

# COMMUNITY WILDFIRE PROTECTION PLAN

for the

## CIMARRON WATERSHED ALLIANCE COMMUNITIES

of

CIMARRON, EAGLE NEST, MIAMI, AND UTE PARK

as a supplement to the

### COLFAX COUNTY COMMUNITY WILDFIRE PROTECTION PLAN



PREPARED BY



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## **EXECUTIVE SUMMARY**

The Cimarron Watershed Alliance (CWA) Community Wildfire Protection Plan (CWPP) is a supplement to the Colfax County Community Wildfire Protection Plan. The County CWPP completed in June 2008 assesses the wildfire threat and hazardous fuel treatments on a county-wide, landscape scale. The CWA CWPP assesses the wildfire threat and treatment priorities specific to the communities of Cimarron, Eagle Nest, Miami, and Ute Park. Mitigation which will reduce the threat of wildfire to these communities is presented.

## **CHAPTER ONE**

### **A. INTRODUCTION**

As part of developing the Colfax County Community Wildfire Protection Plan, three communities within Colfax County were selected to receive a more detailed analysis. The same procedure of developing maps that was used in the CWPP was used in the three community plans, but with large scale maps. The communities receiving a detailed analysis are; Cimarron, Eagle Nest, and Miami.

The community of Ute Park has a previous CWPP, but the need for additional information about the wildfire threat was identified. Wildfire modeling data was collected and evaluated for the purpose of obtaining specific information about wildfire behavior in and near Ute Park. Utilizing this data and further analysis, Ute Park is included in the CWA CWPP.

The science for wildfire fuels mitigation and protection from wildfire has been discussed in detail in the Colfax County CWPP. The same wildfire principles that apply to the broad-based Colfax County CWPP apply to the detailed community plans. Repeating the wildfire science for the Cimarron Watershed Alliance Communities Plan would be redundant; therefore, the CWA Communities Plan relies on and reference the science developed for the County CWPP.

Wildfire fuels are very important in determining the wildfire threat level in and surrounding a community. The more wildfire fuel there is in an area, the greater the hazard. In a CWPP, hazard refers to the wildfire type fuels that are present in an area. The hazard map developed for this plan quantifies the accumulation of wildfire type fuels by using the fire regime condition class method and by using the knowledge of local experts. The three quantifying classes used with the hazard map are high, medium, and low based on the respective fire regime condition class of 3, 2 and 1, respectively.

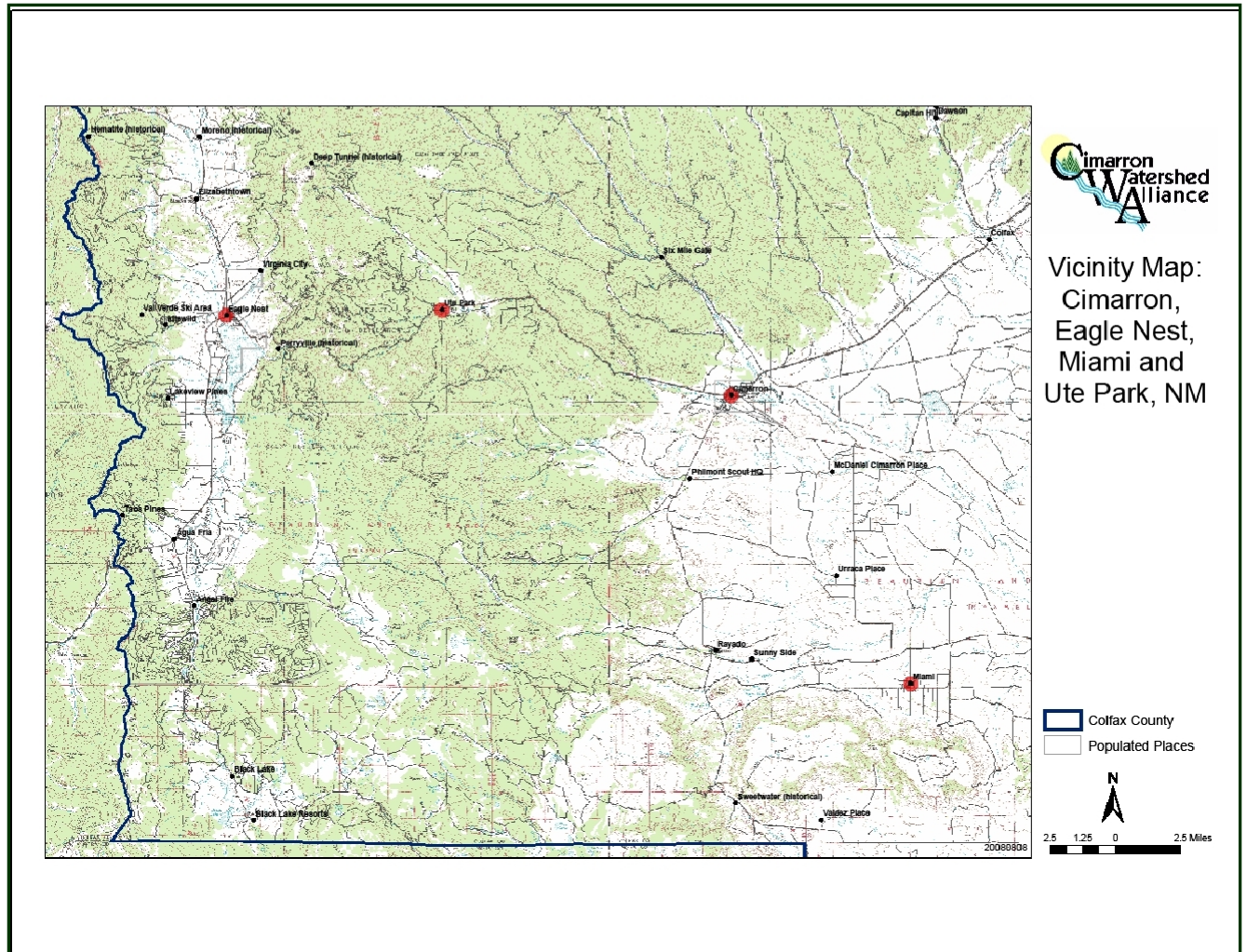
The frequency of wildfire ignitions in an area is also very important in determining the wildfire threat level of an area. Because many wildfires are caused by human activity, wildfire ignitions tend to cluster near communities and along travel ways. Lightning also causes many wildfires, and the lightning strikes tend to occur with more frequency in some areas than others. It is reasonable to expect more wildfire ignitions in the frequent strike areas. Mapping and quantifying the location of wildfire ignitions, both human caused and lightning caused, gives a visual tool that predicts future wildfire ignition frequency and general locations.

When the risk map is used as an overlay in conjunction with a hazard map, the resulting map yields an excellent description of threat level for the respective community. In order to further identify the threat associated with different fuel types, wildfire behavior data are presented based on BehavePlus 3 fire behavior model outputs.

## B. LOCATION

The four CWA communities that are the subject of this supplement are located in the southwest portion of the county.

Figure 1. Community Locations



1. Cimarron – The Village of Cimarron is located at an elevation of 6,430 feet in a small valley where the Cimarron River leaves the mountains and enters the plains. This creates a variety of vegetative types with pinyon-juniper on the ridge to the north, scattered pinyon and juniper on rolling hills in the south, grasslands to the east, and grasslands with scattered pinyon and juniper to the west. Cutting through the Village is the Cimarron River with a mixture of cottonwoods, willows, grass, and some invading junipers.
2. Eagle Nest – The Village of Eagle Nest is located at 8,382 feet near the north end of the Moreno Valley, a high alpine valley located between the Sangre de Cristo



Mountains and the Cimarron Range. The Village is a popular summer home area with many of the homes occupied for only a short period during the year. The Eagle Nest Lake and recreation area is located adjacent to the Village.

The community of Eagle Nest and the surrounding area are generally located in a grassland vegetation type.

3. Miami – The unincorporated community of Miami is located at 6,197 feet in a primarily grassland vegetation type west of Springer along State Highway 21. Located approximately two miles upwind from the community are Rayado and Gonzallitos mesa, which have historically been the ignition site for several wildfires.
4. Ute Park – The unincorporated community of Ute Park is located at 7,431 feet along State Highway 64 in Cimarron Canyon at the juncture of Ute Creek with the Cimarron River. This popular summer home area has a majority of the homes only occupied for a short time during the year. Many of the homes are located in the grassland meadow along the highway, but houses are also located in the forest, particularly along the southern boundary of the meadow.

A CWPP was prepared for the community in 2006 and is available on the New Mexico Forest Forestry Division's website. Inclusion of Ute Park in the CWA CWPP will provide additional information concerning the wildfire threat and actions necessary to mitigate the threat.

## **C. FIRE HISTORY**

No supplement to the Colfax CWPP

## CHAPTER TWO – COMMUNITY ASSESSMENT

### A. COLLABORATION

As described in the Colfax CWPP, numerous public meetings were held to gather public input into the planning process. Specific meetings were held in Cimarron, Ute Park and Eagle Nest to present preliminary planning efforts and provide an opportunity for residents from the CWA communities to provide additional input. Issues and concerns brought up at those and previous public meetings have been incorporated into this CWPP.

### B. MAPS

Small scale landscape maps including the CWA communities are included in the Colfax CWPP. Larger scale maps are included in this document to more clearly show the wildfire threat to the communities.

1. Vegetation Map – figure 2. This map identifies the dominant vegetation communities within and adjacent to the communities.
2. Fire Regime Condition Class (FRCC) – figures 3 through 6. These maps show the fire regime condition class for each community following the process described in the Colfax CWPP.
3. Fire Risk – figure 7. This map shows the wildfire risk for the four communities.
4. Threat Level – figures 8 through 11. These maps show the threat level for each community based on overlaying the FRCC hazard map with the fire risk map resulting in a rating of low, medium, high or very high.

### C. RISK ASSESSMENT

Community assessment involves quantifying the fuels hazard as well as the risk of wildfire ignition in order to assign a rating for each community. The quantifying process involves combining the scores (1 is low, 2 is medium, and 3 is high) from the FRCC and risk maps to develop a combined score, called the threat level. The communities are then scored for threat level and rated as very high, high, medium or low as to the risk of wildfire in or near the community. Table 1 is a list of CWA communities and the wildfire risk rating.

Table 1. Community Wildfire Risk Rating.

