixel over a 15-year period. For a more detailed description of this map, please refer to the Fire Risk dataset description at www.forestera.nau.edu/data_overview.htm


Rim Country Community Wildfire Protection Plan
Historic Risk of Fire Occurrence
Map 5
Camp Geronimo Scout Camp
Washington Park
Rim Trail
Camp Shadow Rim
Verde Glen
Strawberry
Bonita Creek
Zane Grey Estates
Tonto Fish Hatchery
Pine
Whispering Pines
Geronimo Estates
Ellison Creek
Ellison Creek Summer Homes
Baptist Camp
Arrowhead Estates
Beaver Valley
Cold Springs
Buckhead Mesa Landfill
Diamond Point Summer Homes
Meads Ranch
Christopher Creek
Tonto Natural Bridge
Flowing Springs
Freedom Acres
Tonto Village
Kohls Ranch
Thompson Draw II
Mesa Del Caballo
R-C Scout Ranch
East Verde Estates
Thompson Draw I
Gordon Canyon
Diamond Point Shadows
Hunter Creek
Star Valley
Ponderosa Campground
Bear Flats
Little Green Valley
Concord Estates
Ponderosa Estates
Payson
Lion Springs
Doll Baby Ranch
Fox Farm
Excursion Mine
Oxbow Estates
Deleware Mine
Round Valley
Chilson Ranch
Gisela
Rye
Deer Creek
Rest Area
Historical Fires
All Fires 1998 - 2002
Fire Starts
Large Fires 1990 - 2004
Dude
Five Mile
National
Pack Rat
Ponderosa
Webber
Willow
R. Beery 10/04/2004

Rim Country Community Wildfire Protection Plan
Vulnerability of Structures

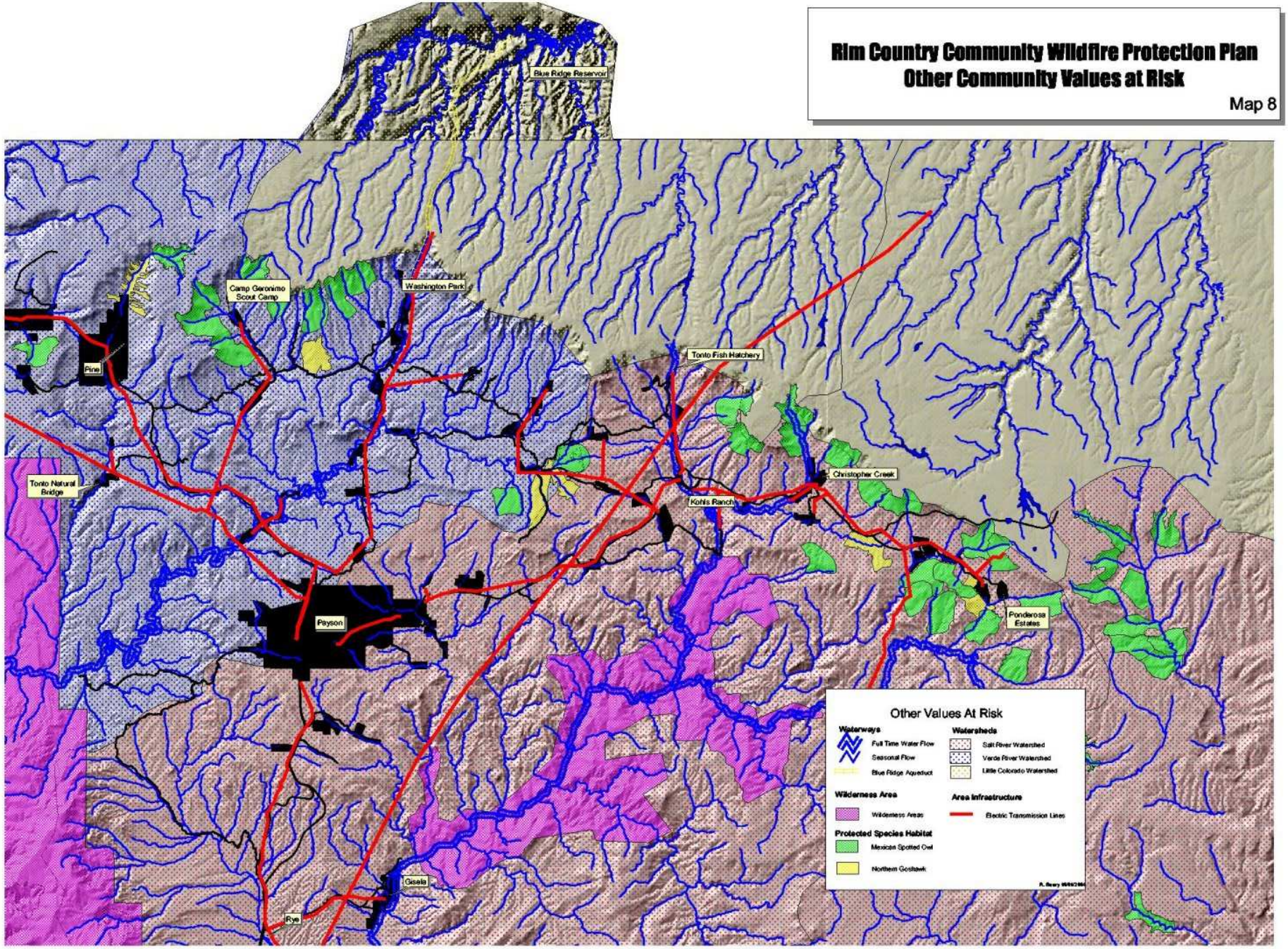
Map 6




STRAWBERRY
PINE
KOHLS RANCH
STAR VALLEY
PAYSON
GISELI
YOUNG
Legend
Communities
CWPP assessment area
Roads
Community boundaries
Threat analysis filtered
Low
Moderate
High
0 2.5 5 10 15 20
Miles
ForesERA

