

# TELLER COUNTY, COLORADO

# COMMUNITY WILDFIRE PROTECTION PLAN UPDATE

NOVEMBER 2011





The maps in this document (unless otherwise cited) were created by staff of the Coalition for the Upper South Platte and made possible by a grant from the ESRI Conservation Program.

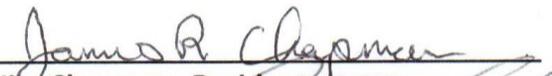
**INTRODUCTION**

With the completion of the original Community Wildfire Protection Plan (CWPP) in May of 2005, Teller County became the first county in the state to address the wildfire issues across an entire county landscape. Since that time Colorado Senate Bill 09-001, "Concerning the Establishment of Community Wildfire Protection Plans by County Governments," was passed and requires each county government to prepare a CWPP. This legislation directed that county CWPPs should only address the unincorporated portion of the county and, Colorado State Forest Service issued new guidelines for CWPP development in 2009. This plan adheres to those directives and guidelines.<sup>1</sup>

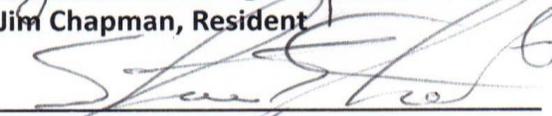
This all-County plan is broad scale, not suitable for on-the-ground project design, and does not replace any existing CWPPs completed by local communities. CWPPs prepared for individual subdivisions, neighborhoods, or fire protection districts capture the level of detail needed to take specific local actions. The development of local CWPPs brings together the neighborhood groups that plan mitigation projects and, in many cases, do the hands-on work. This approach respects the spirit of the national standards for CWPPs, which require local plans to be specific about wildfire hazards, community values at risk, and the projects needed to protect those values.<sup>2</sup>

**This document, prepared by Teller County citizens has been approved or concurred by the following:**

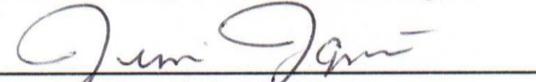
**CWPP Update Committee** 11/22/11

  
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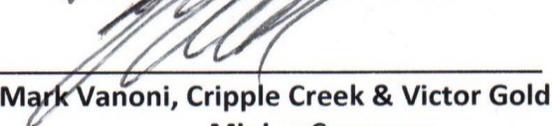
  
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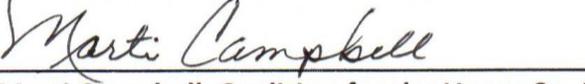
  
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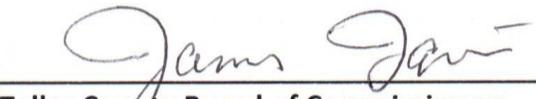
  
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**Teller County Board of Commissioners**

11/23/11

<sup>1</sup> CWPP Minimum Standards, Revised, [http://csfs.colostate.edu/pdfs/FINAL\\_Revised\\_CWPP\\_Minimum\\_Standards\\_111309.pdf](http://csfs.colostate.edu/pdfs/FINAL_Revised_CWPP_Minimum_Standards_111309.pdf)  
<sup>2</sup> Preparing Community Wildfire Protection Plans, <http://csfs.colostate.edu/pdfs/cwpphandbook.pdf>

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## SIGNIFICANT ACTIVITIES AND PROGRESS

While many counties are just beginning to move forward with wildfire mitigation practices, Teller County has forged ahead with on-the-ground fuel reduction and other efforts to address the highest priorities identified. As a result, this updated CWPP is necessary to evaluate changes that have occurred, not only with the mitigation and education efforts, but to establish new priorities to guide the county for future years.

The following Goals and Objectives were established by the original 2005 CWPP<sup>1</sup>

*2005 Teller County CWPP Program Goals and Objectives*

*“We recommend that several local governments and federal and state agencies operating in the County cooperate in supporting programs to increase the safety and health of our forest on both private and public lands.”*

*Goal 1 Reduce frequency and/or severity of Wildland fire in Teller County*

- Objective 1 Reduce the fuel load in strategic locations in the WUI*
- Objective 2 Improve overall health of publicly owned forests*
- Objective 3 Increase voluntary landowner responsibility for fuel reduction*

*Goal 2 Reduce vulnerability of local assets to Wildland fire impacts*

- Objective 1 Improve defensibility of residential and commercial properties against wildland fire*
- Objective 2 Reduce vulnerability of critical infrastructure to wildfire impacts*

*Additional recommendations*

- Consider Land Use Regulation Enhancement*
- Continue Slash Mulch program*
- Responder Needs assessment*
- Continue Priority Zone Identification*

### REVIEW OF THE PROGRESS TOWARD ACHIEVING 2005 OBJECTIVES AND GOALS:

Both public land managers and private citizens throughout Teller County have made significant efforts toward these goals. Agencies and citizens have mitigated fuels, created fire breaks, and worked collaboratively on outreach and education. The next several pages review the outcomes that have occurred under the previous CWPP.

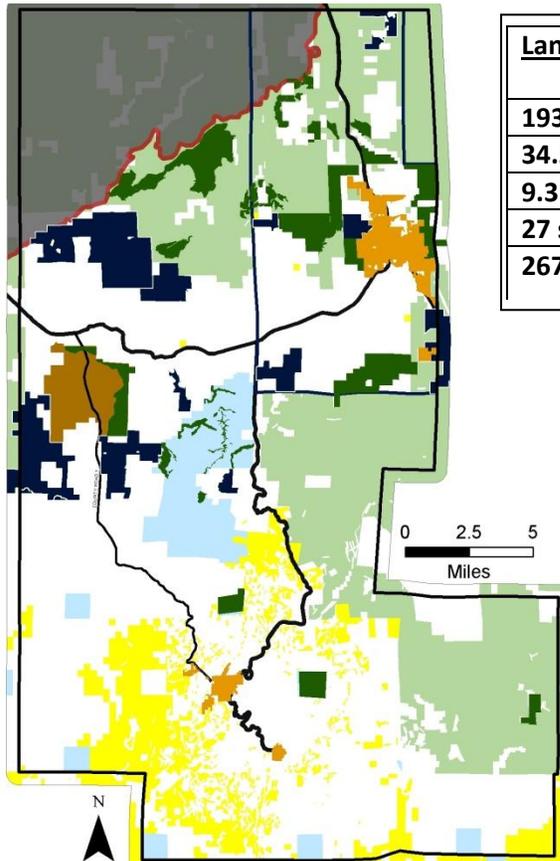
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<sup>1</sup> Teller County Community Wildfire Protection Plan May 2005

**Goal #1: Reduce frequency and/or severity of Wildland fire in Teller County**

Public Land Managers

Nearly 50% of Teller County lands are under the management of other agencies. Managers of all agencies have responded to the need to increase strategic acreage treated to reduce the risk of catastrophic wildfire and to improve the health of the forest. At the request of this CWPP committee, public land managers have submitted reports of significant projects that have occurred or are planned on lands they manage. These reports are included for resident information. Reports of accomplishments by each agency are included in Appendix A. Briefly, the results are as follows:



| <u>Land Ownership in Teller County</u> | <u>Acreage Treated</u> |
|--|------------------------|
| 193.6 sq mi - US Forest Service        | 12,000 acres           |
| 34.5 sq mi Bureau of Land Mgmt.        | 803 acres              |
| 9.3 sq mi - National Parks             | 256 acres              |
| 27 sq mi - State Parks & State Land    | 2,051 acres            |
| 267.6 sq mi- Private Lands             | 3,455+ acres           |



Map 1: Land Ownership and CWPP Communities

Stewardship Contracts: A Tool for Public Land Managers

Traditionally, Forest Stewardship contracts have been offered by the US Forest Service to private contractors to harvest forest products on small acreage for a period of 2 years. In 2010 The Pike and Arapaho National Forests signed a 10 year stewardship contract with a private forest contractor to facilitate forest thinning, fuel mitigation, timber and biomass production where appropriate on selected acreage. The longer length of this contract allows the contractor the economic stability to maintain his business with a consistent supply of wood products and

provides the Pike National Forest with reliable management treatments over a extended period of time. Over the ten year period of the contract, approximately 2000 acres of Pike National Forest in Teller County are expected to be mitigated each year. In prior years the focus has been north, west and east of Woodland Park, concentrating in the “Trout West “area. Beginning in 2012 and continuing for the remainder of the stewardship contract the focus will shift to the Catamount area which is South of Highway 24 along the North Slope of Pikes Peak and the Colorado Springs watershed.

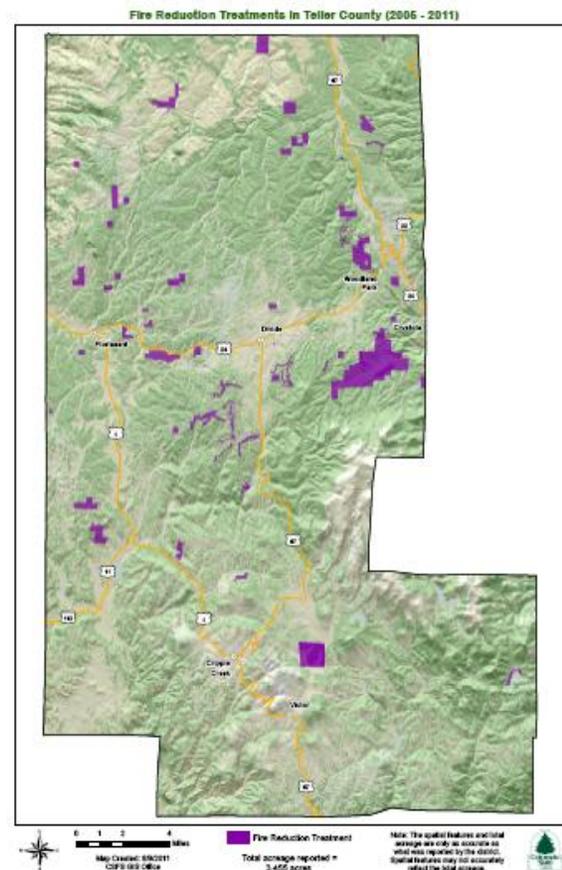
## **Goal #2: Reduce vulnerability of local assets to Wildland fire impacts**

### Private Lands

Following the Hayman fire of 2002, Teller County, fire departments and many local groups have taken the necessary steps to inform residents of the dangers of wildfires and to demonstrate techniques they can use to personally protect their property. Colorado State Forest Service continues to provide onsite assessment and offer recommendations to private property owners as well as providing individual and community cost-share grants to assist financially in fuel reduction and forest health activities.

