

**2015 Updated**  
**CATRON COUNTY**  
**COMMUNITY WILDFIRE PROTECTION PLAN**



**A Continuing Effort for the Protection of the Citizens  
Of  
Catron County, New Mexico**

Glyn Griffin, Chairman, Catron County Commission  
Mike Shriver, Catron County Fire Chief

Prepared in partnership with the New Mexico State Forestry Dept. and Catron County Rural Fire Departments.

The U.S. Forest Service, the US Bureau of Land Management and Catron County Rural Fire Departments, assisted Southwest Native Ecosystems Management LLC to complete this CWPP Update

## **ACKNOWLEDGEMENT**

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**SIGNATURES**

**APPROVAL**

The following HFRA designated Decision Making Officials approve this Community Wildfire Protection Plan

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Olyn Griffin, Chairman, Catron County Commission Date

*Doug Boykin* 7-15-15  
Doug Boykin, Forester, NM EMNRD, Forestry Division Date

*Mike Striver* 7/16/15  
Mike Striver, Catron County Fire Chief Date

**DECLARATION OF AGREEMENT AND CONCURRENCE**

The following partners in the development of this Community Wildfire Protection Plan have reviewed and do mutually agree or concur with its contents:

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Alan Aragon, Chief, Apache Creek Volunteer Fire Department Date

*Anella Russo* 5-26-16  
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*Alan Beatty* 7/19/16  
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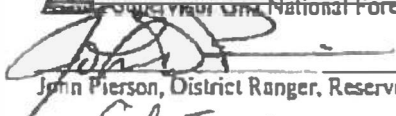
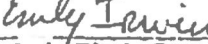

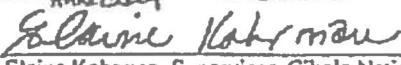

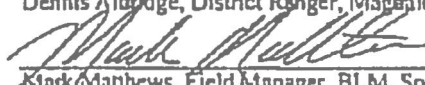
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Jerry Amstrong, Chief of Quemasdo Volunteer Fire Department Date

**DECLARATION OF AGREEMENT AND CONCURRENCE**

The following partners in the development of this Community Wildfire Protection Plan have reviewed and do mutually agree or concur with its contents: (continued)

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 John Pierson, District Ranger, Reserve RD	8/2/15 Date
 Emily Irwin, District Ranger, Quemado RD	8/1/2016 Date
 Bobbie Cross, District Ranger, Glenwood RD	Date
 Elaine Kohman, Supervisor, Cibola National Forest	8/12/2015 Date
 Dennis Aldridge, District Ranger, Magdalena RD	8/5/2015 Date
 Mark Matthews, Field Manager, BLM, Socorro District	7/21/15 Date

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**Photo 1.** 2012 Whitewater/Baldy Wildfire

## **PREFACE**

The 2006 Catron County Community Wildfire Protection Plan (CWPP) analyzed wildfire risks and was written to present the threat of wildfire for all of Catron County, N.M. This CWPP was developed in response to the Healthy Forests Restoration Act of 2003 (HFRA) and was the product of collaboration between County government, local rural volunteer fire departments, State and Federal agencies, local Soil & Water Conservation Districts and members of the public. This CWPP includes all land ownerships.

Due to the large land area and diverse landscapes that makes up Catron County, the 2006 Catron County CWPP addresses wildfire protection needs at the landscape scale. This CWPP was designed to provide data and guidelines for the development of project level (on-the-ground) localized CWPP's that address the ideas and needs of the local stakeholders. These localized individual CWPP's identified the areas of highest risk from catastrophic wildfire and the potential mitigation measure to deal with the risk.

This 2015 update of the 2006 Catron County CWPP does not attempt to reanalyze all of the factors addressed in 2006. The intent of this CWPP update is to review and update only the information that has changed since 2006 in order to make sure the County and local CWPP's still address the current conditions that exist in Catron County. A major task to be accomplished by this CWPP Update is to capture past mitigation treatments that have been completed and to identify the need for future mitigation needs based upon the current conditions found in the County.

This CWPP update process also aims to continue the coordination of the various hazardous fuels treatment programs with improving forest health, supporting local industry and local economies, and improving fire-fighting response capabilities. It is hoped that this CWPP Update will help bring about a new emphasis towards adaptive and collaborative management when dealing with reducing the risk of catastrophic wildfire in Catron County

# CATRON COUNTY CWPP

## INTRODUCTION

### Overview:

The Catron County's Community Wildfire Protection Plan (CWPP), along with this 2015 update, has been created to provide a landscape scale overview in order for direction and guidelines for short- and long-term wildfire risk mitigation planning in Catron County to be implemented. This CWPP and 2015 update does not intend to address all of the available research dealing with the need for managing forest fuels and all of the possible techniques used to mitigate wildfire risks; nor is the Catron County CWPP and 2015 update a discussion of legislation supporting such items. This CWPP and 2015 update is intended to provide landscape scale treatment priorities across Catron County for all land ownerships.

The Catron County Commission, through resolution in December, 2003, created an Intergovernmental Task Force for Expediting Reduction of Hazardous Fuels (Task Force). This Task Force was created to deal with real and perceived threats to the citizens of Catron County from wildfire. The Task Force realized that it could best accomplish its mandate through implementation of the requirements of the Healthy Forests Restoration Act (HFRA) and the creation of Community Wildfire Protection Plans. The Task Force also realized that to meet the intent of HFRA they needed more than just a plan that addressed *community specific* Wildland Urban Interface (WUI) area wildfire protection. They realized the need for a *landscape scale, county-wide plan* that addressed large catastrophic wildfire risk. Reasons for this decision in 2006 included:

- Catron County's population is spread throughout the entire 7000 square mile county area with only a few minor concentrations of people in small community centers;
- Expertise and citizens involved are similar from one community to the next;
- Collaboration between governing bodies is already in place county-wide;
- Recent extremely large wildfires in nearby forests (e.g. Rodeo-Chedeski) indicate a need for landscape scale planning.

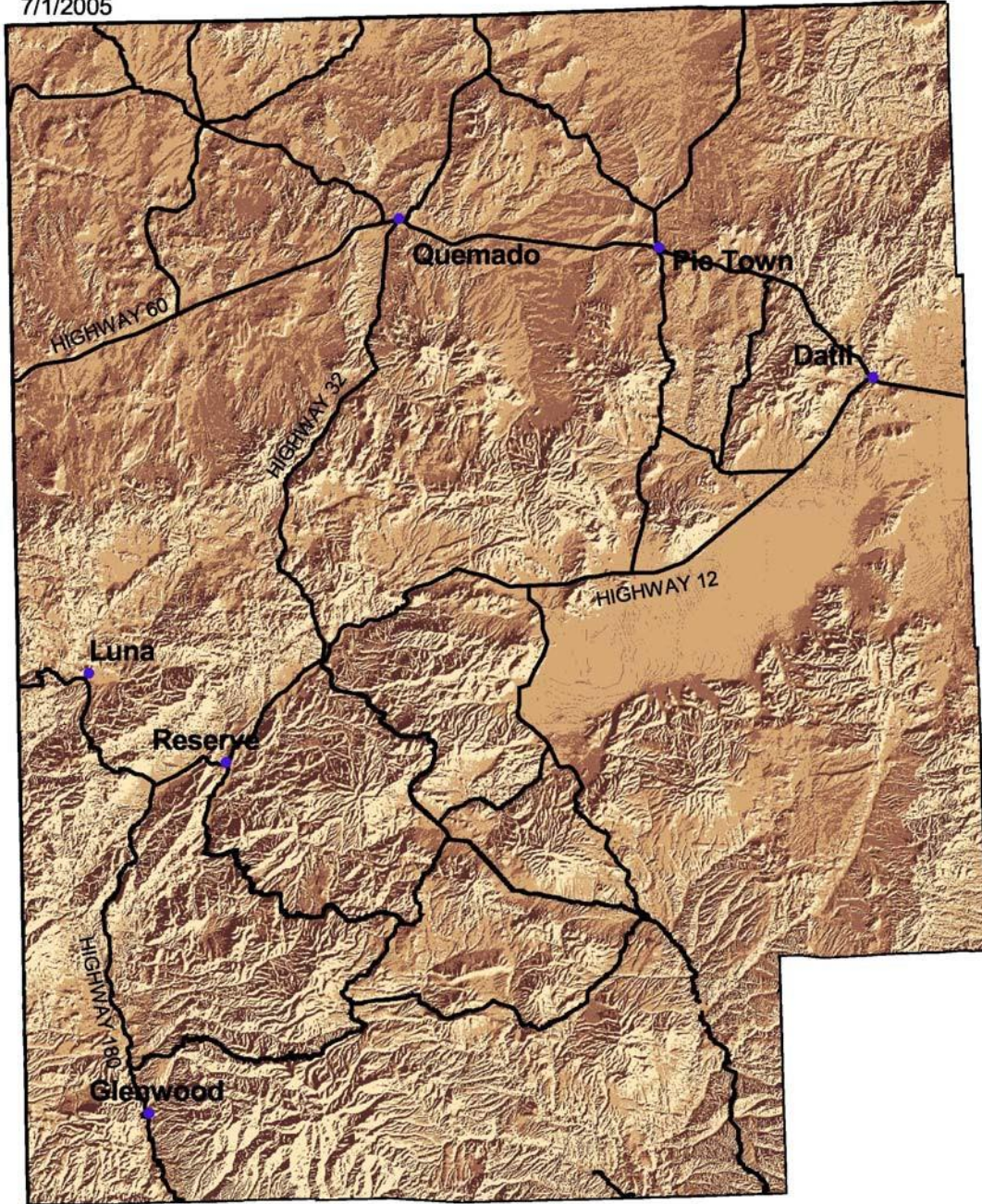
The Task Force also agreed that because the scope of a countywide assessment would be very large, a process would need to be established to determine priorities for where treatments would occur. They also felt there would be a need to address the use of raw materials generated by implementing fuel treatments at a landscape scale.

The Task Force also decided that project level planning would be subsequent to the Catron County CWPP. Project level planning and associated funding requests would be accomplished using this plan and any updates as a guide to determine project location, treatment methods used and the amount of area to be treated. Examples of project level planning for the 11 highest priority WUI areas are included in the appendix along with example maps for the highest priority WUI areas.

This 2015 update of the Catron County CWPP recognizes and continues the decisions made by the Task Force when creating the initial 2006 Catron County CWPP.



7/1/2005



**Shaded Topographic Relief Map**

**Catron County Community Wildfire Protection Plan**

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## **Goals and Objectives**

The goal of the Catron County CWPP is to be a plan developed by and for the stakeholders (private land owners, managers of the public lands, and people who use the land) that will protect the values of those stakeholders from damage or loss by wildfire.

The objectives of the 2015 updated Catron County CWPP are to:

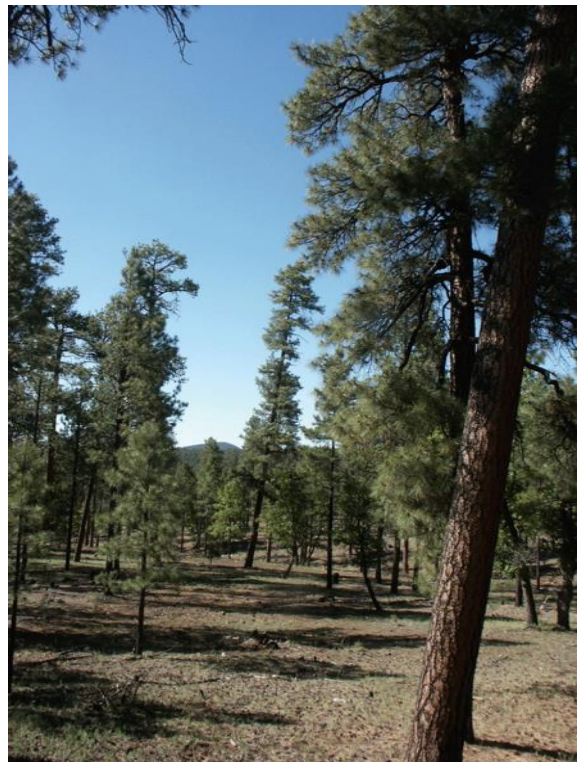
1. Address the need for mitigation of wildfire risk at a county-wide landscape scale.
2. Identify the areas and values most at risk from catastrophic wildfire.
3. Develop and prioritize treatment needs based on the values to be protected and the current level of risk at the WUI/Community level.
4. Suggest mitigation actions for the protection of life, property, critical infrastructure and wildland values in the County, based on:
  - Optimum treatment efficiency
  - Lowest treatment cost
  - Highest benefit to local economy
5. Provide the information and planning necessary to develop priority WUI areas and local Community Wildfire Protection Plans.

## **Desired Future Condition**

The 2015 updated desired future conditions for the Catron County WUI areas are:

- 1) A well-established wildfire safe environment where fuel levels around residential structures and critical infrastructure features are managed at a level that provides "defensible space" for firefighters in the event of a wildfire spreads into the WUI area.
- 2) In the surrounding forest and rangeland areas there is active resource management that reduces the natural accumulations of both woody and herbaceous fuels that can carry wildfire into the WUI area.
- 3) Adequate wildfire and structural fire suppression capabilities are in place and maintained in the local communities.
- 4) Ingress and egress into and out of areas of human habitation is capable of providing for safe passage of residents out of harm's way and is adequate for emergency equipment to enter into the area during emergency situations.

Successful protection of landscape scale and the priority WUI areas in Catron County from catastrophic wildfire is highly dependent on the condition of the vast areas of wildland forests, woodlands and grasslands that are found across the County. Treatment of WUI areas alone cannot protect these critical areas fully if the surrounding forests, woodlands and grasslands are subject to catastrophic wildfire.



**Photo 2.** Well Managed Forest

## **Relevant Authorities**

This Plan has been guided by the policies and authorities cited below. Please refer to *Appendix 3 – Data* (page 4) for details.

### Federal

- The Healthy Forests Restoration Act (HFRA)
- The Healthy Forests Restoration Initiative (HFI)
- Western Governor’s 10-Year Comprehensive Wildfire Strategy
- The National Fire Plan (NFP)
- The Disaster Mitigation Act of 2000 (DMA 2000, Public Law 106-390)
- Federal Wildland Fire Policy

### State

- The New Mexico Fire Planning Task Force (NMFPTF)
- The New Mexico Fire Plan
- 20 Communities Initiative (New Mexico Fire Plan).

### County

- Hazardous Fuels Reduction Task Force established (CCR 018-04, 12/03/03)
- Commission vote for initiating the CWPP (06/04/04)

### Village of Reserve

- Ordinance prohibiting the burning outdoors of trash, refuse or garbage within Village limits. (Ord. No. 2002-01)

## **Planning Area Boundaries**

In this CWPP, Wildland Urban Interface (WUI) has been defined as 1) an area in or adjacent to a community, including isolated parcels of private property containing structures that are threatened by wildfire 2) infrastructure adjacent to or surrounded by wildland areas where wildfires poses a threat, or 3) watersheds that contain significant structures or other features that are threatened by wildfire. Each of these areas has topographic features and fuel conditions (fuel type, fuel loading and arrangement) that have the potential to endanger the WUI area.

The definitions in the Healthy Forests Restoration Act (HFRA) for "at risk community" and "WUI" were used as guidelines for development of collaborative identification of WUI areas. The criteria to be used when establishing WUI boundaries in this CWPP were:

1. Fuel Hazard Threat Level
2. Risk of Occurrence
3. Values at Risk

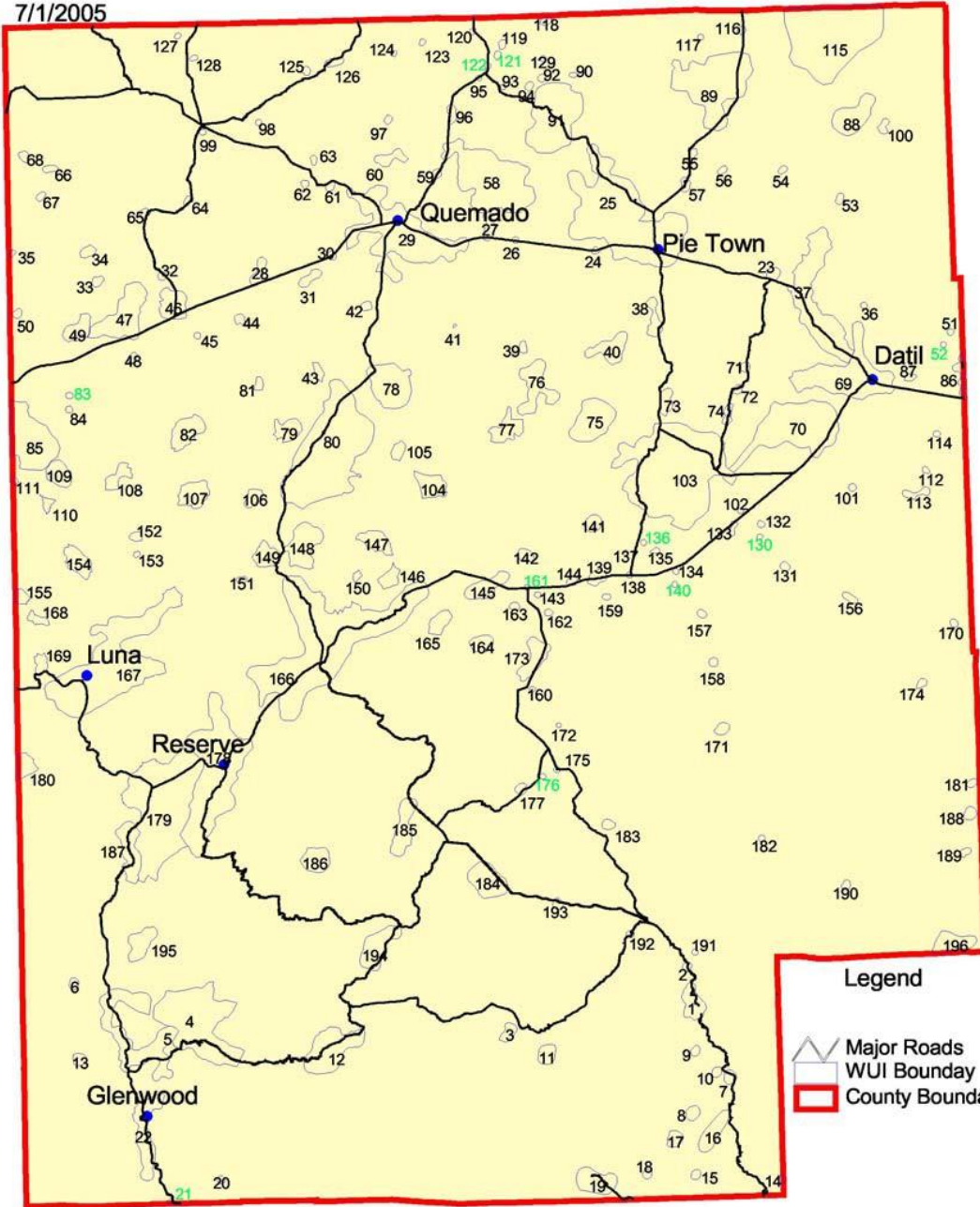
The process of establishing WUI area boundaries is described in detail in Appendix 3, three important points of the process are:

1. All homes and business structures were included in a WUI area.
2. E911 address Geographic Information System (GIS) data files were used as the base for determining the location of structures needing protection.
3. WUI area boundaries are designated both by mapped boundaries and by description of the criteria used to establish and modify boundaries.

The result was 196 WUI areas containing 519,412 acres with an average size of 2,650 acres were identified. The largest of these WUI areas is 36,695 acres and the smallest is 33 acres.

*See Appendix 3 – Data* (page 8) for more information regarding WUI areas.

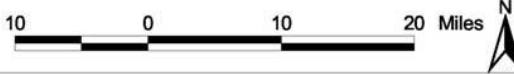
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### Wildland Urban Interface (WUI) Areas

### Catron County Community Wildfire Protection Plan

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## **History**

In cooperation with federal, state, local and tribal governments and private citizens, the New Mexico Energy, Minerals and Natural Resources Department's (EMNRD), Forestry Division developed the "20 Communities Initiative" in 2000. This group was established in New Mexico in response to the disastrous wildfire season of 2000 and has accomplished significant on-the-ground work.

An Intergovernmental Task Force for the Reduction of Hazardous Fuels was established by the Catron County Commission December 3, 2003, coincidentally on the same date the Healthy Forests Restoration Act (HFRA) was signed by President Bush. The Task Force was composed of representatives of the Catron County Commission, the U.S. Forest Service, the U.S. Bureau of Land Management, the N.M. State Forestry Department, local Soil and Water Conservation Districts and local fire departments. As the Task Force members began to fully understand the value of the Healthy Forests Restoration Act and the need for a Community Wildfire Protection Plan, it became apparent that the Task Force needed to be dissolved and a new group established to focus on the development of a CWPP. An additional recommendation of the Task Force was to establish a separate Marketing Strategy Group which was also accomplished by resolution of the Commission. The purpose of the Marketing Group was to accomplish the development of needed wood products industries.

The Community Wildfire Protection Plan Core Group (Group) was established by resolution of the County Commission June 4, 2004. This Group is responsible for the development of the 2006 Catron County CWPP and all of the individual community CWPP's. The 2006 effort to develop the 11 community and 1 county-wide CWPP's has been successful in getting much needed fuels treatment work completed in Catron County, but the time has come to update the 2006 CWPP's, which is the purpose of this document.

## **PLANNING PROCESS**

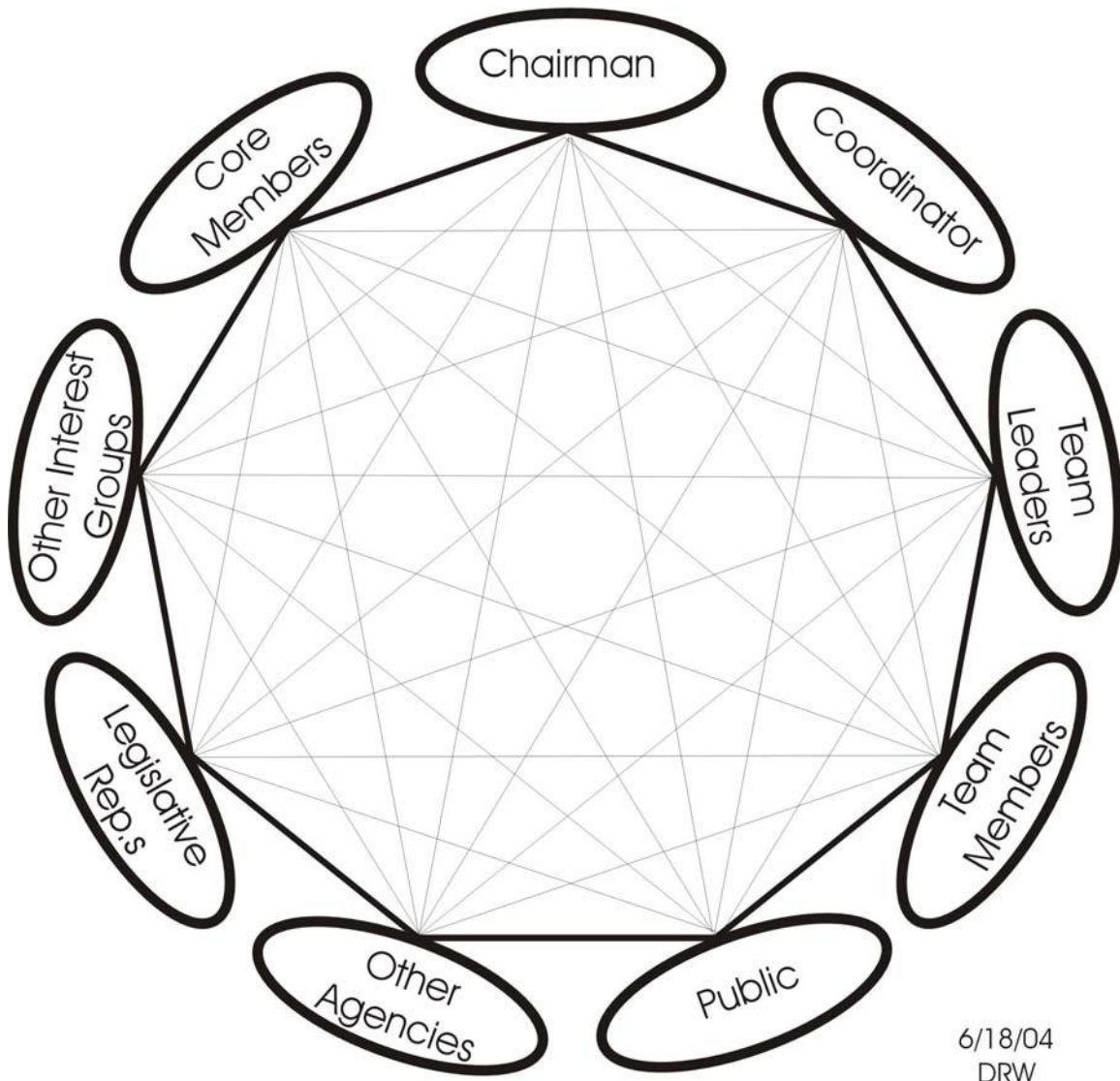
### **Collaboration**

Full collaboration with all parties who were interested in participating was the cornerstone of the 2006 planning and analysis processes. This was not difficult, since collaborative relationships to deal with forest restoration issues had been developed over the course of many years through efforts of the 20 Communities Task Force, Community Wildfire Protection Plan Core Group and Catron County Citizens groups. The work of these groups involved all governmental agencies and many members of the public.

Other Catron County groups such as the Health Council and Fire Chiefs Association have also contributed to the collaborative process. The Volunteer Fire Departments in the County have been very involved in the 20 Communities group efforts to improve fire suppression, mitigation and prevention since the inception of the group in 2001.

Collaboration between the various agencies and groups that went into the writing of the 2006 CWPP's was the key to the successful completion of this effort. The Catron County Commission was the lead agency and fully supportive of collaboration. While it was not necessary to go through the same level of collaboration between the various agencies and groups in order to update to the 2006 CWPP's, there has been no lack of all involved agencies, groups and other entities supporting and contributing to the 2015 Update efforts.

# Catron County Community Wildfire Protection Plan Core Group Organizational Structure



## **Methodology**

In the process of developing the 2006 CWPP, the CWPP Core Group created three teams: Public Involvement, Analysis and Writing. Early in the process the Core Group and teams agreed on several guiding principles:

- The Plan would follow the guidelines provided in the *Handbook for Wildland–Urban Interface Communities, Preparing a Community Wildfire Protection Plan* sponsored by the Communities Committee, the National Association of Counties, the National Association of State Foresters, the Society of American Foresters, and the Western Governors’ Association
- The analysis would be on a landscape level, that is, it would include the entire County and all ownerships
- All homes/businesses would be in WUI areas.
- The analysis would include three levels or scales: County, Watershed and Wildland Urban Interface.
- All interested parties would be invited to participate:
- Threatened and Endangered species habitat would be viewed as a priority for treatment.

It was further agreed that the intention of the 2006 CWPP would establish a framework, information and priorities from which on-the-ground planning and actions would be developed. This on-the-ground planning would result in detailed CWPP’s for the individual communities. These CWPP’s would provide specific on-the-ground projects needed to mitigate the risks that were identified for each of the communities.

This 2015 update of the 2006 CWPP’s keeps the process used to develop the 2006 CWPP’s intact and only serves to introduce current information and current needs for mitigation into the already implemented Catron County CWPP. This 2015 update does not attempt to re-analyze all of the data that went into the development of the 2006 CWPP.

## **Public Involvement**

In development of the 2006 CWPP there were two stages of public involvement. The first stage was conducted before any analysis had begun. The objective of this first stage was to get public input before any decisions had been made about the analysis content.

The approach to public involvement incorporated an “Interest Based Planning” concept, which framed the questions to the public: “What and where are your interests that would be threatened by a wildfire”, “How would you rate those interests for importance in determining the priorities for reduction of the wildfire threat?” and “What should be done to reduce or mitigate the wildfire threat to your interests?”