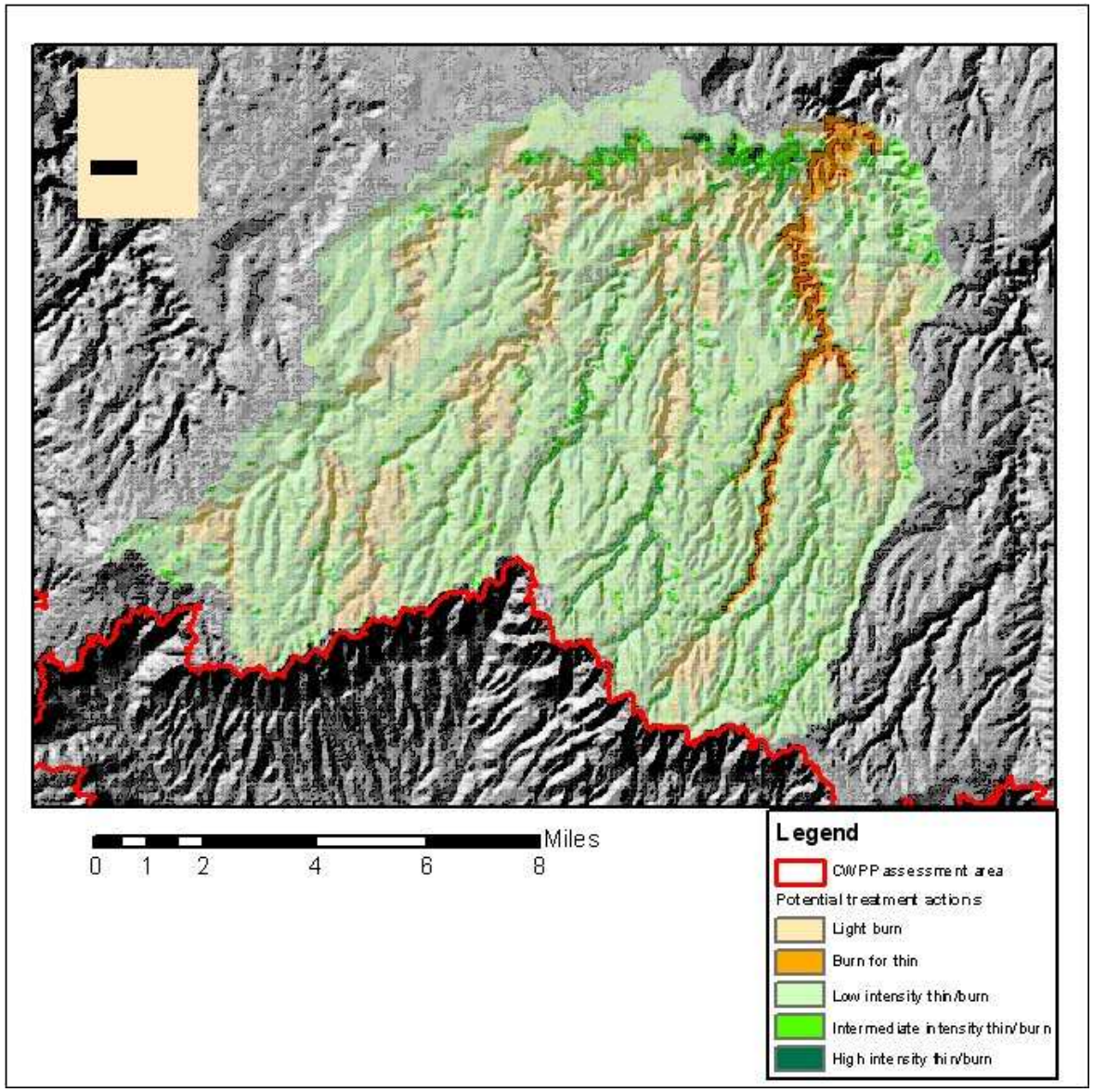
Rim Country Community Wildfire Protection Plan
Other Community Values at Risk

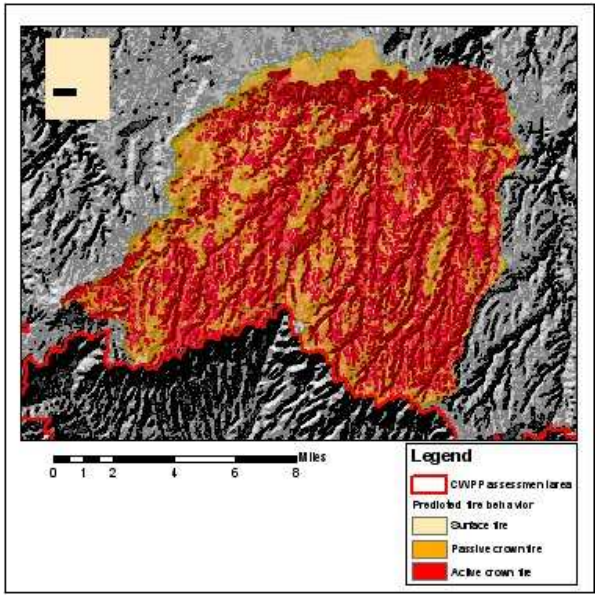
Map 8

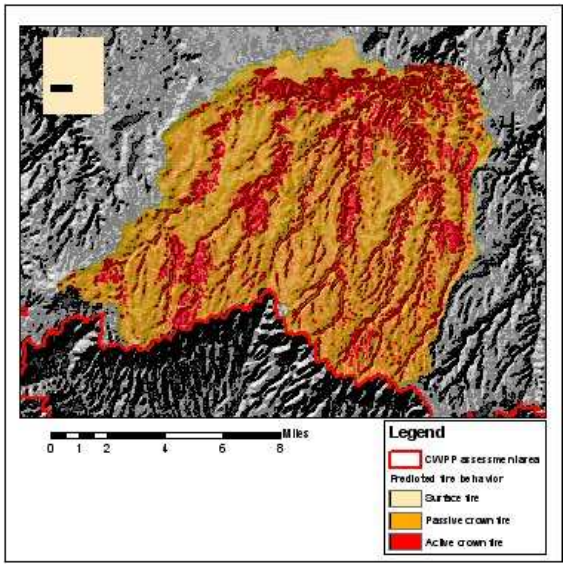


Map 9. Rim Country Community Wildfire Protection Plan

Blue Ridge Reservoir Watershed Potential Management Actions and Predicted Effects







ForestERA modeling tools were used to virtually "apply" treatments in the same manner as is shown in the Potential Management Actions Map within the Blue Ridge Reservoir area. The predicted effects of such actions on fire behavior characteristics were calculated and are shown to the upper right. Predicted fire behavior characteristics under current conditions are shown in the map to the upper right, and "post-treatment" predicted fire behavior characteristics are shown in the map to the far right.