On-the-ground efforts in Teller County have gained momentum over the years and the Colorado State Forest Service (CSFS) continues to provide grant funding for private property mitigation projects in communities with a local CWPP. CSFS tracks acres of fuel mitigation accomplished on private and state lands as a result of CSFS involvement through cost share, Forest Agriculture, and other landowner assistance programs. Twice yearly the Woodland Park District office sends surveys to contractors to track acres that have been done without direct CSFS involvement. The data shows 3,455 acres have been treated in this manner since the Teller CWPP was written in 2005.

There are undoubtedly some acres that have not been reported. Often landowners do mitigation without direct CSFS involvement or without the services of a contractor, and these may not be tracked. Since 2005 the CSFS, CUSP and others have made concerted efforts to educate landowner about the importance of fuel mitigation and thinning for forest health. Many landowners take these messages home and do mitigation on their own initiative. (See CSFS report in Appendix A)



Map 2: Fuel Reduction Treatments, Teller County

## Economic factors<sup>2</sup>

The cost of forestry work may create a barrier to mitigation for many residents, even those with small lots. Often the cost of moving equipment in and out of a project results in significantly higher per acre costs on small projects compared to larger ones. Those who are physically incapable of this work or have lower incomes may be unable to consider hiring a contractor for even a small project to create survivable (defensible) space or trim branches, even when they agree with the need to do so.

Owners of large forested holdings also face economic challenges, as these large parcels can be very expensive to thin. Standing timber in the county is generally too small or too inaccessible for commercial use, and there is currently little market for small diameter wood or slash.

Teller County supports the Colorado State Forest Service competitive grant programs for mitigation and forest health projects on private lands. This funding assistance has been crucial in enabling private land owners to leverage their funds and time in order to accomplish significant on-the-ground treatment based on State, county and local prioritizations.

## Local CWPPs

As of this date, there are eleven local communities that have shouldered the responsibility for creating a detailed specific Community Wildfire Protection Plan for their residents based on the community's values and priorities. Many of these communities have completed on-the-ground projects to mitigate the wildfire risk and improve the health of the forest around them. Majestic Park became the first community to complete the fuel mitigation goals established by their CWPP. Other communities are making progress. Ridgewood was designated a "National Firewise Community" in 2011. Cost share grant funding opportunities are available to communities with approved CWPPs through CSFS and other sources.

Additionally, the Woodland Park Healthy Forest Initiative created a 63,000 acre, Community



Wildfire Protection Plan in the northeast section of the county which includes the highest population concentrations. This project has helped public and private partners to work more strategically in this large landscape. For more detailed information about this initiative, visit the website: [www.wphfi.org](http://www.wphfi.org).

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<sup>2</sup> [www.frontrangeroundtable.org/](http://www.frontrangeroundtable.org/)

## **PROGRESS ON RECOMMENDED ACTIONS**

### **Consider Land Use Regulation Enhancement**

Teller County Land Use Regulations are designed to be convenient, ensure safety, promote health, preserve aesthetics, and enhance prosperity for the inhabitants of the county. As such, Section 6.5, “Wildfire Hazard Areas,” was added to Chapter 6: Critical Areas of the Teller County Land Use Regulations in 2007. These regulations were established in order to reduce the threat of Wildfire Hazard Areas to prospective and existing developments in Teller County. The provisions of Section 6.5 apply to all applicable development permit applications where it is deemed required that wildfire hazard areas are satisfactorily addressed.

The Standards section (6.5c) consists of five elements that were created to minimize the potential impacts of fire hazards on an occupant’s property and/or adjacent properties. First, hazards need to be minimized. A development should be designed to minimize conditions that would compromise public health and safety. Second, adequate roads and firebreaks need to be incorporated into a development plan. Third, a development must provide a legal, adequate, and dependable supply of water and facilities for fire suppression. Additionally, recommendations from referral agencies like the Colorado State Forest Service, local Fire Protection District, or the Teller County Fire Marshall are to be included in the development plan. If no recommendations apply, then guidelines, standards, and requirements of the Colorado State Forest Service, Teller County Fire Code, and the National Fire Protection Association must be recognized.

Last, full disclosure of any identified moderate, high, severe, or extreme fuel hazard areas must be provided by the development on all final plats. These measures help protect the environment and important natural, cultural, or historical resources within Teller County. See Appendix B.

### **Continue Slash Mulch Program**

**Volunteers from Teller County began operating a slash collection site in 2003. It was estimated by private landowners that slash was removed from over 685 acres of private property the first year. In 2005, the county provided a long-term collection site in Divide and the operation of the program was transferred to the Coalition for the Upper South Platte (CUSP). By 2010, over 6500 truck-loads of slash had been collected. This is an ongoing program to benefit property owner fuel reduction efforts.**



**Photo 1: Divide Slash Site and Chipping**

Slash is received for a small fee throughout the summer months. At the end of the season, the slash is chipped and the mulch made available to contractors and homeowners for erosion control and landscaping use. The Woodland Park Waste Water Treatment plant also uses 2000 cubic yards of the chipped wood products from the slash site each year as part of their process for treating solid waste. The “Grade A/Unrestricted Use” compost produced is certified pathogen (disease) free and is available at no cost for landscaping use in limited quantities.

## **OTHER ACTIVITIES**

### Teller County Government and Projects

County Government has participated on committees such as the Governor’s Forest Health Council and the Colorado Counties Inc. Steering Committee to develop policies related to wildfire on a Federal, statewide and local level. Commissioners have also been instrumental in cooperative partnerships with the Front Range Fuel Treatment Round Table and public land managers in designing projects to benefit Teller County fuel mitigation goals.

Teller County Roads and Parks also took on the responsibility of reducing fuels along the 630 miles of county road easements, right-of-ways and in the county owned parks. Each year road crews remove hazardous trees and mow 30-50 miles along county maintained roadways. Parks have participated in fuel reduction projects averaging treatment of five acres each year along trails and within the County open space areas.

The County Road Department welcomes the opportunity to work with communities on roadside issues that may impact safety of travel including, for example, wildfire mitigation, fire department access or emergency evacuation routes. For more information about specific roadway questions, please call Teller County Public Works at 687-8812.

#### **Ownership of County Maintained Roads:**

The management activity on roadsides depends on the legal authority and the volume of use.

The term “right-of-way” refers to a surveyed buffer width along and including a roadway that is owned by Teller County. These occur most commonly in platted subdivisions where the developer constructed the roads then conveyed legal ownership of the road and right-of-way tract(s) to the County. The private property along platted right-of-ways has a surveyed, platted lot adjacent to the right-of-way that is specified on the plat. The adjacent private property has no ownership in the right-of-way or roadway itself. When deemed necessary for public safety, the county has the authority to work within the right-of-way to modify the roadway or roadside.

An “easement” is legal permission given to the County by an individual deed or property owner to allow use and maintenance of the road, but does not transfer ownership. Each easement has its own history and the specifications are variable. An easement may include only the roadway itself or may extend several feet to each side to allow for maintenance along the roadway. It should be noted that the roadway may not be located in the center of the easement.

Property owners are strongly encouraged to verify their property line location adjacent to the roadway and review the property deed and/or plat to determine if there is an existing easement or right-of-way.

## Biomass Use

In 2006 and 2007 Colorado Springs Utilities test fired woody biomass by blending it with coal to feed an existing steam boiler at Martin Drake Power Plant. The 1,000 tons of sawdust was a preliminary test for a co-combustion/co-firing project. Full implementation will require the construction of a \$10 million receiving, processing and biomass injection plant to co-combust/co-fire 100,000 tons of woody biomass per year and will replace 75,000 tons of coal annually.

Biomass fuel produced within a 75 mile radius of the power plant is most cost effective and most competitive with coal fuels. Teller and El Paso counties will benefit by providing a portion of the needed biomass in conjunction with stewardship programs, reclamation projects, and regional utility needs among other uses.

Unfortunately the Colorado Springs' Utilities Electric Integrated Resource Plan (EIRP) and the tightening of utility spending will most likely push back the woody biomass project beyond 2012 and/or 2013. Of course, positive input to this public process may influence progress of the biomass co-combustion/co-firing project schedule.<sup>3</sup>

## Education – Media, events, etc



Teller County has hosted four public “Be Aware and Prepare” Wildfire Prevention Fairs to provide information regarding protection of personal home and property and to highlight other forest health, wildfire prevention and mitigation activities throughout the county. Additionally, the local news has carried frequent stories regarding community efforts to reduce the wildfire hazards. Teller County and agency partners have hosted tours for state and federal elected officials and bureaucrats. A wide variety of presentations by forest professionals are offered for interested residents and organizations to discuss development of Community Wildfire Protection Plans and to distribute more specific information about home protection and forest health issues. Contact Colorado State Forest Service, 687-2921 for more information.

## **WILDFIRE PROFILE AND COMMUNITY RISK ASSESSMENT**

Before human occupation, fire was a natural part of the Rocky Mountain environment. Frequent low intensity fires thinned trees and removed dead or down fuels, which helped to recycle nutrients and promote healthy forest growth and diversity. These naturally occurring fires also encouraged the growth of a variety of other vegetation that provided food sources and habitats necessary for wildlife to thrive.

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<sup>3</sup> Any questions about the EIRP, contact John Romero at 719-668-4027 or [jromero@csu.org](mailto:jromero@csu.org)

As people moved into the wildland to homestead, wildfire was seen as a destructive force to be avoided at any cost. Strict adherence to a stop-all-fires-immediately approach to fire suppression over the last one hundred years has interfered with the natural wildfire cycle that was present in this area, particularly in Ponderosa ecosystems<sup>4</sup>. These actions have allowed forest fuels to accumulate, thus reducing forest and vegetation diversity and limiting wildlife habitats. The ongoing increase of vegetation density goes hand in hand with the sky-rocketing occurrence and costs of catastrophic wildfire, in terms of dollars, resources and aesthetics.

This CWPP Update will be used to identify those areas of the county where the greatest wildfire hazards exist and identify and prioritize those that require closer examination using enhanced evaluation methods to reduce local wildfire hazards. Understanding what factors contribute to wildfire hazards is essential.

A profile and assessment process looks at a number of criteria in order to help the community and land managers understand risks and opportunities. The following pages describe some of these considerations.