COMMUNITY	HAZARD	RISK	THREAT SCORE	RISK OF WILDFIRE RATING
Cimarron	High	Medium	5	High
Eagle Nest	Low	Low	2	Low
Miami	High	Low	4	Medium
Ute Park	High	High	6	Very High

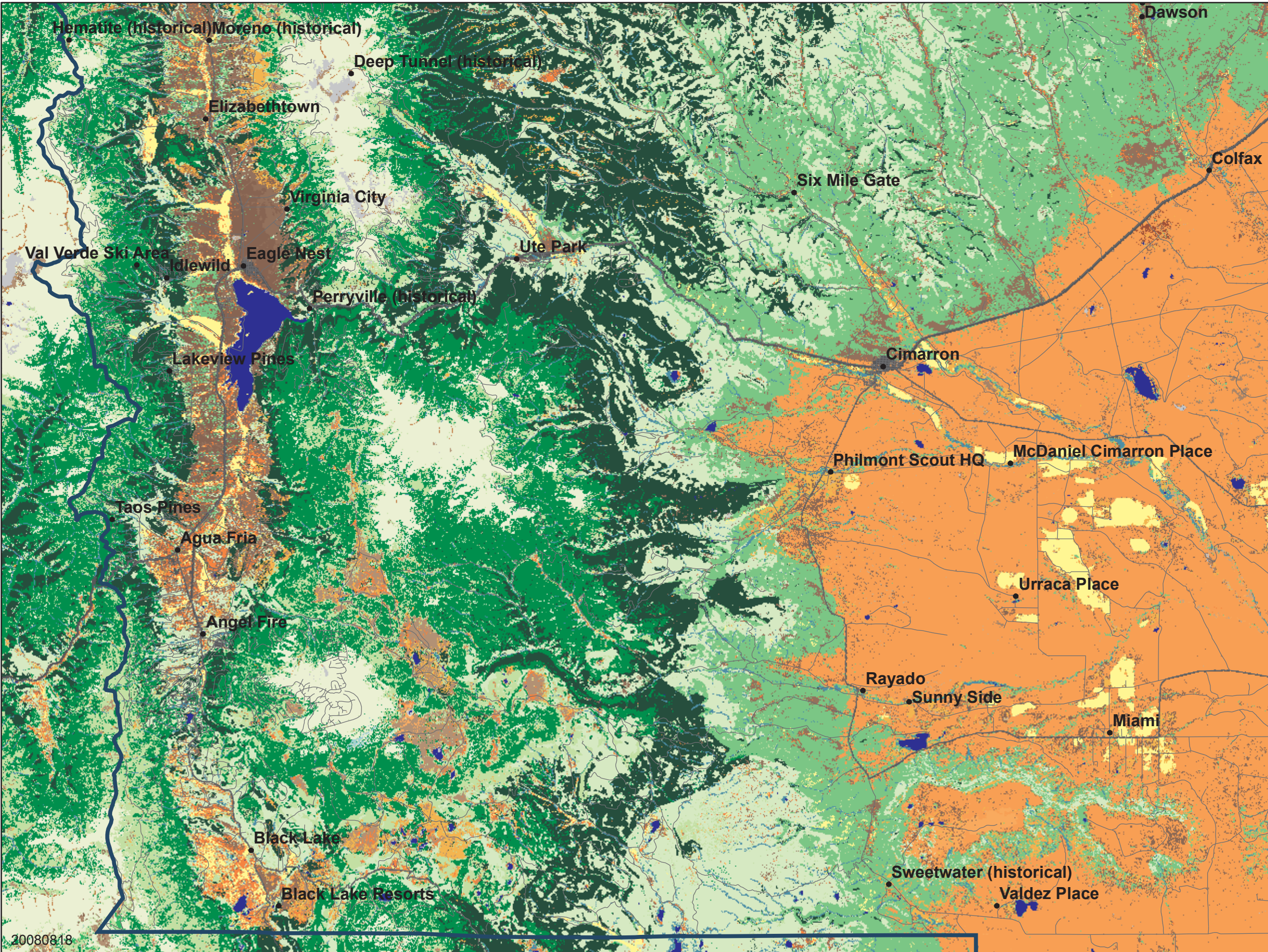
# Vegetation Map: Cimarron, Eagle Nest, Miami and Ute Park, NM

Vegetation Layer from LANDFIRE:  
30m Existing Vegetation Type (EVT)



## Existing Vegetation Type

- Evt\_name**
- Abies concolor Forest Alliance
  - Agriculture-Cultivated Crops and Irrigated Agriculture
  - Agriculture-Pasture/Hay
  - Apacherian-Chihuahuan Semi-Desert Grassland and Steppe
  - Artemisia tridentata ssp. vaseyana Shrubland Alliance
  - Barren
  - Central Mixedgrass Prairie
  - Chihuahuan Loamy Plains Desert Grassland
  - Chihuahuan Sandy Plains Semi-Desert Grassland
  - Chihuahuan-Sonoran Desert Bottomland and Swale Grassland
  - Colorado Plateau Mixed Low Sagebrush Shrubland
  - Colorado Plateau Pinyon-Juniper Woodland
  - Developed-High Intensity
  - Developed-Low Intensity
  - Developed-Medium Intensity
  - Developed-Open Space
  - Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland
  - Inter-Mountain Basins Big Sagebrush Shrubland
  - Inter-Mountain Basins Greasewood Flat
  - Inter-Mountain Basins Mixed Salt Desert Scrub
  - Inter-Mountain Basins Semi-Desert Grassland
  - Inter-Mountain Basins Semi-Desert Shrub-Steppe
  - Inter-Mountain Basins Sparsely Vegetated Systems
  - Introduced Riparian Vegetation
  - Introduced Upland Vegetation-Annual and Biennial Forbland
  - Introduced Upland Vegetation-Annual Grassland
  - Introduced Upland Vegetation-Perennial Grassland and Forbland
  - North American Warm Desert Riparian Systems
  - Open Water
  - Quercus gambelii Shrubland Alliance
  - Quercus havardii Shrubland Alliance
  - Rocky Mountain Alpine Dwarf-Shrubland
  - Rocky Mountain Alpine Turf
  - Rocky Mountain Aspen Forest and Woodland
  - Rocky Mountain Foothill Limber Pine-Juniper Woodland
  - Rocky Mountain Gambel Oak-Mixed Montane Shrubland
  - Rocky Mountain Lodgepole Pine Forest
  - Rocky Mountain Lower Montane-Foothill Shrubland
  - Rocky Mountain Montane Riparian Systems
  - Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
  - Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland
  - Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland
  - Rocky Mountain Subalpine-Montane Mesic Meadow
  - Rocky Mountain Subalpine/Upper Montane Riparian Systems
  - Snow/Ice
  - Southern Colorado Plateau Sand Shrubland
  - Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland
  - Southern Rocky Mountain Juniper Woodland and Savanna
  - Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland
  - Southern Rocky Mountain Montane-Subalpine Grassland
  - Southern Rocky Mountain Pinyon-Juniper Woodland
  - Southern Rocky Mountain Ponderosa Pine Savanna
  - Southern Rocky Mountain Ponderosa Pine Woodland
  - Western Great Plains Depressional Wetland Systems
  - Western Great Plains Floodplain Systems
  - Western Great Plains Foothill and Piedmont Grassland
  - Western Great Plains Sandhill Steppe
  - Western Great Plains Shortgrass Prairie
  - Western Great Plains Sparsely Vegetated Systems



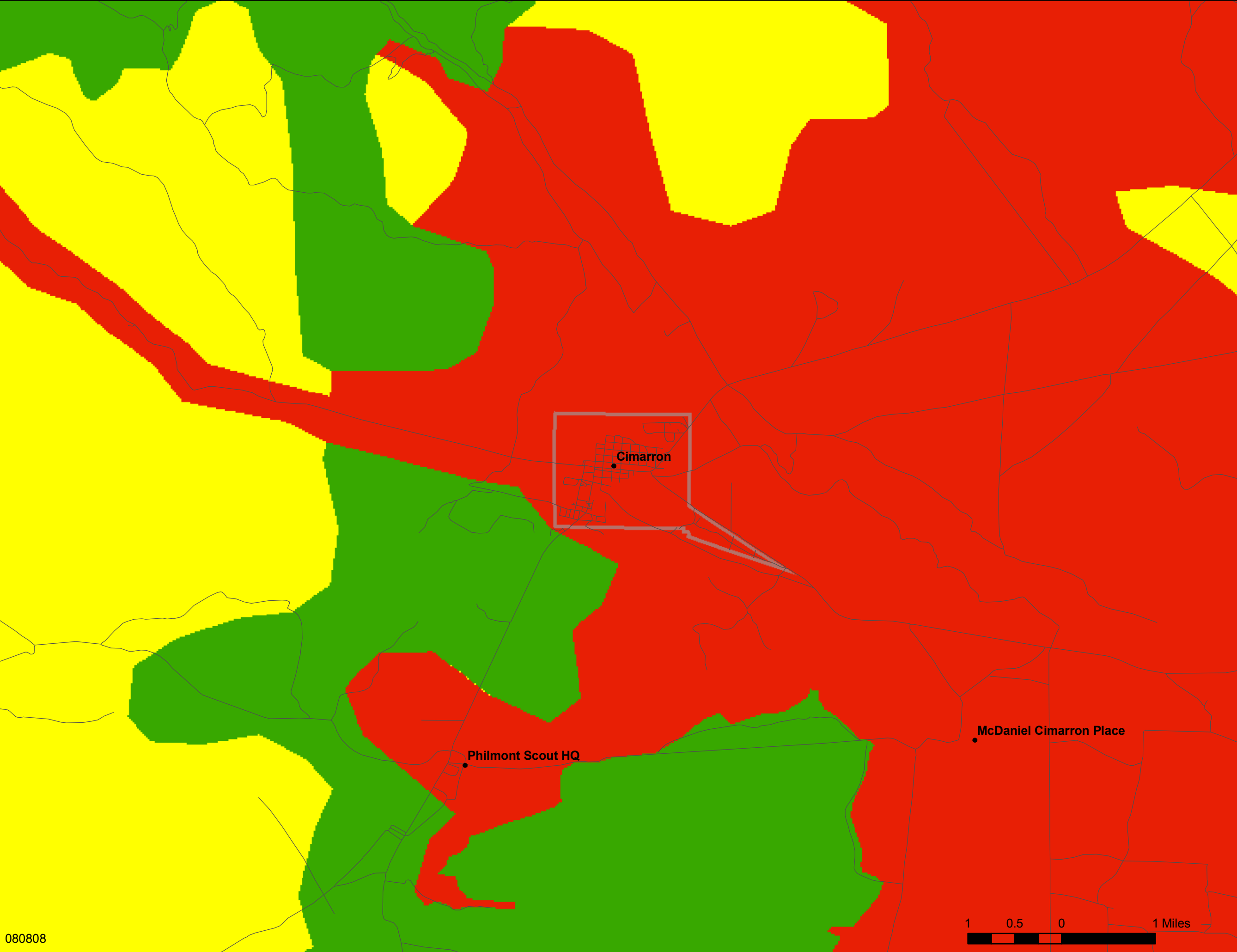


**Cimarron, NM  
CWPP**

**Fuel Hazard  
FRCC**



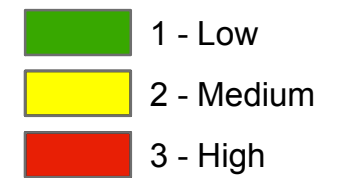
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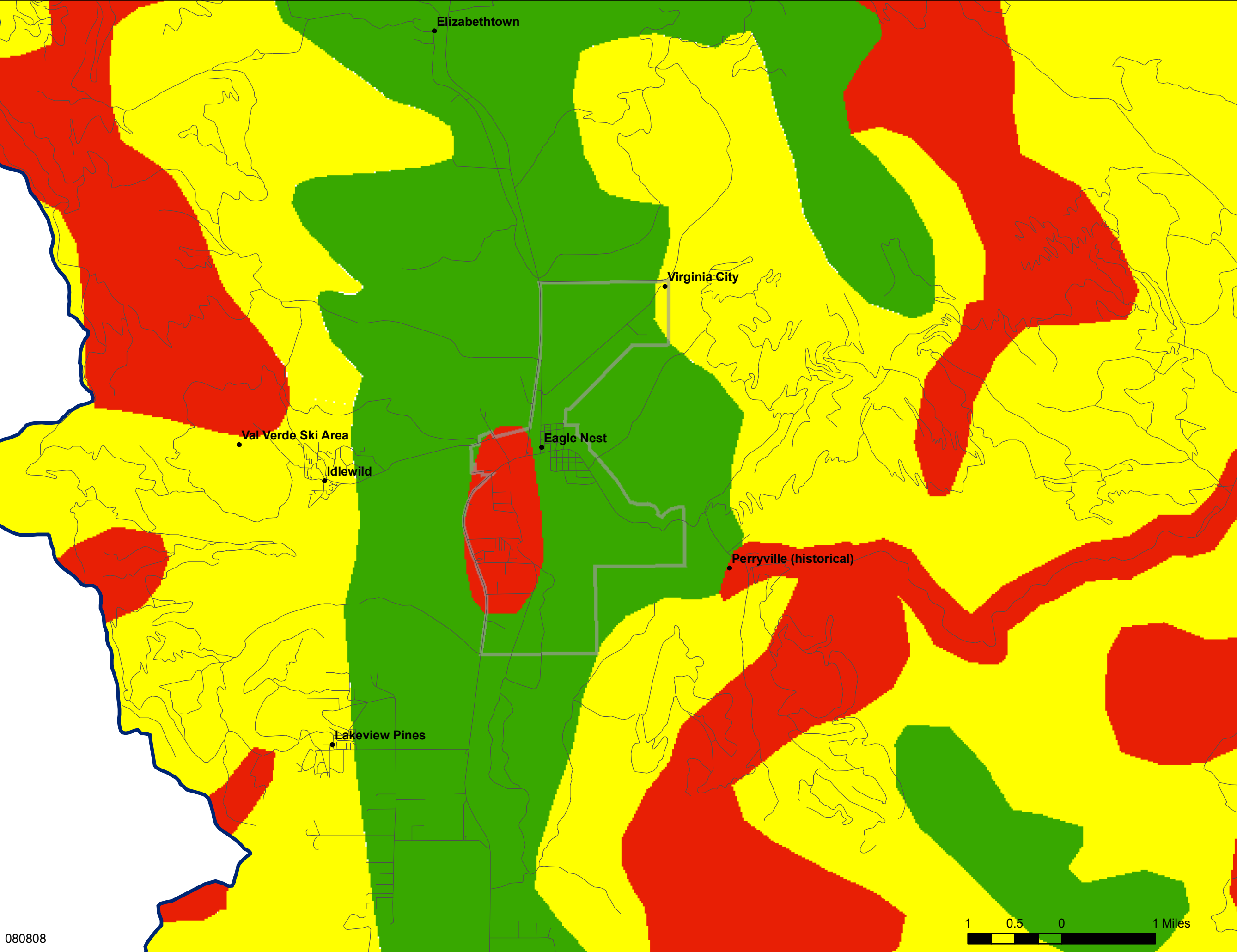