5c. HOMES, BUSINESSES AND ESSENTIAL INFRASTRUCTURE AT RISK

Recognizing that all untreated forest within the Protection Plan area is Condition Class 3, it is clear that homes, businesses and services are at an extreme level of risk from firebrands, radiation and convection. Each neighborhood has been evaluated (see Annex: Urban Assessment Strategy).

Map 6, *Vulnerability of Structures*, shows evacuation routes, major utility lines, communication structures, pump stations, electrical substations, sewage treatment plants and municipal water supply structures. The majority of water is supplied by individual or water company-owned wells. All municipal and rural water supply systems are within the Wildland-Urban Interface.

Other risk factors that have been considered as layers on the NAU ForestERA mapping are fire behavior – the predicted risk of active, passive or ground fire, wind vector, community proximity, flooding potential and municipal watersheds. These maps have all been included in the annex and were layered together to produce **Map 7,** *Threat Analysis*, – where NAU data was available.

5d. OTHER COMMUNITY VALUES AT RISK

> *"We're worried about more than just our homes – we have friends in Show Low whose home was saved from the Rodeo-Chediski Fire in 2002, because they had cleaned around it – but in 2004 they gave up. They have sold out, at a loss, because they just can't cope with the need to remove the remaining dead trees or keep watering the new ones to keep them alive."*
>
> *Diane De Castro – Strawberry*

There is discussion about the dilemma of committing resources to save homes and other structures. This competes with fire fighters' ability to contain the wildfire, and puts their lives at greater risk. Ironically, it has been shown that often, residents no longer wish to live in a fire-damaged landscape even if their home has been saved, and while it may take 10 years to replace structures, it can take 50 – 100 years for a landscape to regenerate.

On **Map 8**, *Other Community Values At Risk*, there are two national **Wilderness Areas** that are immediately to the east and west of the Protection Plan footprint. There is also the **Tonto Natural Bridge State Park**, and all of the Protection Plan area lies within **critical watersheds**. In the 1990 Dude Fire, an important historical building was lost – **Zane Grey's cabin**. There are numerous **archaeological sites** in the area as the Rim Country was a major settlement area for early native people. The locations of the archaeological sites are NOT specifically indicated on the map as this is information protected under the Antiquities Act. Campgrounds, both developed and informal, located along the Control Road are too numerous to indicate.

Protected Activity Centers (PACs) for Mexican Spotted Owls and Protected Fledgling Areas (PFAs) for Northern Goshawks are shown. At the very first public meeting, September 8, 2004 it was pointed out by local residents that some of the Goshawk and Spotted Owl habitat shown on the ForestERA imagery is gone – having been lost in the recent Webber and Pack Rat fires. This makes protection of the remaining habitat, that much more of a priority.

Perennial and seasonal streams are shown. The two principal watersheds within the Regional Payson Area Project footprint, the Verde River and Salt River are also indicated. They are the major suppliers of Phoenix's water. Through the public meetings process a major watershed of critical importance to our area, but outside the RPAP footprint, was identified. The Blue Ridge Reservoir is vital to the long-term survivability of the communities of Payson, Strawberry and Pine as it is scheduled to supply significant amounts of water to these communities in the future. NAU data was used to produce maps of the Blue Ridge Reservoir area on **Map 9,** *Blue Ridge Reservoir Potential Management Actions and Predicted Effects*. ForestERA modeling was used to prescribe treatments and then predict the effects this would have on fire behavior. It is interesting to note the dramatic difference in predicted pre- and post-treatment fire behavior.

Like the other two principal watersheds, the East Clear Creek Drainage of the Little Colorado River Watershed which supplies the Blue Ridge Reservoir is in desperate need of restoration and revitalization. The Blue Ridge Reservoir itself is vulnerable to the effects of post-fire

siltation and lake eutrophication. Thinning of growth and removal of large amounts of accumulated fuels is necessary to avoid a catastrophic fire. Beyond that, the intervention provides the entry point for land treatments designed to enhance stable, living soil. Soil organic matter requires incorporation, which provides the stimulus for soil microbial activity. Watersheds above communities: these expose a prominent vulnerability of the Rim Country's inhabitants, notably for the first three years after catastrophic fire. The Aspen Fire, in Oracle, Arizona in 2002, provided a tragic reminder of this when a noted citizen was killed by torrential runoff through his home, following that fire. NAU/ForestERA's data (see Annex) shows most of our area at high risk of post-fire flooding.

Economic values

"Much of the interest in fire prevention and suppression has focused on defending and saving structures. However, it is becoming clear, in the arid West, that long-term damage to forest watershed resources may be the most serious and perhaps ultimately the largest costs we face through time…cities and towns are at risk of losing municipal watersheds and, consequently, their water supply if catastrophic fires continue…Catastrophic fires are not normal and they endanger life, property, as well as ecosystems in ways that are beyond repair." (Lynch, 2004)

In the September issue of the Journal of Forestry, Dr. Lynch writes to the question "What do forest fires really cost?" Dr. Lynch has been collecting information on the true total cost of catastrophic fires for the past seven years for purposes of comparing actual wildfire costs, with restoration-based thinning and reintroduction of prescribed fire. His studies have clearly shown that when one considers the total, and ongoing, costs of these fires, the ever-increasing ecological and economic costs (in the dry forests of the West) far exceed the cost of restoration thinning. The current need to spend dollars on fire suppression, while doing only limited treatment of high-risk forest areas, is irrational.

While it is true that hazardous fuel treatments are expensive, ranging from $200 per acre in outlying areas to $1,000 per acre in the Wildland-urban interface (Berry and Husseln, 2004), the total cost of fires such as the Cerro Grande in New Mexico and the Rodeo-Chediski in Arizona range from $750 to $2,750 per acre.