### **Fire History**

As reported in the fire history data<sup>5</sup> of wildland fires greater than five acres in Teller County, in the decades between 1980 -1989 there were four fires and an average of 24.8 acres burned. The fire number dropped in 1990-1999, with three fires that burned an average of 14.6 acres each. In the last decade, 2000-2010, the numbers increased to fourteen fires and the acreage burned averaged 37.7 acres, more than double the size of the previous decade -without including any acreage burned in the Hayman Fire of 2002. These numbers indicate that Teller County is experiencing more fires and that these fires are burning over larger acreage.

### **Population / New buildings**

The Teller County Building Department reports that, while the number of housing permits has decreased since 2005, there are 724 new structures and 5 new commercial buildings. Population in Teller County remains relatively stable, with slight growth occurring. The majority of the population continues to be concentrated in Woodland Park and a large percentage of the fuel mitigation projects have been positioned to reduce the wildfire threat to this area.

### **Suppression Capabilities and Advances**

Wildland fire poses the greatest natural hazard threat to Teller County through potential damage to private and public lands as well as loss of life. There are two paid “city” fire departments, serving the incorporated communities of Cripple Creek and Victor, and one paid district, Northeast Teller, which includes the City of Woodland Park. The remainder of the

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<sup>4</sup> Stephen A. Fitzgerald, *Fire Ecology of Ponderosa Pine and the Rebuilding of Fire-Resilient Ponderosa Pine Ecosystems* (USDA Forest Service, 2005)

<sup>5</sup> Source: Federal Wildland Fire Occurrence Data, <http://wildfire.cr.usgs.gov/firehistory/data.html>

county is served by four volunteer fire districts except of an area in southeast Teller that has no assigned fire protection. Each fire department or district ( henceforth simply referred to as departments) is responsible for fire suppression in their own designated areas. However, if wildland fire suppression exceeds the capabilities of the department to control or extinguish, the Teller County Sheriff is responsible for coordination of other fire suppression assets, including coordinating with neighboring departments and, based upon the size and complexity of a wildfire, requesting additional fire suppression resources through the federal land managers to assist.

National wildfire suppression training is made available to all paid and volunteer fire department and district personnel ; 66 of these individuals have current “Red Card” certification for wildland fire suppression. Through grants administered through Colorado State Forest Service, the departments continue to upgrade fire suppression equipment with attention given to dual purpose items used in both structure and wildland fires such as personal protective equipment, shelters, hand tools, packs, hose and portable pumps. In addition to equipment owned by respective fire departments and districts, specific types of wildland fire trucks are provided to respective departments under an annual lease agreement with the Colorado State Forest Service.

The Teller County Office of Emergency Management (OEM), Sheriff’s Office, Department of Public Works, Community Development Services Division (CDSD), and fire departments are proactive in working with communities to understand wildfire threats. Fire departments participate in assisting communities in development of wildfire protection plans and appropriate mitigation actions which can reduce the risk of property damage. Several fire districts use “Red Zone©” software to conduct and maintain property assessments that provide information regarding structures and vegetation types to property owners. The software assessment tool is limited in its use, however, due to budget and man power short falls.

The Teller County government and fire department share similar concerns for the future going forward from 2011:

- It is important to continue efforts toward public education and outreach regarding the development of local subdivision and neighborhood CWPPs and fire mitigation.
- Water supplies for fire suppression are still very limited. Only two communities have installed cisterns that can provide 30,000 gal. of emergency water each since 2005. The cost of cisterns is prohibitive without outside funding support.
- Increased manpower and budgets will allow for more accurate assessment of the wildland fire and public safety threats and assist in development of effective strategies to reduce the fire hazards.

- The escalating cost to conduct wildfire suppression creates an enormous economic burden upon Teller County General Funds. A strategy for establishing a county emergency contingency funding mechanism must be developed to reduce the potential for Teller County to incur a significant reduction in General Funds to pay for wildland firefighting resources.

The fire department personnel are available to speak at public meetings such as subdivision or home owner association annual meetings and provide reliable, local information regarding safety and fire prevention for both the inside and outside of the home. For more information, contact your local fire department. (See Appendix E)

### WILDFIRE SCIENCE

Wildfires can be broadly categorized into two types based on the intensity of the fire and the damage caused to the environment, crown fires and ground fires. The most severe type is a crown fire, such as the Hayman Fire of 2002. A crown fire burns in the canopy of the forest, jumping from treetop to treetop, killing most if not all of the trees in its path, and producing extreme heat.

The frequent high winds in Teller County increase the risk of crown fires. The heat produced in a crown fire is intense enough to damage the soil. Long after a crown fire is extinguished, precipitation runs off the impermeable soil causing flash flooding and environmental degradation far beyond the burn area. In addition, because of the intense heat and soil damage connected with a crown fire, vegetation re-growth is significantly delayed. In a large portion of Teller County the current forest condition is classified as a closed canopy with a high rating for crown fire risk.



Photo 2: Crown fire rapidly advancing through tree tops



A less severe type of fire is the so-called ground fire. This type of fire is typical of open ponderosa pine forests and open grasslands. In forests that are not overgrown, wildfires burn more slowly and often stay closer to the ground, clearing away excess fuel such as needles, fallen branches and small seedlings.

Such a fire revitalizes the forest without destroying the healthy trees. The heat produced is less intense, does little damage to the soil and rarely penetrates the thick fire resistant bark of the ponderosa trees. Due to the release of nutrients that results from such a fire, new herbaceous plants re-sprout quickly after the fire cools. Prescribed fires mimic this type of fire.

Photo 3: Low-intensity ground fires are desirable to improve forest health, and when lit and maintained by foresters are called prescribed fires, or RX fires.

### **Factors Affecting Fire Behavior**

In order to understand the wildfire hazard in Teller County, it is necessary to understand the factors that influence how fires burn. The three primary factors that determine fire behavior are weather, fuel, and topography.

#### **Weather**

Weather is the “wild card” of fire behavior and cannot be predicted. While lightning or human activity may ignite a fire, high temperatures, low humidity and strong winds increase its intensity. Drought and dry conditions any time of year can increase the frequency and intensity of wildfires; however, such fires are usually less severe in cold seasons.

## Fuel

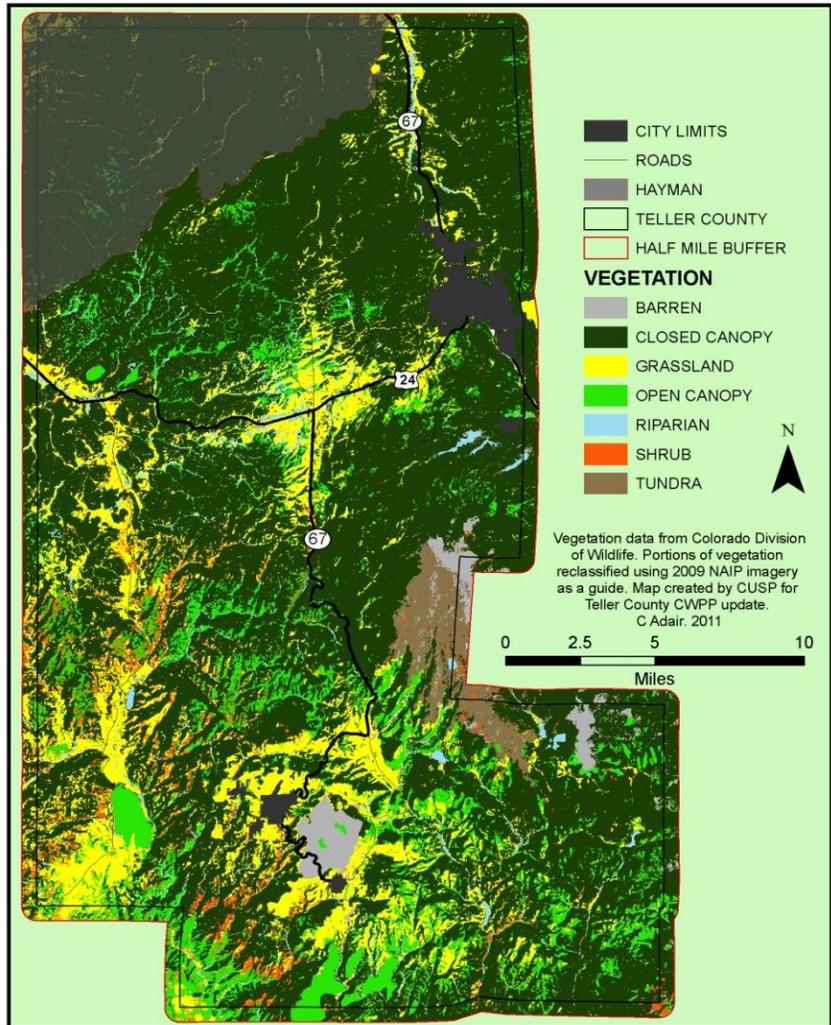
The two types of fuel in a wildland-urban interface are vegetative and structural. The fuel available to a fire influences how much heat is produced. Vegetative fuels consist of living and dead trees, brush and grasses. While the focus of wildfire management is usually on forested areas, some portions of Teller County have more grassland and brush than trees. Typically, grass and brush fires ignite more easily and move faster than fires in timber.

Structural fuels, which can include houses, outdoor equipment, lawn furniture, ancillary buildings, fences and firewood, add to the natural fuel load available to a fire. Not only can a wildfire move into a structure from a forest or grassland, a structure

fire can move outward into the grassland or forest and become a wildfire.

Any wildland fire, regardless of fuel type, can be extremely hazardous to life and property. The severity of a wildfire is proportional to the amount of available fuel. The size of fuel also affects fire behavior. In a wildfire, the smaller fuels such as dry grass or small branches ignite easily, create relatively low heat, and act as kindling. The larger fuels such as dead or down trees ignite more slowly but create significantly greater levels of heat and damage.