The resulting information was included in development of the computer models, which analyzed all data and generated the locations and priorities of areas needing treatment. The goal of the Interest Based Planning approach was to involve as many people and interests (or points of view) as possible in the development of the CWPP.

To raise the level of awareness of the CWPP and the desire for public involvement, articles were published in various local newspapers and an interactive booth was set up at the August, 2004 County Fair. Brochures and posters were printed and placed in public areas around the county.

Dates were set for public meetings to be held simultaneously around the county on October 6, 2004 and, using a Gila National Forest mailing list as well as County property ownership data, direct mailings were sent to all residents of Catron County, as well as to special interest groups, tribal governors and federal and state legislators, inviting them to these meetings. Additional invitations were offered for special meetings for any group, which so desired, and any individual who wished to comment, but could not attend a meeting was provided with phone, email and mail addresses so they could submit their comments.

A script was written to ensure that all presentations would be the same. Those who attended were asked to provide examples of their interests. These were written down on flip chart paper for all to see.

Participants were then given a limited number of dots and asked to vote for the interests which they felt were most important by placing dots next to each interest.

Participants were then asked what they felt should be done about protecting these interests, and were provided time to contribute any other comments they felt relevant.

The data from these meetings was condensed to seven prioritized concerns as shown in the following table.

**Public Interest Meetings Summary Concern Category listed by Priority**

<b>Concern Category</b>	<b>Priority</b>
Homes/structures	1
Economy	2
Public Safety	3
Infrastructure	4
Watershed	5
Wildlife Habitat	6
Recreation	7

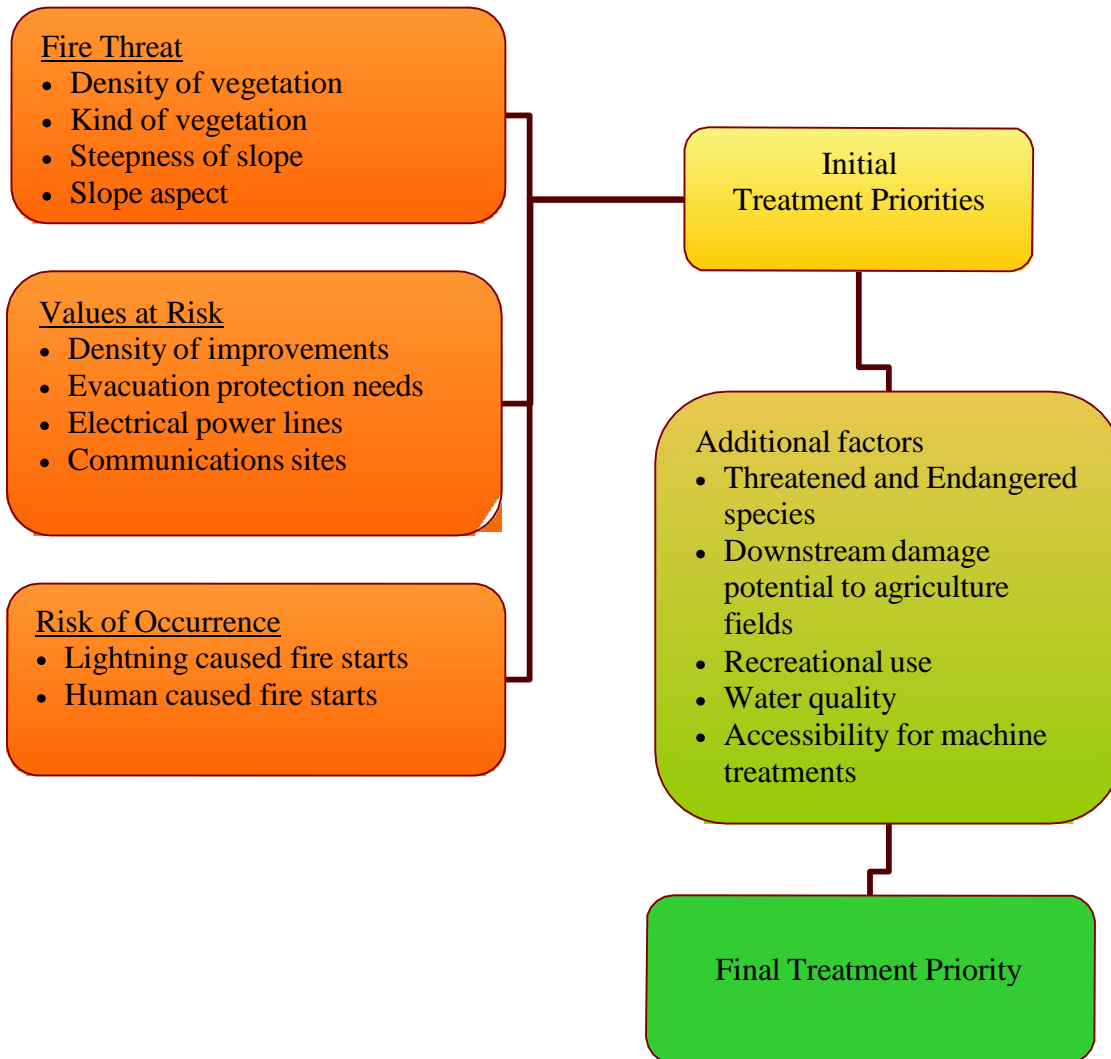
The concern categories and their priorities as shown above were used to aid in the design of the analysis models and weighting constants used to determine and map the treatment priorities. There is no indication that these 2006 CWPP concerns and their priority have changed and these concerns are being carried forward into the 2015 CWPP update.

**Analysis**

The Analysis Team designed the analysis/model using the first stage public input, professional expertise and national guidance from the publication "Preparing a Community Wildfire Protection Plan", a handbook sponsored by Communities Committee, National Association of Counties, National Association of State Foresters, Society of American Foresters and the Western Governors' Association.

Four basic components were chosen for the analysis; fire threat, values at risk, risk of occurrence and treatment priority. The first three components and their factors determined the initial treatment priority at the county and HUC 6 levels of analysis as well as the final treatment priority at the WUI area level of analysis.





The assignment of values for the above components are explained in detail in *Appendix 3 – Data* (page 33)

**Collection and Preparation of Data**

An Information Needs Assessment (INA) was done to outline the information needed to accomplish the desired analysis. A copy of the INA is in the project record. Geospatial data was acquired from many sources including the Gila and Cibola National Forests, Catron County, BLM, The Southwest Regional Gap Analysis Project, SWNM Interagency FRCC, electric power companies and telephone companies. Over 100 maps of data were collected and processed to produce 20 input maps for the main model and 9 input maps for the WUI model. Without the cooperation of many agencies and individuals it would have been impossible to assemble the data needed for this analysis.

## **Model Development**

Extensive testing of trial designs were involved in developing the modeling portion of the analysis. The analysis concepts were first modeled in a spreadsheet environment. The results of these tests received extensive peer review by wildlife biologists, foresters, fire management specialists and geographic information systems experts involved in this project.

The actual model was developed in the GIS program ArcView and is in two parts. The first is a model to determine the treatment priorities at the County and HUC 6 watershed levels. The second part is an adaptation of the "initial priority" portion of the first model and was used to determine the treatment priorities at the WUI level of the analysis. A full explanation of the model can be found in *Appendix 3 Data* (page 29)

Weighting constants as explained in more detail in Appendix 3 were based on public priorities of concerns and were used to give appropriate weight to the various components of the analysis outlined above. See *Appendix 3 Data* (page 54)

The final treatment priorities for HUC 6 watersheds and WUI areas were determined by a weighted average of model calculations for individual cells as shown in the Final Priority maps for HUC 6 watersheds and WUI areas. See *Appendix 2 Maps 27 & 29*.

## **Model Validation**

Model validation is an ongoing process. As planning of individual communities and projects developed, the results of the analysis was checked in detail on the ground.

The model for this plan summarized data about existing conditions into relative ratings of high, medium and low for fire threat and treatment priorities and was quite simple as models go. The most complicated part of the math is about 8th grade level and most is simple addition and multiplication. The model is not predictive, i.e. it does not predict future condition or behavior resulting from the existing conditions and variables such as weather and/or different methods of treatment. Validation of a model such as used for this plan is very different from the validation of the accuracy of a predictive model.

The validation of the model used for this plan was built into the planning process so that there would not be "last minute" validation to be done after the analysis was completed. The initial test modeling was done in a spreadsheet where the various factors to be considered, their assigned values and the weighting of those factors were arranged to determine ratings for fire threat, values at risk, risk of occurrence and treatment priority. Test calculations in this spreadsheet enabled easy checking of the math due to the small scale, for example: the maximum and minimum possible for each numerical rating was calculated to determine the full range possible for each rating. This spreadsheet model was developed, revised and perfected through discussions about the factors, values and their relative importance with the analysis team, core group members and with fire management and fire ecology specialists (some of which have advanced degrees, all of which have extensive experience). Also public input on the factors and weighting (relative importance) of the factors was used to revise and validate the proposed process.

The GIS model (using model builder) in ArcView was then built by simply entering the calculations developed in the spreadsheet and appropriate GIS data sources. Test runs of the model confirmed that the model calculation results were the same as in the spreadsheet tests. Then full scale runs of the

model gave map and data results that were reviewed and compared with maps and data of the existing conditions and with available Gila NF modeling of Fire Regime Condition Class. The model results were presented at various core group and public meetings across the County and some outside the County such as before the New Mexico Task Force for Fire Planning in Santa Fe. A technical review of the model was made by the Gila NF Fire Ecologist and a certified ESRI (ArcView, etc) instructor (USFS Contractor). To date no unexpected anomalies have been found in the results.

There is no indication that the modeling done in the 2006 CWPP was invalid or needed to be changed. The risk assessments produced from the 2006 modeling efforts are being carried forward into the 2015 CWPP update.

The only changes to the 2006 modeling results that are being recognized and dealt with in the 2015 CWPP update are where conditions have changed significantly due to either completed fuel treatment projects or the occurrence of major wildfires that have substantially altered the vegetative communities growing in and/or adjacent to the WUI areas. There is no indication that the population or development within the communities has change enough to significantly change the results of the 2006 modeling effort.

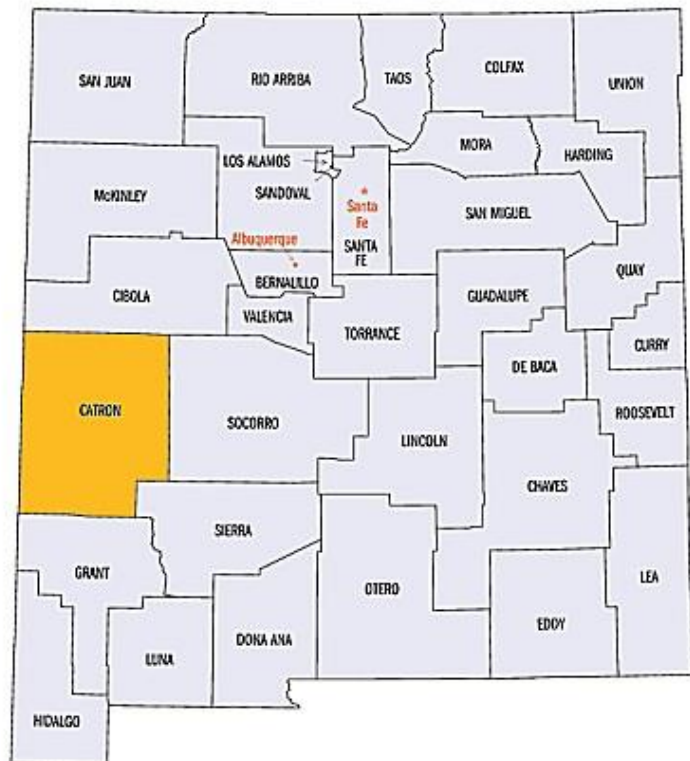
## **COMMUNITY PROFILE**

### **County Description**

Catron County contains 6,898 square miles and is the largest county in New Mexico. It is located in the west- central part of the state along the Arizona border.

The county is bounded by Cibola County on the north, Socorro and Sierra Counties on the east and Grant County to the south. The County is about 180 air miles due northwest of El Paso, Texas, 120 air miles southwest of Albuquerque, 200 air miles northeast of Tucson, AZ.

With a 2013 estimated population of 3,607, Catron County is one of the least populated counties in the lower 48 states. The low population density is partially due to the fact that over 75% of the county is public land administered by the U.S. Forest Service, the U.S. Bureau of Land Management, other Federal agencies, and the New Mexico State Land Office.

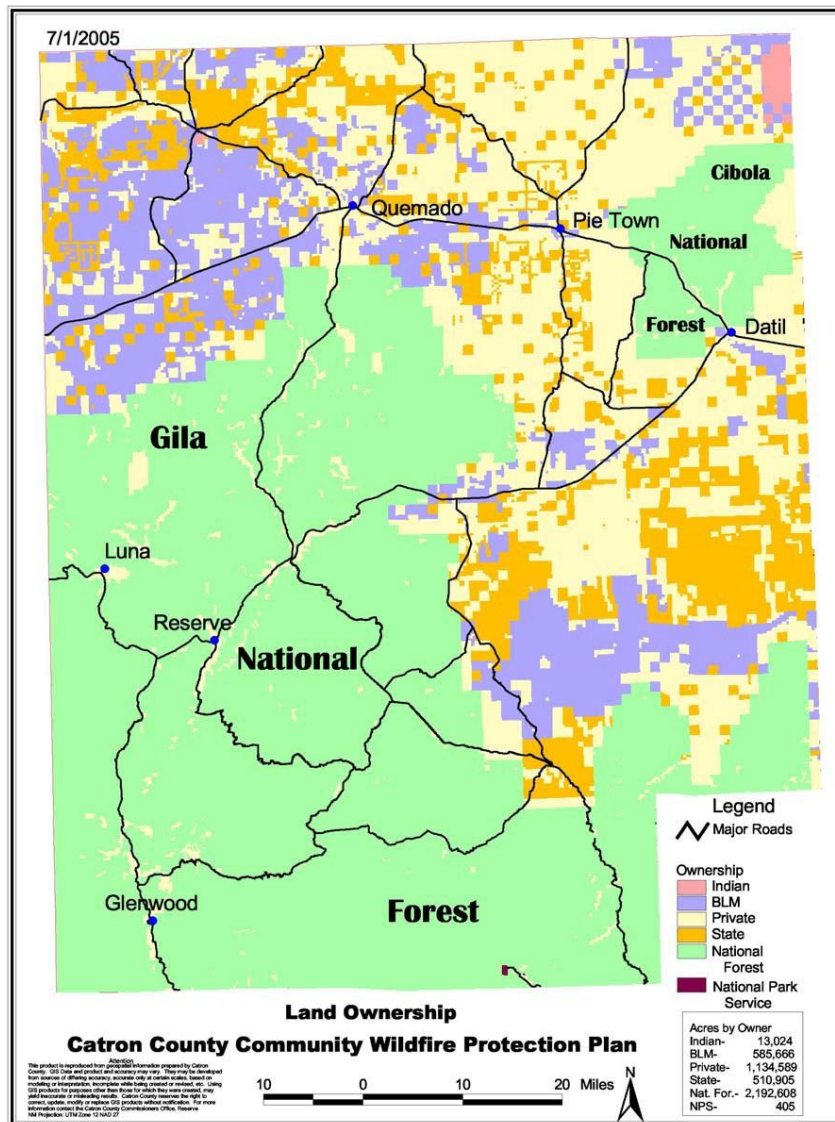


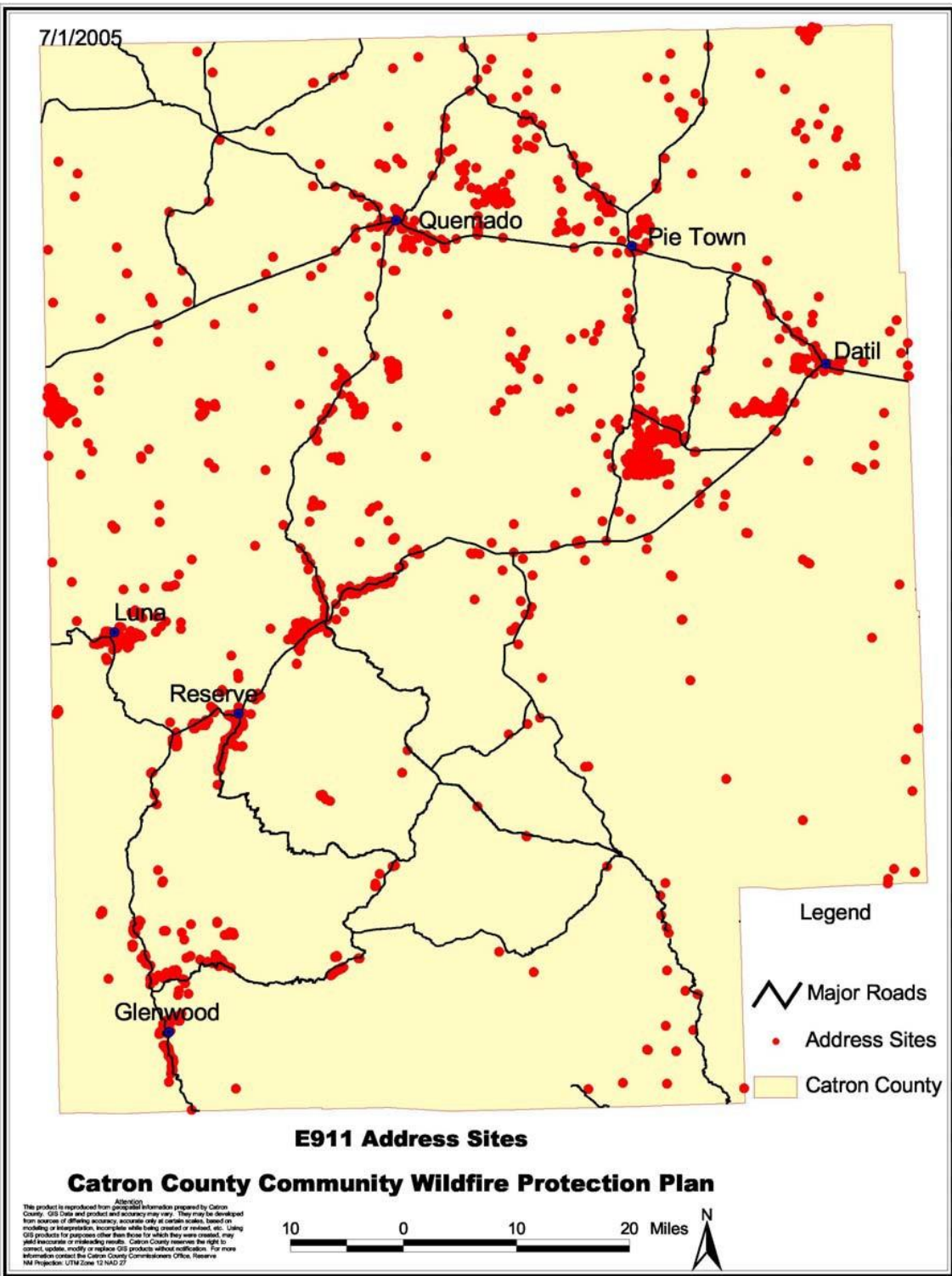
Reserve (population 289), county seat, is the only incorporated community in the county. Glenwood (population 143), Quemado (population 228), Pie Town (population 186) and Datil (54) are the major communities dispersed throughout the county. The population figures shown are from the 2010 census

and came from the US Census American Fact Finder. These population figures represent the core population for these communities and do not include the population of all of the scattered residences in the area surrounding these communities.

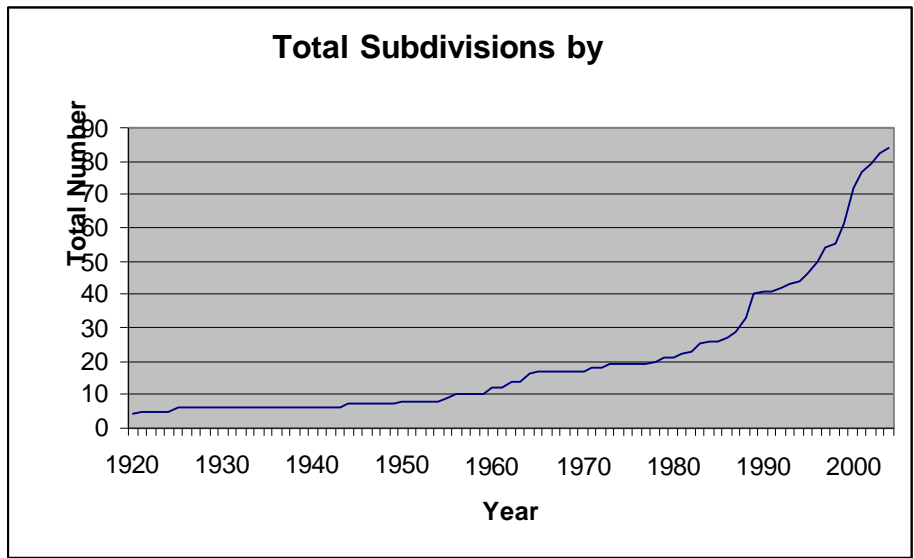
Land Ownership	Acres
National Park Service	405
Tribal	13,024
State	510,905
BLM	585,666
National Forest	2,192,608
Private	1,134,589

Other political subdivisions in Catron County include portions of the Gila, Cibola, and Apache National Forests, and the Gila Cliff Dwellings National Monument. Within these National Forests are the Gila and Blue Range Wilderness Areas. There are three Soil and Water Conservation Districts in Catron County: Quemado, Salado and San Francisco.





Catron County experienced an influx of new residences during the period 1990 to 2005 due to the aesthetics and location of the County (central to Tucson/Phoenix, El Paso and Albuquerque), as well as the low property prices and low property taxes. Due to economic pressures, large tracts of privately owned land, generally ranches, were sold off to land developers. These parcels of private land were being developed into summer vacation home and primary residential lots, as well as being bought up as investment properties, at a significant rate during this period. The following chart shows the dramatic increase in the number of subdivisions that were developed in period of 1990 to 2005.

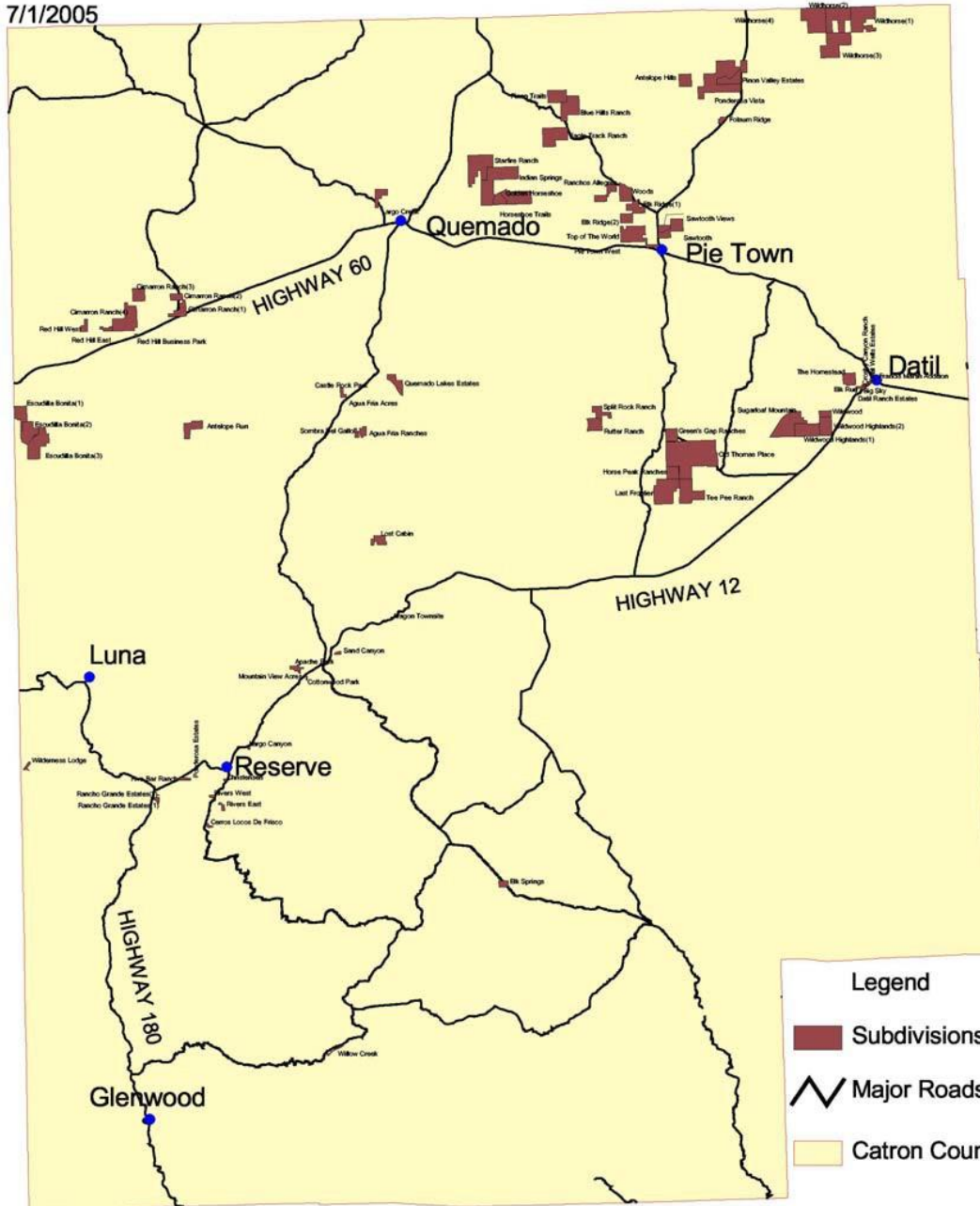


Starting in approximately 2009 when the economy of the US slowed dramatically, the development of subdivisions and the growth rate of Catron County slowed to almost nothing. The population growth of Catron County has been less than 1% per year for the period 2010 to 2014.

The recent lack of population growth in Catron County along with the struggling economy has made it harder for the County to provide the essential fire protection services that the public has come to expect in the past. Without the Federal “*Payment in lieu of*” funds to the County, Catron County would have a very hard time supporting the current number of Volunteer Fire Departments that currently exist. Also the County would not be able to engage in any fuel treatment activities and would have to depend totally on outside grants to support any of the mitigation measure planned in the Catron County CWPP.

During the process of gathering the information to complete the 2015 update to the Catron County CWPP it became very obvious that the US Forest Service and BLM are both experiencing a decline in their budgets and will not be able to complete nearly as much fuels management work as they have been able to do in the past. In the foreseeable future in Catron County, fuel treatment projects on federal land will take place at a much slower rate than occurred in the past since not nearly as much funding will be available each year to do the work.

7/1/2005



**Legend**

- Subdivisions
- Major Roads
- Catron County

**Subdivisions**

**Catron County Community Wildfire Protection Plan**

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**Note:**  
Subdivisions shown are those possible to be located from County Plat records. There are a few of the older subdivisions with poor plat survey records that are not shown.

## **Land Form & Geology**

The geologic features of Catron County which have evolved over time can be classified by distinct patterns of land forms, known as physiographic provinces. The northern portion of Catron County lies within the Colorado Plateau Province, which is characterized by scarped tablelands with broad valleys and scattered local canyons.

This physiographic provinces is located within the mid to upper elevation range in New Mexico. This physiographic provinces is generally associated with the pinyon/juniper savannah and open grassland vegetative communities that are often referred to the high cold desert regions of New Mexico. The annual precipitation for this region usually averages around 12 to 14 inches per year, but can be well below 10 inches a year during periods of drought.



**Photo 3.** Example of the Colorado Plateau Province.

The remainder of Catron County lies within the Datil-Mogollon province, a transitional area between the Colorado Plateau and the basin and range landscape to the south and east. It is characterized by widespread volcanic flows, high tablelands and scattered fault block mountain ranges. Elevations range from a low of 4700 feet in the Glenwood area to nearly 10,900 feet in the Gila Wilderness, which is bisected by the Catron/Grant county line. This physiographic provinces is located within the mid to upper elevation range in New Mexico. This physiographic provinces is associated with the dense pinyon/juniper woodlands, ponderosa



**Photo 4.** Example of Datil-Mogollon Province

pine and mixed conifer vegetative communities that are considered to be the forest regions of New Mexico. The annual precipitation for this region usually averages around 15 inches per year, but can be above 20 inches a year for the higher elevation mountain ranges.