Map 3, *Current and Planned Forest Service Treatments*

The landscape-scale data accessible through NAU / ForestERA has provided an opportunity to assess the Tonto National Forest's Fuels Management Program. The Forest Service Program is the result of technical input as well as a complex process of regulations, hearings, legal interpretations and appeals, the development of which has become slow and inflexible. The predictable consequence is that field decisions are frequently overshadowed by administrative ones. This is easily illustrated by the present wildfire crisis: as the majority landholder in the area, the Forest Service has been as aware as anyone of the increasing danger of a fire catastrophe. However, District personnel have been severely restrained from urgent action by state and federal regulations on air quality (smoke), liability (escape of a prescribed burn), anticipation of effects of action on designated protected species of plants and/or animals (Mexican Spotted Owl, Northern Goshawk, etc.), weather conditions (drought), and past Forest Service policies too broad to adequately address the unique dangers of Arizona's dry forests.

The current Forest Service Program for hazard treatments is only as good as its restrictions and funding allow, perhaps because until recently there has been no landscape-scale database to offer alternatives. With the NAU data this can now change, as can be seen by comparing the Forest Service priorities **Map 3** with those generated by the multispectral, multilayer ForestERA data on **Map 7**.

The ForestERA modeling tools also provide landscape-scale-resource data assessment. Monitoring of land status change after treatment can be done directly from imagery, with ground verification. It also offers a way to predict results of proposed actions, so that (for example) the effect of a 50% reduction in vegetation density can be measured in terms of owl habitat, erosion, wind pattern, or any other factor or combination of factors.

One of the key strengths of this new process is that much of the "exterior" influence has been included. Appeals for consideration of special needs of protected species, for example, is answered by simply including the known (validated) need factors into the data mix. It is relatively simple, for instance, to update or add wind direction and speed, tree species' combustion potential, or streambank erodibility. What is required is access to the best available data which is filtered through an intensive peer-validation screen. Much of the dreaded "undue bias" feared by professional resource managers and interest groups is thereby alleviated; the ForestERA algorithms can produce a literal model, not an agenda.

A present weakness which the ForestERA data shares with nearly all mapping systems is time lag. The data set is currently based upon 1999-2000 information, and so for example does not reflect dramatic vegetation changes brought about by the wildfires since then. The data stream from satellite sources is continuous, however, and with adequate funding, near-real-time imaging can be easily obtained.

Regardless of data sources, there must continue to be on-site, experienced professionals to ground truth and fine-tune the landscape data into on-the-ground fuels reduction projects. Fuel loading, vertical fuel arrangement, percent live to dead fuel ratio, size of available fuels, and a host of other on-the-ground considerations must be partnered with the landscape-scale assessment at the project level.

5e. LOCAL PREPAREDNESS AND FIREFIGHTING CAPABILITY

The Northern Gila Fire Chiefs have met monthly to discuss and plan for response and training. Each fire district has wildland firefighting equipment and trained firefighters. For over twenty years the northern county fire departments have had a mutual-aid agreement in place. In the spring of 2004 the Chiefs' Association developed a fire response model to predesignate response for first- and second-alarm fire assignments.
In the last two years significant progress has been made to build partnerships between local, State Land Department and the USFS fire fighters to develop a "response without borders" approach to wildland fires.

The Arizona State Land Department (ASLD) has provided funds and coordinated fire preparedness patrols or "Severity Patrols" within the Rim Country CWPP footprint for the last 5 years (1999-2004). Each spring the State Forester submits a wildfire danger assessment and preparedness plan to the Governor for approval. Upon Governor's approval of the plan,

the State Forester may expend funds to preposition resources where the most hazardous conditions and/or anticipated fire activity may occur. Patrols may not be warranted in years where forest conditions are not considered severe.

Through cooperative agreements with local area fire departments/districts, Wildland certified engines and personnel provide additional initial attack resources in critical wildland-urban interface areas. ASLD Severity Patrols' primary duties include maintaining readiness for rapid responses to any wildfire that has the potential to threaten private lands, and to promote fire prevention to the public. Within the Rim Country CWPP area, ASLD Severity Patrols work closely with fire personnel from the Payson Ranger District.

ISO Grades Each community has received a rating from the Insurance Services Office (ISO). The ISO grade is based on the fire district's ability to fight structure fires. This includes things such as equipment, water supply, fire hydrant availability and roads. Higher numbers indicate less capability to fight any particular fire within the community. Class 1 is the best possible protection; Class 10 is little or no protection. The following list has each fire district's ISO grade:

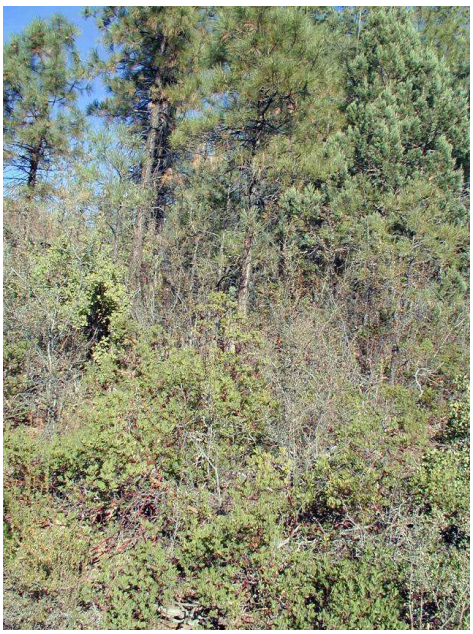
Payson, Class 5 / 8
Gisela Valley, Class 9
Christopher/Kohl's, Class 8
Whispering Pines, Class 8
Beaver Valley, Class 9
Diamond Star, Class 8
Pine/Strawberry, Class 7 / 8
Tonto Village, Class 8
Houston Mesa, Class 8

In addition, the Gila County Sheriffs' Department and Payson Police Department have developed and publicized evacuation plans for their respective jurisdictions. These plans are evaluated and exercised annually.

STEP SIX: Establish Community Hazard Reduction Priorities and Recommendations to Reduce Structural Ignitability

> *"750 acres is a start, but it's just a drop in the bucket"*
> *Bing Brown, Beaver Valley resident, referring to an upcoming project in the Forest Service Verde WUI Project*

Many individual property owners have taken the initiative to create defensible space. However, many of these areas are not connected, and more needs to be done to make outlying communities truly defensible, especially in regard to the problem of absentee owners.