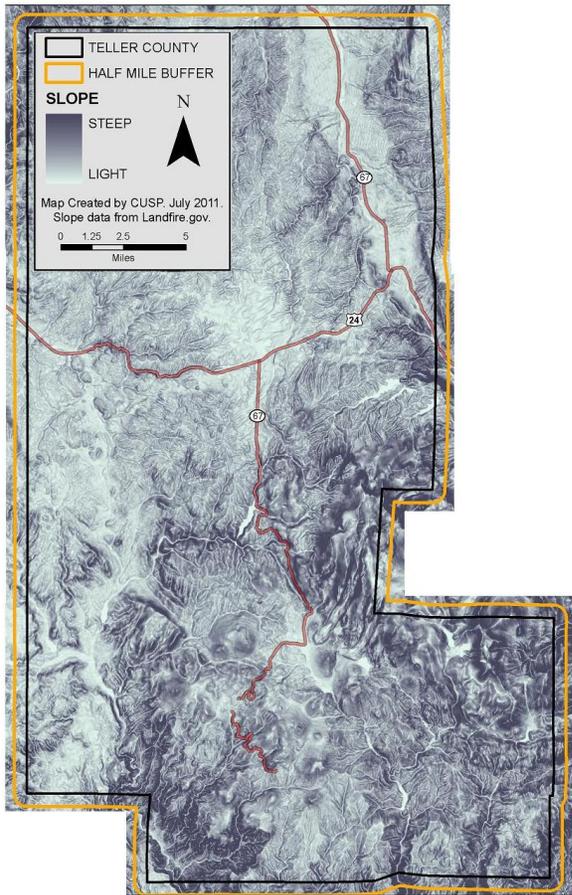
The dense forest conditions in Teller County not only raise the potential of catastrophic wildfires, it also increases the opportunity for cyclical outbreaks of insects and disease. Trees weakened by overcrowding and competition for water and sunlight are more susceptible to invasion. (See Appendix C for Insect & Disease)



## Topography

*Slope*, the change in elevation on the land, and *Aspect*, the direction a slope faces, are two factors of topography, or the shape of the land, that have a major impact on fire behavior.

During the day, sun or fire warmed air rises and pushes wildfires upslope. Fires may move four times faster up slopes than on flat ground.



On a slope, the heat rises above a fire, pre-heating and drying the fuel above. The drier upslope fuels ignite more easily and burn more quickly than down slope fuels. The steeper the slope, the more pronounced the effect.

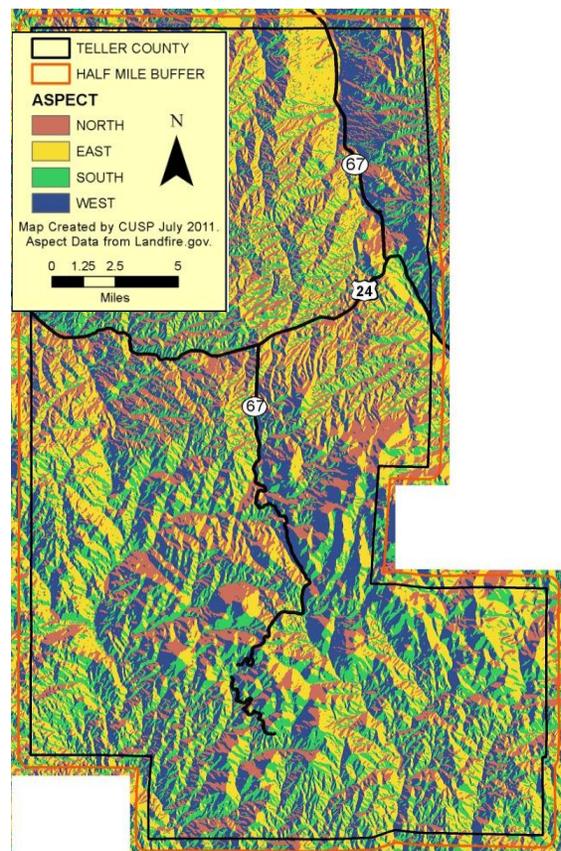
Notice that the steepest slopes are in the southeastern part of the county south of Highway 24. These are also the least populated portions of the county.

Map 4: Slope assessment, Teller County

## Aspect

The primary direction that a slope faces is called the aspect and plays an important part in the intensity of wildfire.

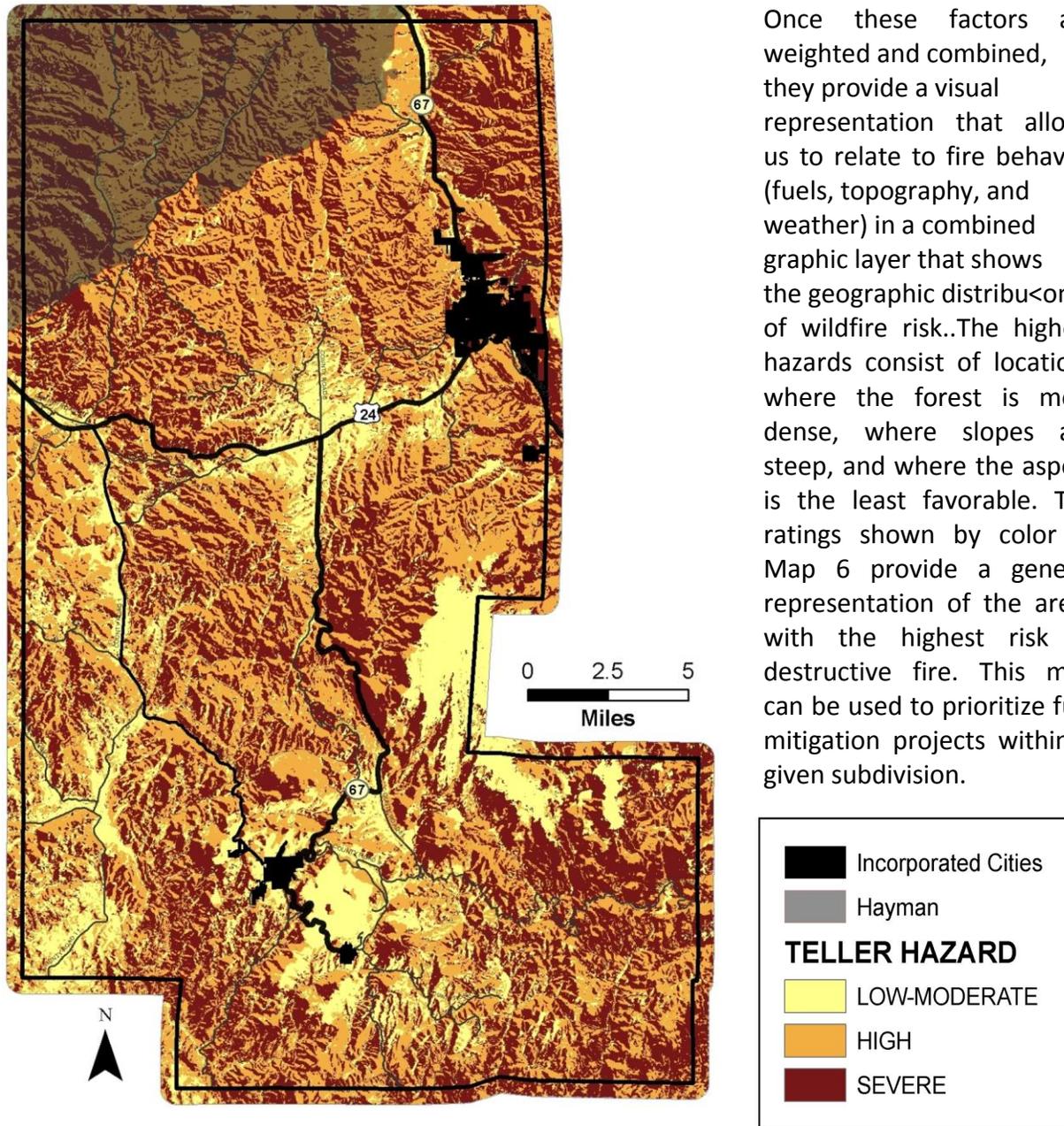
At this high elevation, slopes in Teller County that face south and west are pre-heated and dried by strong sunlight. This solar heating makes these areas more vulnerable to rapidly igniting fuels. This map indicates the aspect of the Teller County terrain and highlights those areas that are most exposed to the solar influence.



Map 5: Aspect assessment, Teller County

## Identifying High Hazard Areas

There have been many advances in the ground information available through use of computerized data and Geographic Information Systems (GIS) to evaluate the many factors that impact wildfire hazard identification. The maps of Teller County hazards have been revised.



Map 6: Combined rating assessment of slope, aspect and vegetation, Teller County

## **Forest Health**

While Teller County has not had the major impact of forest insect epidemics that nearby counties have suffered, the forest condition is declining. Not only are forests crowded due to the lack of natural fire or forest management, the drought cycle continues to reduce the resistance of many tree species to insect damage and death. The Colorado Aerial Detection Survey of 2010 identified these insects and the acreage affected in the county:

|                                   |   |
|-----------------------------------|---|
| Douglas-fir Beetle - 1600 acres   | Western Spruce Budworm -2700 acres,             |
| Mountain Pine Beetle -9700 acres, | Moderate Aspen Dieback and Mortality -90 acres. |

These infested or diseased forests cover about 22 sq miles in Teller County. For more information on insect, disease and drought effects, see Appendix C.

## **Other Values at Risk**

The first concern during a wildfire occurrence is the protection of life and safety, followed by the protection of property if possible. Teller County experienced losses of other values, environmental and economic, as a result of the Hayman fire.

### Infrastructure

Among other values at risk are the components of critical infrastructure, facilities that provide power, communication, emergency services, and the landscapes that provide water supplies, as well as scenic and recreation opportunities must be taken into consideration.

### Utility Facilities

Utilities infrastructure follows in the footsteps of the population, and typically the equipment and facilities are situated along major roadways. However, some inter-regional systems are located in separate corridors apart from the highway system in Teller County.

Electrical distribution facilities have few underground lines locally and rely on wooden poles to carry the lines that bring electricity to communities from substations. The major power lines coming into these substations are either wooden poles or steel towers set on concrete piers. While power companies do have a responsibility to remove trees in the easement that could fall on the lines, priority has not been given fuel reduction in easements.

Communication equipment such as telephone cabling is often installed on the same poles as electrical distribution wiring. Wireless communication (telephone, radio, and TV) relies on antenna towers, often located on ridges or high points that wildfire naturally seeks. Wildfire can disrupt any of these systems.

Roads and highways provide evacuation routes for citizens leaving a wildfire-threatened area, and access for emergency response teams attempting to enter a hazardous zone. During a wildfire, transportation can be interrupted by smoke, flame from closely encroaching fuels, or falling debris. After a fire, mud and debris runoff can block roads, and flash flooding can wash out bridges and paving. However, when right-of-ways or easements are kept clear of heavy vegetation, roads can serve as fire breaks that reduce the risk of wildfires spreading, and as anchor points for firefighting operations.