The major surface water basins, as designated by the U.S. Geological Survey, which are located within Catron County are the Lower Colorado River Basin and the Rio Grande Basin. The major sub-basins within the Lower Colorado River Basin in Catron County include the Carrizo Wash, Little Colorado, San Francisco and Upper Gila 4<sup>th</sup> code watersheds. The major sub-basins within the Rio Grande Basin include



the North Plains, Rio Salado and Plains of San Agustin 4<sup>th</sup> code watersheds. The San Agustin Plains, in the northeastern portion of Catron County, lies within a closed basin which was formed under a large Pleistocene lake and today is considered a dry lakebed or playa.

Major mountain ranges in Catron County include the Mogollon, San Francisco, Tularosa, Mangas, Gallo, Blue, Datil, Crosby, Sawtooth, Allegras, Horse, and Pellona Mountains.

### **Climate**

Catron County is generally a semi-arid region with a seasonal precipitation pattern. The two periods in which most of the precipitation falls is summer and winter. The spring and fall seasons are generally much dryer than the summer and winter. Most wildfires generally occur in the late spring and early summer, and are associated with dry lightning storms that occur during the first few weeks of the summer monsoon season. In years where the summer monsoon season doesn't develop and the summer precipitation is lacking, a fall fire season can occur.

With an area the size of Catron County, as might be expected, climatic conditions can be highly variable. Although the higher elevation portions of the County generally receive more precipitation and the occurrence of precipitation is more dependable, there are no two years where the precipitation amounts and timing have been the same.

Due to the relatively limited number of weather stations where continuous data is available, only gross weather related generalizations can be made for many areas in Catron County. This lack of continuous reliable data makes it hard to predict the year to year growth and moisture content of the vegetation, especially the fine fuels. Yearly the measurement of fuel moisture contents for the various sizes of fuels is the only reliable way to track changes in fuel flammability and the risk of catastrophic wildfires.

The mean annual precipitation in the lower elevations is generally between 8 to 12 inches. The mean annual precipitation in the mid-range elevations between the flatlands and upper mountain areas ranges from about 12 to 16 inches and the mountain areas within the Gila and San Francisco River Basins ranges from about 16 to 30 inches with the average being near 20 inches.

Precipitation in the form of snow can occur as early as October and last sometime into May in the mountain areas, with most snowfall occurring between December and February. The mean annual snowfall ranges from about 0.3 inches in the lower elevations to 36.4 inches at higher elevations. Spring run-off is highly variable in both the amount and timing. Depending upon the annual snowpack in the higher elevations, spring run-off can range from very little to a flood. The timing of when things warm up in the spring dictates when the spring run-off occurs. The spring run-off, when there is enough snowpack for it to occur, can occur any time from late February to May

### **Soils**

Soil types described in U.S.D.A. Natural Resource Conservation Service (NRCS) soil surveys are used to classify the soils in Catron County as described in this CWPP. The soils are grouped into major categories; Datil-Mogollon physiographic province soils in the southern portion of the county and Colorado Plateau Province soils in northern portions of the county. The soils in each physiographic province are subject to significant variation of depth and texture due to differences in underlying geologic materials, weathering and biological factors.

Soils in the southern Datil-Mogollon province tend to be formed from various volcanic flows and tend to be classified as andesite type soils. These soils are generally not very deep when located on mountain slopes where woodland vegetative cover is absent, but in forested areas where adequate ground cover exist these soils are usually thick with a much higher content of organic material. Where these soils have been able to incorporate organic material into their structure they are moderately fertile and support a wide variety of vegetative growth.

The soils in the broad flood plain reaches of the Gila and the San Francisco River valleys are alluvial deposits generated from the mountainous regions of the Datil-Mogollon province. These soils contain high percentages of sand and silt. These soils are usually deep, well drained and when they contain a moderate to high percentage of organic material, they are well suited for agriculture use.

The soils in the northern part of the County which is contained in the Colorado Plateau province, are derived mainly from volcanic tuff formations such as Gila conglomerate. These soils are classified as being in the Datil and associated soils groups and are generally not very fertile soils. They have a moderate to high clay and calcium carbonate content and are highly erodible. These soils when found in closed drainage basins, where run-off from higher elevations collects, tend to be high in soluble minerals, and are often considered to be alkaline soils which only supports a small suite of plants that are adapted to growing on high alkaline type soils.

The soils that makeup Catron County tend to be limited in their ability to support some types of plant communities. Many areas exist that are highly susceptible to severe soil erosion after a catastrophic fire. These areas must be protected from being denuded of vegetation in order to protect their productivity and ability to support native vegetative communities. For a description of these critical soils see *The Soil Survey of Catron County NM* available from the NRCS and USFS.

### **Vegetation**

Native vegetation is very dependent upon the geographic location, climate and geology of the area where it grows. As stated above in the description of the Land Form and Geology section, Catron County is located in two major physiographic provinces which influences the makeup of the vegetation growing in the area. There is a variety of vegetative communities that occur in Catron County due to the large variation in elevation and geology that occurs in the County.

Much of the southern and western portions of the County are made up of mountainous terrain which supports woodland and forest ecosystems. The northern and eastern portions of the County are made up of broad valleys with scattered mesa and low rolling hills. This portion of the County generally supports a variety of woodland and grassland ecosystems.

The headwaters of the Gila River and a portion of the San Francisco River which support stands of cottonwood/willow and sycamore/alder ecosystems, are located in the western and southern portions of the County. The northern and eastern portions of the county are located in the Little Colorado and Rio Grande basins which supports some cottonwood/willow riparian vegetation, but most drainages support salt cedar and other invasive species.

The two vegetative communities represented in the following Photos 5 & 6 are the plant communities that makeup the WUI areas that are of most concern in Catron County.

The first and most critical of the vegetative ecosystems that need to be managed to reduce the threat of catastrophic wildfire is the ponderosa pine vegetation type. The majority of this vegetative community is found in the western half of Catron County at elevations above 6000 ft. This vegetative community is the most studied vegetative community in the Southwest due to the high economic returns that have come from harvesting the timber produced in these



**Photo 5.** Ponderosa Pine/Arizona Fescue Vegetative Community. Willow Creek Mesa ecosystems. The Southwest ponderosa pine forest is a fire adapted ecosystem that historically burnt approximately every 14 years. Without periodic wildfires this ecosystem tends to support dense stands of small trees and the accumulation of fuels which is prone to catastrophic wildfire. When this vegetative community occupies the WUI, efforts to manage the accumulation of woody debris and the overstocking of trees using the appropriate forest management techniques is very important.

The second vegetative community that is found in the critical WUI areas of Catron County is made up of various the pinyon/juniper ecosystems. The pinyon/juniper dominated WUI areas are generally located below 7000 feet in elevation and are dryer sites.

Pinyon/juniper woodlands are not the typical fire adapted vegetative community and historically did not support wildfires very often. Many of the current dense stands of pinyon/juniper are the results of past heavy grazing and other disturbance that occurred during the period when early settlers first staked homestead claims on the land. As the arid and low productive lands were stripped of vegetation and the top soil eroded, the drought tolerant and deep rooted woodland species invaded the areas that once support



**Photo 6.** Pinyon/Juniper Woodland Vegetative Community with Areas of Open Meadow

the areas that once support

grassland ecosystems. These stands are now getting to the age that they are becoming decedent and will now support wildfires. These are areas where high intensity wildfires never occurred in the past. Management of these decedent woodland ecosystems in the WUI areas is important if wildfires are going to be kept out of the scattered small communities and subdivisions in Catron County in the future.

### **Land Use, Historic and Current**

Catron County is rich in archaeological sites which indicates Paleo-Indians were probably the first inhabitants of the region some 10,000 years ago. The most visible evidence of early settlement can be found at Gila Cliff Dwellings National Monument in southern Catron County. Here pit houses possibly dating back to 100 A.D indicate the presence of the Mogollon Culture, which replaced the earlier archaic groups in about 500 B.C. Sometime after 1000 A.D. the Gila Cliff Dwellings themselves were built, along with other cliff dwellings that overlook the west fork of the Gila River. Tree ring dating of roof timbers indicates that construction continued in the area until about 1280 A.D. The main subsistence activities that supported these early inhabitants were gathering, farming, the making of pottery and trade.

The first European contacts in the area likely came following Coronado's Expedition in 1540, although no settlements occurred until much later. The Apaches moved into the area sometime during the 1600's as indicated by the early Spanish maps which identified southwest New Mexico as "*Apacheria*".

In 1822 the area came under control of the Mexican Government, but soon experienced an influx of trappers and mountain men from the United States. By 1848, the Treaty of Guadalupe Hidalgo had ceded much of the area to the U.S. and the remainder of Arizona and New Mexico was acquired in 1853 as part of the Gadsden Purchase. The war with Mexico brought military excursions throughout southern New Mexico as early as 1847. Diaries kept by the military and information accumulated by public land surveyors in the years following added much to the recorded information about the Catron County area during that early period.

Irrigated agriculture came into widespread use in the mid-1800s. By 1875 a number of ditch systems had been established on the Gila and San Francisco Rivers. By 1890, most land suitable for irrigation with surface water in Catron County was a private land homestead and under cultivation. Most of the diverted water was used to irrigate small farms, although part of the water was appropriated by owners of large ranches for livestock purposes.



**Photo 7.** A reach of mountain stream in the Gila NF portion of Catron County

The discovery of gold in the Mogollon Mountains near Glenwood in 1875 brought additional settlers to the area, many of whom turned to farming and ranching. The extension

of railroads south of Catron County in the 1880's, along with the end of Indian hostilities, marked the beginning of a period of relative stability. From the 1880 until approximately 1990 Catron County's

economy was dominated by logging and ranching, which took place on federal lands, since 75% of the county was either set aside as Forest Reserve lands or was never claimed as a homestead and removed from the public domain.

Access to the headwater streams of the Gila River has always been difficult. Since the terrain and climate made it difficult to farm, graze livestock or cut timber in this area much of this area remained primitive and undeveloped. In 1924 the Forest Service acknowledged this unique characteristic and created the first designated “Wilderness Area” in the nation. Today the Gila Wilderness areas encompasses 438,360-acre within the Gila National Forest. This area remains a popular destination for outdoor recreation.

Currently most of the economic and social structure that was in place from 1880 until 1990 remains, but the new era of environmental awareness and the need to protect the federal lands from the local citizens has nearly crippled the economy of Catron County and the ability of local citizens to make a living. This new hands off approach to forest management has resulted in several large and very destructive wildfires which have burned thousands of acres in Catron County.

**COMPONENTS USED TO DETERMINE MITIGATION NEEDS**

**Fire Threat**

Fire threat as used in this CWPP was determined by the computer generated model developed to analyze wildfire risk. The factors considered in the model were vegetation cover type, structural stage (vegetation density), aspect and slope.

The County was divided into 30 meter x 30 meter (90 feet x 90 feet) grid cells, and each cell received a rating for the factors being considered. The resulting rating per grid cell is a relative rating of fire threat within the County. This relative rating can be compared to all other fire threat ratings within the County to determine treatment priorities. Detailed information on how fire threat was determined can be found in *Appendix 3 Data* (page 35). The table to the left shows the fire threat levels (a three division classification of the ratings). Fire threat maps can be seen at *Appendix 2 Maps 16-17*

<b>Fire Threat Rating</b>	<b>Acres</b>
Low	1,220,412
Moderate	1,759,514
High	1,456,351

**Vegetation Cover Type**

Vegetation typing was taken from the "reGAP" satellite imagery project supplied by the University of New Mexico. Using this mapping data there are 45 vegetation types in Catron County. The appendix contains narrative and tables with detailed information on these types. The 45 vegetation types were grouped into five major categories of vegetation cover for map display and summary purposes as shown in the adjacent table. See *Appendix 3 Data* (page 40) and *Appendix 2 Maps 5, 21 & 22*

<b>Vegetative Cover Type</b>	<b>Acres</b>
Ponderosa Pine	1,319,728
Mixed Conifer	154,035
Pinyon/Juniper	1,824,746
Grass/Shrub	1,088,951
Other	49,636

## **Insects and Diseases**

There are many insects and diseases that are found in the forests of New Mexico and Catron County. In the recent years of drought there have been several large areas of severe infections in northern New Mexico, while only minor areas of infection have been noticed in Catron County. The recent years of drought and ever increasing densities of vegetation, can only lead to additional outbreaks of tree mortality which will occur with increasing frequency.

The *Ips* species of bark beetles is the insect with the most potential to kill trees over large areas in the mixed conifer and ponderosa pine vegetation types. These *Ips* infected areas if they occur will pose an increase of risk for catastrophic wildfire to occur. There are numerous other insects that can cause considerable havoc usually on a smaller scale. These insects are of concern mostly in high value areas such as around campgrounds, homes and other areas protected for their aesthetic value.

Dwarf mistletoe has been the disease of most concern because of its potential to spread in dense stands of trees. Dwarf mistletoe has the potential to adversely affect the health, vigor and seed production of trees over larger areas. Management of vegetation where the level of stress on the individual plants is reduced will assure endemic insect and disease effects are minimized. More information on the insects and disease that is present in Catron County is in the Appendix. See *Appendix 3 Data* (page 65, 66)

## **Values at Risk**

Critical constructed improvements at risk from wildfire, such as homes, other structures and critical infrastructure (e.g., escape routes, municipal water supply structures, and major power and communication lines) are the primary items considered when determining treatment priorities. These feature, which are critical for people to be able to live in a safe environment are the primary things that are considered as the “values at risk” when assessing the threats a wildfire on a community. (See *Appendix 2 Map 18, Values at Risk*) There are other community values, such as economy, aesthetics and wildlife habitat that are also considered when assessing values at risk, but these items do not play a major role in providing for the public’s safety and are not given the same value as human safety.

In order to make the Catron County CWPP an adaptive management plan there is a need for the Catron County CWPP Core Team to address the “Values at Risk” each year in order to identify and adjust mitigation actions. Significant changes in the location, number and threats to the critical infrastructure should change the need and priority for implementing mitigation measures.

## **Structures/Infrastructure**

The location and density of structures needing protection was determined in 2006 through the use of geospatial E911 addresses set up for use in Catron County. With a small amount of editing to reflect some missed structures, the total number of addresses for Catron County in 2006 was 2,863. There is no reason to believe that there is any significant change in the location or numbers of E911 address that would change the priority WUI areas in this updated county-wide CWPP. There is a need to update the E911 address system to capture the change of residence names due to people moving into and out of the County and to make the system current. The locations that were current in 2006 are shown on the E911 address map. (See *Appendix 2 Map 8, E911 Address Sites*)

Other critical infrastructure identified in the Catron County county-wide CWPP are major power distribution lines and communication sites. These critical feature are shown in *Appendix 2, Map 15, "Major Distribution Power Lines" and "Communications Site*. This information concerning critical infrastructure features in Catron County is not something that changes readily, but is very important for the federal and state land management agencies and the local Volunteer Fire Departments to be familiar with.

### **Economic Values**

Catron County is the largest and most sparsely populated county in New Mexico. Half of the land area of the County is set aside in three National Forests (Gila, Cibola, and Apache National Forest). Another quarter of Catron County is owned and managed by the BLM and the New Mexico State Land Office. Catron County's economy is therefore very much controlled by federal and state regulations that deal with the management of natural resources. Much of the primary economic based of Catron County is made up of activities that takes place on federal and state lands and is mainly natural resource oriented such as cattle ranching, harvesting timber, tourism, and recreation.

In the private sector, agriculture is the County's largest employer. In the government sector, the U.S. Forest Service is the County's largest employer. The unemployment rate in Catron County was 9.2% in February of 2015. The unemployment rate for Catron County has fluctuated from as high as 24% in the early 1990's to as low as 4.4% during months when the U.S. Forest Service was employing allot of people during large fire events.

Livestock Production accounts for most of the county's agricultural activity. Wildland fire threatens the production of forage, rangeland health and vital range management improvements. Catastrophic wildfires destroy forage, fences, water improvements and other associated infrastructure, which further threatens livestock production, and therefore the economy of the whole county.

In the past grazing capacity has been reduced because of the densities of overstory vegetation in forested grazing allotments. Almost all fuel reduction activities will help sustain forage production and grazing capacity of the land.



**Photo 8.** Livestock Being Gathered on Catron County Ranch

Timber Harvesting in Catron County has been on a downward trend since the mid-1990s when litigation over threatened and endanger species management stopped the Forest Service from being able to sell timber. Recently there has been efforts in Catron County to sell small diameter logs and other biomass products, which are the byproducts of implementing fuel management treatments. There is still an operating sawmill in Reserve that provides some jobs and income for local citizens in Catron County.

Farming at a small scale still occurs in the San Francisco River valley between Aragon and Glenwood in Catron County. The use of historic water rights keeps this area as the primary crop related agricultural region in the County. Most of the crops grown in this area is forage related and are tied into the livestock production business in the County.

Tourism and Recreation are based on the aesthetic, the large elk herds and the cultural resources of the County. Typical views in the northern and eastern part of the County are pinyon/juniper woodlands interspersed with large open meadows. In the southern and western portions of the County the views are the numerous mountain peaks covered in ponderosa pine, mixed conifers and aspen. Recent large wildfires have left numerous fire scars on the landscape, which has significantly reduced the aesthetic values in the County.



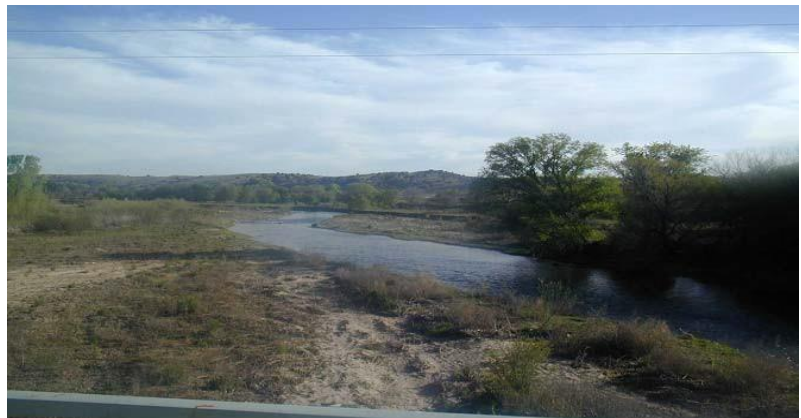
**Photo 9.** Aspen Changing of Color in the fall in Catron County

A large component of the recreation related income in Catron County is tied to the fall elk hunts in the County. Catron County has a world class elk herd that attracts hunters from across the entire nation. Guiding and outfitting in the County during the fall hunts provides jobs and income for many of the local citizens who depend upon this temporary work to carry them through the winter when job are scarce.

Other recreation activities that add to the economy of Catron County includes: trips into the Gila Wilderness, hiking biking touring, equestrian activities, camping and some limited fishing. “Dark Skies” is an astronomy feature which is possible because of the lack of outdoor lighting at night and the clear air found in the County. Few of the many archeological sites in the County are developed for viewing by the public. The Gila Cliff Dwellings and the Catwalk on the Gila National Forest are popular tourist attractions and bring some income opportunities to the local citizens.

### **Watershed and Water Related Resources**

In spite of the aridity of the climate, water and watershed health are important resources in Catron County. The Mogollon and San Francisco mountains in western Catron County makeup the headwaters of the Gila River and supply a substantial amount of the run-off carried in the San Francisco River. These rivers provide a source of clean water for most of Southwest New Mexico and Southeastern Arizona. The proper



**Photo 10.** San Francisco River in Catron County

The proper management of the watersheds located in Catron County is critical well beyond Catron County.



The recent large wildfires (Wallow and Whitewater/Baldy Wildfires), which burned a significant portion of the critical watersheds in Catron County cause many downstream problems for the users of water. There was a large fish kill as far away as San Carlos Reservoir in south central Arizona due to the Whitewater/Baldy wildfire and most downstream irrigators had to deal with the huge ash and sediment loads carried in these rivers following these wildfire. Flooding due to these wildfires will be an ongoing threat for many years.

The adverse impacts to Threatened and Endangered Species and their habitat due to these wildfire was substantial and many of the impacts are yet to be realized or reported. While it will be years before all of the impacts from these two major wildfire are realized much could be learned from what was done to manage the critical forest ecosystems and watersheds prior to and following these wildfire events.

### **Fire Risk/ Risk of Occurrence**

The base data used to map the risk of wildfire occurrence for the 2006 Catron County CWPP came from a report "*Coarse Assessment of Federal Wildland Fire Occurrence Data*" (Brown, T.J. 2002). This report was produced for the National Wildfire Coordinating Group. The data from this report only covers federal lands and the completeness varies from agency to agency, but the report was useful in providing a base for the 2006 Catron County CWPP.

Density grids of lightning-caused fires plus topographic maps and local knowledge were used to draw a risk of lightning occurrence map. When the human-caused fire data was overlaid on a map of major roads in the County, a strong correlation was evident, so roads were buffered to create a base human risk of occurrence map. This map was further edited using local knowledge to add other high use areas such as campgrounds and other higher recreational use areas. There is no reason to believe that the location of occurrence of either lighting or human caused wildfires was change significantly since 2006, the data in the Catron County 2006 CWPP is being brought forward in this 2015 update. (See Appendix 2, Map 6. Risk of Human and Lightning caused Wildfires)

### **Fire Regime Condition Class**

Fire Regime Condition Class (FRCC) mapping provides ecological information that can be used to classify the landscape fire regime and determine similarity, departure, ecological sustainability risks, abundance of vegetation-fuel classes. This analysis displays FRCC mapping at the landscape scale with calculations run on a HUC 6 watershed level. FRCC is a tool useful to the land management professional to evaluate and monitor the ecological health of vegetation. Though not overly complex, the concept requires some effort to understand.

Forested portions of Catron County are in Fire Regime I (0-35 year natural fire frequency and low to mixed severity) and Fire Regime III (35-100+ natural fire frequency and mixed severity). It is important to note that FRCC is not necessarily an indicator of fire threat. Maps showing FRCC, abundance of a vegetative-fuel class compared to the reference condition amount and risk of a vegetation-fuel class sustainability are included in the 2006 Catron County CWPP for comparison purposes and as indicators of general ecological condition. Other than the areas burned in the Wallow and Whitewater/Baldy Wildfires the information contained in the 2006 FCRR analysis are still current and useful for determining fuel condition across the County. The 2006 FCRR data is carried over into the 2015 Catron County CWPP Update. (See Appendix 2, Maps 20-22)

**Catron County Wildfire Protection Plan  
Fire Regime Condition Class Mapping Summary**

	Class	Acres	% of Total
<b>FRCC</b>	0(null)	44,501	1
	1	2,762,082	62
	2	1,144,911	26
	3	485,364	11
			100
<b>Risk</b>	Null	44,501	1
	Low	2,628,658	59
	Moderate	1,017,527	23
	High	746,172	17
			100
<b>Abundance</b>	Null	44,501	1
	Rare	438,969	10
	Similar	2,628,658	59
	Moderate	599,079	14
	High	712,238	16
	no value	13,414	0
			100

**Threatened and Endangered Species**

There are numerous Threatened and Endangered (T&E) Species which will need to be considered in the National Environmental Protection Act (NEPA) environmental analysis for fuel treatment projects on federal lands. In Catron County most of the fuel treatment projects, which are mitigation for wildfire risk as identified in the 2015 updated individual CWPP’s, will take place on federal lands. It is beyond the scope of the county-wide or individual CWPP’s to analyze the environmental effects of fuels reduction projects, or to list and consult with the US Fish & Wildlife Service on potentially effected T&E species. It will be the responsibility of wildlife biologists and other managers on the Gila and Cibola National Forest and the Socorro and Rio Puerco Field Offices of the BLM to ensure that no adverse effect to “Listed Species” or their “Critical Habitat” will occur due to fuel treatments or other activities carried out on federal lands as part of the Catron County CWPP.

The listed species of concern change often as more species are listed and litigation requires the federal land management agencies to perform various levels of analysis as determined by the courts. Because of this constant change it is best to consult the most recent listing of Threatened, Endangered and Sensitive species, which can be found at the USFWS website for the current species of concern:

<http://www.fws.gov/southwest/es/NewMexico>

**Recreational Use**

Recreational use in Catron County is important to local residents for both their own enjoyment and for the economic well-being of the County. Loss of recreational opportunities due to large catastrophic wildfires such as the Willow and Whitewater/Baldy have had significant impacts on the County’s economy and residents. Because recreational opportunities have significant ties to the economy and people’s wellbeing, it is one of the factors considered in determining potential adverse impacts of wildfire. See *Appendix 3 Data* (page 56) and *Appendix 2, Map 24*.

Recreational Use	Acres
Below average	2,022,487
Average	1,927,084
Above average	487,880

**Machine Access**

Machine access in order to conduct fuel treatment projects is an important consideration. Much of the Gila and Cibola National Forests are not machine accessible. Areas known to be inaccessible are areas with greater than 35% slope and roadless study or Wilderness areas. There are many other areas that might be excluded from use of machinery due to a host of reasons which need to be assessed as fuel treatment projects are proposed. See Appendix 2, Map 25, "Machine Accessible Areas". This map shows the known inaccessible and accessible areas of the County. From this map it is easy to determine that a large portion of the high fire threat and high treatment priority areas are inaccessible. There is more information pertaining to machine access in the summary of analysis results. See Appendix 3 Data (page 58).

**Summary of the Analysis Results**

Some significant results of the 2006 CWPP analysis are shown in the table below.

<b>Catron County Community Wildfire Protection Plan Summary of Various Analysis Results</b>				
<b>Summary By:</b>	<b>Acres Summary</b>			<b>Acres/year treated if on 20 year cycle</b>
	<b>Total Acres</b>	<b>Machine Accessible</b>	<b>Not Machine Accessible</b>	
<b>Canopy Closure (County Wide)</b>				
Forest with open canopy	2,069,000	1,525,000	545,000	103,450
Gross closed canopy forest	1,229,000	653,000	576,000	61,450
Net closed canopy forest <sup>1</sup>	853,323	544,317	309,006	42,666
Total forested area	3,299,000	2,178,000	1,121,000	134,950
<b>Fire Threat</b>	<b>Total High and Moderate</b>	<b>High Threat</b>	<b>Moderate Threat</b>	
County wide	3,216,000	1,456,000	1,760,000	160,800
Within WUI boundaries	430,000	139,000	291,000	21,500
<b>Treatment Priorities</b>	<b>Total High and Moderate</b>	<b>High Priority</b>	<b>Moderate Priority</b>	
County wide	2,870,000	447,000	2,423,000	143,500
Within WUI boundaries	436,000	112,000	324,000	21,800
HUC 6 watersheds (18 high, 80 moderate)	2,301,000	490,000	1,811,000	115,050
<b>Fire Regime Condition Class</b>	<b>Total Class 3 And 2</b>	<b>Class 3</b>	<b>Class 2</b>	
County wide	1,630,000	485,000	1,145,000	81,500
<sup>1</sup> Net = Gross minus Wilderness areas and estimated amount of naturally occurring closed density				
<sup>2</sup> Note: 196 WUI areas = 519,412 acres				
<sup>3</sup> 209 HUC 6 watersheds in County				

06/28/2005

While the data displayed in the above table was collected for the 2006 Catron County CWPP and some of the acre figures have changed due to the Wallow and Whitewater/Baldy. The above information is still useful for determining the needs for mitigation of wildfire risk in Catron County.

## TREATMENT NEEDS AND PRIORITIES

### County-wide Treatment Acres

Treatment needs and priorities were calculated by the modeling and displayed in several ways. As explained above an initial county-wide need and priority for fuel treatment was determined using fire threat, values at risk and risk of occurrence. This is shown in *Appendix 2, Map 19, "Initial Treatment Priorities"*.