Photos by G. Hatch

Ladder fuels (before) and after cleanout to create defensible space.

From Sept 8 – 30th 2004, publicized formal community meetings were held in each of the nine Fire Districts. A presentation was also made to the Gila County Board of Supervisors at the Gila County Community College in Payson on September 21, 2004 and to the Payson Town Council at the Town Hall on September 23, 2004. The Town Hall was broadcast over the local TV channel 4 and the information was also presented during the local AM radio "Rim Country Forum" program. These communities were presented a series of base and informational maps to:

a) confirm/correct the landscape–level data generated by Northern Arizona University ForestERA, and

b) reveal to the public the tools and methods used to generate the Wildfire Protection Plan.

a. Urban Priorities

Consideration of the Wildland/Urban Interface fire code needs to be undertaken by local fire departments and Gila County. At the very least, adopting minimum subdivision development requirements to incorporate defensible space, access and water supplies in the design and construction phases need to be explored. The County needs to encourage areas not currently in a fire district, to become part of one. Inholdings and housing developments need to have fire protection as a condition of development.

The priorities of residents within the Protection Plan fall under the simple categories of Prevention, Protection and (in extremis) Evacuation. The greatest emphasis by all players, rests on Prevention, as is so often repeated by the Fire Departments:

Prevention

- creating defensible space around homes and businesses
- establishing an adequate low-burn zone
- replacing flammable structure materials with non-flammable ones, especially roofs and exterior walls
- continued education and action
- See annex Urban Assessment Strategy for details by each fire protection district – priorities have been established on a neighborhood-by-neighborhood basis with red areas having extreme priority, orange is high and yellow is moderate.

Protection

- prepared safe areas or safety-zones associated with each community for firefighters and citizens to be able to "ride out" a firestorm, if necessary
- adequate access for emergency vehicles
    - adequate road width
    - all-weather driving surfaces and bridges
- adequate access to sufficient water
- neighborhood coordination plans
- a networked, common land-parcel database

Evacuation

- defined evacuation routes – preferably 2 from each area, 20 feet wide
- with appropriate grades
- reliable methods of communication with the public
- planning and coordination with authorities
- fire drills, sirens

Map 6, *Vulnerability of Structures*, rates the urban priorities, based on the community fire hazard. Yellow is moderate, orange is high and red is extreme.

The following table indicates, by community, the average fire risk WITHIN each Fire Protection Area assessed under the Urban Assessment Strategy. The higher the rating, the higher the risk.

TABLE 1

Fire Protection Area	Rating
Christopher/Kohls Fire District	70.3
Non-Covered Areas	67.3
Tonto Village Fire District	67.1
Whispering Pines Fire District	66.1
Beaver Valley Fire District	65.6
Diamond Star Fire District	63.2
Pine/Strawberry Fire District	63.1
Town of Payson	61.4
Houston Mesa Fire District	47.0
Gisela Valley Fire District	42.2

The Urban Assessment Strategy, which details this information, can be found in the Annex. There are 20,598 private acres covered.

b. Wildland Urban Interface Priorities

The overriding concern of the Wildland/Urban Interface is fuel reduction, especially in the areas upwind of communities. The practical goal is to cause an active crown fire (rapidly mobile through the fine-fuel treetops, and highly affected by wind) to drop below the threshold of a passive crown fire (able to torch individual trees but unable to bridge to adjacent trees.) This requires that accumulated understory flammables be removed, and the forest thinned to eliminate these fuel "bridges" which would otherwise carry a fire from one tree to the next.

The Rim Country Community Wildfire Protection Plan follows the lead of the US Forest Service, in designating a wildland-urban interface nominally 1 ½ miles wide. The NAU ForestERA data was used, where available, to establish the priority areas within the Wildland Urban Interface. Where data was not available, a conservative ½ mile area around communities and a ¼ mile area on each side of roads was designated as a priority area. To address concerns of federal wildland firefighters that the ¼ mile road buffer may be too conservative under catastrophic wildfire conditions, this will be monitored and perhaps enlarged to their recommended minimum of ½ mile in future planning.

Fuel Reduction

- ladder-fuel clearing
- thinning
- safe fuel **disposal** off-site, or on-site by chipping or burning
- fuel **management** by trimming, piling
- Critical infrastructure protected by defensible space, ex. telecom site
- Continued availability of brush-burning pits for free brush dropoff
- Widespread understory thinning, by mechanical or livestock use

Contiguous Canopy Interruption

- Thinning
- Shaded fuel breaks and **forest maintenance** on the perimeter of towns.
- stand age diversity
- fuel breaks
- safe, all-weather evacuation routes that address concerns such as road width, bridge capacities, drainage needs, turn-arounds and with a graded thinning effect:

Map 10, *Prioritization*, establishes these priorities by area, based on ForestERA data

c. Wildland Priorities (Landscape: Forest Ecosystem Restoration Analysis)

The ForestERA program yields management recommendations with data input directly from satellite (LandSat 3) imagery. Management priorities are drawn or modified on the basis of what the analysis of current imagery and treatment plans show. As principal landholder in the Rim Country Community Wildfire Protection Plan, the US Forest Service is urged to consider the following suggestions based on the Ecosystem Restoration Analysis program:

Stop fuels buildup

- continually revise and update Forest fire-suppression policy
- develop concept of stewardship-type contracts

- budget for large-scale projects (50,000 acre+) with short time-frames (the sooner the better)
- dual-purpose all-weather roads with proper road widths, bridge capacities, drainage needs and turn-arounds are necessary

Change the regression trend of forest condition

- initiate landscape-level integrated adaptive management plans
- stewardship and management options must be broadened
- field research and demonstrations

Rebuild a positive forest trend

- prescribed fire
- local contracts
- forest soil food web
- watershed management using all tools available, including livestock
- treatment plots for research and demonstration

Maintain sustainable (optimal) condition

- research
- monitoring (target density of pre-1900 forests)
- long-term recovery of watersheds and surface waters
- active public involvement
- frequent fire

Wildlife

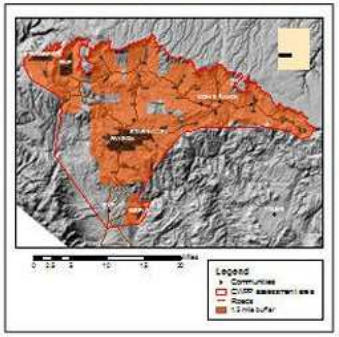
- Adequate vegetative mosaics for wildlife cover, foraging and escape habitat
- Specific regulations related to treatment within or in the vicinity of Protected Habitat will be considered

STEP SEVEN: Develop an Action Plan and Assessment Strategy

The Urban Assessment Strategy, in the Annex, details the plans to reduce the fire hazard to all communities by neighborhood. Funding Needs: for these areas, to reach FireWise™ compliance averages $2000/acre. It is proposed that there be a match to homeowners spending and efforts by federal funding. For example, to get the highest priority (one half the area) done in 5 years would require at least $4 million/year at a 50% match.