## **NATURAL RESOURCES**

Also at risk from catastrophic wildfire are the landscapes that provide municipal water supplies, habitat for Colorado’s wildlife, and scenic and recreational opportunities for citizens. These values and assets must be taken into consideration.

### **Water Supplies**

This quote by John Muir can be applied to efforts to manage any fire impacts including those in watersheds. High intensity wildfire in any of the four watersheds of Teller County could have several potential impacts. Watersheds and water distribution systems are threatened

**“When we try to  
pick out anything by itself, we find it  
hitched to everything else in the  
universe.”  
John Muir**

by the flooding that commonly follows large fires. After large areas of vegetation have burned away, rain that would have been taken up by plants will instead run off, causing severe erosion. This runoff can be particularly heavy after high-severity fires that consume all organic material in the soil, and create a hydrophobic (water resistant) layer several inches below the soil surface.<sup>6</sup> Large amounts of ash, topsoil and debris can wash into streams and clog reservoirs, pipelines, or treatment facilities, requiring costly rehabilitation and ongoing maintenance of these systems.<sup>7</sup> Hydro-electric power supplies could also be disrupted.

Water delivery systems that rely on surface water sources are most vulnerable to wildfire damage. According to Colorado Springs Utilities, which owns land in Teller County on Pikes Peak, “Catastrophic wildfire poses one of the greatest threats to water quality and collection system infrastructure.”<sup>8</sup> Denver Water, one of the largest water suppliers, has estimated the costs incurred by wildfires over the last 15 years are over \$11 million.<sup>9</sup>

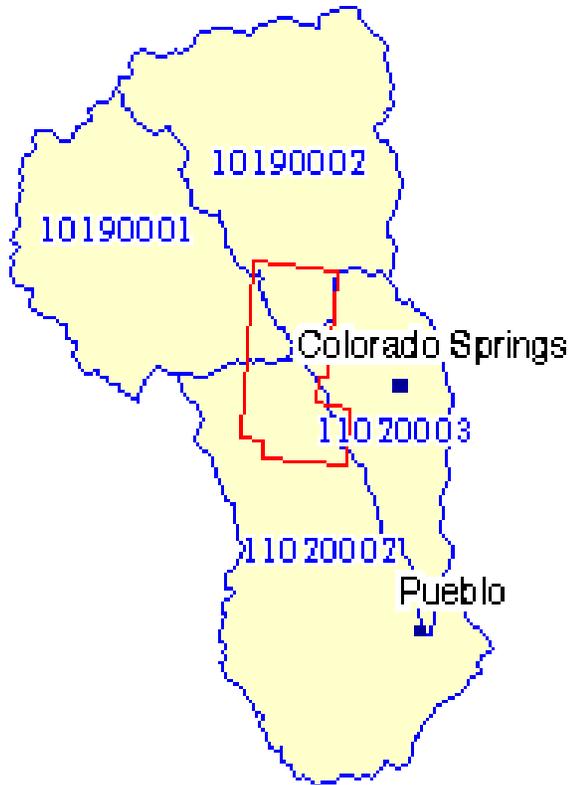
<sup>6</sup> Jan Cipra, et. al., *Hayman Fire Case Study: Soil Properties, Erosion, and Implications for Rehabilitation and Aquatic Ecosystems* (USDA Forest Service, 2003) 206-207.

<sup>7</sup> Dennis Le Master, Guofan Shao, Jacob Donnay, *Protecting Front Range Forest Watersheds from High-Severity Wildfires* (Front Range Fuels Treatment Partnership, 2007)

<sup>8</sup> Naomi J. Marcus, *Pikes Peak Watershed Forest Management Plan* (Colorado State Forest Service, 2010) 21.

<sup>9</sup> Don Kennedy, Environmental Scientist, Denver Water

Local water supplies and water resources for communities within Teller County are also threatened. At risk are ponds and reservoirs that provide beauty and recreation for homeowners, or water for livestock and wildlife, to community wells and systems for the cities of Woodland Park, Cripple Creek and Victor.



Teller has four major watershed units that are critical to water supplies for Front Range communities and are at risk to damage as a result of a wildfire event. Both the South Platte Headwaters, north of Woodland Park, and the Upper South Platte drainages, west of Divide, have sustained major impacts from wildfires in the last 15 years. The Fountain Creek watershed begins south of Woodland Park, and continues down Ute Pass. The drainages south of Mueller State Park flow into the Arkansas watershed. These watersheds are essential to water supplies for Denver, Colorado Springs, Pueblo and other communities downstream.

Map 7: Watersheds in Teller County

- [10190001](#) South Platte Headwaters;
- [10190002](#) Upper South Platte;
- [11020002](#) Upper Arkansas;
- [11020003](#) Fountain Creek;

Protection of our water resources begins with each homeowner’s attention to the prevention of contamination and pollution. On a larger scale, surface water and adjacent shorelines must be protected from events that promote erosion and are given a higher rating in this document as “other values at risk”.

**Species of Concern**

A wide variety of “sensitive and rare” species of animals and plants <sup>10</sup> can be found in Teller County. A major event such as a wildfire could destroy the necessary habitats for a number of these species. Any man-made changes in the forest, such as fuel treatments, should take into consideration protection of these species and the associated habitat needs.

| <b>Mammals</b>            | <b>Plants</b>                  |
|---------------------------|--------------------------------|
| Aberts Squirrel           | American Yellow Lady's Slipper |
| American Black Bear       | Least Moonwort                 |
| Black-footed ferret       | Least Grape-fern               |
| Elk                       | Prairie Goldenrod              |
| Fringed Myotis (bat)      | Rattlersname Fern              |
| <b>Birds</b>              | Reflected Moonwort             |
| American White Pelican    | Rocky Mountain Columbine       |
| Bald Eagle                | Western Moonwort               |
| Great Blue Heron          | White Adder's-mouth            |
| Osprey                    | <b>Natural Communities</b>     |
| Wild Turkey               | Lower Montane Forests          |
| <b>Fish</b>               | Montane Grasslands             |
| Greenback Cutthroat Trout | Xeric Tall Grass Prairie       |

**Tourism, Recreation**

According to the Visitor’s Bureau, “Teller County, Colorado has been welcoming visitors from around the world for over 100 years. Located at the base of Pikes Peak, the most visited mountain in North America, first time visitors are amazed by the area's natural Colorado Rocky Mountain beauty.... abundant Colorado wildlife like elk, mule deer, and even eagles.... rock climbing, hiking, mountain biking, camping, fishing, horseback riding, .....”<sup>11</sup> As demonstrated in 2002, loss of the income created by tourism and recreational opportunities has a serious impact throughout the county. Another large fire could cause long lasting repercussions for the local economy.

**HISTORICAL/CULTURAL ASSETS**

**National Register of Historic Sites**

Throughout Teller County many buildings exist that are well over 100 years old, the last remnants of early settlement, mining, and ranching. The largest concentrations of these old structures are in the vicinity of Victor and Cripple Creek, and many are still in use. In other areas, scattered homes, barns and corrals remain as evidence of pioneer living. These cultural assets are considered as having a protection priority. Most are located in incorporated areas

<sup>10</sup> Center for Biological Diversity, CO Div. of Wildlife, USFWS, CO Natural Heritage Program

<sup>11</sup> Official Website of The Teller County Vacation & Visitors Bureau, [www.VisitTellerCounty.com](http://www.VisitTellerCounty.com)

and have fire protection provided by local departments. However, some are located in unincorporated sections of the county and attention should be given to reduction of wildfire hazards in their vicinity.

Cripple Creek Historic District  
Florissant Grange/School  
Goldfield City Hall and Fire Station  
Hornbeck House  
Manitou Experimental Station

Midland Terminal Depot  
Stratton Independence Mine & Mill  
Twin Creek Ranch  
Victor Downtown Historic District  
Victor Hotel

### Other Historical Values



Before European settlement, the Ute Indians travelled through Teller County and as part of their culture, they modified the shape of living trees for ceremonies or to indicate directions and harvested strips of bark for food or medicine. Many of these Ute Culturally Scarred trees<sup>12</sup> still exist in the forest and care should be taken to identify and preserve these historical relics during forest treatment projects if possible.

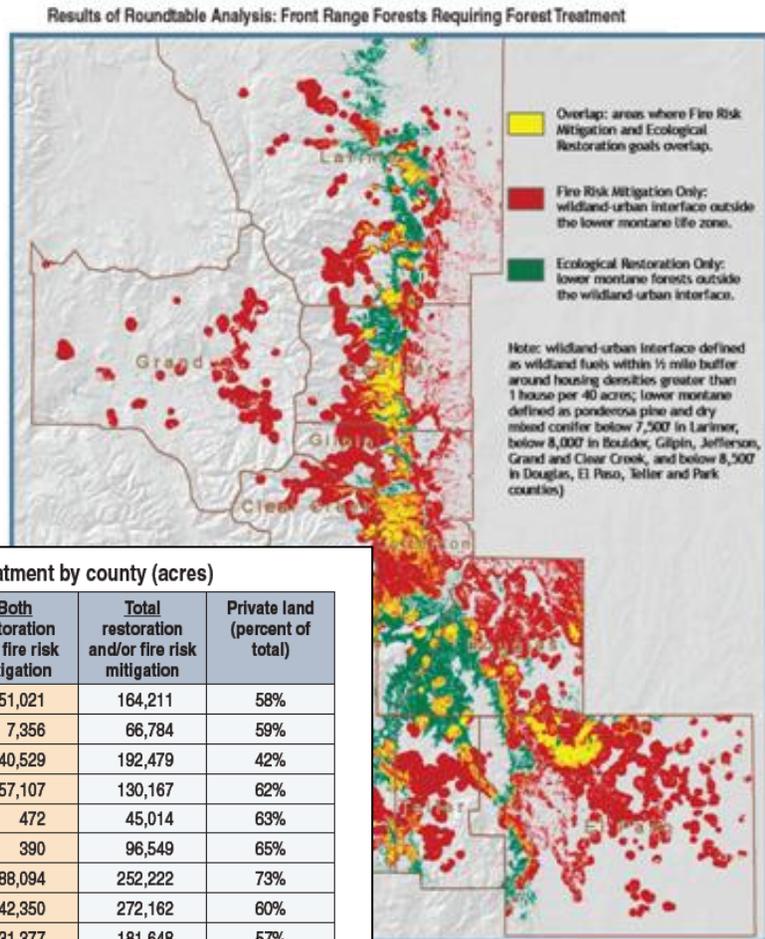
Photo 4: Ute Cultural Tree, Photo courtesy of Pike Peak Historical Society

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<sup>12</sup> <http://www.pikespeakmuseum.org/Museum/UteCulturalTrees>

## INTEGRATING VALUES AND WILDFIRE HAZARDS

As the committee worked on this update, they looked at integrating values-at-risk information with the wildfire hazard analysis. At an even broader scale, the Front Range Roundtable Report evaluated the forests with a perspective similar to this plan across the ten counties for the Front Range from El Paso and Teller in the south to Larimer and Weld in the north. The scope and acreage of fuels and forest restoration treatments needed is overwhelming, as seen in this map.<sup>13</sup> However, the way for all parties to most effectively and strategically work is through this type of methodical analysis and planning.