<b>Initial Treatment Priorities</b>	<b>Acres</b>
Low	1,871,073
Moderate	2,186,317
High	378,826

The initial needs and priorities were adjusted in the model to give the final needs and priorities as shown in *Appendix 2, Map 26 "Final Treatment Priority"*.

<b>Final Treatment Priorities</b>	<b>Acres</b>
Low	1,566,247
Moderate	2,423,156
High	446,667

The final needs and priorities for treatment of HUC 6 watersheds are shown in *Appendix 2, Map 27, "Final Treatment Priority by HUC 6 Watershed"*.

<b>Treatment Priorities by HUC 6 Watershed</b>	<b>Acres</b>
Low	2,137,155
Moderate	1,810,644
High	489,566

The treatment priority for WUI areas was calculated in a model using only fire threat, values at risk and risk of occurrence ratings. Treatment priorities for WUI areas are shown in two ways. The first is weighted average of the model-calculated cell values in each WUI area. This gives a relative treatment value between WUI areas in the County as shown in *Appendix 2, Map 28, "Treatment Priorities Wildland Urban Interface Areas"*.

<b>WUI Treatments</b>	<b>Acres</b>
Low	73,435
Moderate	241,111
High	204,865

The second way the treatment priorities for WUI areas are shown is by the calculated cell values in each WUI area as shown in *Appendix 2, Map 29, "Wildland Urban Interface Areas Treatment Priorities"*. Note: Differences in acreage figures are caused by using polygon vs. grid to calculate acres. These differences cannot be avoided; however they are insignificant (e.g. a 1000 acre error is a 0.02% error for the County).

<b>Treatment Priorities in Each WUI Area</b>	<b>Acres</b>
Low	86,959
Moderate	321,569
High	110,785

The county-wide treatment needs and priorities analysis as shown above is still current except for the areas burned in the Wallow and Whitewater/Baldy Wildfires. The above information is still useful when determining the need for fuel treatments in Catron County. This information is being included in the 2015 Updated Catron County CWPP since it still reflect condition in most of the County.

**2015 List of Priority WUI Areas/Communities**

An updated list of the WUI Areas/Communities where wildfire mitigation measures need to be focused in Catron County has been developed as part of the 2015 CWPP update process. While a new priority for treatment is being assigned to each of the WUI Areas/Communities, all of the communities’ treatment needs should be considered for funding and implementation each year as funding becomes available. Since various Forest Service Ranger District are involved, each Ranger District needs to work with the Communities that are within or adjacent to their District boundaries when planning their yearly program of work. The BLM Socorro and Rio Puerco Field Offices both have management responsibilities in Catron County. These two BLM Field Offices need to work with the Communities that are within or adjacent to their district boundaries when planning their yearly program of work.

All of Catron County is within the Socorro District of the NM State Forester’s Office, This state land management agency works directly with the individual landowners who want to reduce the risk of wildfire impacts on their land. The NM State Forester’s Office provides cost share funding through their WUI grant program. Each year they fund wildfire mitigation projects based upon available funds and the benefits derived from the various proposed projects.

It is obvious that each Forest Service Ranger District and BLM Field Office need to set their own priorities for their yearly programs of work, while the Socorro District of the NM State Forester’s Office set their own priority for funding the landowner cost share projects base on the merits of each project. With this in-mind, the following is the 2015 list of CWPP priority WUI Area/Communities for Catron County:

**2015 Catron County CWPP Update WUI Priority List**

<b>WUI/Community</b>				
<b>Name</b>	<b>Score</b>	<b>Priority</b>	<b>WUI Numbers</b>	<b>Agency</b>
Jewett Gap	7.66	1	<b><u>80</u></b>	FS-Gila
Luna	7.55	2	<b><u>167</u></b>	FS-Gila
Reserve	6.67	3	<b><u>178</u></b> , 179	FS-Gila
Apache Creek	6.09	4	<b><u>166</u></b>	FS-Gila
Davenport	5.77	5	23, 36, <b><u>37</u></b> , 53, 71, 72, 74	BLM FS-Cibola
Horse Mountain	5.23	6	<b><u>103</u></b>	BLM
Datil	5.14	7	<b><u>69</u></b>	BLM FS-Cibola
Pie Town	4.81	8	<b><u>25</u></b>	BLM
Wild Horse	4.40	9	88, 89, 100, <b><u>115</u></b> , 116, 117	BLM
Willow Creek	7.57	10*	<b><u>12</u></b>	FS-Gila
Mogollon	7.07	11*	4	FS-Gila

\*Treatment priority changed due to 2012 Whitewater/Baldy Wildfire consuming fuels in and surrounding the area.

## **PLANNING FOR THE FUTURE**

### **Mitigation and Implementation**

There are 1.3 million acres of ponderosa pine in Catron County. A minimum of 40,000 to 50,000 acres of ponderosa pine would need to be treated to fully accomplish the projected fuel treatment needs and protect the values held by the citizens of the County. Treatment at the minimum level runs the risk of not being sufficient to prevent catastrophic wildfires. Treatment at a larger number of acres will likely be difficult given the resources available in the County. Looking at the level of fuel treatment that was accomplished from 2006 until 2014 it is obvious that the only way fuel treatment will accomplish any benefits to the communities is to optimize the treatment by strategically planning the of location and type of treatment. It will be necessary that the highest priority areas within the individual WUI areas are treated first and then these highest priority areas are maintained so they do not quickly return to their pervious condition.

Continuity of fuels is an important part of planning the strategic placement of treatments. The mapping of wildfire threats in the County indicates a less than desirable alignment with prevailing southwest winds. This is particularly evident in the southwest quarter of the County where the largest areas of high wildfire threat exist. Across the County in some of the high priority areas there are opportunities to connect corridors of lower wildfire threat to provide landscape scale breaks in fuel continuity.

A strict adherence to the priorities established by the 2006 CWPP analysis would not be wise as there are many other factors to consider. For instance during the period from 2006 until 2011, 117,910 acres were treated in Catron County through either mechanical treatment, prescribed fire or with wildfires. Much of this treatment was not planned or funded to accomplish the priorities in the 2006 CWPP's and was accomplished in mostly moderate to low priority areas. Forgoing this type of treatment because it was not in the highest priority areas would have been counterproductive. Isolating some of the higher wildfire threat areas by conducting fuel treatments in surrounding lower fire threat areas is a viable option in many cases. The bottom line is each opportunity to treat fuels must be taken advantage of in order to treat as much area as quickly as is prudent to do so.

In general, the first priority is to treat the WUI areas most in need of treatment even if the treatment only includes the creation of "Defensible Space" around critical infrastructure. The second priority is the need to strategically place treatments in the larger landscape that will reduce the potential for very large catastrophic wildfires. The third priority is to restore the remaining areas to a more sustainable vegetative condition where wildfire will not be as big of a threat.

### **2015 Mitigation Implementation Process**

The highest priority for the Catron County Commission, in order to implement the 2015 Updated CWPP's, will be to make sure a Catron County CWPP Core Team is in place. Without having a County sanctioned entity tracking and overseeing the implementation and monitoring of the 2015 Updated Catron County CWPP's there will be no way to assure this important work gets the attention it needs in order to be accomplished.

Given the priorities for accomplishing and tracking needed risk mitigation treatments, the following tables have been created to assist with tracking the needed and accomplished work. Table 1.) "Risk Mitigation Treatment Needs", Table 2.) "Fire Suppression Needs". These tables have been developed for each of the individual Catron County Community CWPP's. These table are meant to capture the

needed activities that would accomplish the specific treatments and/or action necessary to provide for the safety of the community.

Along with these “needs” tables, Table 3.) “WUI Mitigation Treatments Accomplished and Planned” was developed to show what is yearly planned and accomplished for each of the priority WUI areas describe in the individual community CWPP’s. (See *Appendix 1, Needs and Accomplishment Tracking Tables.*)

The intent of having these simple tables is to provide the tools so that the Catron County CWPP Core Team can yearly review the fuel treatment and fire suppression needs for the County and also track what has been accomplished and what is planned for each of the priority WUI areas in the County. It is hoped that the Catron County Core CWPP Team will review and update the three tables for each individual CWPP each year. By doing a simple review and update of the three table for each priority WUI area each year, the Catron County and each individual community CWPP will become living documents and an adaptive management approach to mitigating wildfire risk in Catron County will be implemented.

### **Prescription Guidelines**

The following prescription guidelines are being included in the Catron County county-wide CWPP in order to provide the management recommendations for any fuel reduction treatments that may be proposed. These guidelines describe the desired future condition as well as provide generalized recommendations for how to reach the desired future condition. These guidelines are recommended for use in developing detailed prescriptions for the environmental analysis of mitigation projects when under-going NEPA analysis.

*General Guidelines for Wildland Areas:* All actions taken should reverse the current general trend towards Fire Regime Condition Class 3 and should move vegetative conditions towards Class 1:

- Reduce crown fire potential by reduction of crown density, ground fuels and ladder fuels.
- Move crown fire potential to that characteristic of the historic (natural) fire regime.

*Selection of Leave Trees in Wildland Areas:* Areas following treatments will have a healthy diversity of tree density, species and size. Recommended actions include:

- Utilize clump patterns for leave trees
- Space between smaller and larger tree clumps to prevent "laddering"
- Space between clumps to restrict potential size of crown fire
- Variable clump size
- Favor retention of healthiest, most disease free, larger trees
- Re-introduction of fire in Fire Regime III areas under cool burning conditions or after fuels reduction by mechanical means

*Machine and Hand Treatment:* The objective should be to remove the hazardous materials in a manner that will aid economic development in the County. This means that whenever possible, methods of removing hazardous materials which will optimize their use as marketable wood products should be preferred over other methods.

- Preference given to machine or mechanical operations (removal of small poles and larger commercial size trees) and hand treatment (chainsaws) methods
- Preference given to local operators for machine and hand treatment contracts

- Fire subsequent to machine and/or hand treatment would be used to remove dead/down fuels and non-commercial seedlings and saplings.

*Fire Treatment:* In areas not accessible to or prohibitive in cost for machine operations or hand treatment, fire is the recommended method of fuels reduction. Innovative solutions such as jackpot falling (a pile of haphazardly felled trees) and pre-treatments of perimeters and potential trouble spots are recommended. Fire use and prescribed fire should use techniques such as pre-treatment, back firing, firing out from ridge tops, timing, etc.

*Slash and other Dead Fuels Disposal:* In wildland areas, slash (hazardous fuels remaining after treatment) and ground fuels (litter, duff and other dead vegetation) remaining on site should achieve the following results:

- Crown fire development is not supported over long distances or areas
- Amount of ground fuels supports desired prescribed and fire use objectives for both retention and removal of vegetation
- All organic matter is not removed down to mineral soil over large areas
- Treatment intensifies as the treatments are closer to the structures

*Slash Treatment:* Slash and ground fuels which are to be removed should be treated as follows:

- Prescribed fire to treat slash in wildland areas to keep costs down.
- Mechanical methods should be used to treat slash in WUI areas, near protected improvements and other sensitive areas such as along major highways and power lines.
- For most cost efficiency, mechanical methods of slash disposal are recommended in the following order:
  1. Lop and scatter
  2. Machine crushing
  3. Machine pile and burn
  4. Chipping
  5. Hand pile and burn
  6. Removal to off site location

*General Guidelines for WUI Areas:* The following guidelines when applied will make improvements and structures more defensible.

- Decrease crown fire potential as distance to structures decreases
- Increase tree spacing as distance to structures decreases
- Retain aesthetic acceptability
- Gradual change between Wildland and WUI
- Preserve diversity of tree species, density and size
- Create room for spotting and crown fire from a wind driven wildland fire to fall out and drop down before reaching protected improvements
- Use WUI treatments to provide a reasonable amount of protection until treatments are completed on the larger wildland scale.
- Identify routes and zones for safe public evacuation and fire fighter access for every community.
- Use "Firewise" guidelines in close coordination with all the interested parties: Federal, State, County, Private and in particular the local Fire Department



## OTHER CONSIDERATIONS

### Environmental Justice

Environmental Justice: The equitable treatment of all people, regardless of race, income, culture, or social class, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Assuming that income disparities exist within Catron County from neighborhood to neighborhood (Southwest New Mexico Council of Governments, 2004); and given that under the Council on Environmental Quality's, (CEQ's) Environmental Justice Guidance, a minority or low-income population may be defined at the neighborhood level; the following potential adverse impacts to the minority or low-income population are relevant to be analyzed in this CWPP.

- Risk of environmental and human health hazards
- Ecological, cultural, economic, human health, and or social impacts and adverse effects on low-income or minority populations or Native American tribes which are interrelated to impacts on the natural or physical environment.
- Disparate or disproportionately high risks and or effects on minority or low-income populations or Native American tribes
- Consequences of cumulative effects in determining disproportionately high risks and/or effects on minority or low- income populations, or Native American tribes.

### Catastrophic Wildfires and Environmental Justice

Early discussions on environmental justice focused on three areas: toxic/hazardous waste, occupational safety and health, and environmental racism (Schlosberg 2003, Cole and Foster 2001, Camacho et. al. 1998, Taylor 2002). More recently, environmental justice discussions and applications have included additional topics such as subsistence, economic, social and cultural issues. According to scholar and anthropologist Ernest Atencio, "Public health impacts from environmental conditions or hazardous waste, or discrimination in the implementation and enforcement of environmental policies, are unquestionably critical problems, but *environmental justice is about more than that. It is also about widening the discourse on environmental issues to include the perspectives, values, and concerns of the traditionally ignored populations of people of color and the poor.* (2003, emphasis added).

For minority and low-income populations, the risks posed by the threat of a catastrophic wildfire are undoubtedly issues of environmental justice, as previously noted in an earlier analysis:

*If, in fact, unhealthy forest conditions are present in the ponderosa pine ecosystem such as "simplification in structure and increased density" (Thal, May 15, 2003), alternatives which prevent or do nothing to return the forest to healthy conditions may pose a disproportionate risk to this low-income and/or minority population by increasing the risk of catastrophic wildfire. An action (or failure to take action) which creates increased risk to the community in question is an environmental justice issue.*

*Jarratt-Ziemski, Report of 6-2-2003*

The threat is not lost on those who live near and subsist in part from those forests that are susceptible to such wildfires (Atencio, 2003). Indian tribal nations, also considered a protected class for environmental justice purposes, are all too often painfully aware of spillover detrimental effects of such wildfires. In fact, the Pomo tribe in California, having experienced such conditions in recent years, became part of a successful lobbying effort to pass new legislation in the summer of 2004, the Tribal Forests Protection Act (PL 108-278). The law provides for collaboration and some co-management authority (in part through stewardship contracting) on Forest Service or Bureau of Land Management lands adjacent to tribal lands for the purpose of addressing tribal interests in reducing threats of catastrophic wildfires on federal lands near their reservations.

### Why does the threat of catastrophic wildfire pose a disproportionate risk to environmental justice communities?

- Low income families and individuals are less likely to be able to recover adverse effects on their human health. Income status affects one's access to and extent of quality health care. Heavy smoke from large wildfires, for example, can easily be more devastating to the poor, who are far less likely to have ready access to the quality medical treatment available to the middle class and more affluent.
- Losses of property, subsistence activities, and or livelihood (e.g. ranching, loss of job in a tourism-related industry such as a housekeeper at a motel) are likely to have a more detrimental effect on low-income populations. For example, for the homeowner in a suburb who loses a home (which may even be a second home or vacation home for example), the loss is important to them, but not as costly in relative terms, as the loss of a home experienced by the low-income person. In the latter case, the loss may represent the total net worth for the low-income person, versus only a portion of the more affluent individual's worth. Low-income individuals are less likely to have insurance, less likely to have somewhere else to live while trying to re-build. if they are even able to do so. More affluent persons are more likely to have adequate insurance as well as immediate financial resources needed to recover from losses of property than are low- income persons.
- Loss of cultural resources, such as gathering grounds for medicinal or culturally important plants or other resources, as well as traditional physical cultural resources (a particular site, for example) could have devastating effects on social/cultural institutions as well as health for Native Americans in a particular area. (The CWPP indicates there are over 11,000 acres of tribal lands within Catron County).
- The cumulative effects on low-income, minority, or Native American populations are likely to be much worse than for other populations. Loss of home, job, and/or subsistence activities in rural communities, where opportunities for employment are scare to begin with, could result in forced relocation to an urban area with even more dire consequences. Those at the margins of poverty could find themselves worse off should they have to move to an urban location where they could not event depend on subsistence activities to meet their most basic needs (Atencio, 2003).

### Who Benefits and Who Remains at Risk?

Given all of the above, an important question to be addressed is how are resources for prevention of and protection from catastrophic wildfires being used? Whose neighborhood and property is being protected first? What populations are affected by, which hazardous fuel reduction projects? For example, is property of the middle-class or wealthy persons being protected first, while low-income, minority, and Native American populations remain at higher risk? Additionally, who benefits in other ways from the

work done on particular projects? Is hazardous fuel treatment being conducted in such a way as to provide jobs or even firewood, for example to low-income or minority or Native American populations, while simultaneously restoring forests to healthy conditions?

In summary, this list of potential environmental justice issues is certainly not exhaustive, but only identifies some of the most obvious and critical potential environmental justice issues.

### **Education and Community Outreach**

There is a continuing need for contact with, and the education of, the public. There are numerous programs and initiatives that can be used by the VFD's and agencies to educate the public on how to protect their homes and property from the risk of wildfire. The NM State Forester's Office, BLM, and US Forest Service have people employed who can aid in education and community outreach efforts in Catron County.

The task of educating the public concerning wildfire risk must be a shared effort between the federal/state agencies and the fire departments located in Catron County. It is recommended that the Catron County CWPP Core Team make wildfire prevention and safety a permanent agenda item which is addresses at all of their regular meetings. By keeping this topic as a constant agenda item, coordination of educate efforts and the sharing of ideas will be more apt to become a routine activity and not something done only occasionally.

### **Fire Suppression Resources**

The availability of resources is something that everyone involved in fire suppression is concerned with. The fire fighters in Catron County are no different. It doesn't matter if you are concerned with structure fires or wildfires, knowing what resources are available in case a fire gets out of hand is critical and a key element of fire fighter safety.

While the resources of the local fire departments are listed in both the Catron County county-wide and individual community CWPP's, it is important that at least once a year, at the start of the wildfire season, information concerning suppression resources is shared between the federal/state agencies and the Catron County fire departments. It is not uncommon for the suppression resources of the federal and state agencies to change each year depending upon yearly condition leading up to the current fire season. Most of the yearly variation in resources available to the agencies is budget driven and not easily resolved at to local level.

It is recommended that sharing information concerning available resources as well as the actual sharing of resources be something that is a routine practice in Catron County. While fire resource planning is not usually a role of the Catron County CWPP Core Team, there is no reason this team could not develop a resource availability plan and maintain list of what resources could be shared each year.

### **Structure Ignitability**

The reduction of ignitability of structures in Catron County will be a long term process and will need to be done with much patience and care. Existing guidelines available in the "Firewise" and "Living With Fire" programs provide ample information for homeowners so they will know why making their homes fire resistant is critical, especially if they are located in remote and heavily vegetated areas.

Typically the residents of Catron County are not receptive to regulations and codes, and even recommendations have to be carefully presented. Many of the residents of the County are here because of a desire to escape governmental restrictions, which are common in more urban areas. The residents of Catron County participating in the Firewise efforts understand this and have demonstrated success through past efforts where patience and understanding have been key to their success.

The Catron County CWPP Core Team will need to continue to integrate the education of the public concerning the benefits of reduced ignitability into their programs of work. The theme of the presentations to the public have, and will continue to be, "what you can do to protect your property" rather than "this is what you should do".

Public education opportunities will continue to be identified and coordinated as they arise, through collaborative efforts by the members of the Catron County CWPP Core Team. Some of the opportunities taken advantage of to date have been homeowner association meetings, County Fair, County Health Fair, Fire Department meetings and events, landowner assistance trips, fire use events, various agency fire prevention efforts and distribution of informational materials.

Vulnerability surveys are available for a few individual properties/structures and the plan is to complete more surveys as time and financing allows. These vulnerability surveys will be used by the Catron County fire departments, and State Forestry to identify areas and individual structures most in need of reduction of ignitability. Public contacts will then be concentrated where needed most. These contacts will be made during project level planning and implementation.

### **Funding**

Planning for the funding of the individual community CWPP's is not something undertaken as part of the Catron County CWPP's, but rather is something that should be done at the community level by the local residents. Although, it should be noted that funding opportunities for the individual community CWPP's and the on-the-ground projects most likely will be through various grants, which require a current CWPP be in place. Also, since treatments can be expected to extend over many years, the detailed planning for funding of the individual on-the-ground treatment projects and the continued update of the CWPP's will need to be an ongoing process.

This updated Catron County CWPP recommends substantial acres be treated each year in Catron County. While many of the planned treatments are listed as taking place on federal or state owned lands, expecting government funding for all of the needed treatment work is not a realistic solution. At the national level legislators have warned their constituents that there simply will not be enough federal funding available to cover the all of needed for forest restoration and hazardous fuels reduction across the country.

Obviously cutting costs is necessary, no matter what the source or amount of funding. Even though prescribed fire is a very cost effective method for treating large areas, there are many areas where the use of prescribed fire is not appropriate. Mechanical or hand treatments must be an available option in many areas.

Generating funding for treatment work could be achieved through the sale of forest and woodland products, which would come from the lands being treated. There are multiple grant opportunities to do fuel treatment projects where the wood products that result from the treatment can be sold.

While the Catron County CWPP Core Team does not have the expertise or time to pursue and make grant money available to do the necessary work, this team could help interested communities find grant writers and people with the experience to help them get grant money for community driven fuel treatment projects.

Catron County has some equipment and an employee who can provide help to individuals who want to complete fuel treatments on their property. Also New Mexico State Forestry does provide cost share funding to individual who qualify and who want to treat fuels on their property. These programs are dependent upon funds being made available each year.

## **MONITORING AND EVALUATION**

The objectives of updating the Catron County CWPP have been to:

1. Verify the landscape level (County-wide) assessment as still being accurate
2. Update the high risk areas within Catron County
3. Establish priorities for efficient use of available wildfire mitigation funding
4. Recommend mitigation (treatment) actions
5. Provide a recommended process for the implementation of the local CWPPs

Whether or not the ultimate goal of protecting the communities and wildland values in Catron County from wildfire will be achieved is dependent upon the degree to which the findings and recommendations of this updated CWPP are implemented. Monitoring and evaluation of wildfire mitigation actions taken will help assure the goals and objectives set forth in the county-wide and individual community CWPP's are met.

### **Who Will Monitor and Evaluate**

The various land management agencies who conduct much of the fuel reduction treatments in Catron County and who make up the Catron County CWPP Core Team have the responsibility to monitor and evaluate the fuel treatment projects they implement. These agencies should be planning and completing fuel reduction projects that meet the goals and objectives of the county-wide and individual community CWPP's. Since these agencies already are required to monitor and evaluate their work, this monitoring should also be used to measure the success of accomplishing the goals and objectives of the Catron County CWPP's.

The Forest Service, BLM, and NM State Forester's Office monitoring reports for fuel reduction work completed in Catron County each year should be provided to the Catron County CWPP Core Team. It is recommended that the Catron County CWPP Core Team explore the possibility of developing or gaining access to a website where this information can be posted and made available to the public.

In accordance with §102.g.5 of HFRA, the CWPP communities will participate in multiparty monitoring to assess progress toward meeting CWPP objectives. This should be accomplished through "Agency/Community" coordination on all fuel treatment projects complete within the WUI areas surrounding the various communities. The Catron County Commission and other partners to the CWPP process may choose to implement additional monitoring and evaluation procedures if they feel they are needed.

On private and State Trust lands the NM State Forester’s Office generally funds through a cost share program fuel treatment work carried out by the land owners. Also Catron County through the use of Title III funds does assist with the accomplishment of some fuel treatment work. This work can also be track and monitored by the Catron County CWPP Core Team since these entities are also members of this Team.

**What will be evaluated**

Monitoring consist of tracking fuel reduction accomplishments, (Implementation Monitoring) and assessing the change in conditions from the original conditions due to implementing treatments, (Effectiveness Monitoring). Monitoring usually consist of a combination of both. Complex specific monitoring of both implementation and effectiveness are seldom if ever implemented because the funding and time never seems to be available. On the other hand, no tracking of one or both monitoring elements is not a good choice either.

The past collaborators involved in the Catron County CWPP have chosen a combination of the two basic monitoring components that is believed to be simple, inexpensive and achievable. As stated above the annual accomplishment reports provided to the Catron County CWPP Core Team will report the specific fuel reduction projects completed each year that support the objectives and goals of this plan.

Periodic assessments of future conditions as compared to the baseline conditions will be made at 5-10 year intervals. The exact intervals will depend on the amount of fuel reduction completed and the availability of time, funding and people.

The following table details the monitoring and evaluation data to be collected for each of the types of monitoring.

<b>Type of Monitoring and Evaluation</b>	<b>Monitoring and Evaluation Data to be Recorded</b>	<b>Timeline</b>
<b>Fuel Reduction Project Completion Monitoring</b>	<ul style="list-style-type: none"> <li>• Name</li> <li>• Location</li> <li>• Start and completion dates</li> <li>• Method of treatment</li> </ul>	Each year
<b>Forest Management Effectiveness Monitoring</b>	<ul style="list-style-type: none"> <li>• Change in Tree Canopy Density</li> <li>• Change in Tree #'s / Acre</li> <li>• Change in Tons of Biomass / Acre</li> </ul>	5 to 10 Years

The use of the WUI Mitigation Treatments Accomplished and Planned table as mentioned in the above 2015 Mitigation Implementation Process section will help capture the data required for the implementation monitoring needs.

**Funding for Monitoring and Evaluation**

Funding of the annual project implementation reviews is presently being absorbed in-house by the various agencies involved. Funding sources for the periodic effectiveness reviews at 5-10 years, while impossible to predict with any guarantee of accuracy at this time, could be funded through a grant or as a project completed by an upper level college student studying for an advanced degree.

**APPENDIX 1**  
**Needs and Accomplishments Tables**

Table 1.

<b>Risk Mitigation Treatment Needs For XXXXXX WUI Area(s)</b>			
<b>Priority Area</b>	<b>Priority Area Name</b>	<b>Land Owners</b>	<b>Description of Needs</b>
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			



Table 2.