# Eagle Nest, NM CWPP

## Fuel Hazard FRCC



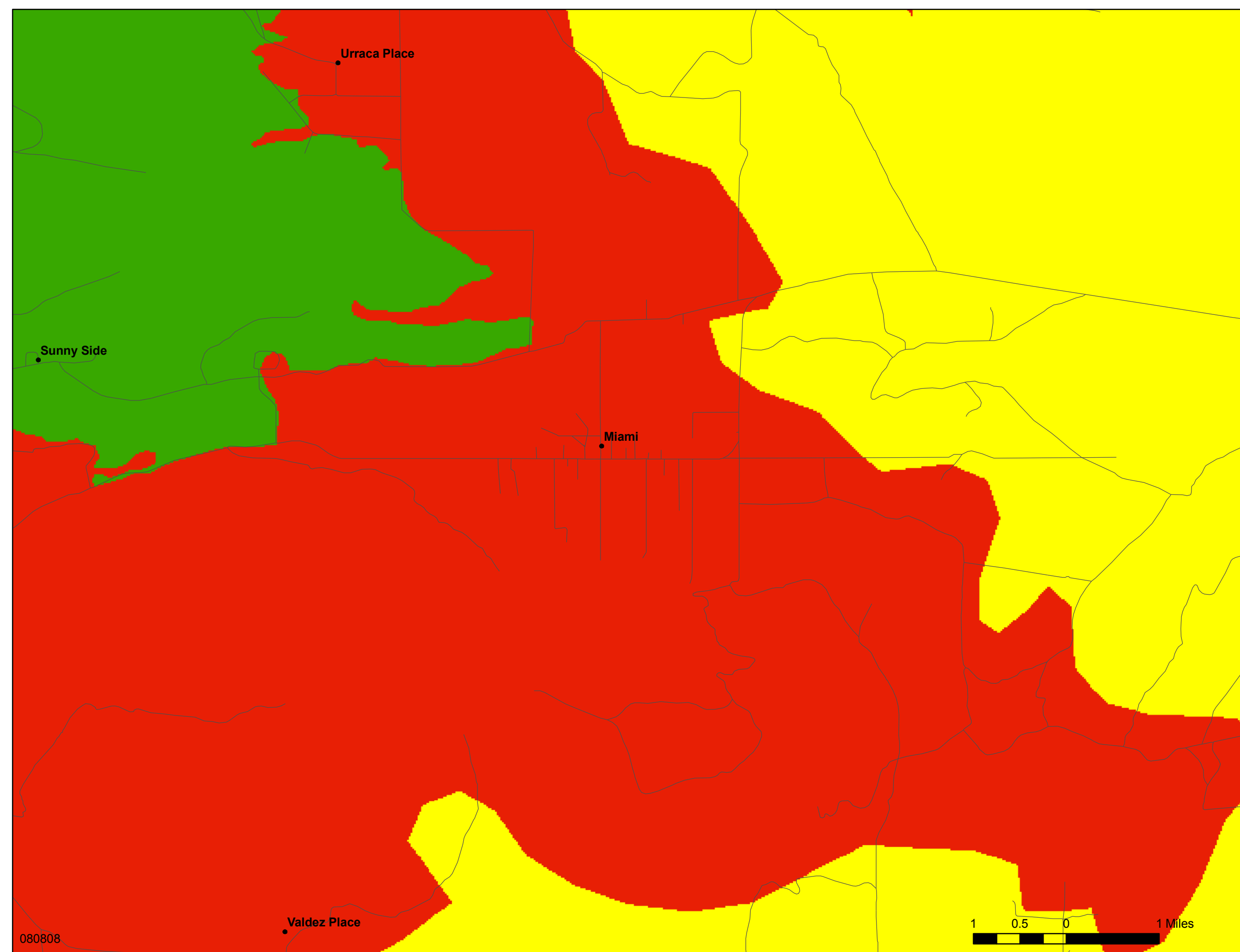
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**Miami, NM  
CWPP**

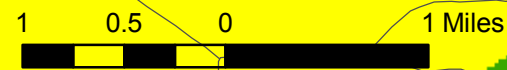
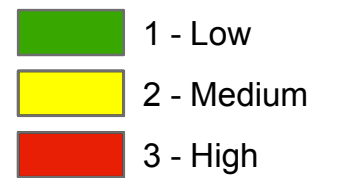
**Fuel Hazard  
FRCC**