Following the lead of the Sitgreaves CWPP, the Rim Country CWPP core team decided to pursue hiring a Community Forester to coordinate, supervise and followup on CWPP projects. Their funding proposal for this position was identified as $40,000/yr plus 30% for benefits and $5,000/yr in travel expenses. There also needs to be a mechanism to provide for on-going scientific and technical advice at all levels, such as an independent advisory council. In addition the Plan recognizes the need for project development to address the concerns for infrastructure improvement to implement the fire and emergency preparedness needs identified.

Community Proximity (X3)



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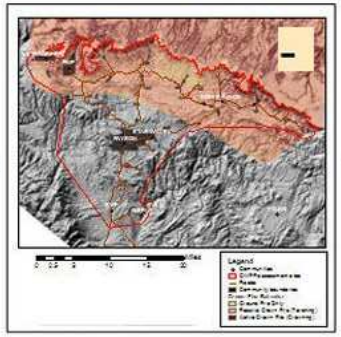
Fire Behavior (X3)



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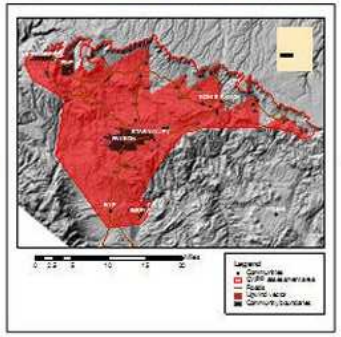
Areas Upwind of Communities (X2)



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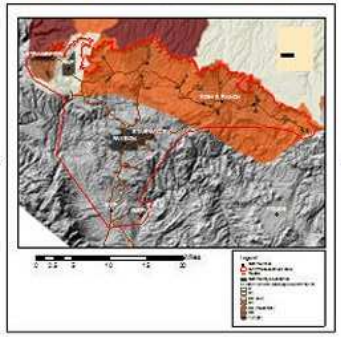
Municipal Watershed Values (X1)



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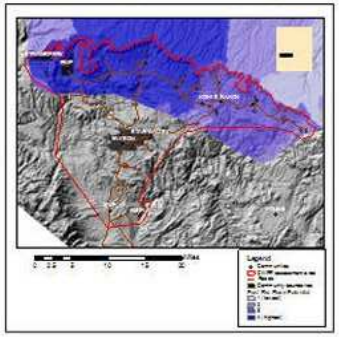
Flooding Potential (X1)



Map 10

Rim Country Community Wildfire Protection Plan

Priority Areas

In order to identify priority areas for management attention at a landscape scale, the Rim Country CWPP planning team overlaid five GIS maps showing patterns related to community proximity, fire behavior, areas upwind of communities, municipal watershed values, and post-fire flooding potential (shown above). Those areas with highest composite values were identified, and are shown in the Threat Analysis map to the right. By combining these areas of highest priority (shown in red) with a ½ mile buffer around identified communities and a ¼ mile buffer around selected roads, a final prioritization map was generated, and is shown to the far right.

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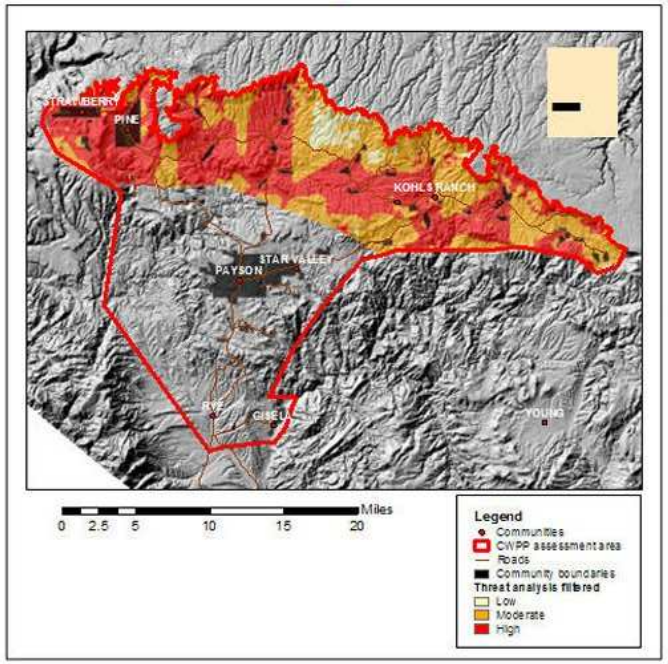
Threat Analysis Results