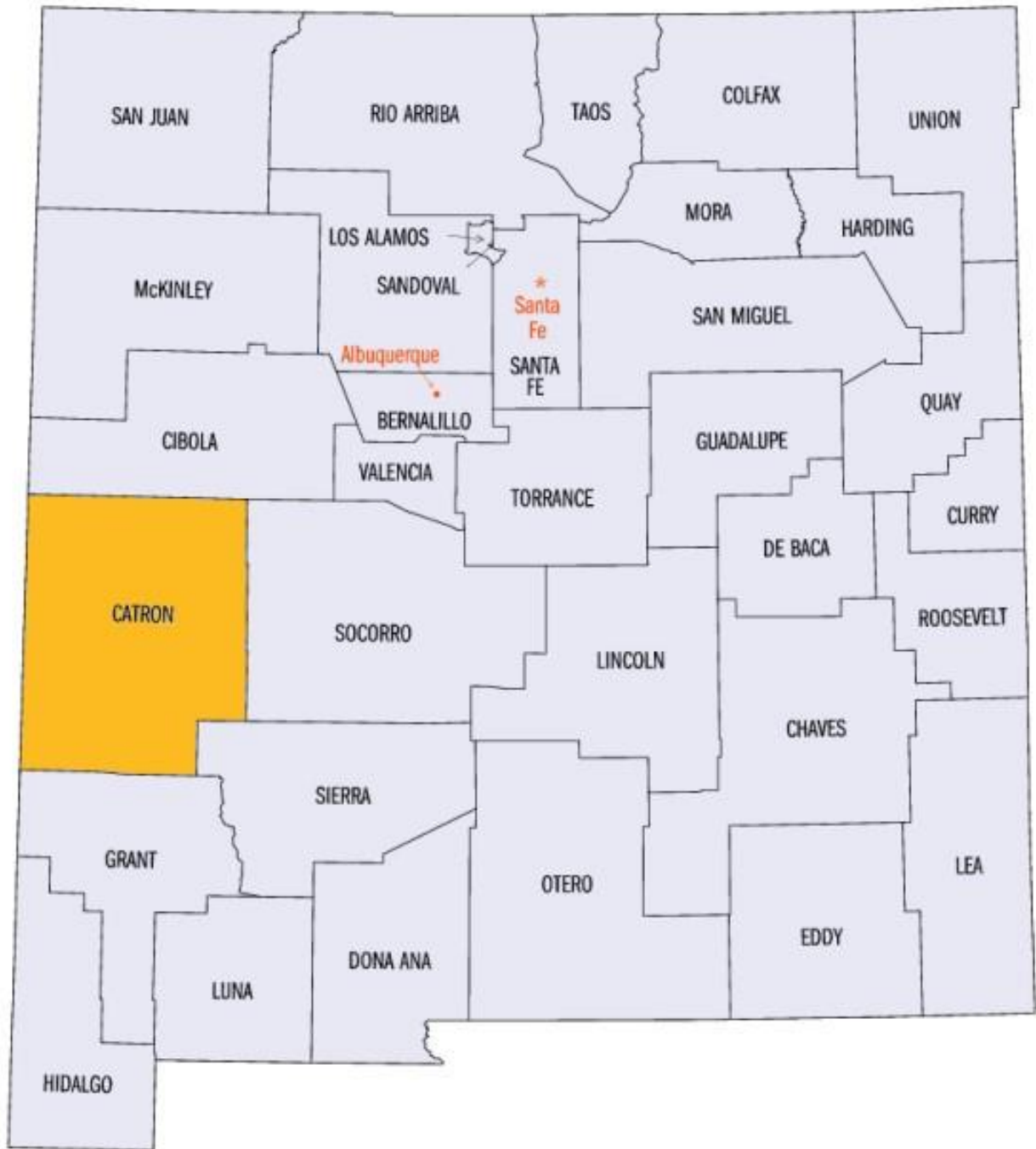
<b>Fire Suppression/Prevention Needs For XXXX WUI Area</b>	
<b>Responsible Party</b>	<b>Needed Action</b>

Table 3.

<b>XXXXXX WUI Mitigation Treatments Accomplished and Planned</b>					
Treatment acres are from 20XX					
<b>Priority Area</b>	<b>Priority Area Name</b>	<b>Land Owners</b>	<b>Acres of Treatments Accomplished</b>	<b>Acres of Treatment Planned*</b>	<b>Future Treatments Planned</b>
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

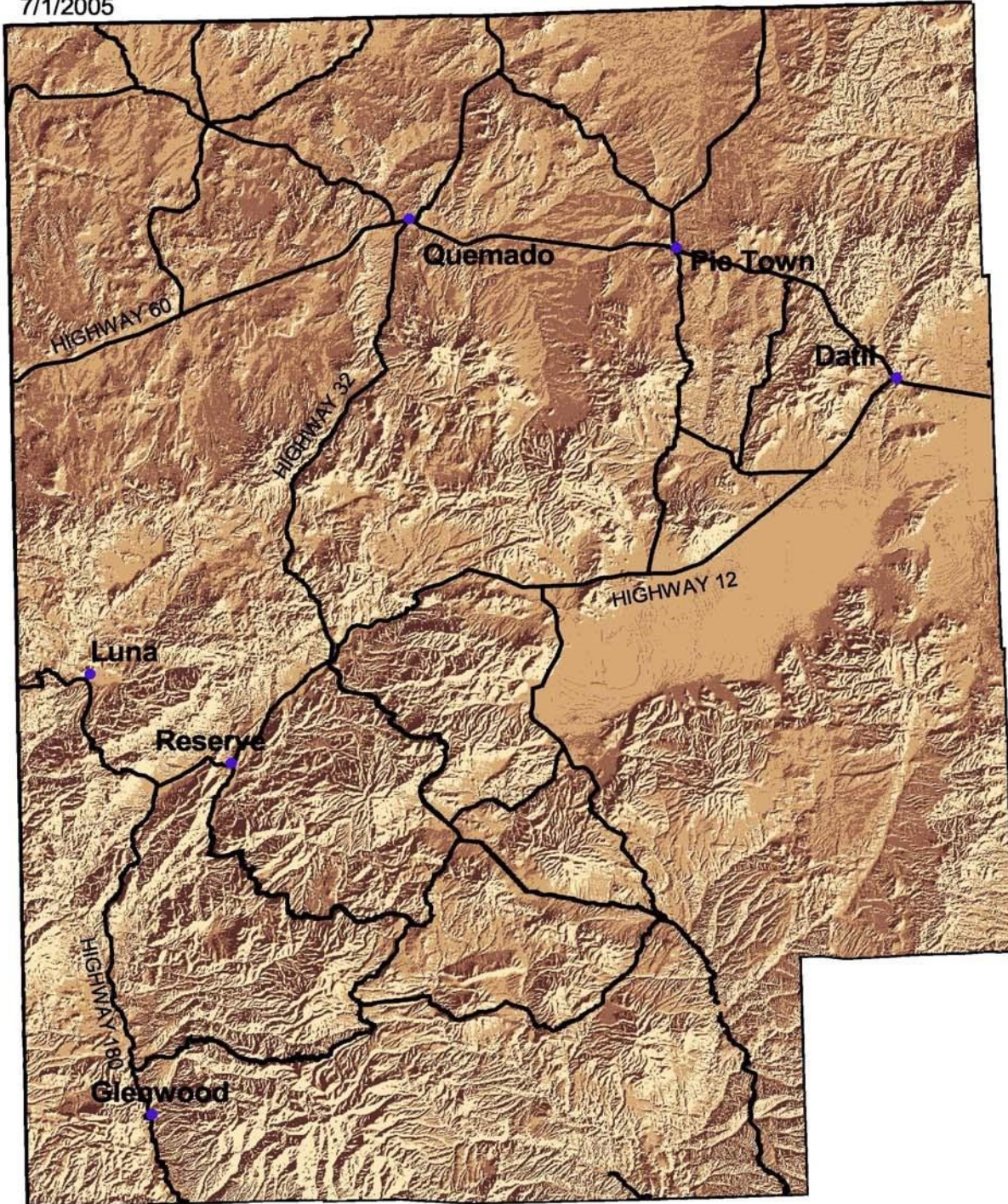
\*Planned Treatment are the acres of treatment that can reasonably be expected to be accomplished in the next 5 years

**APPENDIX 2**  
**Maps**



**Map 1 - New Mexico**

7/1/2005



**Shaded Topographic Relief Map**

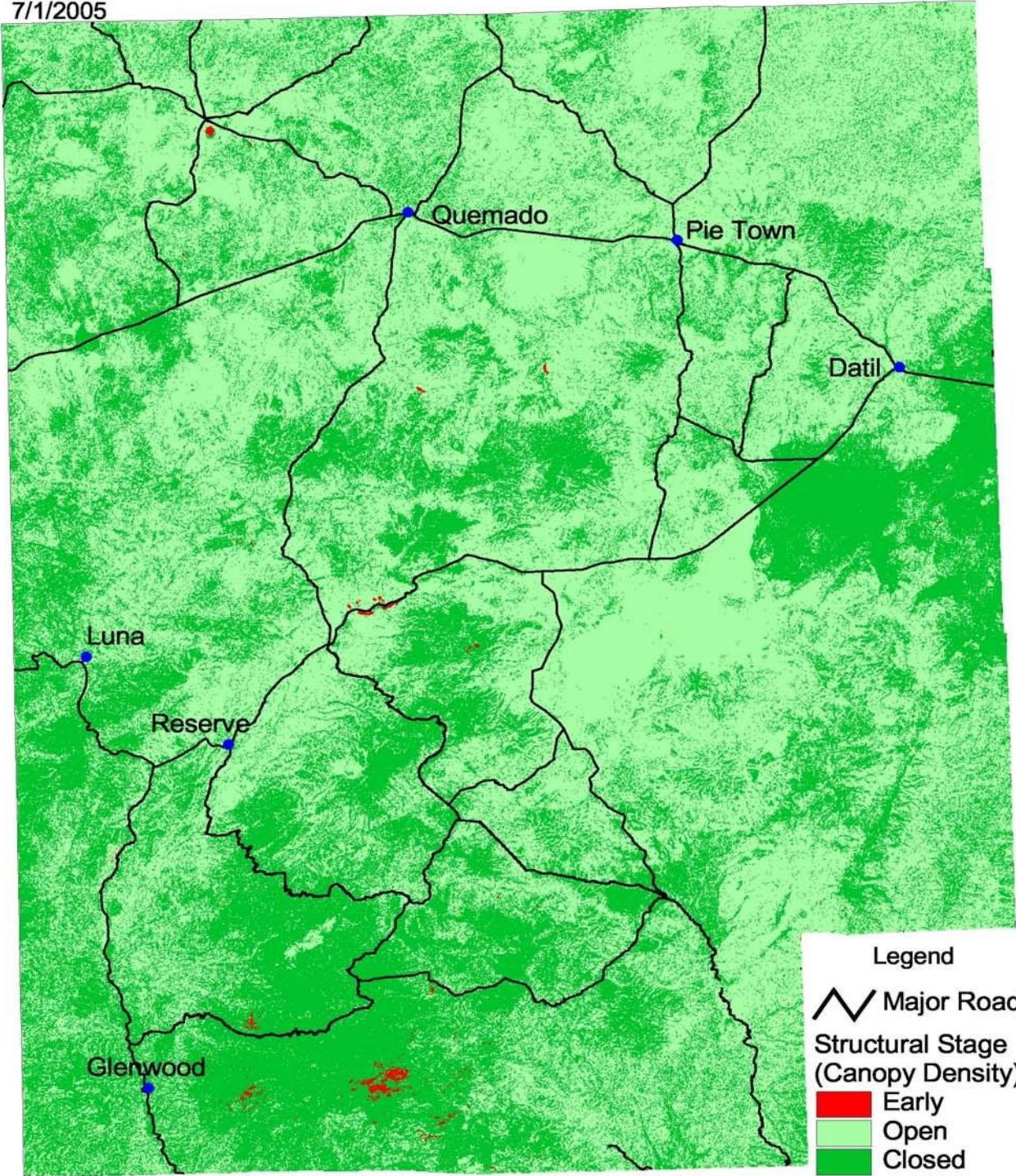
**Catron County Community Wildfire Protection Plan**

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NM Projection: UTM Zone 12 NAD 27



**Map 2 - Topography**

7/1/2005



### Structural Stage (Canopy Density)

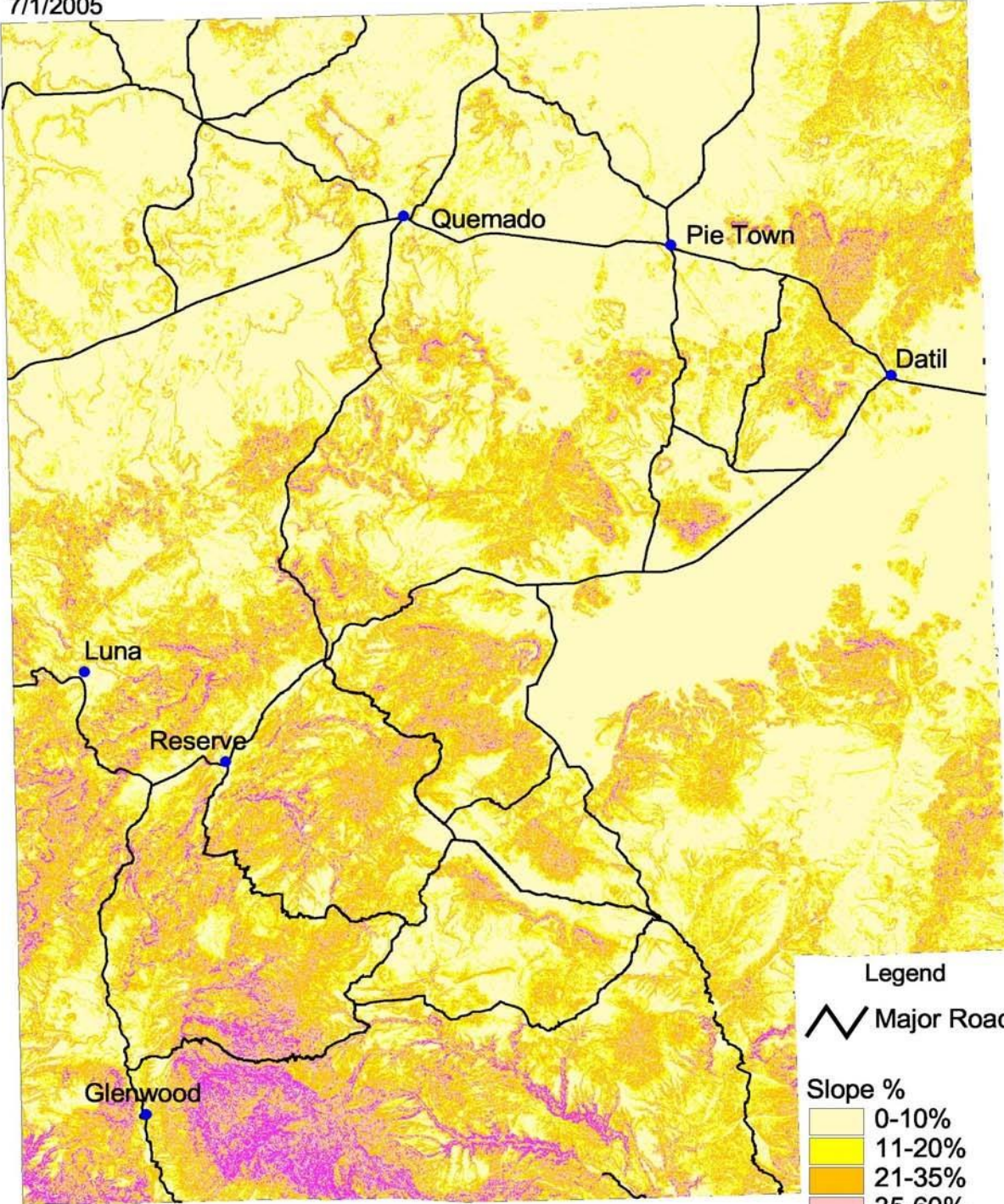
## Catron County Community Wildfire Protection Plan

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**Map 3 – Structural Stage (Canopy Density)**

7/1/2005



Legend

Major Roads

Slope %

- 0-10%
- 11-20%
- 21-35%
- 35-60%
- 61+%

**Steepness of Slopes**

**Catron County Community Wildfire Protection Plan**

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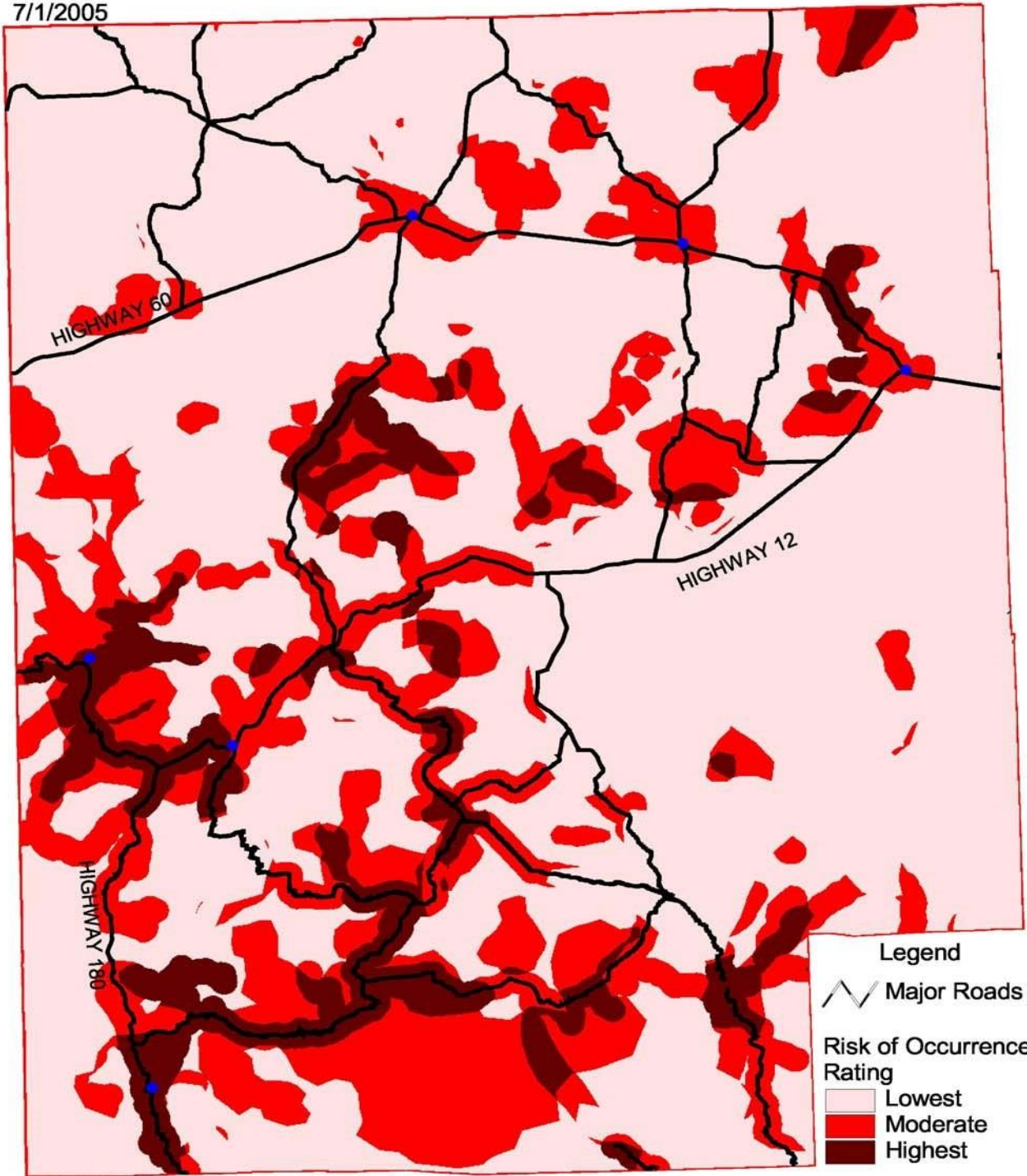


**Map 4 – Steepness of Slopes**





7/1/2005



**Risk of Human and Lightning Wildfire Occurrence**  
**Catron County Community Wildfire Protection Plan**

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NM Projection: UTM Zone 12 NAD 27



**Legend**

Major Roads

Risk of Occurrence Rating

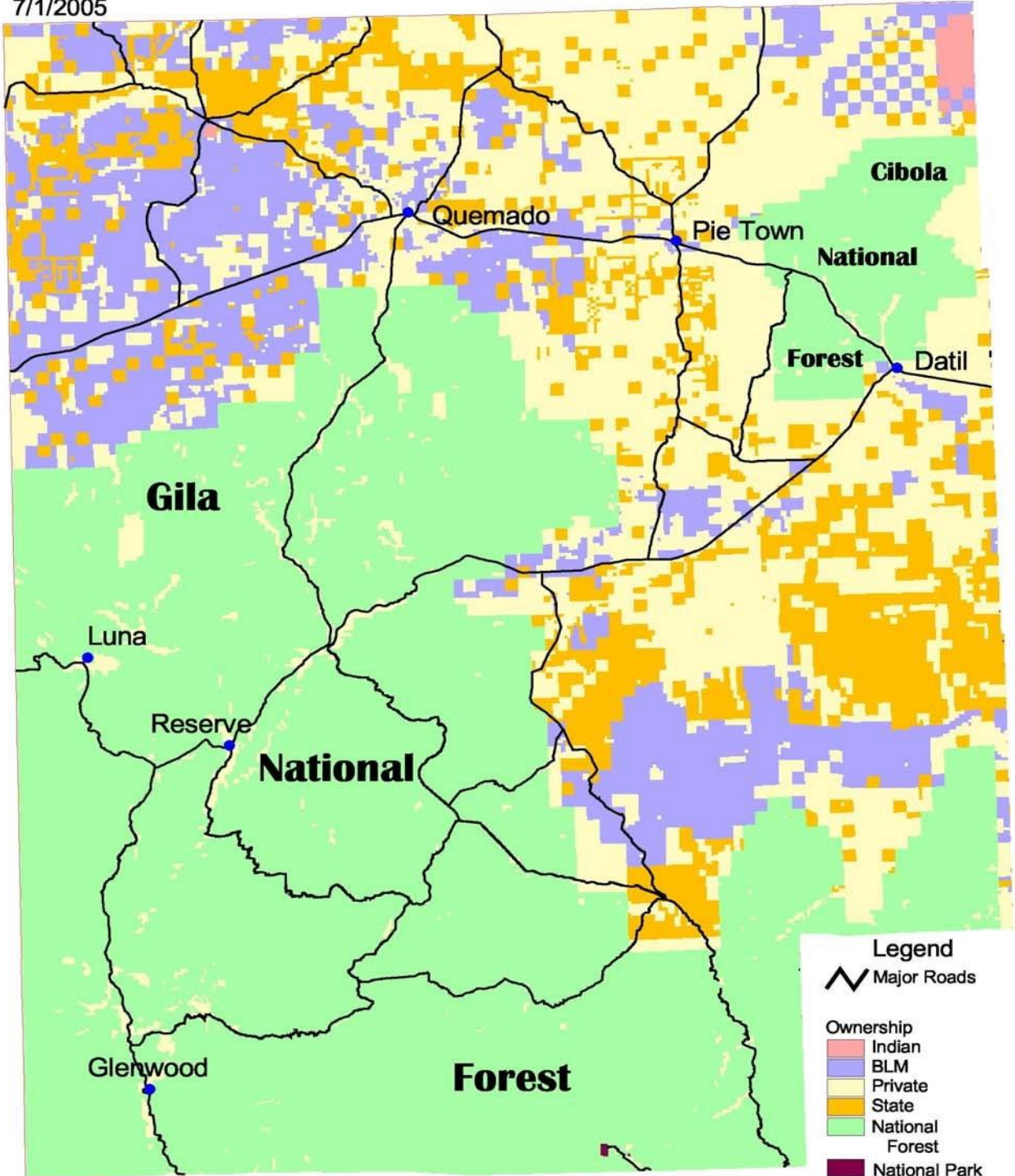
Light Pink	Lowest
Red	Moderate
Dark Red	Highest

**Acres by Risk**

Lowest-	3,100,883
Moderate-	964,205
Highest-	372,491

**Map 6 – Risk of Human and Lightning Caused Wildfire**

7/1/2005



**Legend**

Major Roads

**Ownership**

- Indian
- BLM
- Private
- State
- National Forest
- National Park Service

Acres by Owner	
Indian-	13,024
BLM-	585,666
Private-	1,134,589
State-	510,905
Nat. For.-	2,192,608
NPS-	405

**Land Ownership**

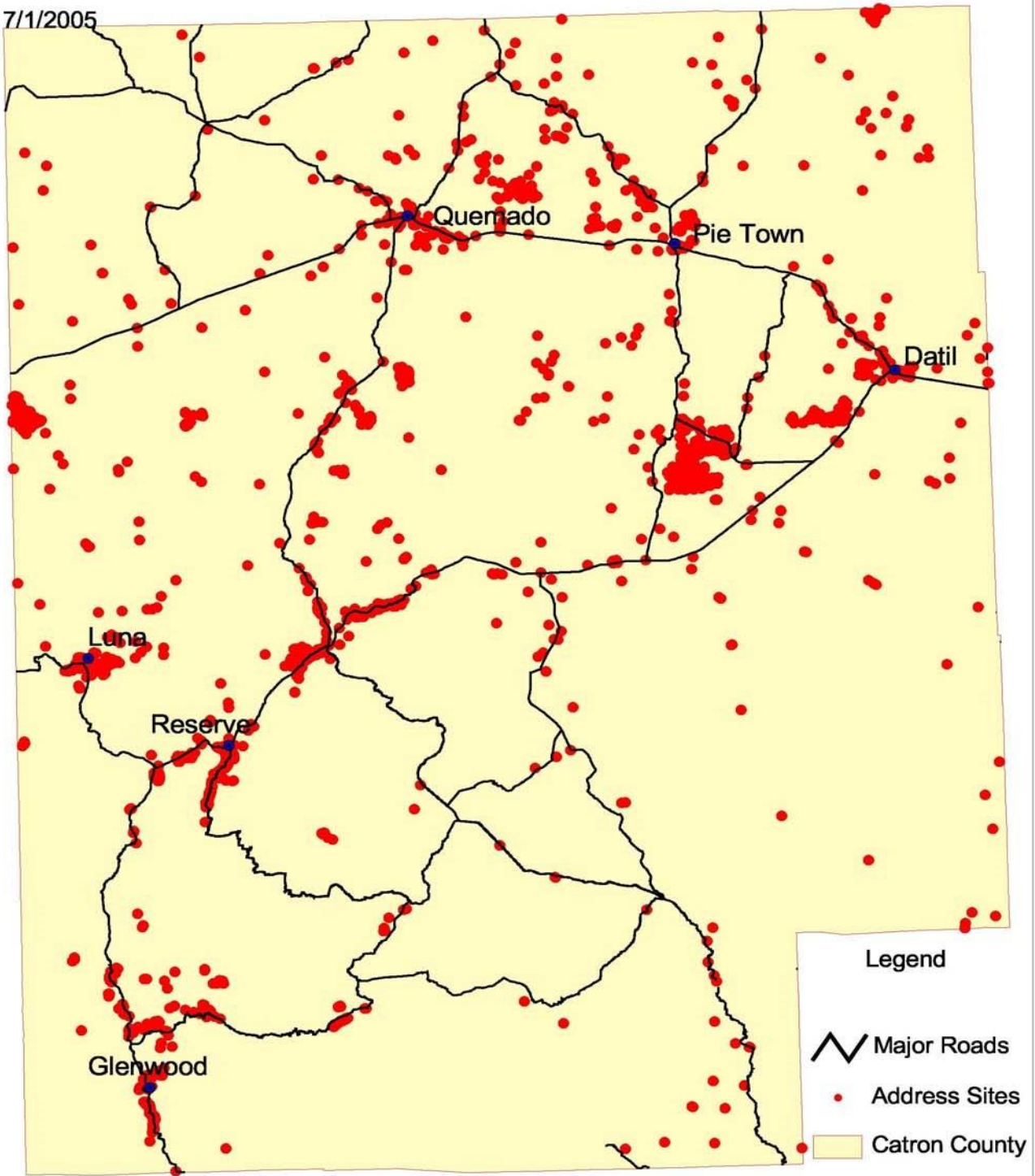
**Catron County Community Wildfire Protection Plan**