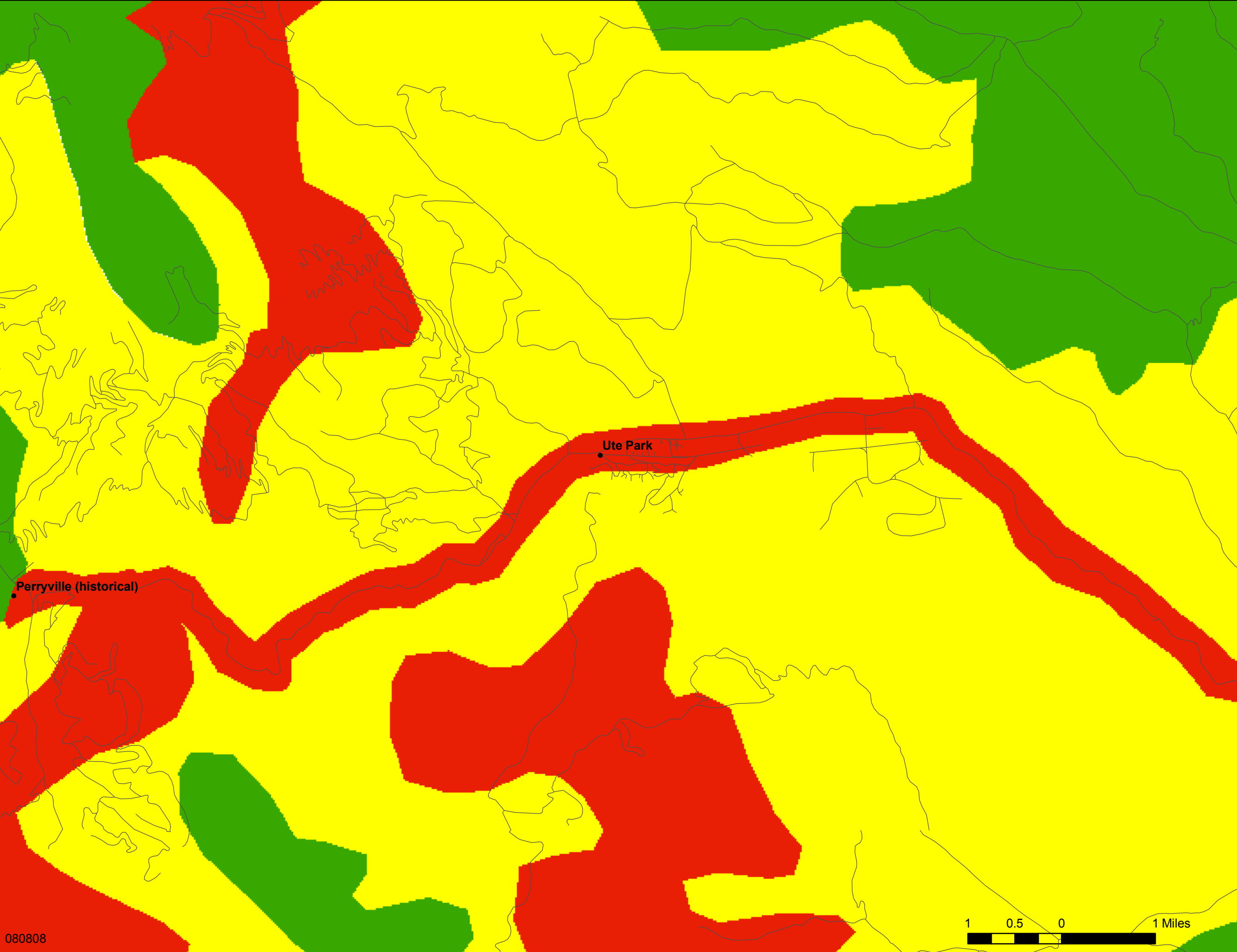


# Ute Park, NM CWPP

## Fuel Hazard FRCC

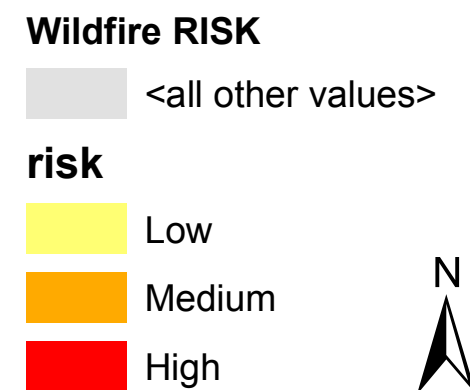


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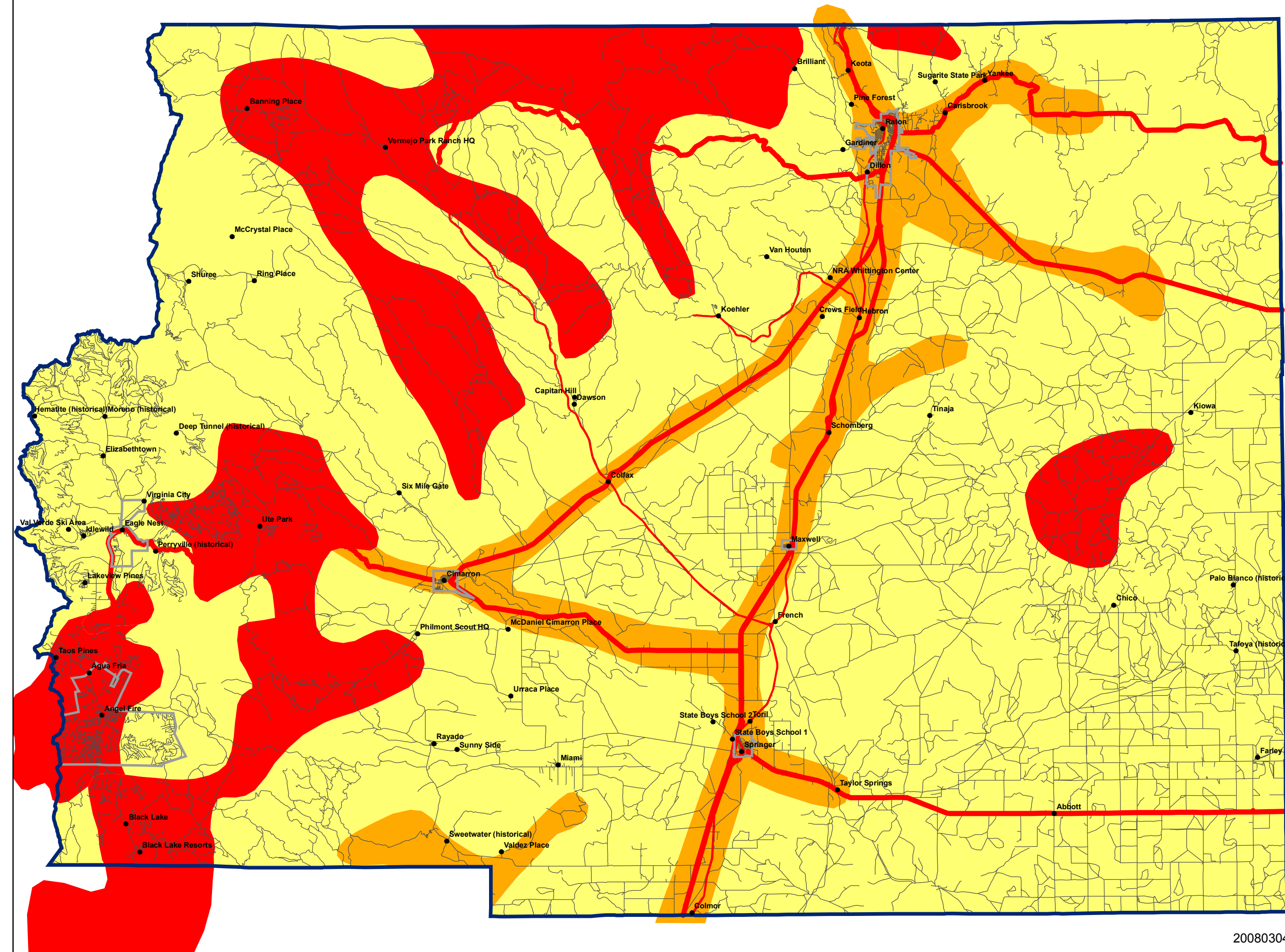




# CWPP Wildfire Risk Map



20080304










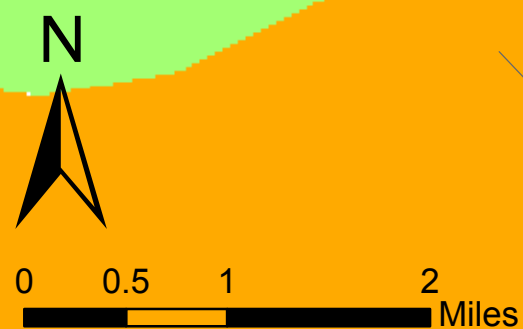
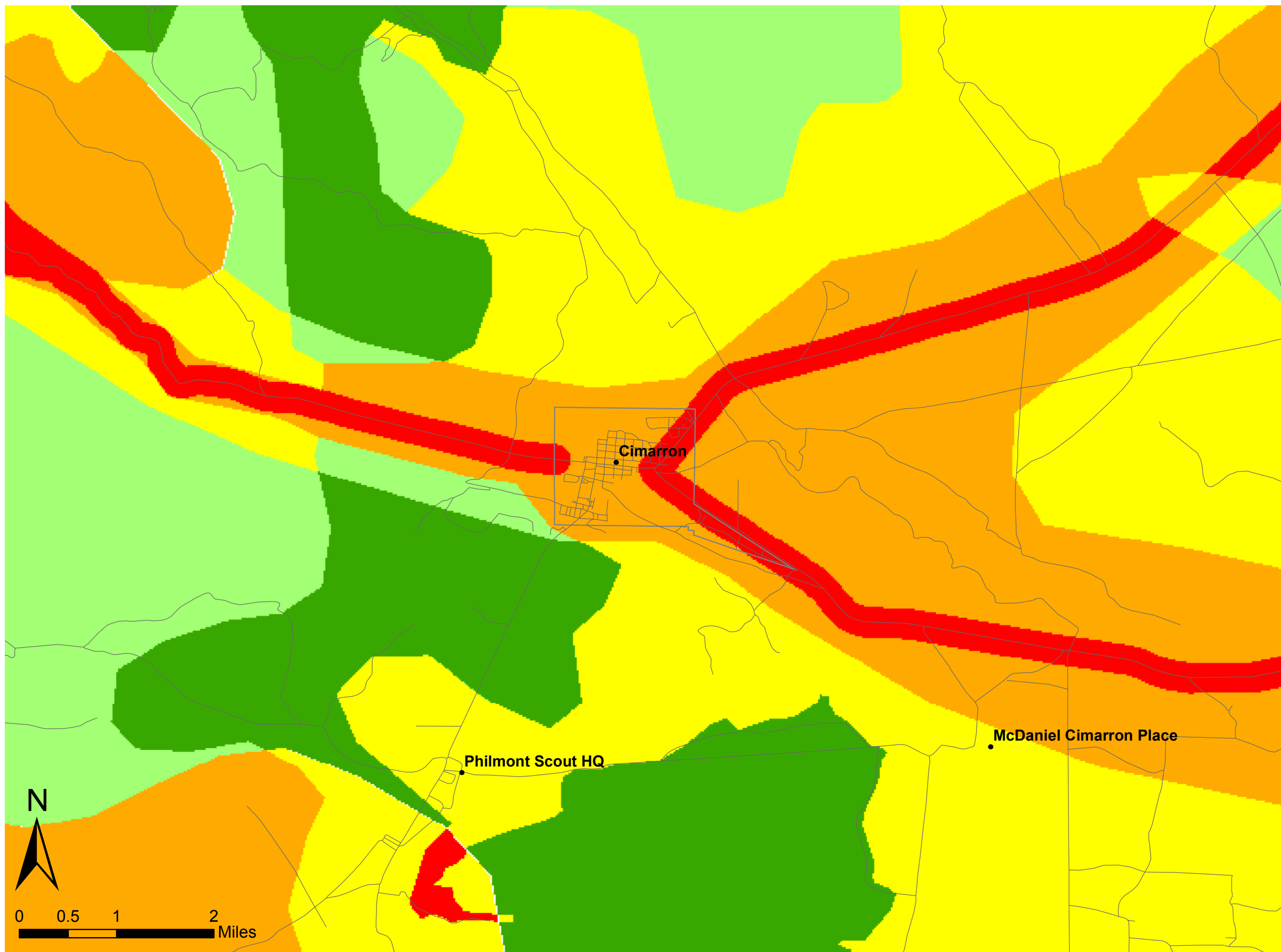


## Cimarron, NM

### CWPP Threat Level Map

#### Threat

-  2 - Very Low
-  3 - Low
-  4 - Medium
-  5 - High
-  6 - Very High



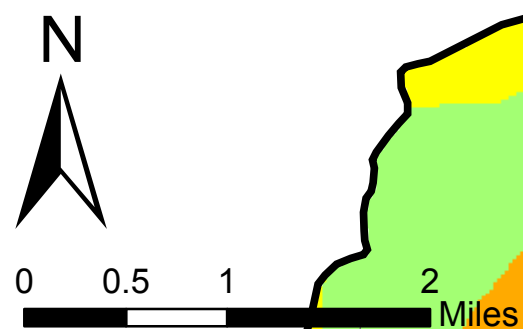
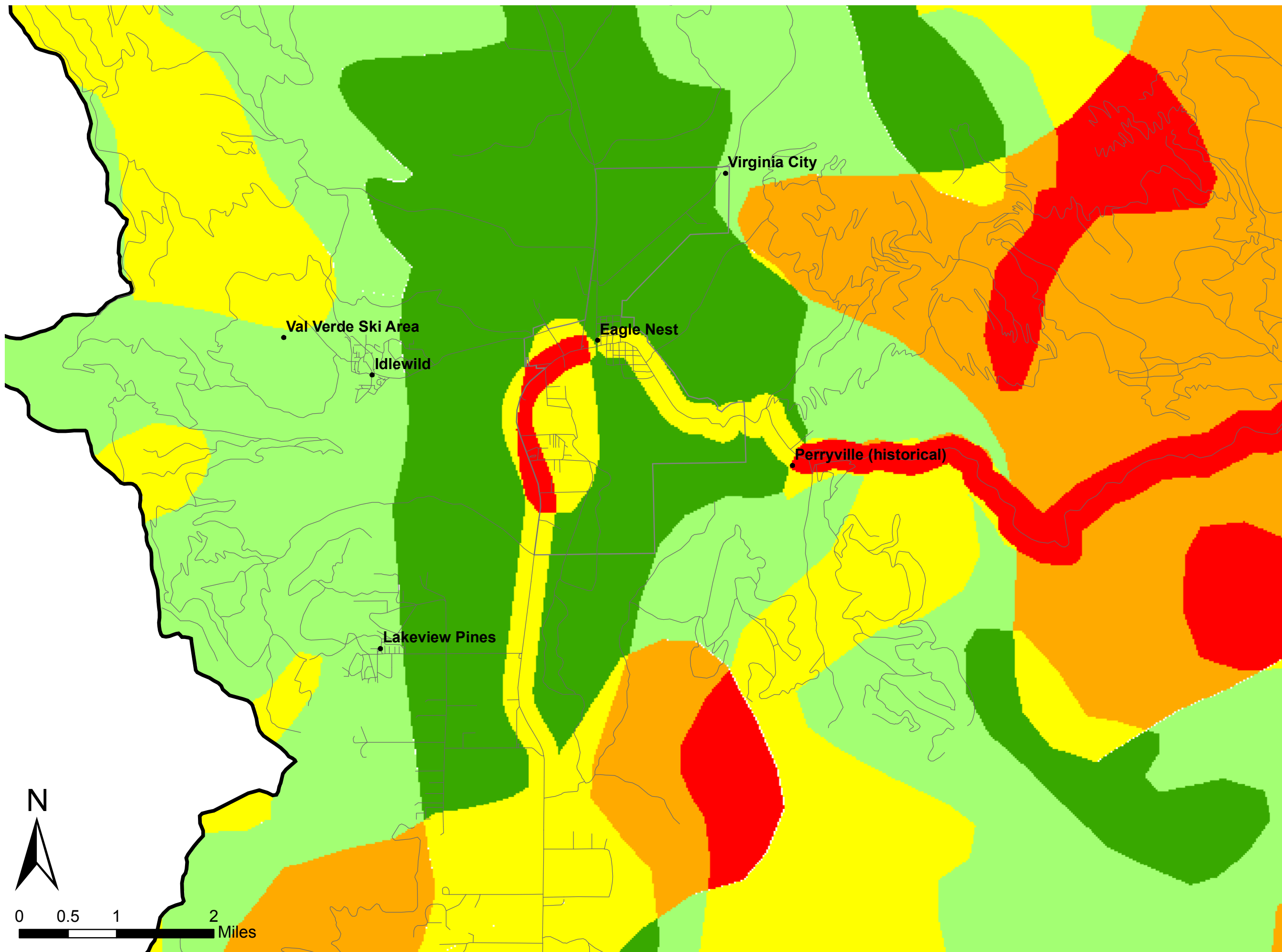