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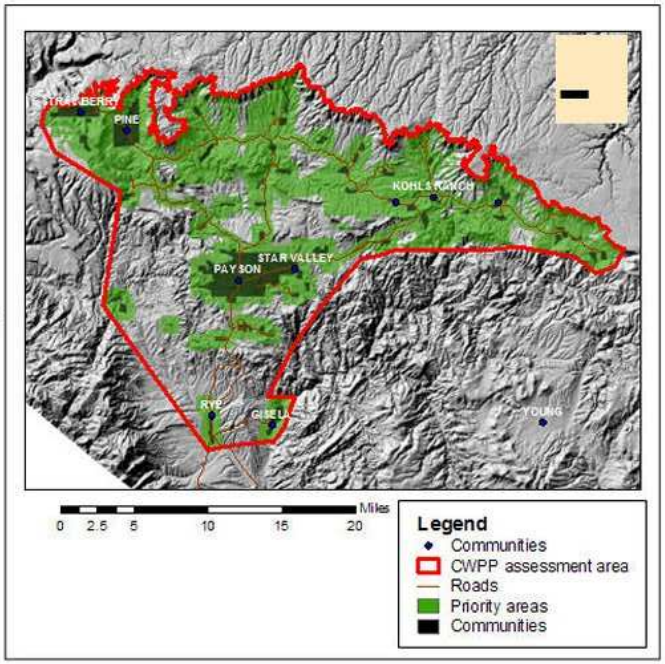
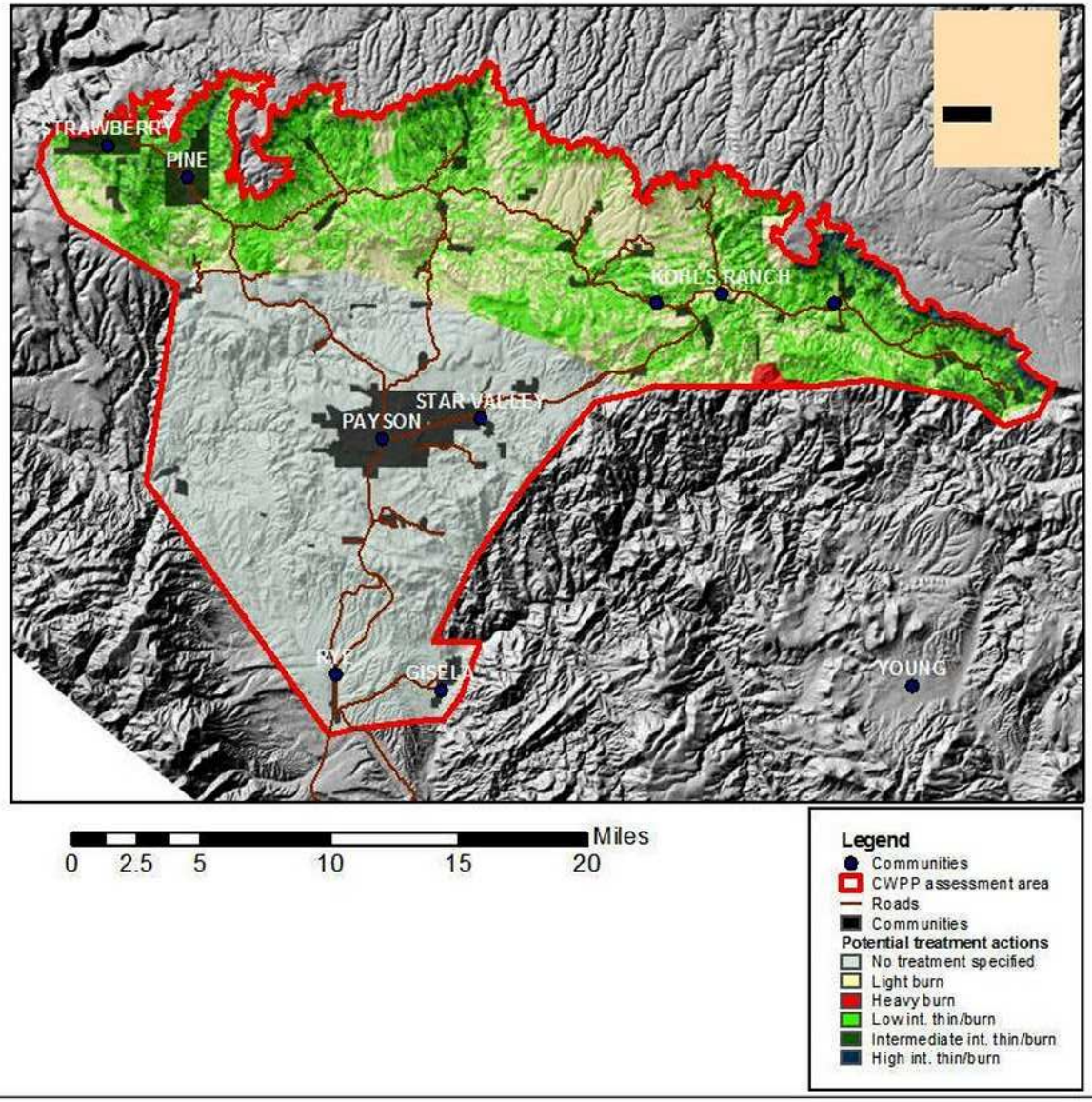
Final Prioritization Results





Map 11

Rim Country Community Wildfire Protection Plan

Potential Management Actions

Using ForestERA datasets and planning tools, the Rim Country CWPP planning team identified management objectives within the CWPP assessment area, which were translated into "rules" used by ForestERA staff for creating a potential treatment action scenario. The elements of this scenario are described below:

1) Within 1.5 miles of communities and 90m of infrastructure, objectives centered around changing predicted fire behavior condition from active to passive in nature. Treatments that could achieve this objective were identified by ForestERA, and "applied".

2) Within these same areas close to communities and infrastructure, low intensity treatments were designated for sparsely treed areas with predicted surface fire conditions, and maintenance burn treatments were designated for un-treed areas.

3) In areas farther than 1.5 miles from communities and 90m from infrastructure, the following treatments were identified:

• Treatments that effectively changed areas of predicted active crown fire to predicted passive crown fire.

•Within areas of high value for municipal water supplies or areas of high flooding potential, low intensity treatments were designated for areas of predicted passive crown fire.

•Within areas of predicted surface fire, maintenance burn treatments were designated.

•Within Mexican spotted owl PACs and northern goshawk PFAs, maintenance burn treatments were designated.

•Within Specially Designated Areas (wilderness areas, national monuments, etc.), "heavy burn" treatments were designated.

Fuel treatments and removals

The USDA Rocky Mountain Research Station (ref. RMRS -120) offers tested, demonstrated degrees of fuel removals and their predicted results relative to wildfire hazard. These are broadly based on recorded, historical conditions.

ForestERA's *Potential Management Actions*, **Map 11,** addresses stand density of the Ponderosa Pine-type, classifying areas according to the extent of fuel removal based on current forest conditions:

"Light "burn
"Heavy" burn
"Low intensity" treatment: 50% stand removal through thin and burn
"Intermediate intensity" treatment: 70% stand removal through thin and burn
"High intensity" treatment: 90% stand removal through thin and burn

At the finalizing meeting, it was decided that even light burn areas would need preparation prior to burning, to be sure they would stay in prescription. These costs are reflected on Table 2.