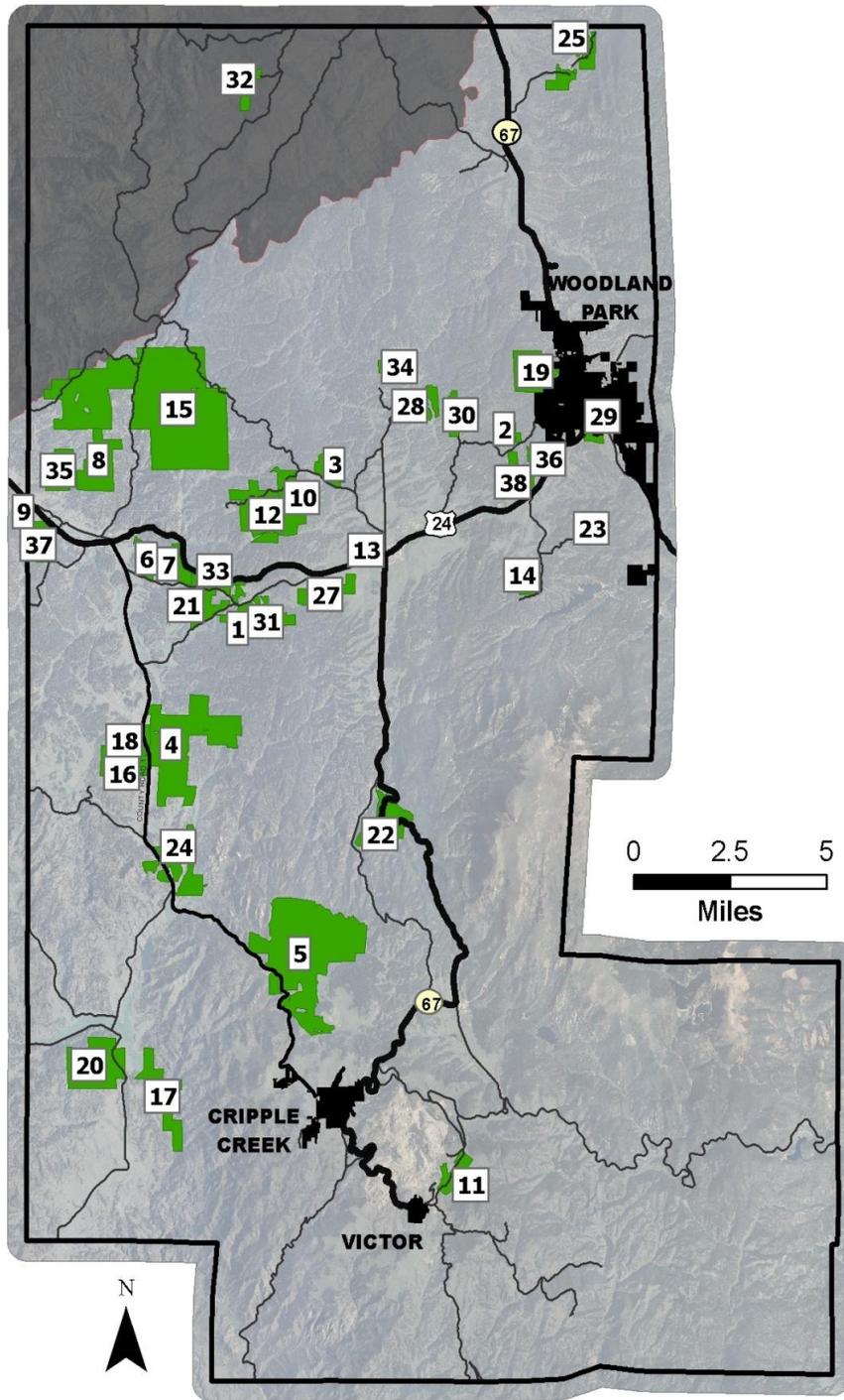


Front Range forests requiring forest treatment by county (acres)

|                          | Restoration only | Fire risk mitigation only | Both restoration and fire risk mitigation | Total restoration and/or fire risk mitigation | Private land (percent of total) |
|--------------------------|------------------|---------------------------|---|---|---------------------------------|
| Boulder                  | 35,978           | 77,212                    | 51,021                                    | 164,211                                       | 58%                             |
| Clear Creek              | 833              | 58,595                    | 7,356                                     | 66,784  | 59%                             |
| Douglas                  | 90,807           | 61,143                    | 40,529                                    | 192,479                                       | 42%                             |
| El Paso                  | 31,169           | 41,891                    | 57,107                                    | 130,167                                       | 62%                             |
| Gilpin                   | 2,177            | 42,365                    | 472                                       | 45,014  | 63%                             |
| Grand                    | 1,838            | 94,321                    | 390                                       | 96,549  | 65%                             |
| Jefferson                | 71,157           | 92,971                    | 88,094                                    | 252,222                                       | 73%                             |
| Larimer                  | 98,856           | 130,956                   | 42,350                                    | 272,162                                       | 60%                             |
| Park                     | 27,463           | 122,808                   | 31,377                                    | 181,648                                       | 57%                             |
| Teller                   | 27,211           | 86,848                    | 23,168                                    | 137,227                                       | 61%                             |
| <b>Total Front Range</b> | <b>387,489</b>   | <b>809,110</b>            | <b>341,864</b>                            | <b>1,538,463</b>                              | <b>60%</b>                      |

### Wildland Urban Interface Identification

For the purpose of this plan, the Wildland Urban Interface (WUI) is considered to be those locations where man-made structures and values intersect with natural wildland vegetative fuels. The largest concentrations of structures are in the incorporated communities of Cripple Creek, Victor and Woodland Park and these are not evaluated in this plan.



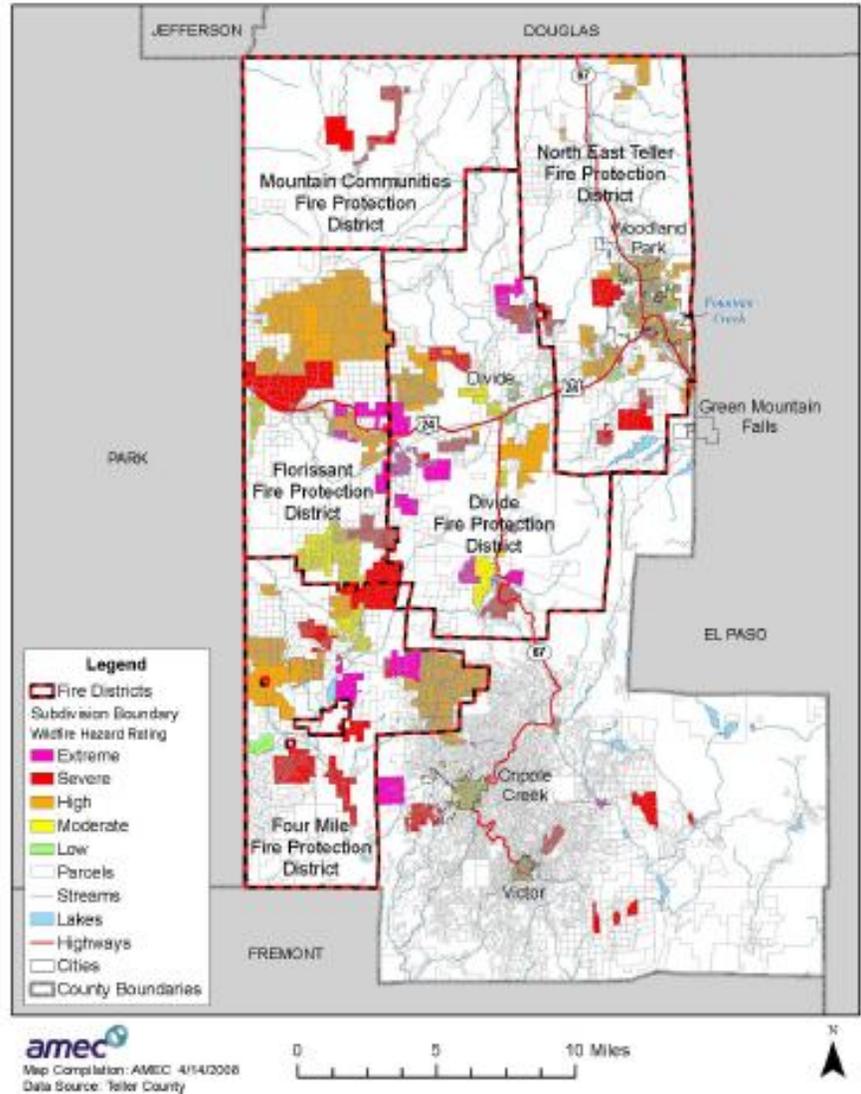
|    |                                |
|----|--------------------------------|
| 1  | Arabian Acres                  |
| 2  | Aspen Hills                    |
| 3  | Aspen Village Subdivision      |
| 4  | Colorado Mountain Estates      |
| 5  | Cripple Creek Mountain Estates |
| 6  | Crystal Peak Estates           |
| 7  | Druid Hills Subdivision        |
| 8  | Florissant Heights             |
| 9  | Forest Glen Sports Association |
| 10 | Golden Bell Nazarene Ranch     |
| 11 | Goldfield                      |
| 12 | Highland Lakes Subdivision     |
| 13 | Grand View Estates Subdivision |
| 14 | Holiday Hills                  |
| 15 | Indian Creek                   |
| 16 | La Montana Mesa                |
| 17 | Lakemoor West                  |
| 18 | Las Brisas Ranchettes          |
| 20 | Navajo Mountain Mesa           |
| 21 | Palmer Village Subdivision     |
| 22 | Rainbow Valley                 |
| 23 | Ranch Estates Subdivision      |
| 24 | Ranch Resorts Of Colorado      |
| 25 | Ridgewood Subdivision          |
| 26 | Rosewood Hills                 |
| 27 | Sherwood Forest Estates        |
| 28 | Spring Valley Subdivision      |
| 29 | Sunny Slope Acres Filing No. 1 |
| 30 | Tranquil Acres                 |
| 31 | Trout Haven Subdivision        |
| 32 | Turkey Rock Ranch Estates      |
| 33 | Twin Rocks Subdivision         |
| 34 | Ute Lakes Club                 |
| 35 | Valley - Hi Mountain Estates   |
| 36 | Westwood Lakes                 |
| 37 | Wilson Lake Estates            |
| 38 | Woodland West                  |



Map 9: Subdivision with at least 100 residents

The 2008 Teller County Pre-Disaster Mitigation (PDM) Plan<sup>14</sup> used ratings obtained in the 2005 CWPP to estimate the wildfire risk of communities with populations over 100. This map and charts illustrate those rankings. The chart (see page 30) has been edited to include only the unincorporated communities in the county with Medium to Extreme Fire Risk. Maps of individual fire districts and communities published in the Pre-Disaster Mitigation Plan, 2008, are included in Appendix D which includes a detailed explanation of mapping protocol.