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**Map 7 - Land Ownership**

7/1/2005



### E911 Address Sites

## Catron County Community Wildfire Protection Plan

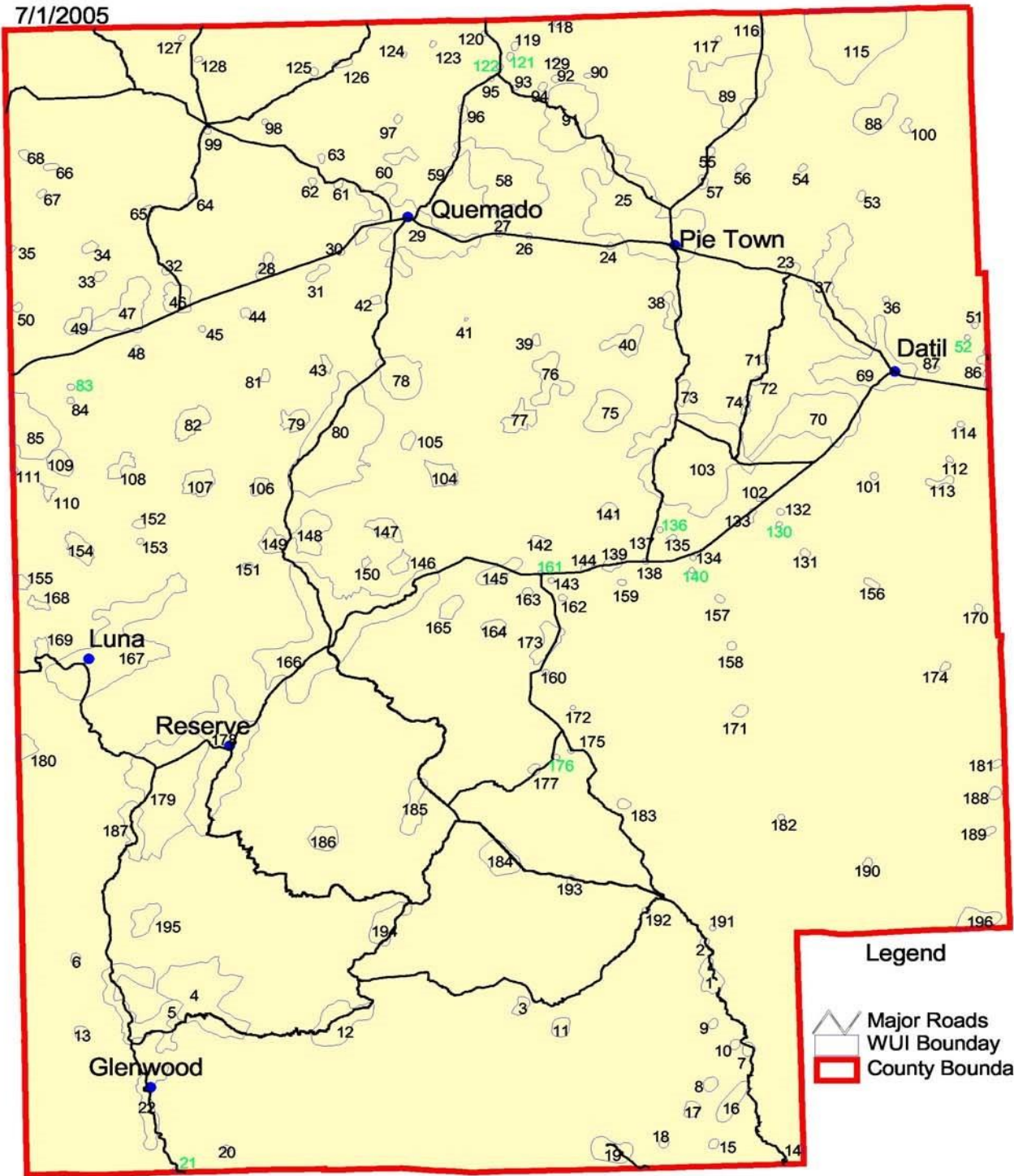
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10 0 10 20 Miles



**Map 8 – E911 Address sites**

7/1/2005



### Wildland Urban Interface (WUI) Areas

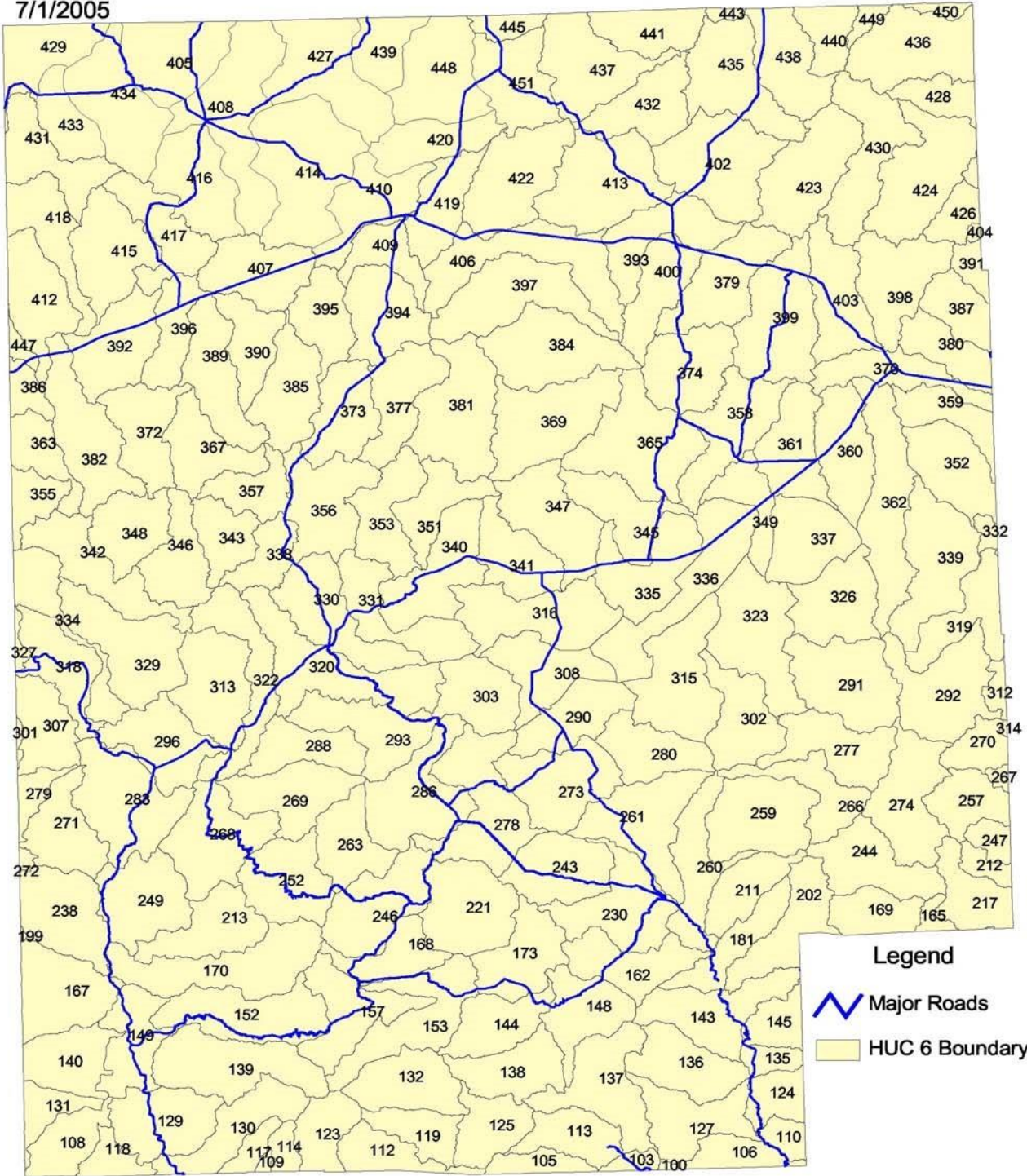
### Catron County Community Wildfire Protection Plan

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**Map 9 – Wildland Urban Interface**

7/1/2005



### HUC 6 Watersheds and Numbers

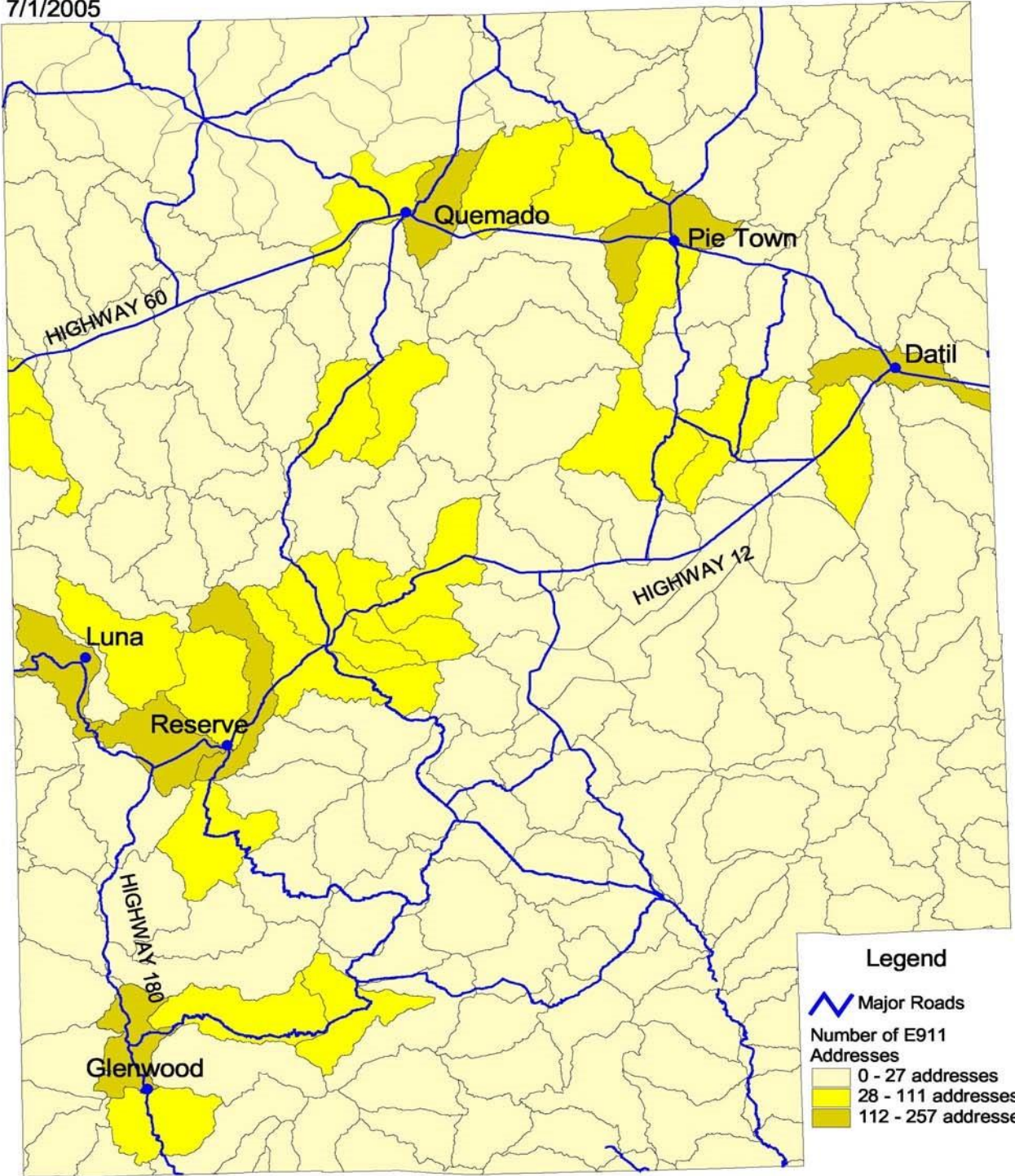
## Catron County Community Wildfire Protection Plan

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NM Projection: UTM Zone 12 NAD 27



**Map 10 – HUC 6 Watersheds**

7/1/2005



### Population Density Per HUC 6 Watershed

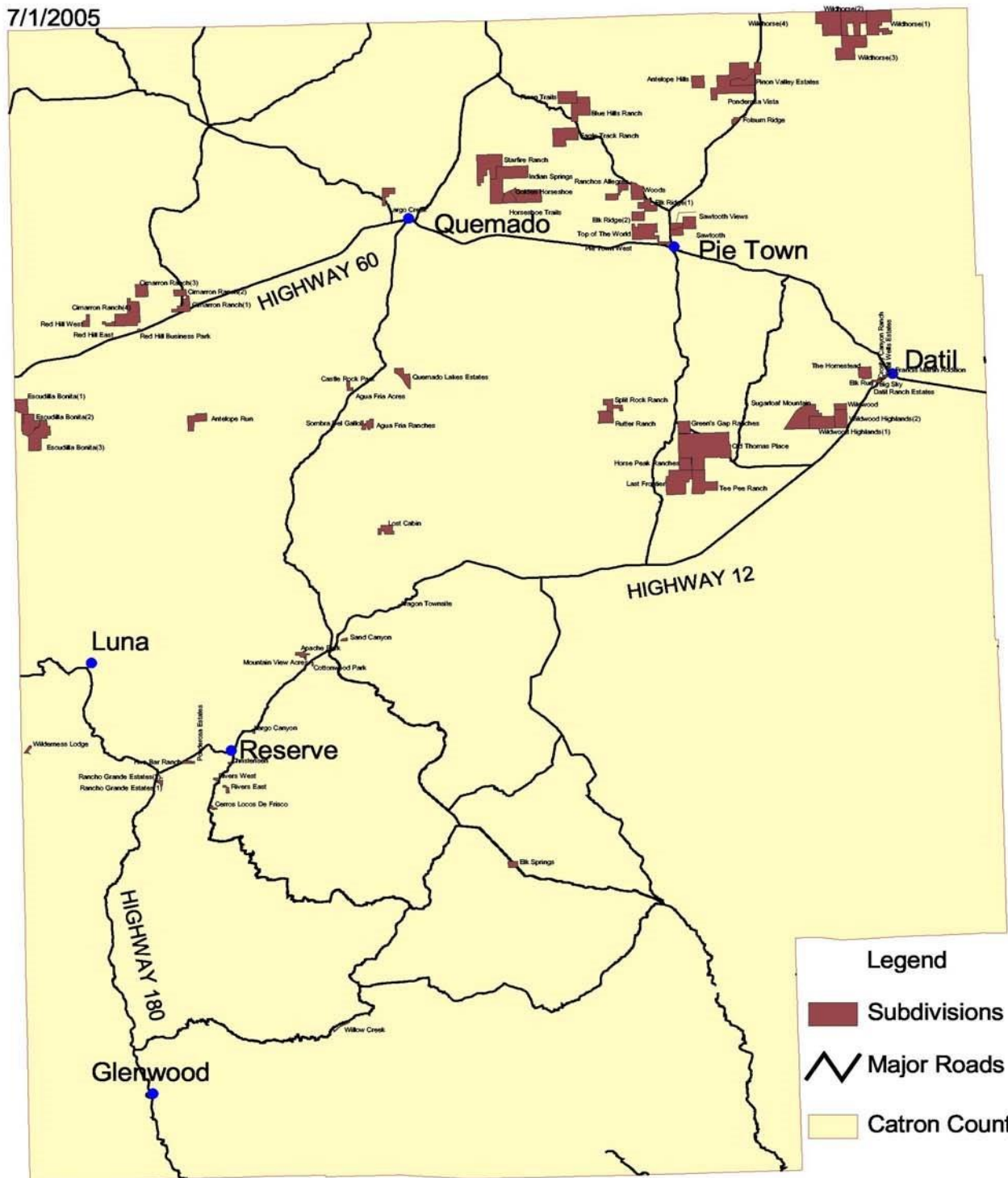
### Catron County Community Wildfire Protection Plan

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NM Projection: UTM Zone 12 NAD 27



**Map 11 – Population Density Per HUC 6 Watershed**

7/1/2005



**Legend**

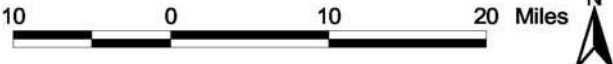
- Subdivisions
- Major Roads
- Catron County

**Note:**  
 Subdivisions shown are those possible to be located from County Plat records. There are a few of the older subdivisions with poor plat survey records that are not shown.

**Subdivisions**

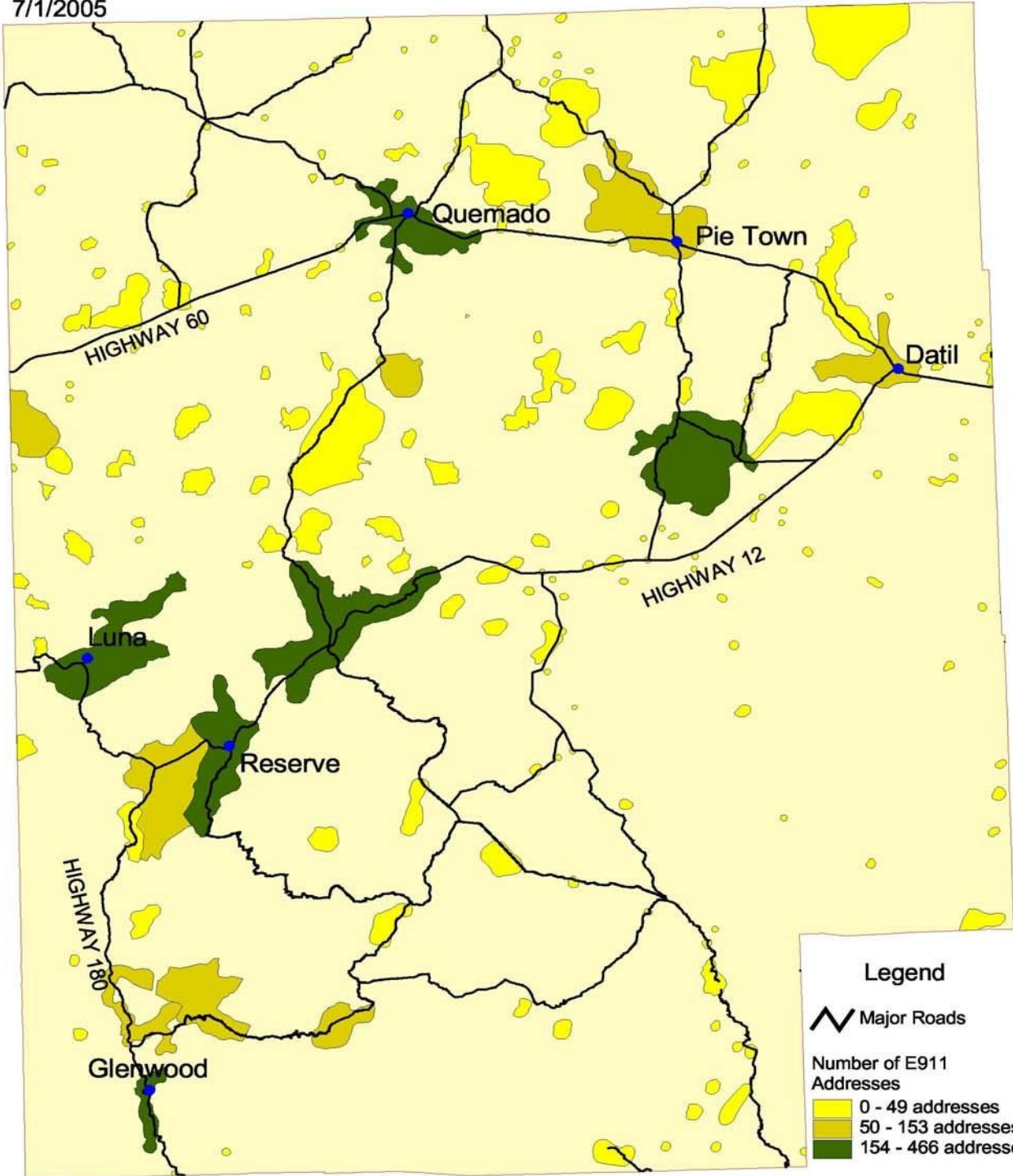
**Catron County Community Wildfire Protection Plan**

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**Map 12 – Subdivisions**

7/1/2005



**Legend**

 Major Roads

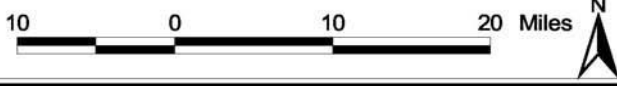
**Number of E911 Addresses**

-  0 - 49 addresses
-  50 - 153 addresses
-  154 - 466 addresses

**Wildland Urban Interface Population Density**

**Catron County Community Wildfire Protection Plan**

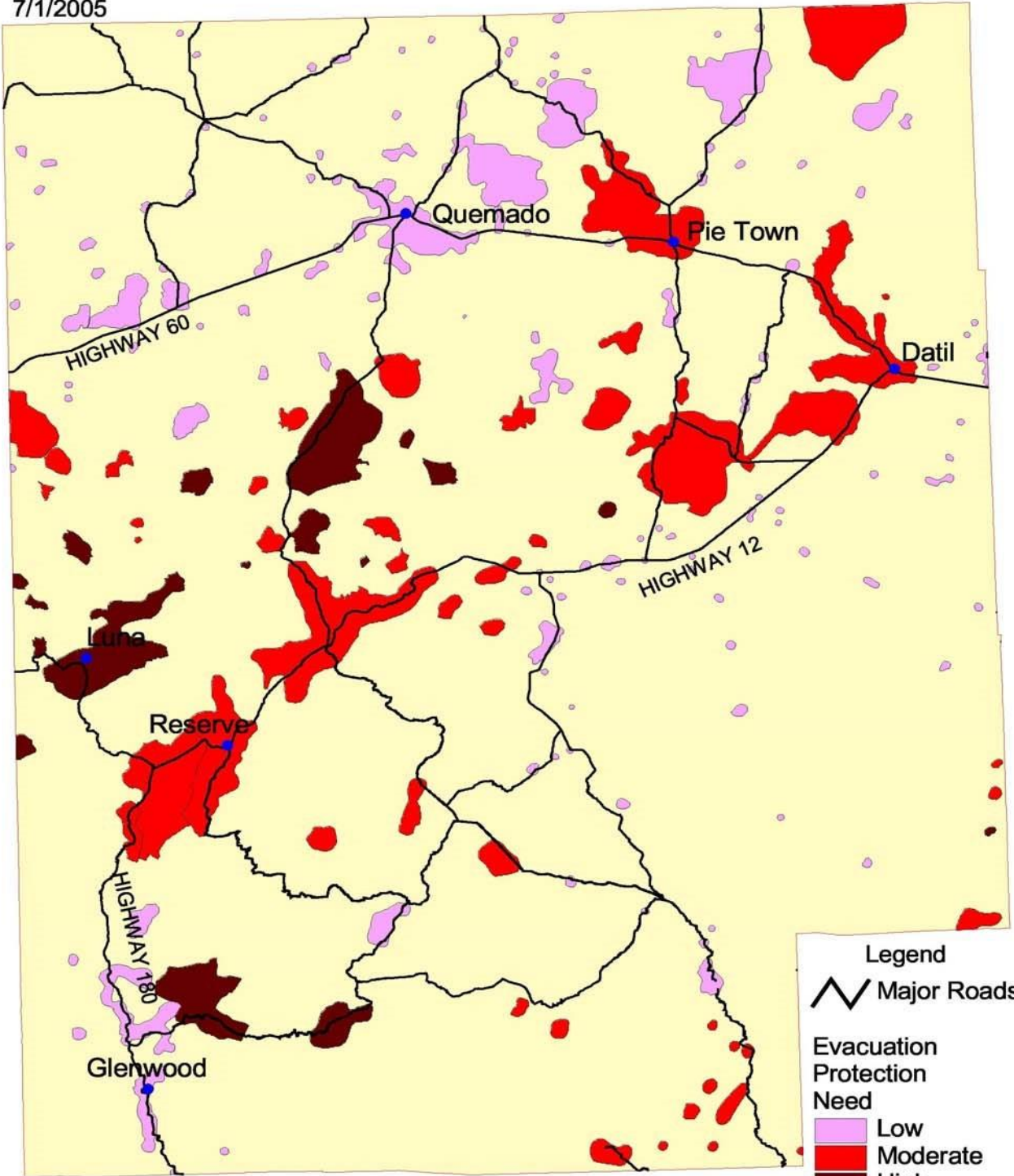
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**Map 13 – WUI Population Density**



7/1/2005



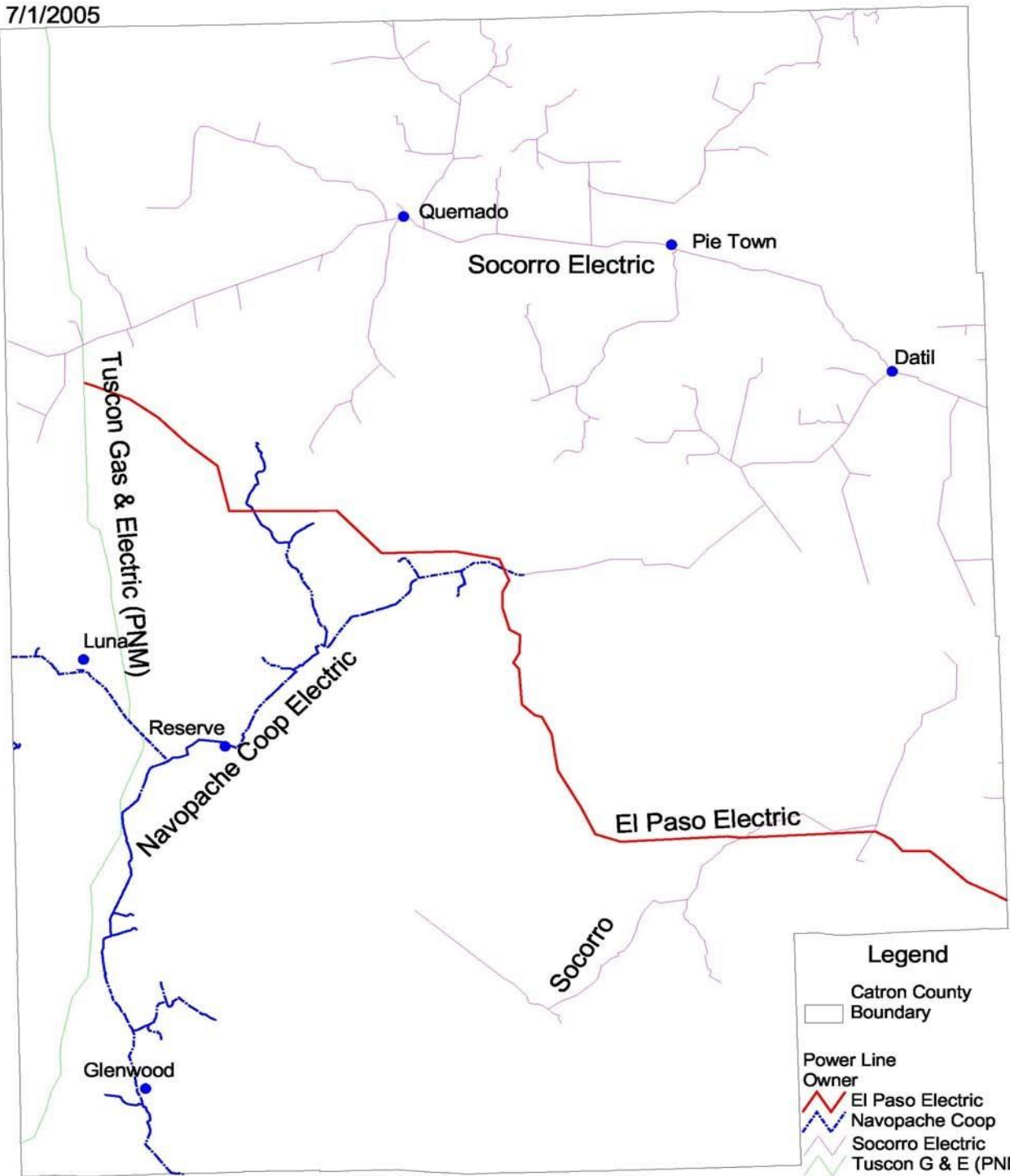
**Wildland Urban Interface Evacuation Protection Needs**  
**Catron County Community Wildfire Protection Plan**

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**Map 14 – WUI Evacuation Protection Needs**