## Eagle Nest, NM

### CWPP Threat Level Map

#### Threat

- 2 - Very Low
- 3 - Low
- 4 - Medium
- 5 - High
- 6 - Very High





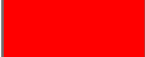


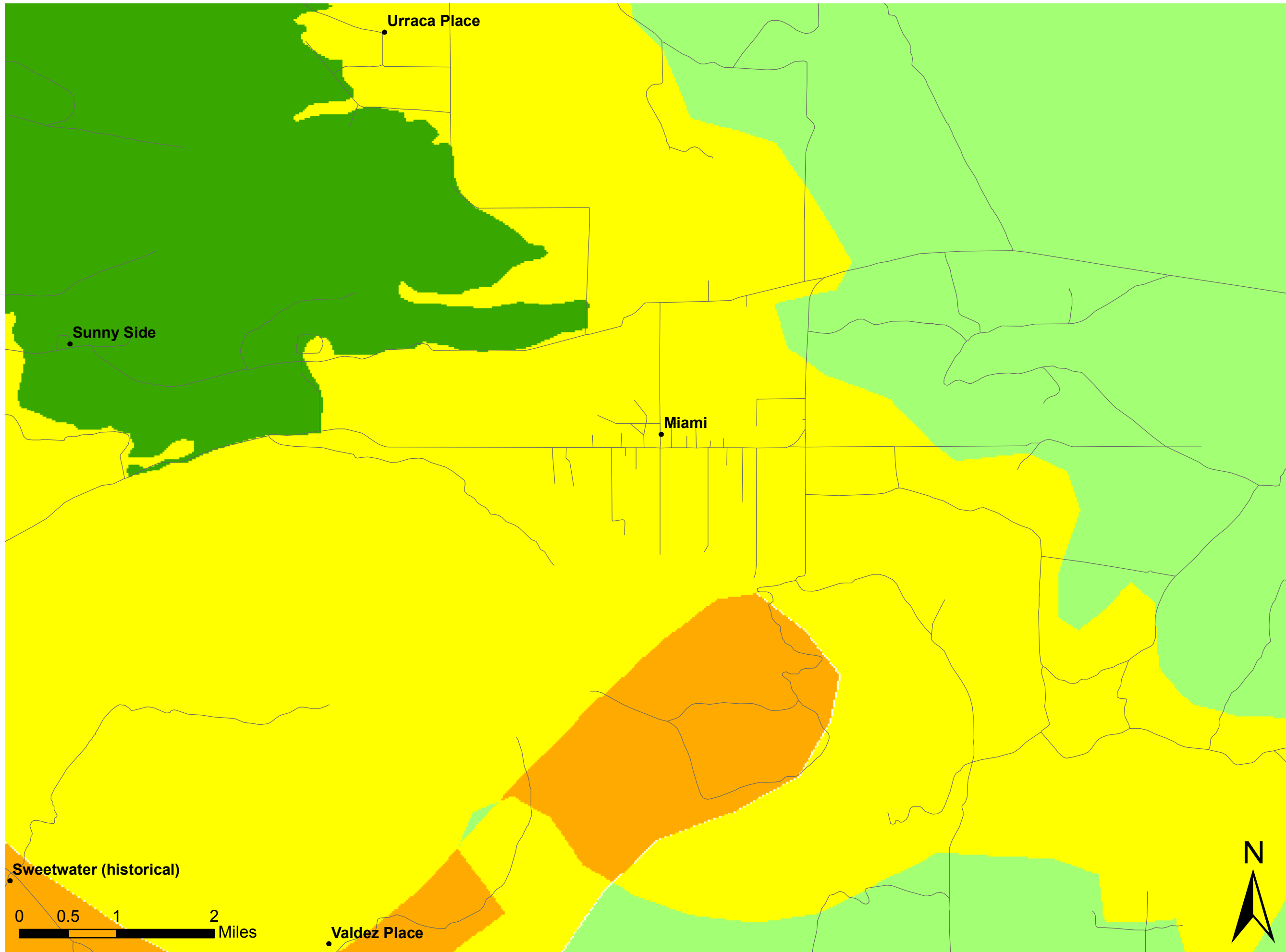


## Miami, NM

### CWPP Threat Level Map

#### Threat

-  2 - Very Low
-  3 - Low
-  4 - Medium
-  5 - High
-  6 - Very High








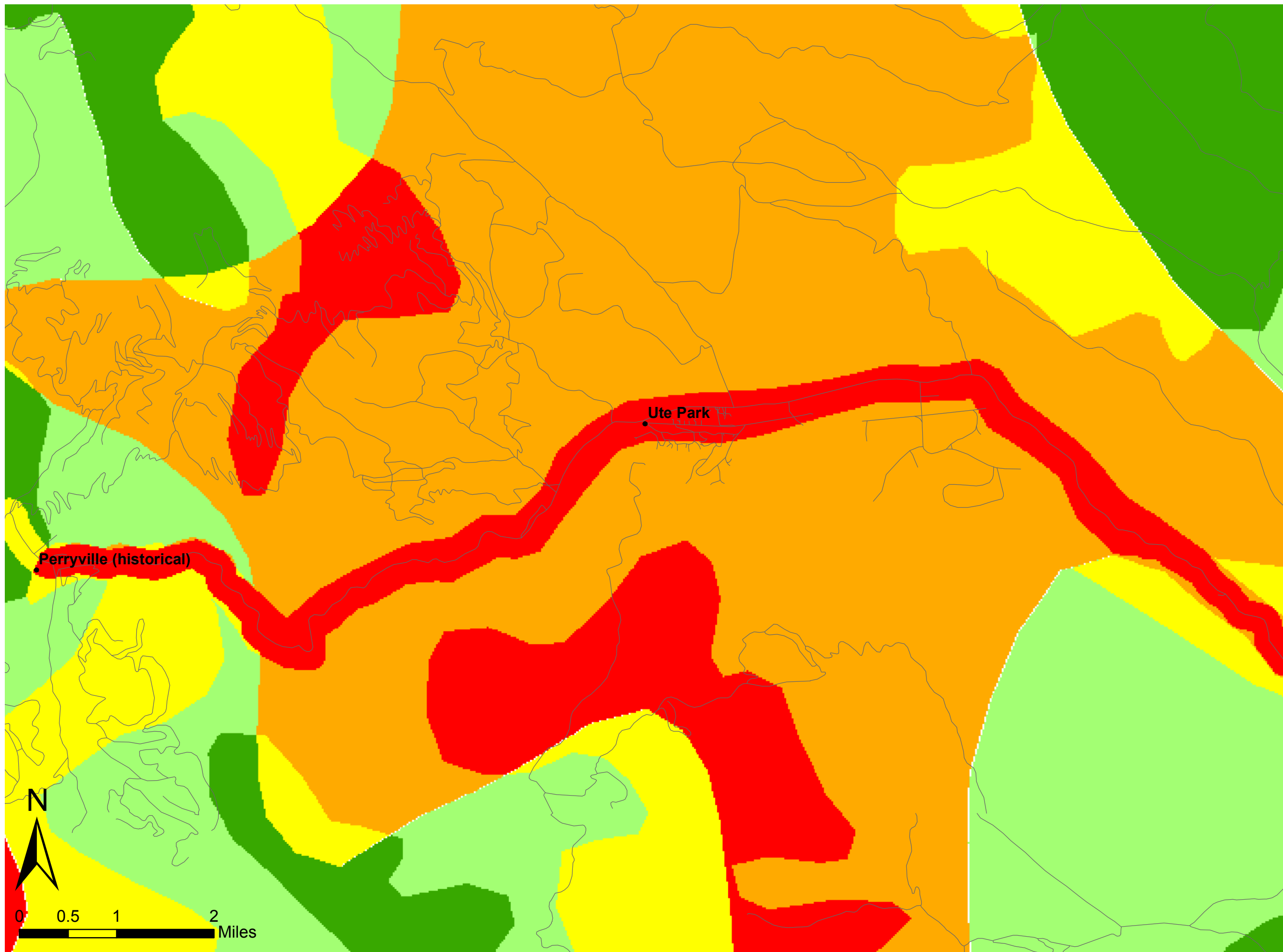


## Ute Park, NM

### CWPP Threat Level Map

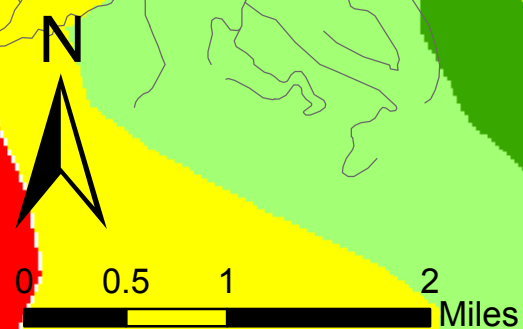
#### Threat

-  2 - Very Low
-  3 - Low
-  4 - Medium
-  5 - High
-  6 - Very High



Perryville (historical)

Ute Park



## **CHAPTER THREE – WILDFIRE SCIENCE**

The Colfax County CWPP provides a detailed discussion about wildfire science, types and impacts of treatments and community protection. Because defensible space and the home ignition zone are of critical importance to the residents of CWA communities, those sections are included in this CWPP in Chapter 4. While there are similarities in the defensible space and home ignition zone descriptions, they are separate concepts each with a different purpose. Defensible space theoretically opens an area where fire fighters could come and defend a home from a wildfire. The home ignition zone is the home and a smaller area immediately adjacent to the structure. A properly established and maintained home ignition zone can potentially enable a home to withstand an approaching wildfire without the intervention of fire fighting personnel and equipment. This concept is important for all homes located in the wildland environment, but is of particular importance to homes located in non-forest settings where the perceived threat is less. The Texas grass fires of 2006 are a tragic example of homes burning in a non-forest setting because they did not have adequate home ignition zone protection.

## CHAPTER FOUR – RECOMMENDATIONS and PRIORITIES

**Wildfire Behavior:** The Colfax County CWPP provides information applicable to a variety of vegetative types in the County. Because pinyon-juniper and grassland vegetative types predominant in three of the communities, wildfire behavior was modeled for the two vegetative types using the BehavePlus 3 model. Table 2 presents the rate of spread, flame length and spotting distance (pinyon-juniper). This information will assist the respective fire districts when responding to wildfires in these vegetative types.

Table 2: Wildfire Behavior

### Pinyon-Juniper Vegetative Type

Wind Speed (mph)	Rate of Spread (feet/hour)	Flame Length (feet)	Spotting Distance (miles)
10	2,574	7.1	0.2
20	6,263	10.7	0.4
30	10,666	13.7	0.7
40	15,602	16.3	0.9

### Grassland Vegetative Type

Wind Speed (mph)	Rate of Spread (feet/hour)	Flame Length (feet)
10	4,244	4.1
20	16,600	7.7
30	29,469	10.0

**Defensible Space:** The traditional defensible space focuses on vegetation and the structure's roof. Two factors have emerged as the primary determinants of a home's ability to survive wildfire. These are the home's roofing material and the quality of the "defensible space" surrounding it (Rogstad, Alix. 2002. University of Arizona, Cooperative Extension, College of Agriculture and Life Sciences, Creating wildfire-defensible space for your home and property).

**Roofing Material:** Use Uniform Building Code Class C or better (preferably Class A) rating fire-resistive materials, not wood or shake shingles, to roof homes in or near forests and grasslands (Rogstad, 2002). A much more detailed construction code can be found in the International Wildland-Urban Interface Code published by the International Code Council, Inc.

**Defensible space:** Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving from the building to the

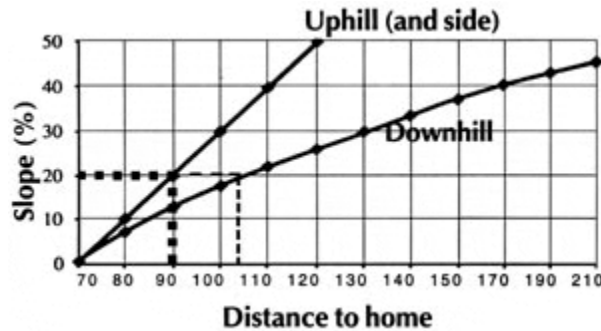
surrounding forest. Defensible space also provides room for firefighters to do their jobs (Rogstad, 2002).

The design of defensible space depends on several factors: size and shape of buildings, materials used in their construction, the slope of the ground on which the structures are built, surrounding topography, and sizes and types of vegetation on the property (Rogstad, 2002).