Figure 4.23. Teller County Subdivisions Wildfire Hazard & Fire Protection Districts



Teller County  
Multi-Hazard Mitigation Plan  
August 2008

4.100

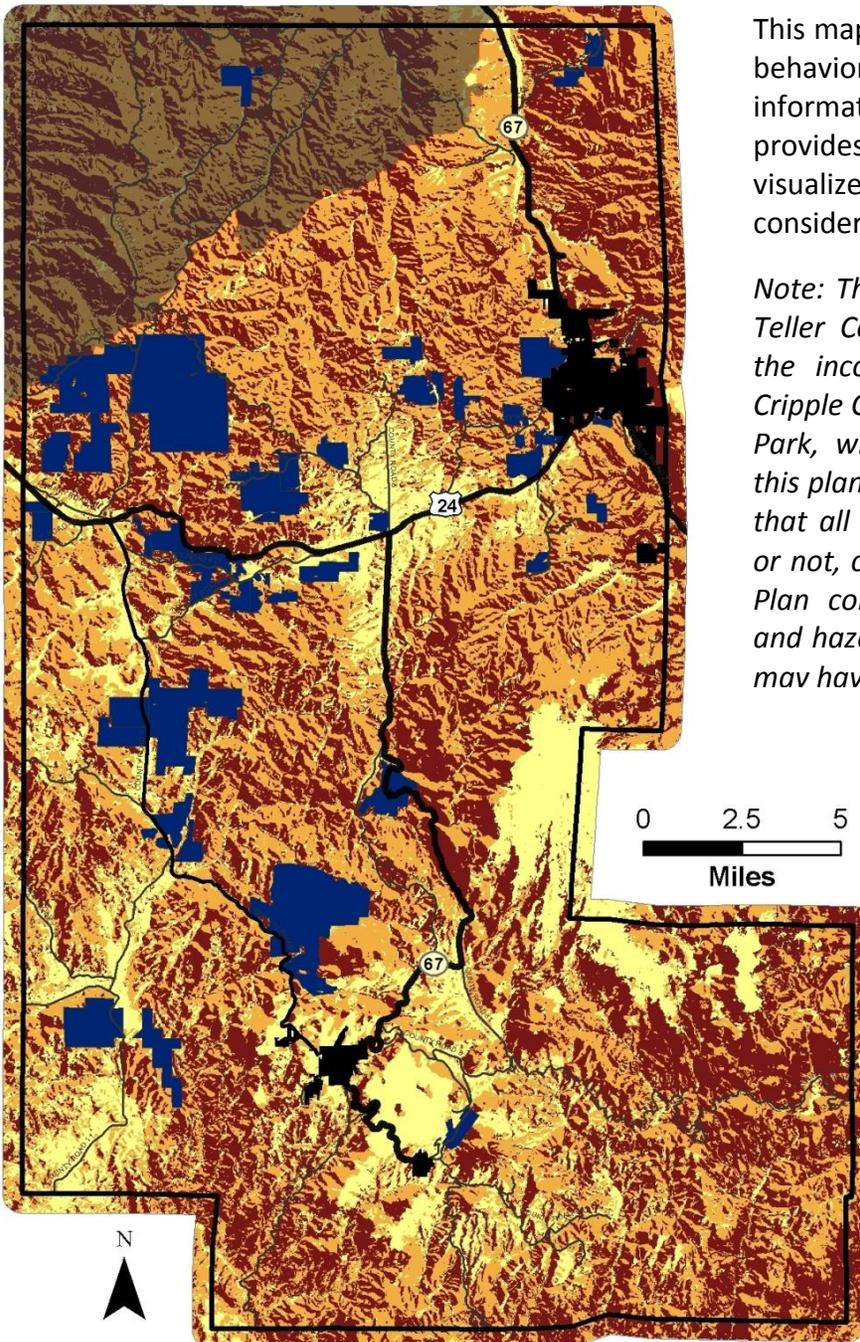
Map 10: Prioritized subdivisions  
(see page 30 for a list of subdivisions by priority)

*\*It should be noted that communities were assessed as a whole, not by individual structures, and those ratings change as communities take action to reduce the risk of wildfire.*

<sup>14</sup> [http://www.co.teller.co.us/OEM/tellercopdm\\_plan.pdf](http://www.co.teller.co.us/OEM/tellercopdm_plan.pdf)

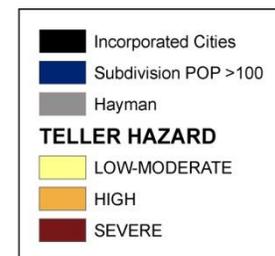
## Communities and Other Values at Risk

While fire is natural in this environment, the protection of lives, structures and other values at risk becomes the focus of CWPP development. Small subdivisions and communities are scattered throughout the county, accounting for 59% of the population. Additionally, several other “values at risk” previously described in this update have been identified as areas to be included as priorities.



This map was derived from the fire behavior data and community information from the TCPDM. This provides an opportunity to visualize the locations for priority considerations.

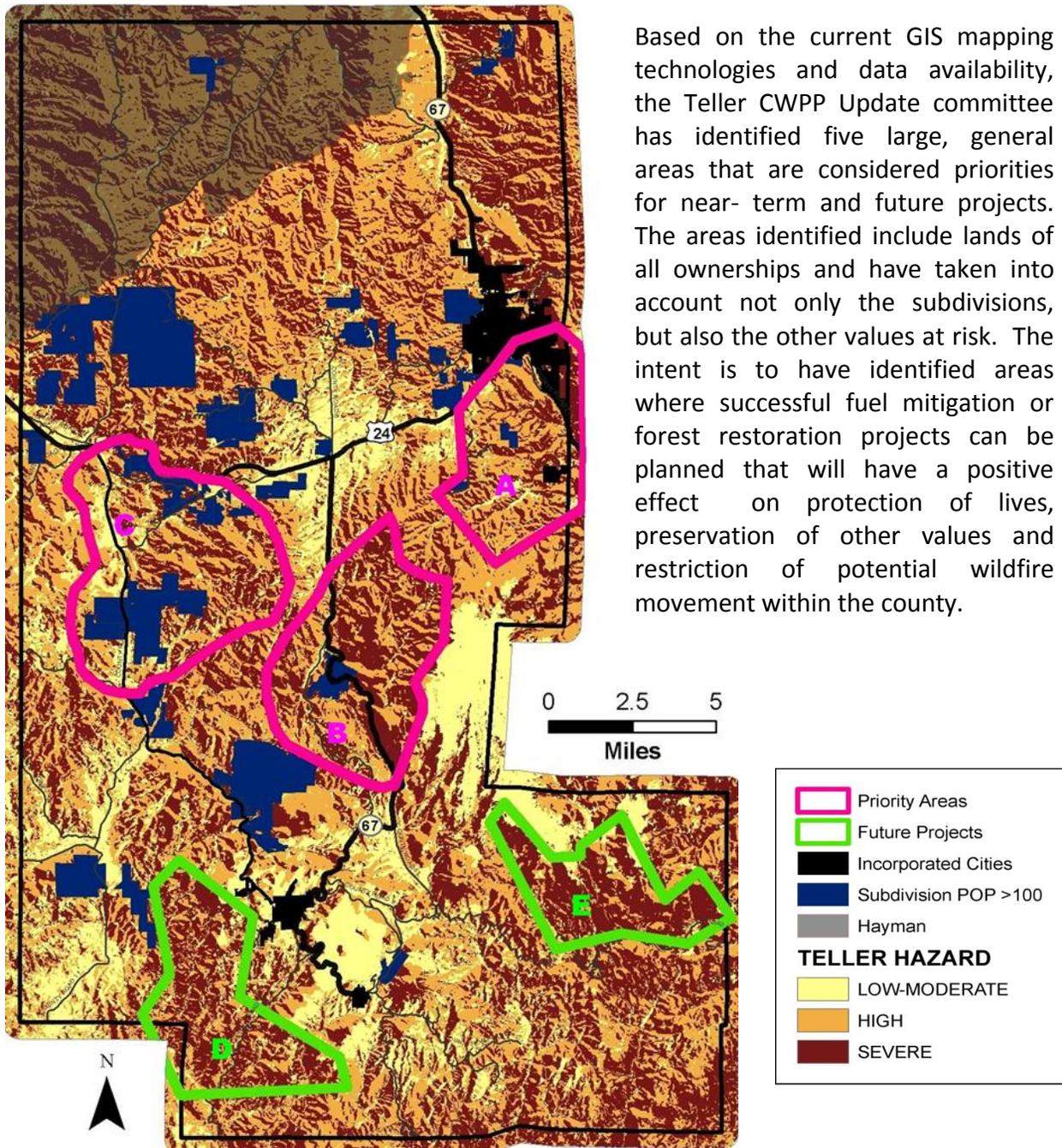
*Note: The majority of structures in Teller County are concentrated in the incorporated communities of Cripple Creek, Victor and Woodland Park, which are not evaluated in this plan. It is highly recommended that all communities, incorporated or not, create a Wildfire Protection Plan consistent with local values and hazards. Colorado State Forest may have grants available to help.*