7/1/2005



### Major Distribution Power Lines

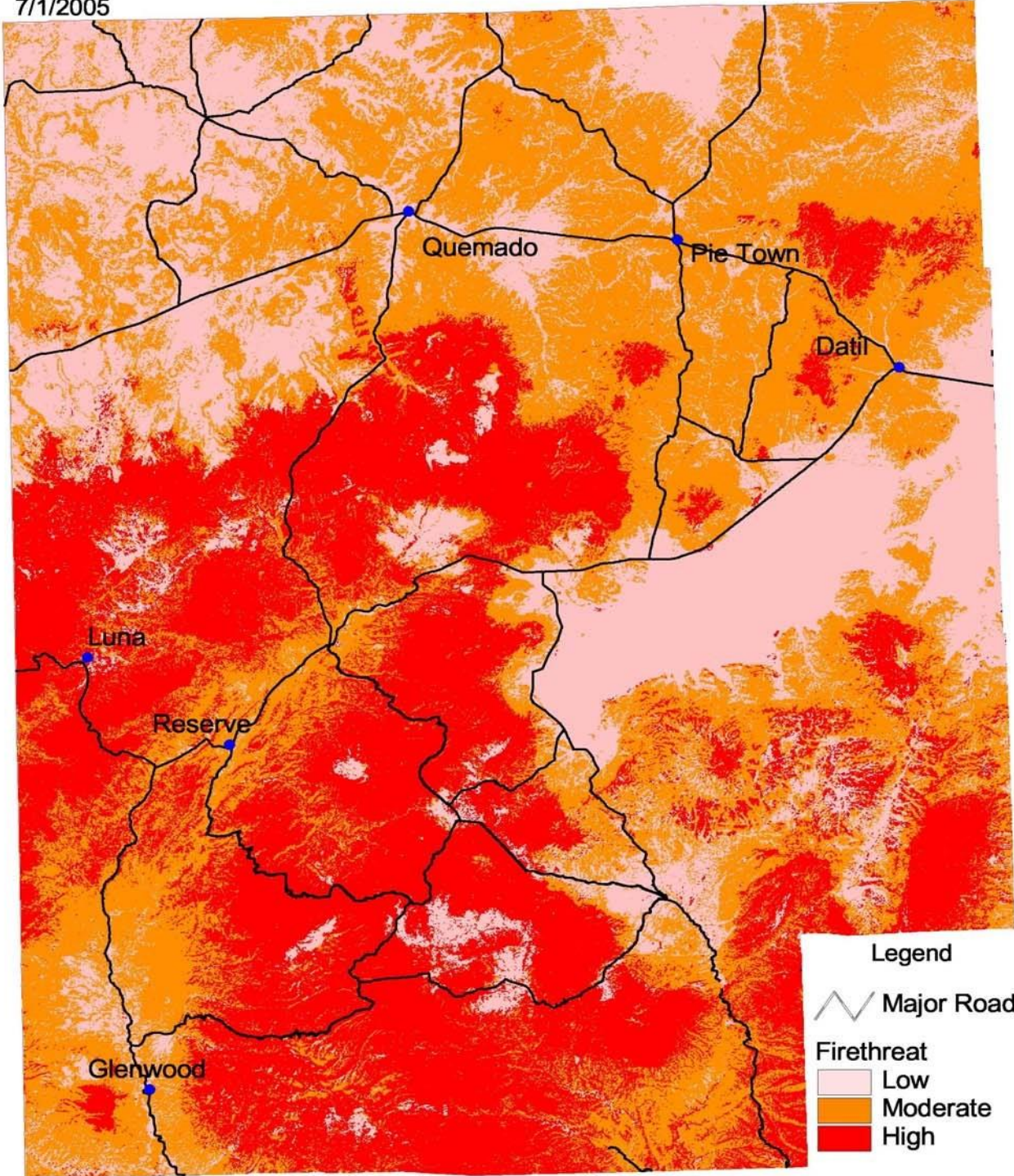
## Catron County Community Wildfire Protection Plan

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**Map 15 – Major Distribution Power Lines**

7/11/2005



**Legend**

Major Roads

**Firethreat**

- Low
- Moderate
- High

**Fire Threat**

**Catron County Community Wildfire Protection Plan**

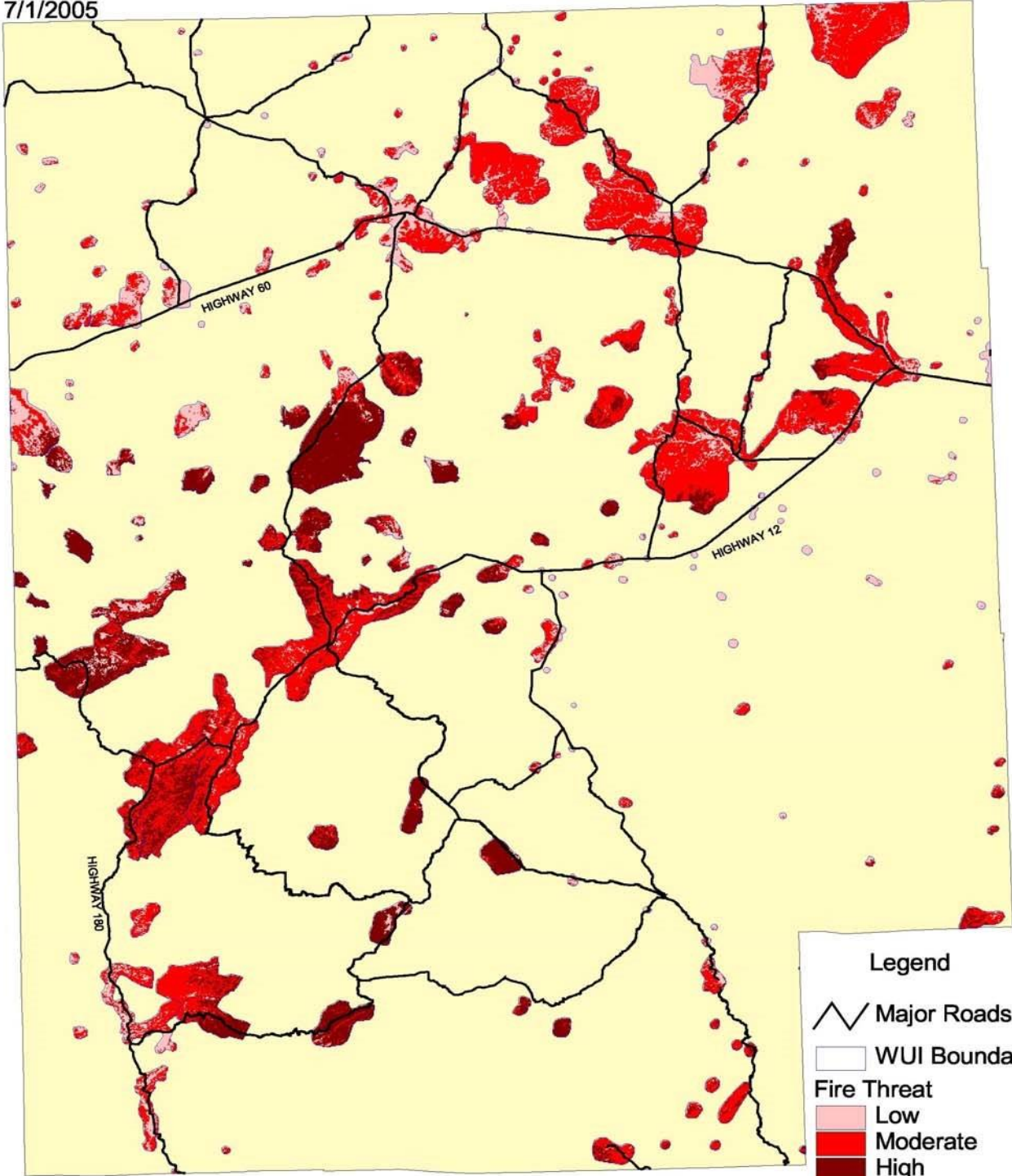
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	Acres
Low-	1,220,412
Moderate-	1,759,514
High-	1,456,351

Map 16 – Fire Threat

7/1/2005



**Legend**

-  Major Roads
-  WUI Boundary
- Fire Threat**
-  Low
-  Moderate
-  High

**Fire Threat in Wildland Urban Interface (WUI) Areas  
Catron County Community Wildfire Protection Plan**

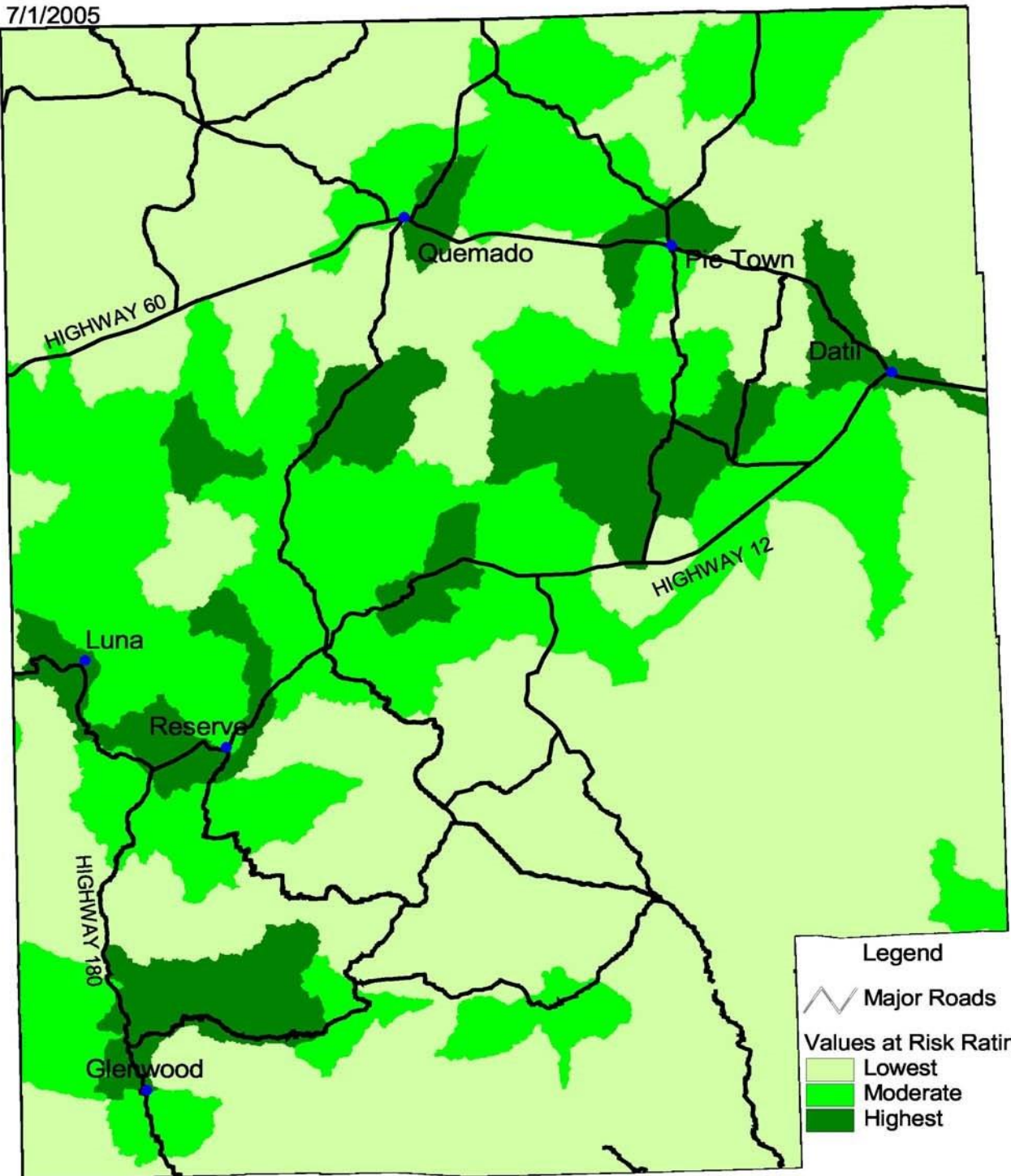
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NM Projection: UTM Zone 12 NAD 27



Acres by Fire Threat	
Low-	92,843
Moderate-	291,027
High-	139,270

**Map 17 – Fire Threat in WUI areas**

7/1/2005



**Legend**

Major Roads

**Values at Risk Rating**

- Lowest
- Moderate
- Highest

**Values at Risk**

**Catron County Community Wildfire Protection Plan**

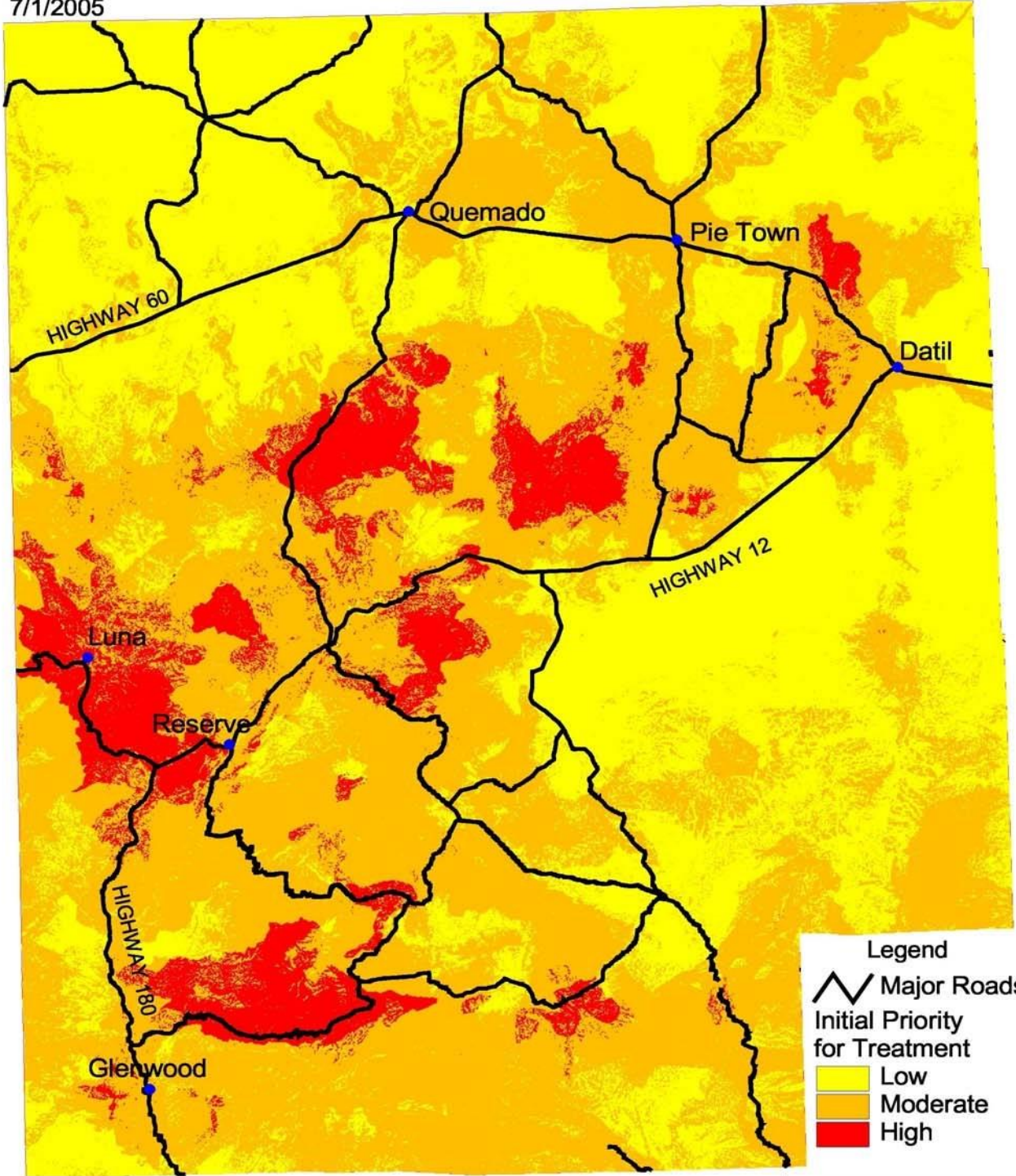
Acres per Class	
Lowest-	2,726,032
Moderate-	1,235,491
Highest-	475,969

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**Map 18 – Values at Risk**

7/1/2005



**Legend**

- Major Roads
- Initial Priority for Treatment**
- Low
- Moderate
- High

**Initial Treatment Priorities**  
**Catron County Community Wildfire Protection Plan**

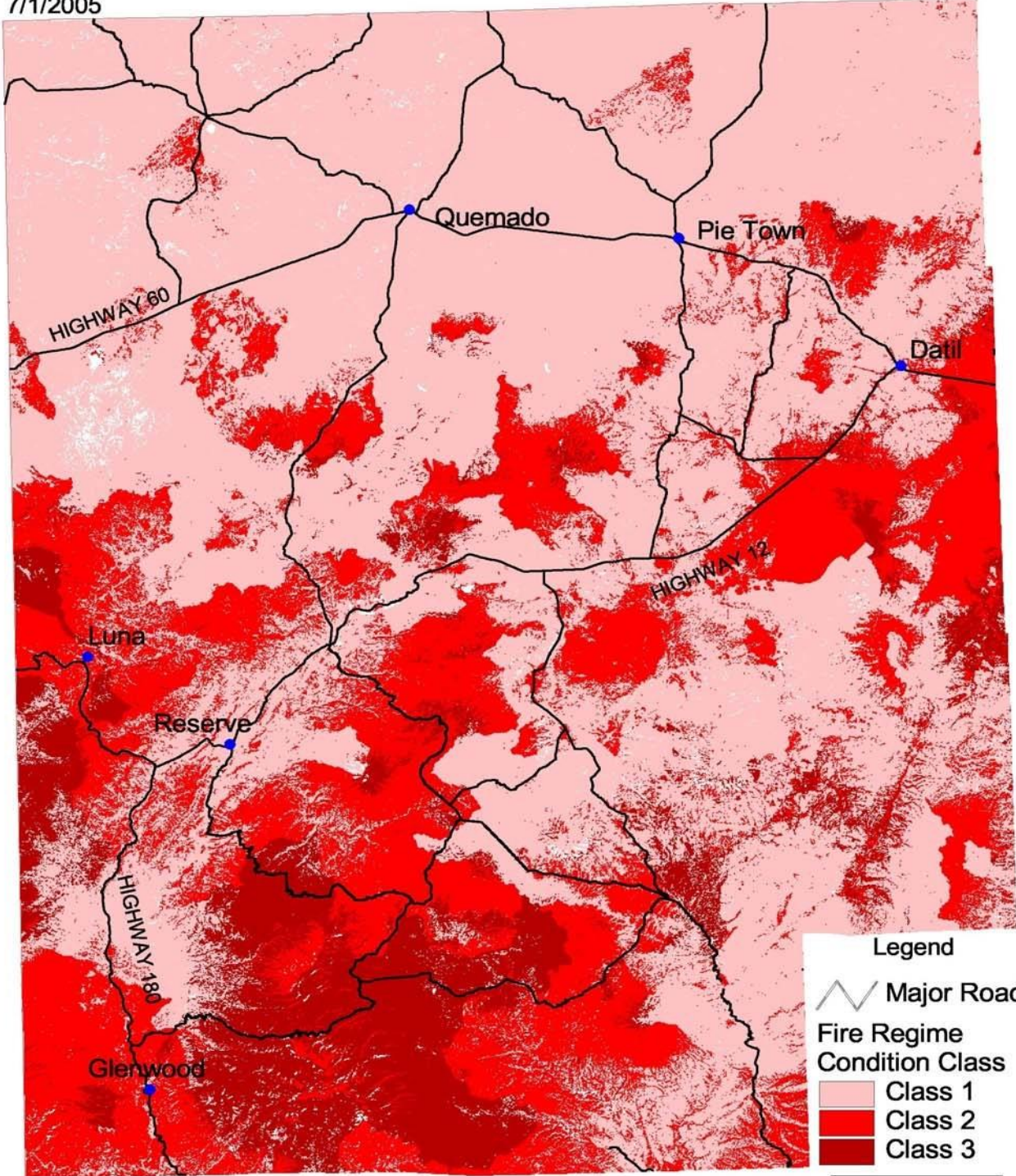
Acres by Priority	
Low-	1,871,073
Moderate-	2,186,317
High-	378,826

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**Map 19 – Initial Treatment Priorities**

7/1/2005



**Legend**

Major Roads

**Fire Regime Condition Class**

- Class 1
- Class 2
- Class 3

Acres by Class	
0-	39,238
1-	2,762,082
2-	1,144,911
3-	485,364

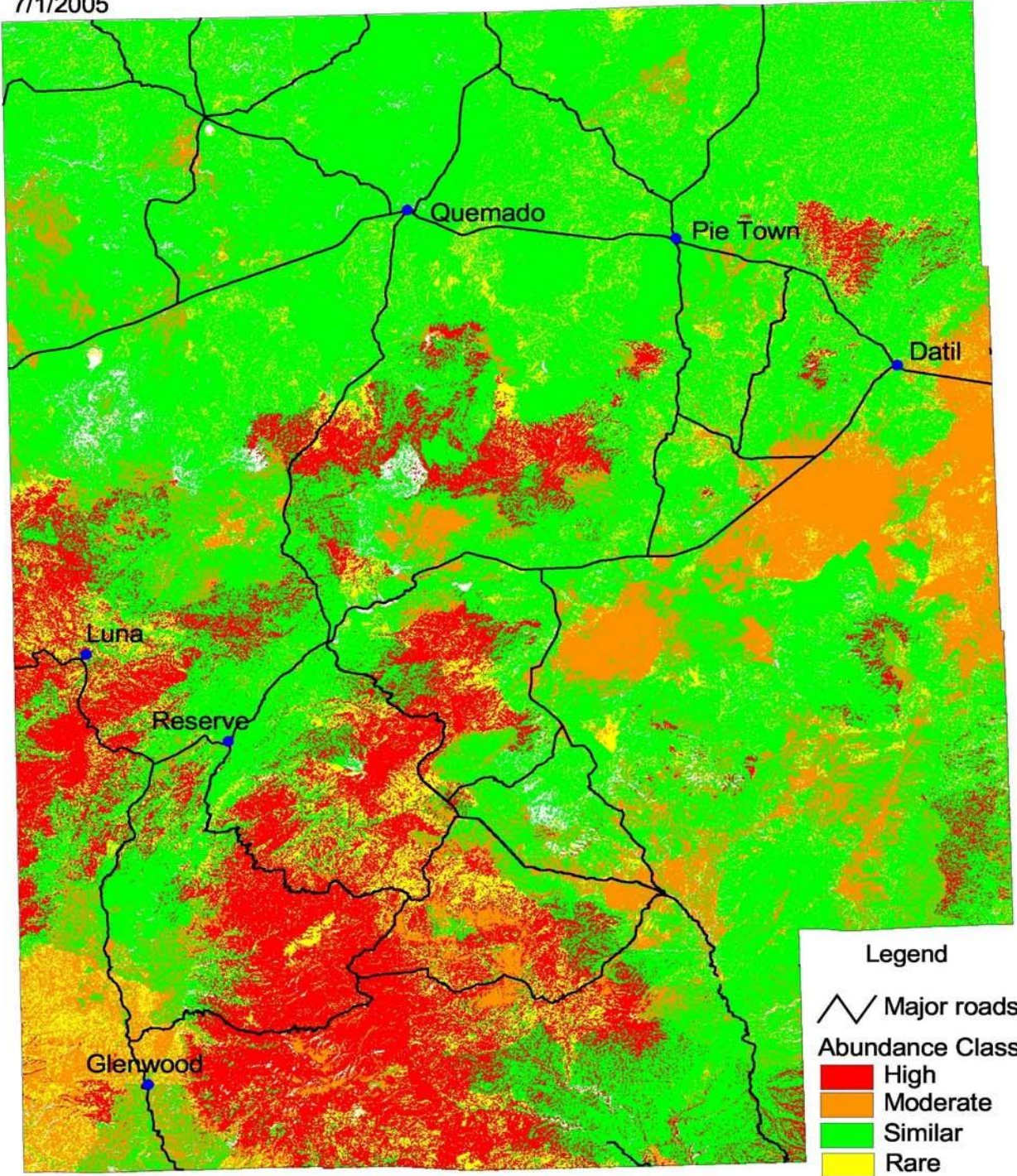
**Fire Regime Condition Class**  
**Catron County Community Wildfire Protection Plan**

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**Map 20 – Fire Regime Condition Class**

7/1/2005



### FRCC Abundance Class

### Catron County Community Wildfire Protection Plan

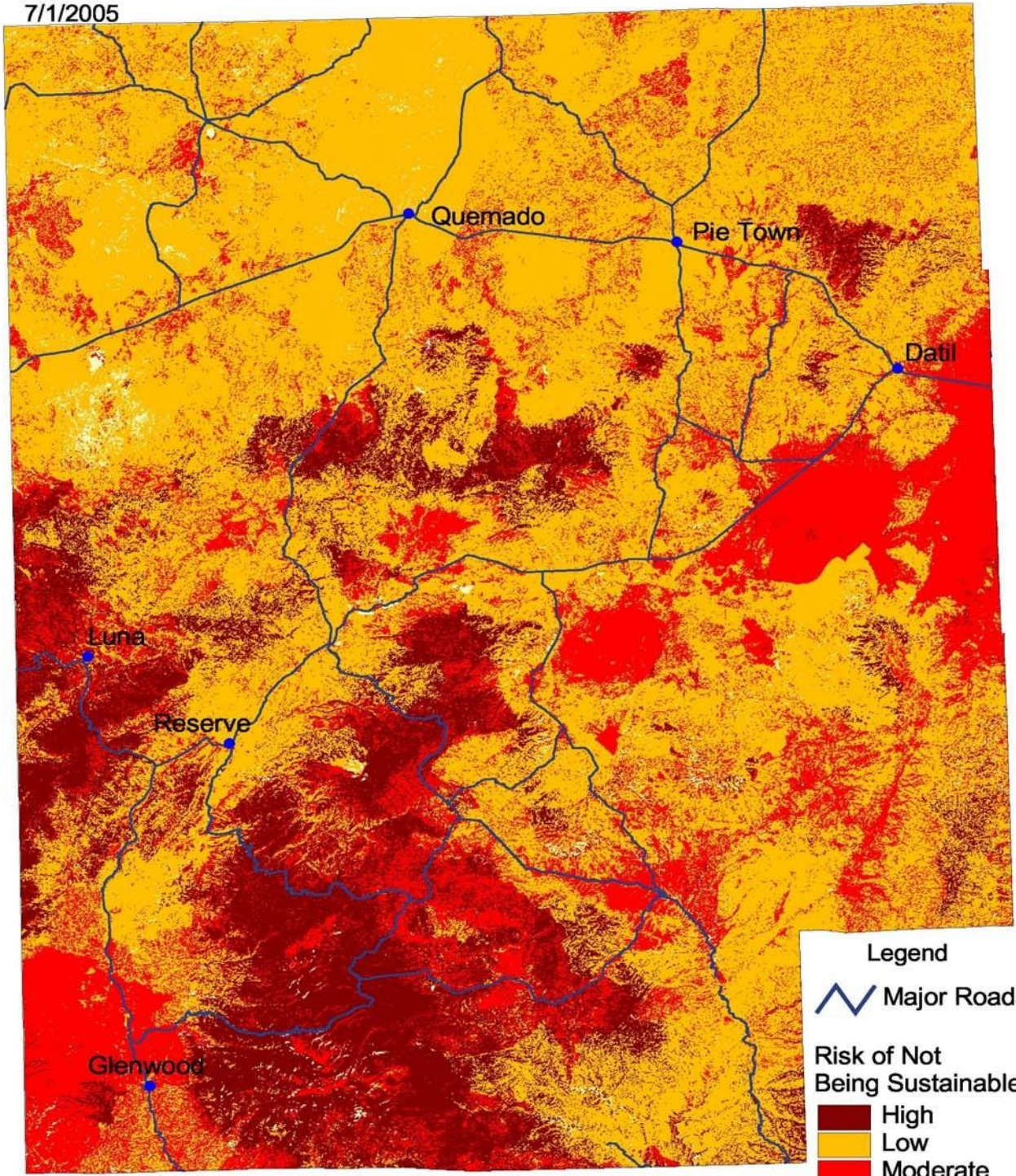
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**Map 21 – FRCC Abundance Class**