Creating defensible space involves developing a series of management zones in which different treatments are used. Zone 1 is the area of maximum modification and treatment. It consists of an area of 15 feet around the structure where all low growing flammable vegetation is removed, but in which larger trees can be retained provided ladder fuels are removed or absent. The 15 feet is measured from the outside edge of the home’s eaves and any attached structures, such as decks.

Zone 2 is an area of fuel reduction designed to reduce the intensity of any crown fire approaching structures. The size of Zone 2 depends on the slope of the ground where the structure is built. Typically, the defensible space should extend at least 75 to 125 feet from the structure. Table 3 can be used to determine appropriate distance for the structure’s defensible space where the structure is on sloping ground.

Table 3. Defensible Space By Slope Percent



Within this zone, the continuity and arrangement of vegetation is modified. Remove stressed, diseased, dead or dying trees and shrubs.

Zone 3 is an area of traditional forest management and is of no particular size, and extends from the edge of the defensible space to the property boundary. Tree spacing usually depends on the species involved and factors such as susceptibility to windthrow or damage from heavy snow loading. For most tree species a good rule of thumb for stem spacing is “diameter + 7 feet”. Measure tree diameter in inches, substitute feet for the inches measured and add the 7 feet. The resulting figure is the approximate desirable distance between trees. An example would be an 8 inch tree, add 7 to the 8 and the result is 15 foot spacing. (Rogstad, 2002). An objective for Zone 3 would be to thin the trees to the extent that the crowns are not touching.

A tool that can be used in determining the risk from wildfire to a specific structure is the Wildland Home Fire Risk Meter published by the National Wildfire Coordinating Group

in 1990. With this simple meter a homeowner can quickly assess the home’s risk from wildfire.

Table 4 also can be used for determining defensible space treatments. Although the zone distances and widths are different than those of Rogstad, the information is more detailed and will also help in preparing defensible space. Table 4 is from the Flagstaff Fire Department (Flagstaff, Arizona July 2002) and has been slightly modified to make it applicable to multiple communities.

Table 4. Defensible Space Fuel Management Standards

Firewise Environment	Requirements	Recommendations	Comments
<b>Zone 1</b>			
<b>0-10 feet from structure</b>	<ul style="list-style-type: none"> <li>Remove all pine needles and flammable ground materials.</li> <li>Remove all ladder fuels.</li> <li>Min. 10 feet between crowns of native trees or “clumps” (max. 4 trees/clump).</li> <li>Prune trees extending over eave of roof.</li> <li>Remove branches within 15 feet of chimney.</li> <li>Use only approved decking materials.</li> <li>Use non-flammable landscape material (ex: no wooden fences, railroad ties, etc.).</li> <li>Prune limbs to min. 8 feet from ground or 25% of tree height, whichever is less.</li> </ul>	<ul style="list-style-type: none"> <li>Minimize flammable vegetation in this zone.</li> <li>Maintain non-combustible ground material 2-3 feet around structure (planting beds, rock gardens, gravel or bare soil).</li> <li>Keep roof and rain gutters clear of needles and leaves</li> </ul>	Wildfire is the number 1 threat to many communities of the Southwest and Intermountain West. The goal in this zone is to reduce creeping ground fire. What is done now will greatly enhance structure survivability and firefighter safety.
<b>Zone 2</b>			
<b>10-50 feet from structure</b>	<ul style="list-style-type: none"> <li>Remove pine needles and flammable ground materials.</li> <li>Remove all ladder fuels.</li> <li>Min. 10 feet between stems of native trees or “clumps” (max. 5 trees/clump).</li> <li>Crowns of stems or between “clumps” do not touch.</li> <li>10-15 feet between planting islands and groups of shrubs.</li> </ul>	<ul style="list-style-type: none"> <li>Maintain low combustible ground covers.</li> <li>Keep lawns watered (as conditions allow).</li> <li>Consider planting beds, rock gardens, xeriscaping, and fire resistant plants.</li> <li>Use bedding plants (less 18 inches high).</li> <li>Consider non-flammable landscape material.</li> <li>Prune native tree limbs min. 8 feet from ground or 25% of tree height, whichever is less.</li> </ul>	The goal in this zone is to reduce radiant heat and short-range spotting.
<b>Zone 3</b>			
<b>From 50 feet to property boundary</b>	<ul style="list-style-type: none"> <li>Max. densities for native trees per local fire department, state forestry, or other “expert” (dependent upon site).</li> <li>Remove all ladder fuels.</li> <li>15 feet between stems of native trees or “clumps” (max. 5 trees/clump).</li> <li>20 feet between planting islands.</li> </ul>	<ul style="list-style-type: none"> <li>Consider coordination with neighboring properties.</li> <li>Prune native tree limbs min. 8 feet from ground or 25% of tree height, whichever is less.</li> <li>Store firewood and other combustibles in this zone.</li> </ul>	Treatment in this zone will create conditions unfavorable to crown fire.

**Home Ignition Zone:** The home ignition zone consists of the home and the area ten feet from the home. This is the area in which falling embers can cause ignition of the home, and defenses should be geared to stopping embers from contributing to the ignition of the



home. In general, anything flammable should be removed from the home ignition zone. The Zone 1 information of Table 6 applies to home ignition zone.

Wood shake roofing should be replaced with a Class-A non-flammable roofing material. Gutters need to be kept clean of debris, and all dry grass, brush, pine needles, leaves, and other flammable materials must be removed from the zone. Eaves and vents (foundation and roof) need to be covered with  $\frac{1}{8}$  to  $\frac{1}{4}$  inch mesh metal screen. Decks and porches should be enclosed, and window screens made with metal mesh installed. Wooden fences and bark walkways might act as a conduit for wildfire to reach the house. Within the home ignition zone, flammable fences and walkways should be replaced with a non-flammable material.

**Grass Wildfire:** Although all communities in wooded areas are susceptible to damage and loss from wildfires, and the fact that some structures are more vulnerable than others, susceptibility to wildfire damage is not limited to wooded areas. Grass fires of short duration and low flame length can also ignite homes.

The Texas grass fires of early 2006 burned 1.6 million acres and destroyed 440 homes. Stone and brick homes with metal roofs burned, homes that at first glance would be classified as low risk. It was not a 50 foot wall of flames destroying the homes; it was flames from one or two inch tall grass (Weaver, Traci. 2006. A word to the firewise. Wildland Firefighter. July 2006, Volume 10, Number 7, 25-30).

Weaver said that the losses were truly an example of the home only being as strong as its weakest link. Primarily the weakest links were wooden porches with no screening underneath, cedar posts and landscape timbers. Most of the losses occurred in areas with minimal amounts of vegetative fuels, and almost every loss was associated with conduction from firebrands entering open areas like attic vents, eaves and soffits, or radiant heat from short grass igniting combustible material, such as wooden decks or landscaping timbers, on or adjacent to the home (Weaver. 2006).

With availability of the latest defensible space information gleaned from the Texas grassfires, the Colfax County CWPP adds “weakest link” information to the defensible space dialogue. Homeowners should screen open areas (using  $\frac{1}{8}$  to  $\frac{1}{4}$  inch wire mesh) where firebrands can collect, such as wooden decks and open attic vents. Use non-flammable materials like river rock or pea gravel adjacent to any wooden aspects of the home, including decks and fences. Also cover the first few feet around the home with river rock or similar non-flammable material (Weaver. 2006).

**Homeowners:** The New Mexico State Forestry Division should be contacted for technical assistance with defensible space, home ignition zone, forest fires, and grass fires.

## A. CIMARRON

The community of Cimarron has been threatened by wildfire from several different directions in recent years, and the potential for a disastrous wildfire still exists. The

mapping procedure used in the Colfax County CWPP is applied to the community of Cimarron, but with larger scale maps.

The large scale hazard map indicates that all of the community of Cimarron is in a high hazard area. The risk evaluation indicates that the community is a mixture of risk levels with a medium level predominating. Threat level for Cimarron is rated high.

### **1. Fuels Reduction**

The vegetation types present in the community of Cimarron are such that wildfire fuels reduction is not a large opportunity. Some thinning can be effective in reducing fuel load in the pinyon-juniper type; however, the low crown base height of the species involved still leaves the remaining trees susceptible to torching during a surface fire. One of the primary benefits from thinning in the pinyon-juniper type is a reduction in the number of firebrands generated by the fire, thus reducing the potential for spotting. Also, thinning in this vegetation type creates fuel conditions for which quick suppression is more likely.

The guidelines for fuels reductions for various vegetation types given in Chapter 4 of the Colfax County Community Wildfire Protection Plan should be the basis for any fuels reduction treatment project planned in the Cimarron area.

The density of the pinyon and juniper within in two miles of the town limits should be evaluated and areas of high density identified. The high density areas should be thinned beginning in 2009 and finish in 2013. The grass vegetation type areas of the community should have a planned project to keep the dry grass short.

### **2. Lambert Hills**

The Lambert Hills area of town (a ridge on the north side) has pinyon-juniper vegetation that is in need of a fuels reduction program. Not only would a wildfire be a threat to the homes in the immediate area, a wildfire would be a source of firebrands that under the right wind conditions could shower the rest of the community. The woodland in the Lambert Hills area should be thinned to distance of approximately 30 feet between trees, with the pinyon trees retained and the juniper trees removed wherever possible.

The Lambert Hills area is located on a ridge on the north side of town with a pinyon-juniper vegetation type. A thinning project using the guidelines in this plan should begin in 2009 and be completed in 2010.

### **3. Mountain Meadows**

The grass and weeds in Cimarron and surrounding area should be kept short during dry seasons. The purpose of keeping the grass short is to reduce the intensity of any grass fires that might occur. Specifically the Mountain Meadows area of the town has a high treat of grass wildfire, and short grass would be a

benefit to the homes in the area in the event of a wildfire. The city should pursue a grant to purchase and operate a grass mowing type machine, and consider the need to be a high priority.

Mountain Meadows is the extreme southeastern part of the town of Cimarron. Grass is the main fuel type in this area, and a program of reducing the dry grass should be implemented. A grant to purchase and operate a grass mowing type machine should be a high priority for the community.

#### **4. Cimarron River and Ponil Creek Bottoms**

The Cimarron River runs through town, and Ponil Creek skirts the northeast side of town. The associated river and creek bottoms can be a wildfire hazard particularly when invasive species are present. Junipers tend to invade a river bottom when fire has been excluded for some time, and the presence of the junipers can add considerably to the intensity of a wildfire in a river or creek bottom. The junipers along with some dead and down material should be removed; however, the junipers are not abundant, so the priority is medium.

A project with the objective of removing the juniper and dead and down material from the river and creek bottoms should be planned. Treatment of the bottoms is a medium priority because the juniper invasion is not extremely heavy.

#### **5. Sawmill Site Residue**

There exists on the northeast edge of town residue from a former sawmill operation. The combustible mixture of sawdust, tree bark and other materials has been on fire in the past and is currently placed in several large windrows designed to facilitate fire fighting. The presence of the material is a constant threat as a source of flying embers if ignited. A committee should be formed by the Village to explore the legality and cost of removing the combustible material on the site.

#### **6. Defensible Space**

Cimarron is listed as a high threat community in the Community Wildfire Risk Rating and as such, an evaluation of defensible space is an important factor in the overall efforts to reduce loss due to wildfire. Although evaluating approximately 746 structures is a large undertaking, every structure in the community needs to be evaluated as to its defensible space. Homeowners should be notified as to the condition of their defensible space, and encouraged to implement the steps necessary to make the home defensible.

#### **7. Home Ignition Zone**

Home ignition zone considerations are important wherever there is potential for wildfire. The home ignition zone is basically the home plus a ten foot radius around the home, and must be evaluated as to ignitability within the zone, particularly the ignitability of the structure itself. The evaluation of home ignition zone should be made by the individual home owners with guidance from the fire chief.

Cimarron is listed in the home ignition zone as a high priority for evaluation.

#### **8. Evacuation**

There are several roads leading out of Cimarron, and because of the multiple routes, evacuation should not be a major problem. Sheltering in place instead of evacuation should be considered. Residents should receive specific instructions for either evacuation or sheltering in place as soon as is practical.