Thinning can be accomplished mechanically, by labor and/or using livestock and wildlife. It can be a net cost, cost-neutral or profitable through the appropriate inclusion of industries. Within the Rim Country CWPP alone there are 293,300 acres, with an estimated average present fuel load of 37.5 tons per acre or 11.8 million tons. At the present rate, combining Forest Service (average 3,100 acres/year) and private fuels reduction efforts (137 acres/year), it will take 92 years to clear the existing fuels from the area within the Protection Plan.

NAU'S Forest ERA data has identified 157,500 acres as the highest priority/ highest risk areas within the Protection Plan. These acres include some of the projects identified in the Tonto National Forest Fuels Management Program. To substantially reduce risk, the entire high priority area should be treated within 3 years. A logical starting point for this plan is where the priority areas overlap. The direct costs of fuel reduction treatment only are presented here. These costs do not include upgraded infrastructure costs nor increased fire/ emergency preparedness costs nor data collection/upgrading costs/ nor monitoring or administration.

TABLE 2

LIGHT BURN	HEAVY BURN	LOW INTENSITY THIN/BURN	INTERMED. INTENSITY THIN/BURN	HIGH INTENSITY THIN/BURN	NONE	TOTAL
per acre	per acre	per acre	per acre	per acre		
$170	$195	$700	$950	$1,100		

TOTAL WUI:

ACRES	65,200	700	73,700	15,400	3,400	134,900	293,300
COST	$11,084,000	$136,500	$51,590,000	$14,630,000	$3,740,000	$ -	$81,180,500

HIGH PRIORITY:

ACRES	42,400	100	56,200	13,000	3,200	42,600	157,500
COST	$ 7,208,000	$ 19,500	$39,340,000	$12,350,000	$3,520,000	$ -	$62,437,500

MODERATE PRIORITY:

ACRES	22,800	600	17,500	2,400	200	92,300	135,800
COST	$ 3,876,000	$117,000	$12,250,000	$ 2,280,000	$ 220,000	$ -	$18,743,000

These fuel reduction costs match the extremity of the problems. One priority that came out of the public meetings was the need to explore creative ways to encourage private investment. Without industries which are able to profitably convert liabilities to products: logs, chips, slash fuel, "biofuel", firewood, furniture wood, construction poles, fence palings, trusses, vigas, latillas, OSB, chip-board, pellets, brush firelogs and so forth the cost of forest fuel reduction is overwhelming. The recent SmallWood 2004 conference in Sacramento, California: "Creating Solutions for Using Small Trees" is an example of such an invitation to industry. For this to be a viable and timely alternative, stewardship contracting at all levels and scales will need to be aggressively pursued.

Continued and expanded interagency cooperative efforts, such as those between the US Forest Service, Arizona State Land Department and the Department of Corrections are a must. Links to important partners such as Rocky Mountain Research Station, Environmental Restoration Institute and others will be strengthened. Existing community volunteer activities could be greatly expanded.

It became apparent through the public meetings, and to the CWPP core group, there needs to be an entity willing to coordinate, supervise and followup the activities. Gila County will initially assume the task of administration and implementation. Ultimately a Community Forester-type position may be collaboratively defined, funded and filled.

It has also become evident that in order to make the best planning decisions, NAU's ForestERA's data needs to be expanded to cover the entire RPAP footprint as well as be updated. Gila County plans to extend the CWPP process to the entire County. Therefore, this Plan recognizes the need to assure ForestERA's continued funding and allow it to be expanded to include monitoring the CWPP area.

Initial treatments merely reduce fire risk – the next step is to restore the health, functioning and productivity of our forests and watershed. This will come about only through extensive and continuous maintenance of the entire forest. All available tools: fire, grazing, rest, animal impact, and living organisms must be used appropriately with the cooperation of industry and the involvement of the public.

Monitoring To be effective, as well as meet the guidelines in HFRA, monitoring must be multiparty. This will be at the same level as the collaboration that produced the Rim Country Wildfire Protection Plan. The Fire Departments will reassess their districts "as needed" to determine the reduction in risks to each neighborhood. This Urban Assessment Strategy will be mapped and presented to the core decision makers. The Regional Payson Area Project will continue to record and report the amount of brush that is disposed of under their supervision and translate these figures into acres as a verification and correction to Fire Department data collection.

The acres of fuel reduction treatment in the Wildland-Urban Interface will be reported by the US Forest Service and the core decision makers will tour these treatments annually. ForestERA's potential for monitoring will be pursued. Budget requests need to include sufficient funds to utilize this opportunity. If this potential is utilized, treatment areas would be reported to ForestERA and verifed by satellite imagery with ground truthing in order to re-model the post-treatment fire hazard annually.

Trial by Fire It is ironic that in a region so threatened by wildfires, the best proof of an adequate management plan is fire. Historically, Ponderosa forest as well as the grasslands and Pinon-Juniper and Chaparral maintained themselves through frequent low-intensity ground fires. These fires were not a threat, and in fact they serve a vital role. In all our present vegetative types, we will know that health has returned when fires are not greeted with panic, but are generally welcomed.

STEP EIGHT: Finalize the Community Wildfire Protection Plan

On October 13, 2004 the core team convened and agreed to the fuels treatment priorities, preferred methods for fuels treatment projects and the location of the wildland-urban interface, structural ignitability recommendations. It was agreed that the core decisionmakers will convene at least annually, after each fire season to review and update to this dynamic and evolving plan - as indicated by the signatures on this document.

Beaver Valley Fire Department	10-22-04 Date
Christopher/Kohl's Fire Department	10-18-04 Date
Diamond Star Fire Department	10/13/04 Date
Gisela Valley Fire Department	10/19/04 Date
Houston Mesa Fire Department	10.13.04 Date
Payson Fire Department	10-28-04 Date
Pine/Strawberry Fire Department	10/13/04 Date
Tonto Village Fire Department	10/13/04 Date
Whispering Pines Fire Department	10-13-04 Date
Gila County Board of Supervisors	10-26-04 Date
Town of Payson	10-28-04 Date
State Forester	10/29/04 Date

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