7/1/2005



Legend

Major Roads

Risk of Not Being Sustainable

- High
- Low
- Moderate

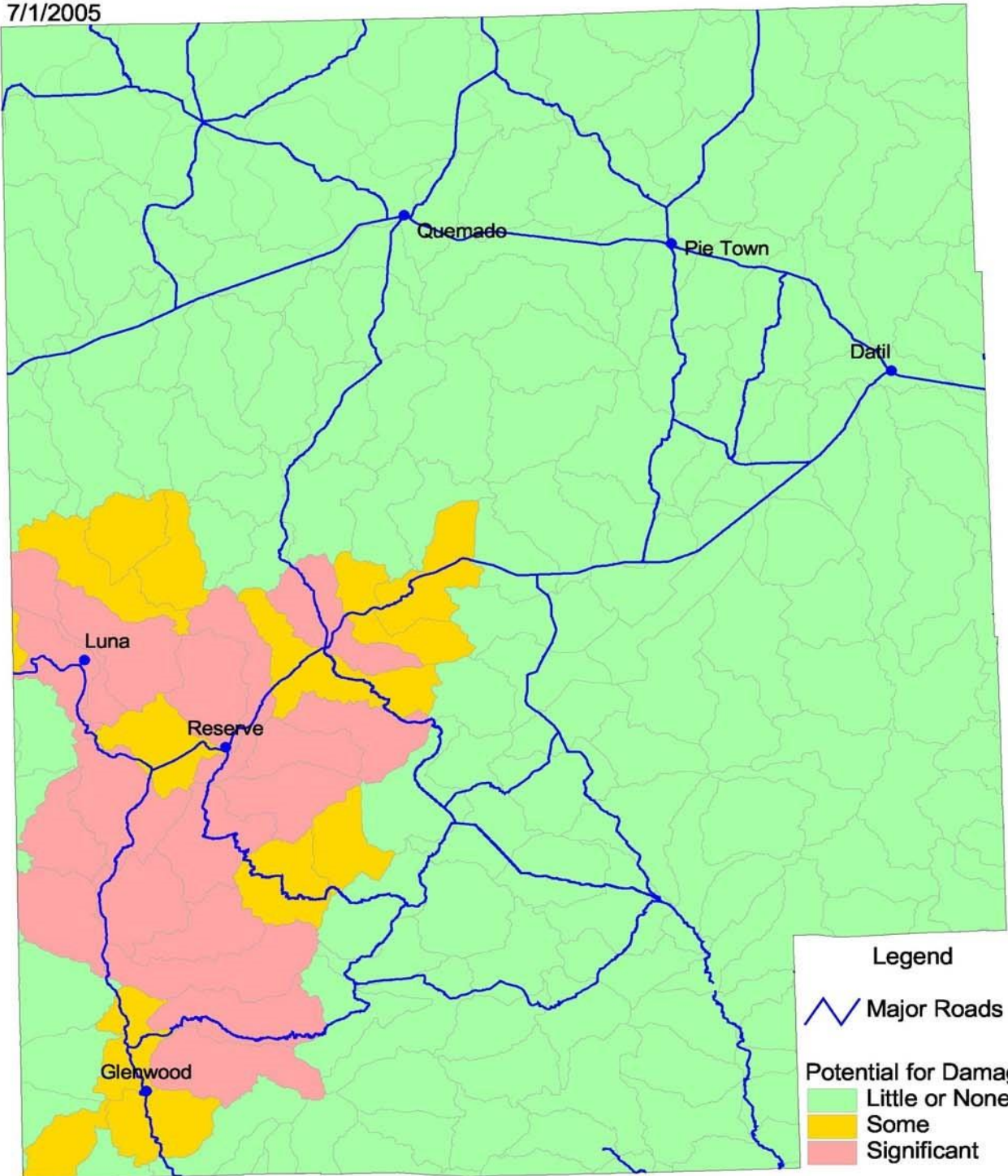
**FRCC Risk of Vegetative Condition Not Being Sustainable**  
**Catron County Community Wildfire Protection Plan**

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**Map 22 – FRCC Risk of Vegetative Condition Not Being Sustainable**

7/1/2005



**Potential for Downstream Damage to Agriculture by HUC 6 Watershed  
Catron County Community Wildfire Protection Plan**

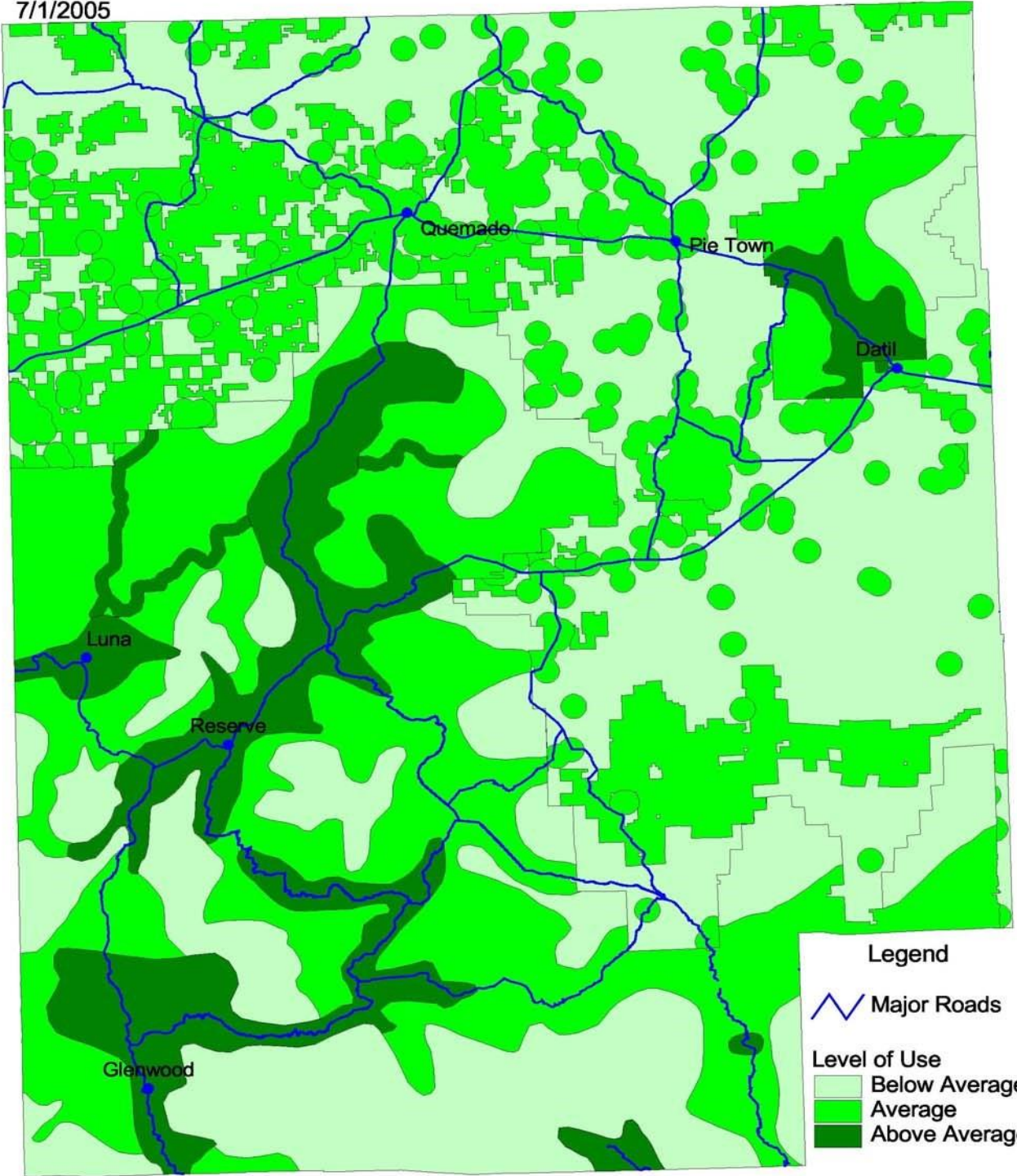
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10 0 10 20 Miles



**Map 23– Potential for Downstream Damage to Agriculture by HUC 6 Watershed**

7/1/2005



**Legend**

Major Roads

**Level of Use**

- Below Average
- Average
- Above Average

**Recreation Use**

**Catron County Community Wildfire Protection Plan**

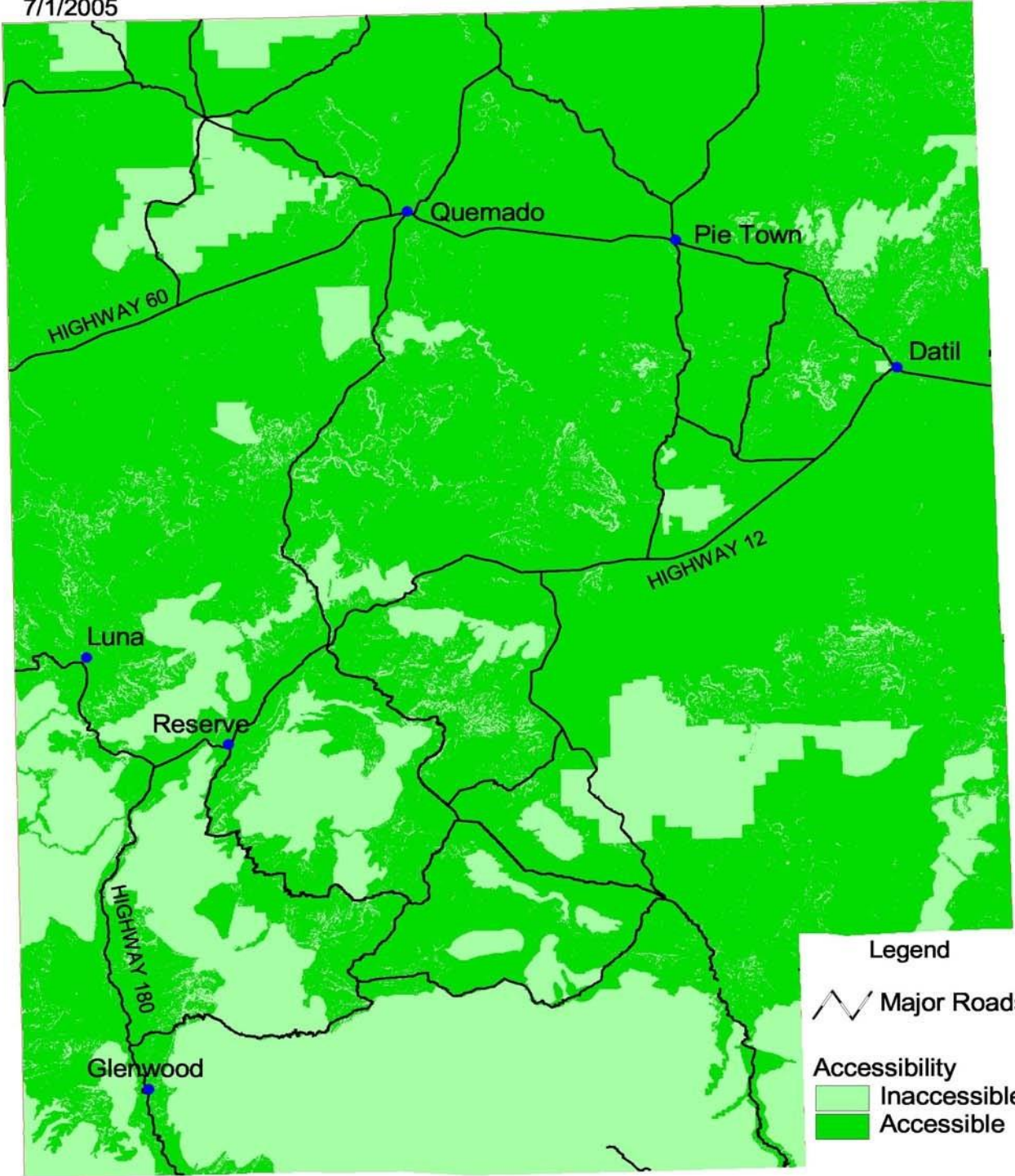
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Acres by Level	
Below Ave.-	2,022,487
Average-	1,927,084
Above Ave.-	487,880

**Map 24 – Recreation Use**

7/1/2005



### Machine Accessible Areas

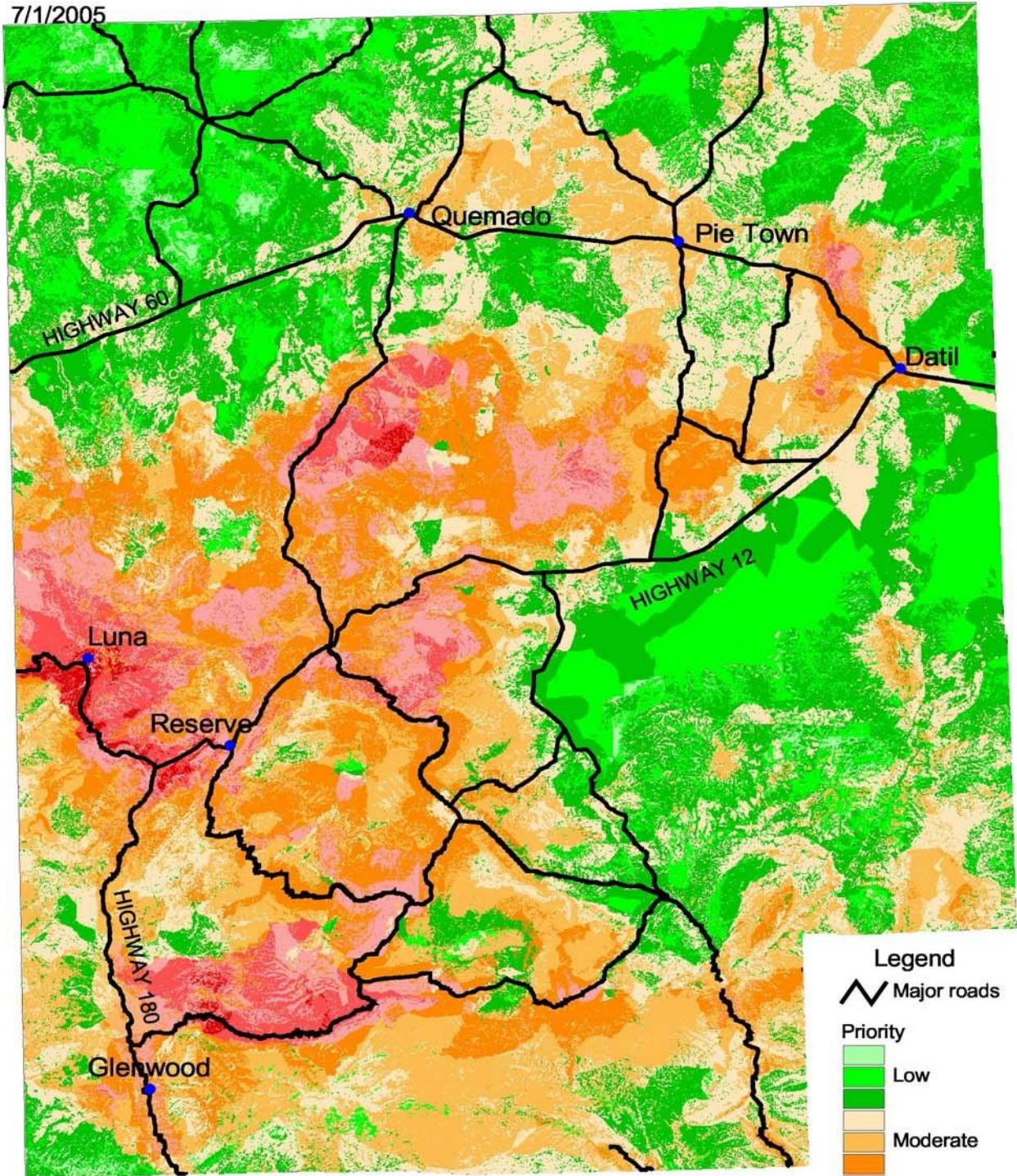
### Catron County Community Wildfire Protection Plan

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**Map 25 – Machine Accessible Areas**

7/1/2005



Legend  
Major roads

Priority  
Low  
Moderate  
High

Acres by Priority	
Low-	1,566,247
Moderate-	2,423,156
High-	446,667

### Final Treatment Priorities

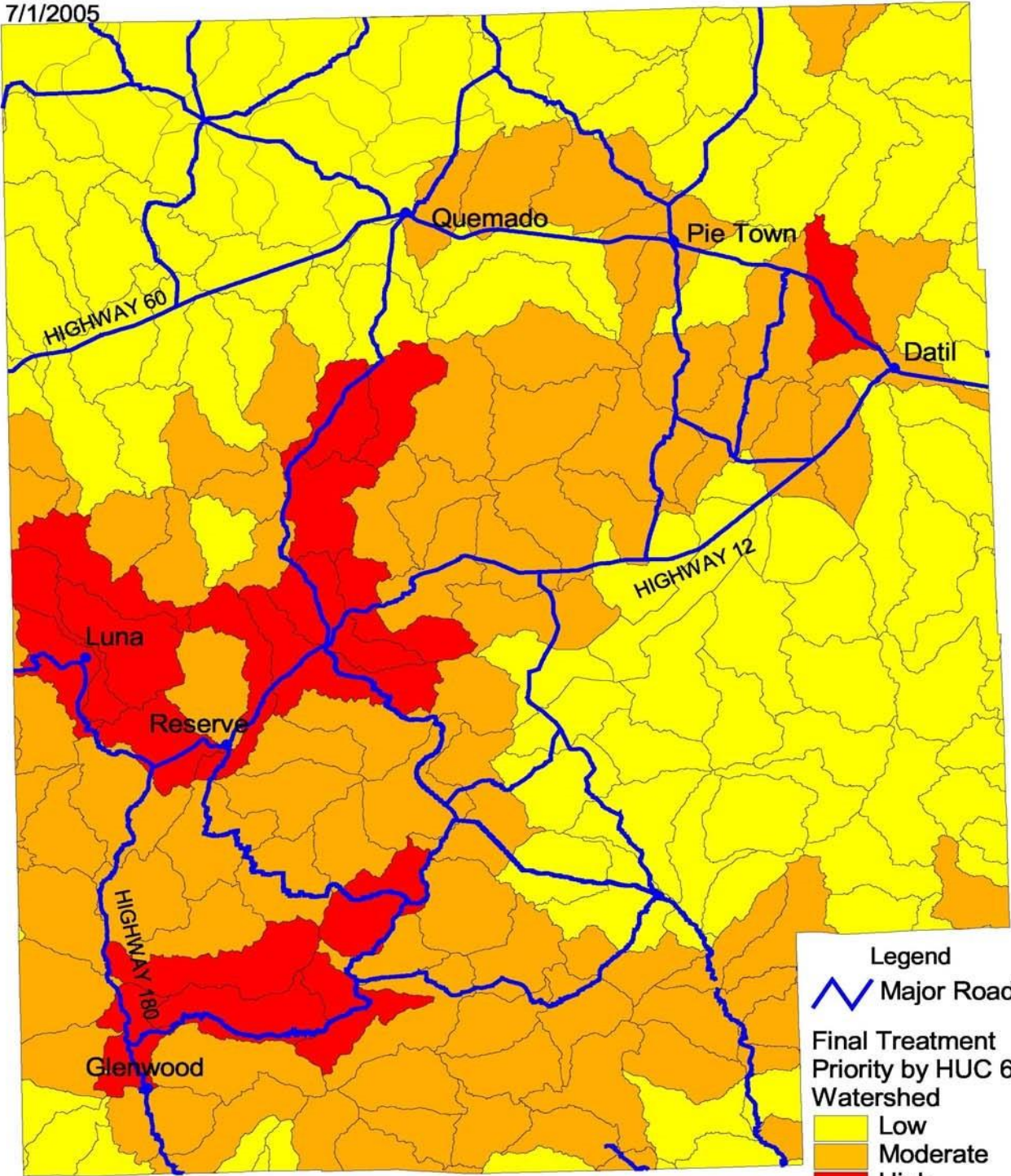
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**Map 26 – Final Treatment Priorities**


7/1/2005



**Legend**

-  Major Roads

**Final Treatment Priority by HUC 6 Watershed**

-  Low
-  Moderate
-  High

**Final Treatment Priority by HUC 6 Watershed**

**Catron County Community Wildfire Protection Plan**

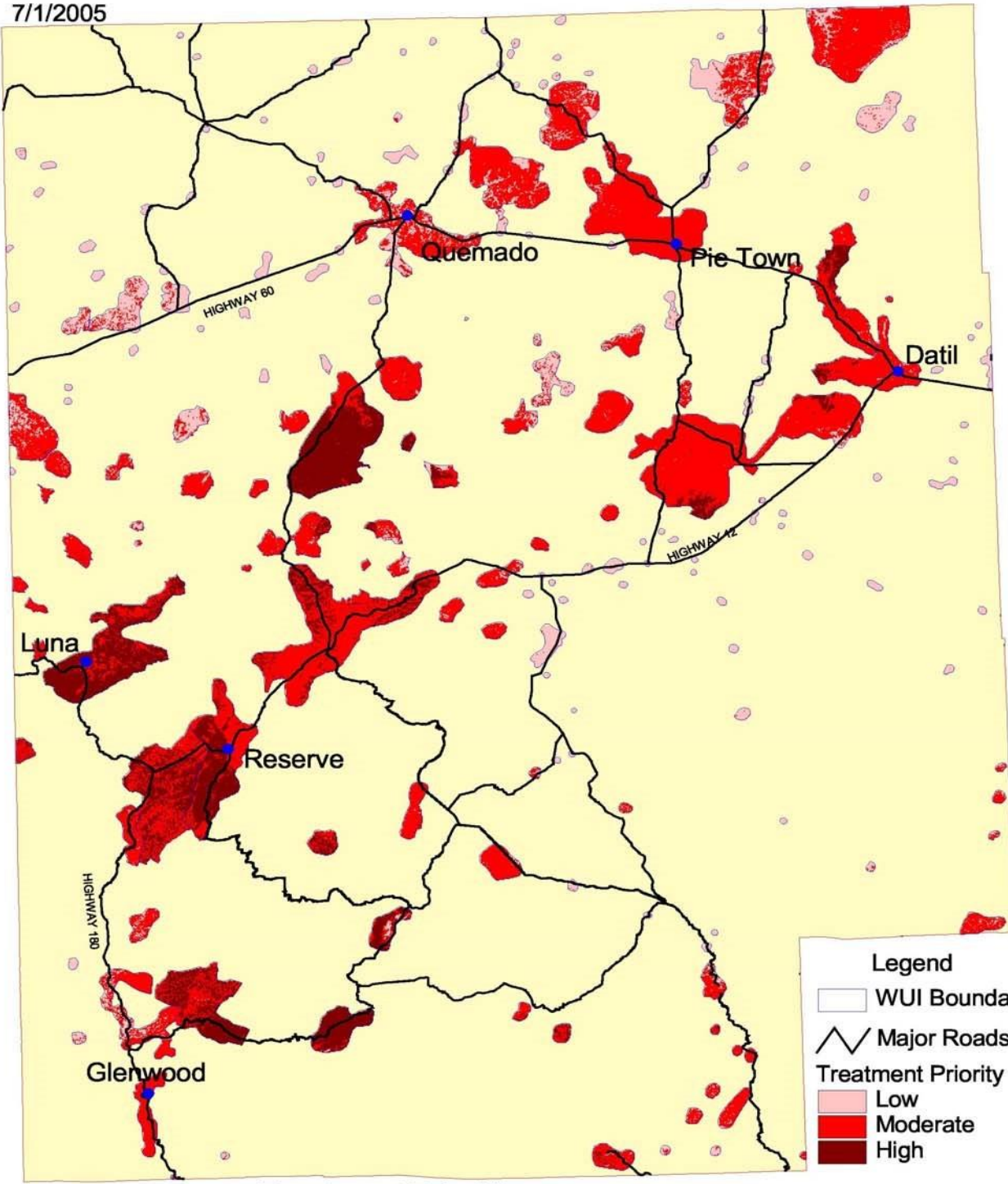
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Acres by Priority	
Low-	2,137,155
Moderate-	1,810,644
High-	489,566

**Map 27 – Final Treatment Priority by HUC 6 Watershed**

7/1/2005



**Legend**

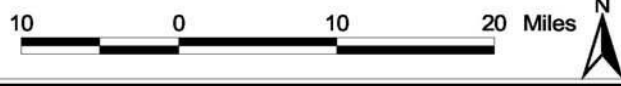
- WUI Boundary
- Major Roads

**Treatment Priority**

- Low
- Moderate
- High

**Treatment Priorities**  
**Wildland Urban Interface (WUI) Areas**  
**Catron County Community Wildfire Protection Plan**

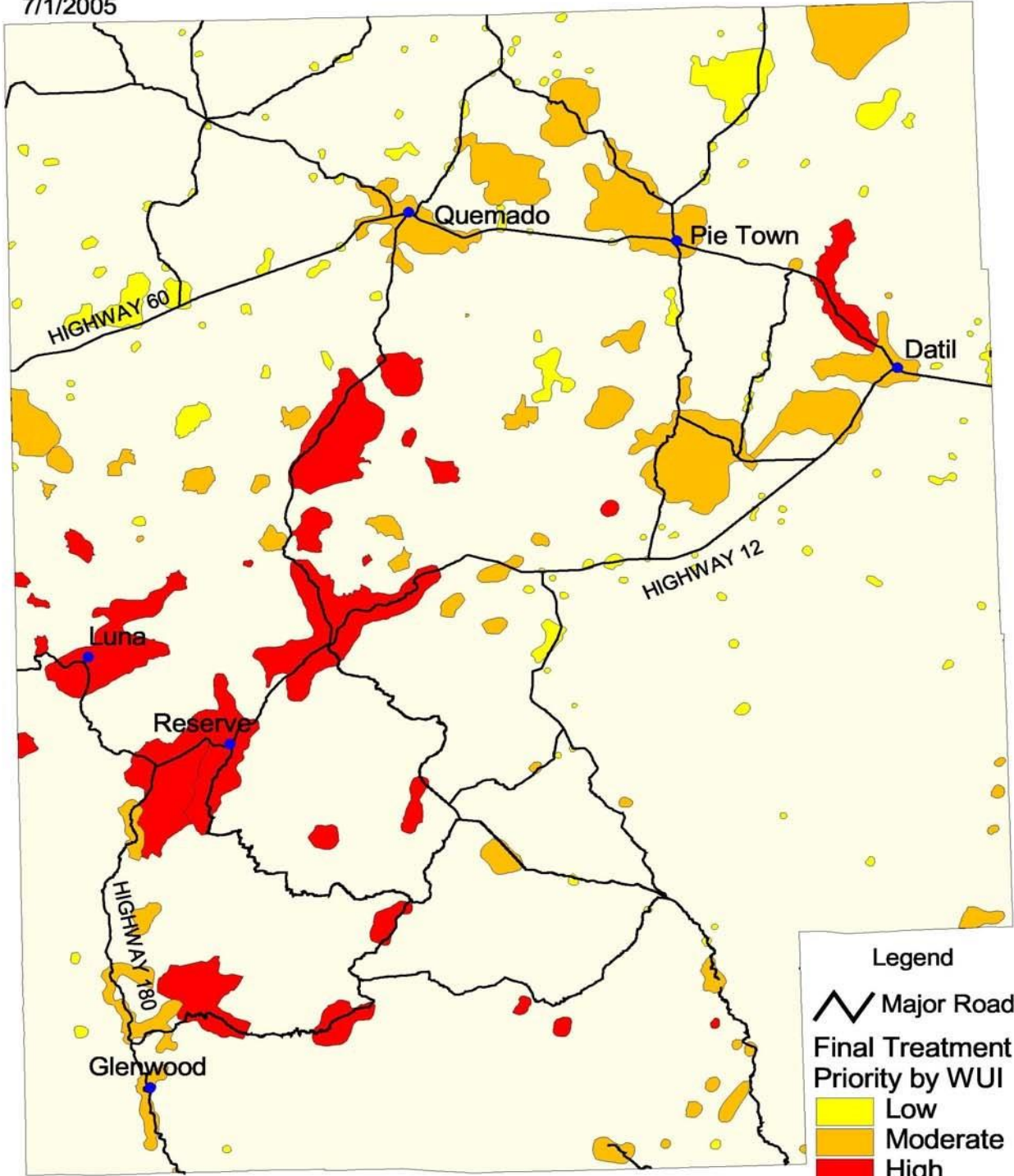
Attention  
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Acres by Priority	
Low-	86,959
Moderate-	321,569
High-	110,785

**Map 28 – Treatment Priorities**

7/1/2005



**Legend**

Major Roads

**Final Treatment Priority by WUI**

- Low
- Moderate
- High

**Wildland Urban Interface Areas Treatment Priorities**  
**Catron County Community Wildfire Protection Plan**

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Acres by Priority	
Low-	73,435
Moderate-	241,111
High-	204,865

**Map 29 – WUI Treatment Priorities**