#### **9. Sawmill Site Residue**

The combustible material on the northeast side of town, that remains from an older sawmill operation, is a source of concern for the community. The existing windrows of residual material could ignite and become a source of flying embers threatening the entire Cimarron community and surrounding area. A committee should be formed by the Village to explore the legality and cost of removing the combustible material on the site.

#### **10. Defensible Space**

Cimarron is listed in the defensible space section as a high priority for evaluation.

### **B. EAGLE NEST**

The community of Eagle Nest and the surrounding area generally are situated in a grass vegetation type and a low hazard rating. Although wildfire is usually associated with forested areas, the grasslands are not immune from destructive wildfire. As discussed, a low intensity grass fire can destroy structures that have not been prepared for such an event. The best planning for communities in grassy areas is to prepare each structure and the immediate surroundings using the home ignition zone guidelines. Knowing the rate of spread and flame length of a grass wildfire for various wind speeds helps to underscore the importance of preparing the home ignition zone in anticipation of a wildfire event.

#### **1. Eagle Nest Lake State Park**

The grass inside Eagle Nest State Park is not currently being grazed, and consequently the grass is deeper and thicker in the park than in the surrounding area. A wildfire in the deeper grass would have different characteristics than a wildfire in a grazed area where the grass is shorter. In the deeper grass with a ten mile per hour wind, the rate of spread would be 8,996 feet per hour and the flame length would be 15.7 feet. . In a twenty mile per hour wind the rate of spread would be 21,674 feet per hour and the flame length would be 23.5 feet.

#### **2. Idlewild and Lakeview Pines**

Included in the Eagle Nest area are the communities of Idlewild and Lakeview Pines, which are within the Eagle Nest Fire District. The Eagle Nest Fire Department responds to the fires in those communities.

During various meetings with residents of the area, the subject of wildfire threat to Idlewild and Lakeview Pines was a topic of discussion. The concern was that the forested lands to the west are in such a condition that if a wildfire occurred there, it would quickly be out of control and would spread into the communities. The Enchanted Circle Plan lists the concerns for Idlewild and Lakeview Pines as the heavy accumulation of fuels on Taos Pueblo land adjacent to the two communities, as well as poor access for fire fighting equipment. Discussions should be initiated with the Taos Pueblo regarding treatment of hazardous fuels along their eastern boundary.

The heavy fuel accumulations to west, the direction of the prevailing winds, and potential spotting distances confirm the concerns. The winds that drive wildfire may come from a variety of directions and consequently a community can be threatened from more than one direction. The Idlewild and Lakeview Pines WUI area was extended to the north and to the south of the two communities in anticipation of experiencing a variety of wind directions.

The objective of fuels mitigation treatment is to create conditions in which, once a wildfire occurs, the wildfire will remain a surface fire and therefore afford firefighters a reasonable opportunity for control or suppression. The Idlewild and Lakeview Pines WUI should be treated for fuels reduction in order to minimize the threat of wildfire to the communities of Idlewild and Lakeview Pines.

The Idlewild and Lakeview Pines WUI should be considered a high priority for fuels reduction and mitigation treatments.

### **3. Wildland Wildfire Initial Attack**

Several landowners in the area limit access onto their property. In some cases the limited access extends to fire fighting crews, and the resulting delay in initial attack on wildfire on these properties could result in a larger fire that threatens the areas communities.

### **4. Defensible Space**

In the communities of Idlewild and Lakeview Pines an inventory of defensible space is important. Also accessibility for fire fighting equipment is an important part of defensible space. A thorough inventory of defensible space within these communities should be completed, and updated regularly. The area fire chief should be involved in completing the inventory. The New Mexico State Forestry Division should be contacted for recommendations for establishing defensible space.

### **5. Home Ignition Zone**

In grassland vegetation types there is little opportunity to impact defensible space, but the home ignition zone is still very important. For the communities of Eagle Nest, Idlewild, and Lakeview Pines, an evaluation of the home ignition zone should be an urgent project. The fire chief should be the impetus for initiating

and completing the evaluation. The New Mexico State Forestry Division can provide homeowners with details concerning home ignition zone.

### **C. MIAMI**

At first glance the threat of wildfire to Miami appears quite innocuous; however, there are several circumstances that make the situation quite the opposite. Miami is located about two miles downwind from two high mesas, Rayado and Gonzallitos, which have historically been the ignition site of several wild fires. The mesas are surrounded by grasslands, and have increasingly heavier fuels from the toe of the slopes to the cliffs at the top. Because of the heavy fuel condition on the slopes of the mesas, a wildfire can easily travel down the slopes to the surrounding grasslands. Once a wildfire reaches the grasslands, the prevailing winds will push a wildfire rapidly into the community of Miami. Even with a moderate wind a wildfire would travel from the slopes of the mesa into the community of Miami in less than an hour.

The opportunity for fuels reduction on the slopes of the mesas is limited because of the slope steepness. The best opportunities for wildfire mitigation in the Miami area are to keep the grass short along with establishing and maintaining an adequate home ignition zone for each structure.

All structures in the community should be evaluated for home ignition zone conditions. The fire chief should initiate the evaluations, and encourage owners to make changes to improve their home ignition zone conditions. The priority for this evaluation is high.

Grass wildfires spread rapidly, and the response time of a wildland fire fighting crew is very important in minimizing property loss to the wildfire. Because Miami is somewhat remote in location, the best opportunity for rapid response time is for the Miami Fire District crew to be the first responder. The Miami Fire District should be fully equipped and trained to be wildland wildfire initial attack ready, and acquiring such status is a high priority.

Evacuation in the event of a wildfire will not be terribly complicated, but procedures need to be in place and communicated to the residents. Sheltering in place should be considered as an alternative to evacuation. The Miami Fire Chief in conjunction with County Fire Marshal should review the existing evacuation procedures and revise them if necessary. The review is a medium priority.

All structure in the community should be evaluated for home ignition zone conditions. The fire chief should initiate the evaluations, and encourage owners to make changes to improve their home ignition zone conditions. The priority for this evaluation is high.

### **D. UTE PARK**

The community of Ute Park is of special concern because of the amount of forested area within the community and neighboring Cimarroncita Ranch. Heavy fuel

accumulations on the Colin Neblett State Wildlife Area and the Philmont Scout Ranch adjacent to Ute Park, and strong canyon winds are additional concerns. The various ownerships are interdependent when the spread of wildfire is considered. Each of the ownerships has the potential of impacting all of the others when a wildfire starts.

The entire west side of the Ute park area is at risk from a wildfire originating in the Colin Neblett State Wildlife Area. The fuel and canopy conditions in Colin Neblett are such that any wildfire originating in the wildlife area will quickly become a crown fire, and would enter Ute Park as a crown fire. The recommended treatment for this area is detailed in Chapter 4 of the Colfax County CWPP.

### **1. Wildfire Modeling**

Wildfire modeling data was collected to develop an in depth analysis of conditions at Ute Park. The data was collected in early October 2007, and was collected on numerous properties in Ute Park and on the Cimarroncita Ranch, which has a common boundary with much of Ute Park. Based on the vegetation types and conditions identified during the data collection, the Ute Park Community was divided into four areas, and the Cimarroncita Ranch was also divided into four areas. The collected data was used as variables in the BehavePlus 3 wildfire model, and each of the eight areas were analyzed separately for three different wind speeds (20 mph, 30 mph, and 40 mph). The purpose of the analysis was to determine the type of wildfire that would occur (surface, passive crown, or active crown), rates of spread, flame lengths, intensity (torching index and crowning index), and spotting distance. Figure 12 shows the Ute Park areas that were evaluated for wildfire modeling. Tables 5, 6 and 7 display the results of the Ute Park wildfire modeling for 20, 30, and 40 mile per hour wind speeds.

The results of the modeling can be summarized as: the community of Ute Park is at risk of experiencing a catastrophic wildfire regardless of the origin of the wildfire. A wildfire starting outside and then moving into the community will enter the community as an active crown fire. A wildfire starting inside the community will become an active crown fire and exit the community as an active crown fire. Under wind conditions that are prevalent during fire season, an active crown fire will traverse the entire community in slightly more than one hour.

Figure 12: Ute Park Wildfire Modeling Areas.

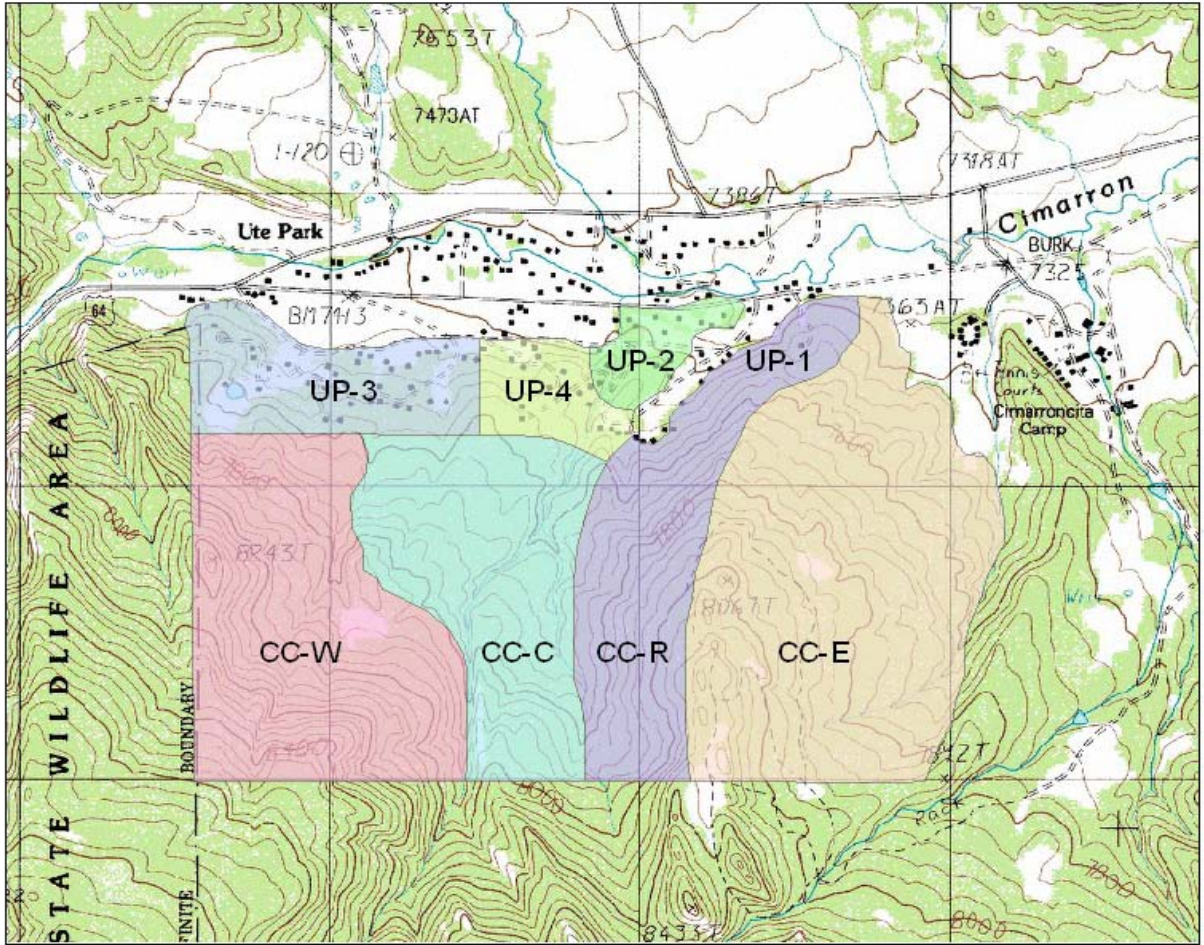




Table 5. Ute Park Wildfire Modeling Outputs for 20 Miles Per Hour Wind Speed.

**20 MILE PER HOUR WIND SPEED**

AREA	SURFACE FIRE RATE OF SPREAD (feet/hour)	FLAME LENGTH (feet)	TORCHING INDEX	CROWNING INDEX	CROWN FIRE RATE OF SPREAD (feet/hour)	SPOTTING DISTANCE (miles)	WILDFIRE TYPE
UP 1	983	3.3	1.59	0.76	Na	0.4	Torching
UP 2	2,699	7.3	6.50	0.61	Na	0.4	Torching
UP 3	1,224	4.4	3.59	0.90	Na	0.4	Torching
UP 4	889	3.0	2.32	0.86	Na	0.4	Torching
CC-E	1,232	4.4	3.78	0.73	Na	0.4	Torching
CC-R	983	3.3	1.59	0.76	Na	0.4	Torching
CC-C	2,129	6.6	4.40	0.59	Na	0.4	Torching
CC-W	121	1.1	0.14	0.89	Na	0.4	Surface

Table 6. Ute Park Wildfire Modeling Outputs for 30 Miles Per Hour Wind Speed.

**30 MILE PER HOUR WIND SPEED**

AREA	SURFACE FIRE RATE OF SPREAD (feet/hour)	FLAME LENGTH (feet)	TORCHING INDEX	CROWNING INDEX	CROWN FIRE RATE OF SPREAD (feet/hour)	SPOTTING DISTANCE (miles)	WILDFIRE TYPE
UP 1	1,542	4.0	2.52	1.34	9,867	0.7	Crown
UP 2	5,267	9.9	12.66	1.07	9,867	0.7	Crown
UP 3	2,052	5.7	6.22	1.57	9,867	0.7	Crown
UP 4	1,421	3.7	3.80	1.50	9,867	0.7	Crown
CC-E	2,105	5.6	6.44	1.28	9,867	0.7	Crown
CC-R	1,542	4.0	2.52	1.34	9,867	0.7	Crown
CC-C	4,095	8.8	8.46	1.03	9,867	0.7	Crown
CC-W	187	1.4	0.23	1.55	9,867	0.7	Surface

Table 7. Ute Park Wildfire Modeling Outputs for 40 Miles Per Hour Wind Speed.

**40 MILE PER HOUR WIND SPEED**

AREA	SURFACE FIRE RATE OF SPREAD (feet/hour)	FLAME LENGTH (feet)	TORCHING INDEX	CROWNING INDEX	CROWN FIRE RATE OF SPREAD (feet/hour)	SPOTTING DISTANCE (miles)	WILDFIRE TYPE
UP 1	2,284	4.7	3.75	2.00	14,744	0.9	Crown
UP 2	8,659	12.4	20.82	1.60	14,744	0.9	Crown
UP 3	3,142	6.9	9.69	2.35	14,744	0.9	Crown
UP 4	2,123	4.5	5.76	2.24	14,744	0.9	Crown
CC-E	3,258	6.8	9.95	1.91	14,744	0.9	Crown
CC-R	2,284	4.7	3.75	2.00	14,744	0.9	Crown
CC-C	6,702	11.1	13.84	1.54	14,744	0.9	Crown
CC-W	264	1.6	0.33	2.32	14,744	0.9	Surface

The wildfire situation at Ute Park can be summarized as, any wildfire originating or entering the area and driven by wind speeds in excess of 30 miles per hour will become an active crown fire, and will cover the entire area in less than two hours.

A wildfire starting as a surface fire in the community of Ute Park will become a crown fire because of the fuel ladder and a low canopy base height. Any wildfire entering the community as a crown fire will continue as a crown fire as it passes through the area. Any surface wildfire entering the community will quickly become a crown fire, again because of the fuel ladder and low canopy base height.

Even though parts of the Cimarroncita Ranch have conditions that do not encourage a surface wildfire to become a crown fire, the ranch has sufficient canopy density to support a crown fire.

Treatments to the area should concentrate on developing defensible space around each structure, raising the canopy base height, and thinning the forest canopy.

**2. Evacuation**

Amend the Ute Park CWPP to include a sheltering in place option to the evacuation plan. The Ute Park Fire Chief shall evaluate several sites in and around Ute Park as to suitability for sheltering in place. The Fire Chief shall consider the number of people to shelter, ease of access, defensibility of the site, etc. The sheltering place evaluation process should be completed before the next fire season. The results of the evaluation will be conveyed to the Colfax County Manager and New Mexico State Forestry Division. Upon acceptance of a shelter

in place a site (by the County Manager and New Mexico State Forestry Division), the change in evacuation procedures from the Ute Park CWPP will be communicated to every property owner in Ute Park.

### **3. Canopy Density**

Because the density of the forest canopy directly affects the capacity to sustain a crown fire, the forested areas in Ute Park and on the Cimarroncita Ranch should be treated to achieve a canopy density that would not sustain a crown fire fanned by a thirty mile per hour wind.

Thinning trees in the forest canopy is the method for reducing canopy density, and in general requires spacing between tree crowns of not less than ten feet; however, specific guidelines would be developed based on the information listed in chapter four of the Colfax County CWPP under treatments, and should consider terrain, tree size and tree species.

The thinning recommended for the Ute Park area should begin in the summer of 2009, and finish in the fall of 2011.

### **4. Canopy Base Height**

The canopy base height is critical in preventing a surface wildfire from becoming a crown fire. The canopy base height needs to be higher than the expected flame length, and in Ute Park the longest expected flame length with a 20 mile per hour wind is 10 feet. On adjacent Cimarroncita Ranch the expected flame length is 9 feet with a 20 mile per hour wind.

The recommendation is to raise the canopy base height in Ute Park and on the north side of Cimarroncita Ranch to a height of 10 feet. The effort to raise the canopy base height will require both a pruning project and a ladder fuel removal project. The pruning project will remove all tree limbs that are lower than 10 feet. The ladder fuel project will require the removal of all smaller trees and brush that, when ignited would have a flame length of 10 feet, unless they are not positioned to ignite a taller tree. When smaller trees and brush are not positioned to ignite taller trees, they can be retained in the landscape.

The pruning and brush removal project should follow behind the thinning project, because of the potential for the thinning operation to remove much of the brush and limbs as the operation progresses. Such a sequence of projects could save considerable in expenditures of time and manpower.

The canopy base height project should begin in summer of 2009 and finish in the fall of 2011.

### **5. Colin Neblett State Wildlife Area**

The east boundary area of the Colin Neblett State Wildlife Area, from the northwest corner of Express Atmore Ranch to the southwest corner of the Cimarroncita Ranch, should be treated so as to minimize the threat of conveying a crowning wildfire into the Ute Park area. The entire distance of the Colin Neblett

boundary in common with the Ute Park area should be treated for a distance of at least one-quarter mile from the boundary into the wildlife area.

Considering that some of the Colin Neblett State Wildlife Area is too steep for conventional mechanical treatments, alternative methods of treatment should be used. One possibility is to engage the Rocky Mountain Youth Corp. and the use of hand labor and chain saws to implement the recommended projects.

The treatments should be designed to increase the canopy base height to 10 feet and in general space the tree crowns ten feet apart.

The Colin Neblett project should begin in the summer of 2009 and finish in the fall of 2019.

#### **E. FIRE DISTRICTS AND EQUIPMENT NEEDS**

The detailed information developed by this plan, about threats, risks and hazards to communities in the County show a need for fire districts to be capable of making the initial attack on a wildland fire. In order to meet that need, each organized fire district should be at least minimally equipped and trained to perform initial attack on wildfire occurring within their district boundary.

The plan recommends that each fire district become “initial wildfire attack ready” and that each year two fire districts acquire the “initial wildfire attack ready” status until all fire districts are equipped and trained to make the initial attack on a wildland fire. It is further recommended that the County Fire Marshal Office work with each district to secure funding necessary to achieve the status of “initial wildfire attack ready”.

There are 13 organized fire districts within the County, and each would respond to a wildfire within their respective boundaries, if they had the appropriate wildland fire training and equipment. Without appropriate wildfire fighting equipment, a fire district crew responding to a wildfire could place themselves and their equipment at risk.

Table 8 displays each fire district’s current needs in order to become minimally prepared as an effective wildland fire initial attack force.

Specifically related to training, the majority of the personnel are trained to the minimum of SB 130-190, to a level of 80%. The greatest training need is for the availability of the 200 series training and refresher courses for the 130-190. Because of the difficulty for volunteers to travel for training, local training is needed possibly through an adjunct program utilizing "train the trainer." In addition, Districts 2 through 5 need to be red carded.

There is a need for additional water tenders. The County has been using their fire excise tax and Fire Fund Grants to purchase tenders, but need additional funding in order to acquire tenders for all districts.

Table 8. Fire District and Equipment Needs

FIRE DISTRICT	TRAINING	WILDLAND PPE	HAND TOOLS	TYPE 6 VEHICLE	TYPE III PUMPER	COMM. SYSTEM	GPS RECEIVER
District 1 Philmont	X						
District 2 Miami	X				X		X
District 3 Ute Park	X				X		X
District 4 Farley	X				X		X
District 5 French Tract	X						
District 6 Moreno Valley	X						
District 7 Vermejo	X				X		
Cimarron Fire Department							
Eagle Nest Fire Department							
Maxwell Fire Department					X		X
Raton Fire Department							
Springer Fire Department					X		
Angel Fire Fire department							

X Indicates item needed

**Priority, Wildland Fire Initial Attack Ready**

Equipping each fire district with the equipment and training to make each district wildland fire initial attack ready is a high priority.

## F. PROPOSED PROJECTS SUMMARY

Table 9 lists the above mentioned proposed projects in order from high priority to low priority.

Table 9. Proposed Projects Summary

<b>PROJECT NAME</b>	<b>GENERAL LOCATION</b>	<b>DESCRIPTION</b>	<b>PRIORITY</b>	<b>START DATE</b>	<b>END DATE</b>
Lambert Hills	Cimarron	Pinyon-Juniper thinning	High	4 <sup>th</sup> Qrt 2008	4 <sup>th</sup> Qrt 2009
Mountain Meadows	Cimarron	Reduce dry grass fuels, obtain mowing machine	High	4 <sup>th</sup> Qrt 2008	Annually
Eagle Nest State Park	Eagle Nest	Reduce grass fuel load	High	4 <sup>th</sup> Qrt 2008	Annually
Lakeview Pines and Idlewild Evacuation	Eagle Nest	Develop an evacuation plan and a plan for improving emergency vehicle access	High	4 <sup>th</sup> Qrt 2008	4 <sup>th</sup> Qrt 2009
Miami Home Ignition Zone Evaluation	Miami	Evaluate home ignition zone for all structures	High	4 <sup>th</sup> Qrt 2008	4 <sup>th</sup> Qrt 2010
Ute Park Evacuation Plan	Ute Park	Develop alternative sheltering in place plan	High	4 <sup>th</sup> Qrt 2008	4 <sup>th</sup> Qrt 2009
Ute Park Canopy Density	Ute Park and Cimarroncito Ranch	Reduce canopy density in Ute Park and on Cimarroncito Ranch	High	4 <sup>th</sup> Qrt 2008	4 <sup>th</sup> Qrt 2010
Ute Park Canopy Base Height	Ute Park and Cimarroncito Ranch	Increase canopy base height in Ute Park and on Cimarroncito Ranch	High	4 <sup>th</sup> Qrt 2008	4 <sup>th</sup> Qrt 2010
Colin Neblett State Wildlife Area	Ute Park	Thin and increase canopy base height adjacent to Ute Park community	High	3 <sup>rd</sup> 2009	4 <sup>th</sup> Qrt 2019
Cimarron River and Ponil Creek Bottoms	Cimarron	Remove invading junipers along with dead and down material	Medium	4 <sup>th</sup> Qrt 2010	4 <sup>th</sup> Qrt 2015
Sawmill Site Residue	Cimarron	Facilitate removal of material	Medium	4 <sup>th</sup> Qrt 2008	4 <sup>th</sup> Qrt 2010

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