**Map 11: Community locations in hazard assessment**

## PRIORITY AREAS OF TELLER COUNTY

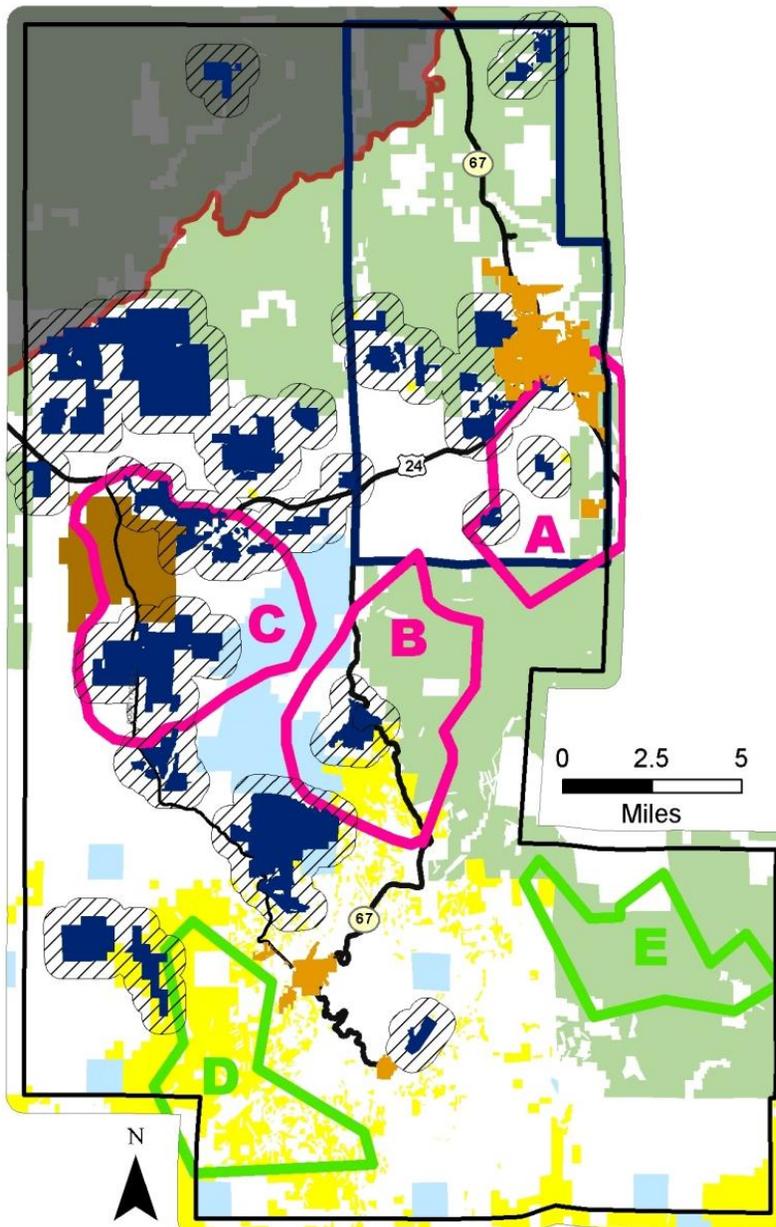
While this document does describe some priority areas of the landscape, it provides only general information.



Map 12: Priority areas selected by CWPP committee

Each priority area will need to be closely examined to determine:

- Where, precisely, does work need to be done?
- What type of mitigation technique is needed to achieve desired results?
- What type of cost-share funding or grant will accomplish the project most efficiently?
- Which partners are willing and able to collaborate to improve or enhance the project results?



Map 13: Priority areas by ownership

The Wildland Urban Interface guidelines recommend assessing the half mile buffer zone around a community to identify hazard that are outside of the subdivision boundaries that may pose a wildfire risk. In some cases, these boundaries are shared with public lands and in others the land is privately owned. Identification of this buffer offers to opportunity for discussion of cross-boundary risk reduction between all land owners.

The priority areas highlighted in this updated CWPP include both public lands and several subdivisions.



## MITIGATION RECOMMENDATIONS

Within Teller County, the vegetation types prone to wildfire range from meadows through several forest types to alpine tundra. Even one forest type, mixed conifer for example, can vary with respect to species composition, age structure, and insect or disease, over the landscape. Over the broad expanse of Teller County it is impossible to create a one size fits all prescription that works for each wildland acre. Instead landowners contemplating forest or range management should consult with qualified professionals to assess the project area and recommend practices specific to the area and the landowner's objectives.

In general, a properly designed mitigation project should accomplish specific objectives, but in a way that is tailored to the conditions of a specific forest stand. Effective fire mitigation should:

- reduce the threat of crown fire by creating spaces in the forest canopy;
- remove ladder fuels so that fires on the ground will tend to stay on the ground;
- leave the forest more resistant to insect and disease;
- address an insect or disease issues already present in the forest;
- address other landowner objectives.

The science of forest management continues to develop, in a large part in response to the major nationwide wildfire events of the last fifteen years. The trend and science is moving more toward landscape-level forest restoration projects. This management technique looks closely at the historical forest composition that was present prior to the all-out fire suppression efforts of the last century. By mimicking the previous naturally occurring forest stand density and diversity, the locally specific forest management activities will take steps toward establishing the biological conditions necessary for a thriving, sustainable forest for the future. These more resilient forests will have increased capacity to:

- adapt to the impacts of a changing climate;
- remain resilient through insect and disease outbreaks;
- encourage ecological, economic, and social sustainability;
- leverage local resources with national and private resources;
- facilitate the reduction of wildfire management costs, including through reestablishing natural fire regimes and reducing the risk of uncharacteristic wildfire;
- demonstrate the degree to which various ecological restoration techniques achieve ecological and watershed health objectives; and,
- Encourage utilization of forest restoration by-products to offset treatment costs, to benefit local rural economies, to and improve forest health.

*Adapted with permission of the Front Range Fuels Treatment Partnership Roundtable (source)*

Excerpt from The Front Range Roundtable Report<sup>15</sup>

*“In all life zones, whether the treatment goal is to protect communities or restore forest health, the Roundtable strongly recommends that every effort be made to select treatment methods that optimize ecological benefits. This means that wherever possible:*

- Prescribed fire should be used to restore natural processes.*
- Extraction (removing trees and limbs from treated acres) should be favored over scattering biomass on the forest floor.*
- Fuels reduction projects should avoid the creation of sterile, park-like forests that have evenly-spaced trees and no shrubs or downed logs. Instead, treatments should achieve a complex mosaic of forest structures with patches of variable tree densities and ages that favor retention of the older trees.*
- Treatment plans should minimize any adverse impacts on the habitat requirements of species of concern (especially threatened and endangered species).”*

Accordingly, this Teller County update supports the efforts of forest managers across the county not only in fuel mitigation projects, but also in the restoration of our forests where appropriate.

### **GOALS AND OBJECTIVES, 2011**

The information provided by this county-wide CWPP process is general and cannot be used effectively for detailed on-the-ground project planning. However, there are recommendations that can be made in reference to the integrated risk assessments.

**Goal #1** Pursue opportunities for restoration, mitigation and forest health projects in or near high priority areas identified in this plan.

Objective #1 – Establish and maintain collaborative partnerships with public land managers to promote fuel reduction and forest health activities throughout all ownerships in the county.

Action 1: Expand partnerships with public land managers to promote cross-boundary efforts on Teller County projects.

Action 2: Remain focused on managing the lands of Teller County in an environmentally responsible manner to promote healthy, resilient and sustainable forests for the future.

Action 3: Pursue funding opportunities in all venues to promote landscape-scale projects on private lands in high priority areas.

Objective #2 -Participate in local, regional, and State committees to have input on policy and funding issues that have an impact on the Teller County fuel reduction and forest health goals.

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<sup>15</sup> [www.frontrangeroundtable.org/](http://www.frontrangeroundtable.org/)

Action 1: Continue support for participation by Teller County officials in Federal, State and regional committees that create or influence land use policy that impacts Teller County.

Action 3: Maintain visibility of Teller County forest projects and plans using various media outlets and presentations to other concerned organizations.

Objective #3 - Pursue County departmental collaboration when opportunities arise to enhance efforts to mitigate fuels and improve forest health on county maintained roads, parks and open spaces.

Action 1: Expand opportunities for regular maintenance by County departments to achieve multiple goals including public safety, fuel mitigation and overall forest health issues.

Action 2: Monitor conditions in county open space and parks to prioritize maintenance of fuels and forest as necessary for healthy, sustainable environment.

**Goal #2** -Support a “Firewise” social climate throughout the community to foster the public understanding of forest restoration and fuel mitigation principles and actions.

Objective #1 -Support the development of Community Wildfire Protection Plans that facilitate public safety, on-the-ground project planning and fuel mitigation.

Action 1: Create additional links on county website to direct residents, developers and contractors to additional information and assistance in developing individual CWPPs, understanding and compliance with land use regulations and guidelines, and designing effective projects.

Action 2: Create and maintain a GIS database at the county level containing geographic information from this plan and records of forest health projects completed by public and private land managers for reference in future planning and local CWPP development.

Action 3: Encourage collaboration between CWPP communities and adjacent public land managers to identify cooperative projects for mutual benefit.

Objective #2 - Support additional educational opportunities for private landowners regarding restoration and fuels reduction in the county.

Actions 1: Partner with organizations offering forest health and fuel reduction education and training to demonstrate county support.

Action 2: Use county website to provide outreach to residents regarding forest activities occurring or planned throughout county.

Objective #3 – Explore opportunities for biomass use to support economic sustainability of local forest projects.

Action 1: Keep up to date on opportunities for biomass use in regional and local commercial ventures.

Action 2: Continue to support slash site use by private land owners and promote markets for the biomass generated by this project.

Action 3: Encourage private sector development of markets for biomass and small diameter timber harvested as a result of forest health and fuel mitigation projects in the county.

### PRIVATE LAND RECOMMENDATIONS AND ACTIONS

The Front Range Round Table Report of 2006 issued this guidance:

#### Firewise practices are critical to protecting structures from wildfire

• **Firewise practices include:**

1. Creating a defensible space of at least 10 meters around all structures by:

- a. Properly thinning trees and brush within the defensible space.
- b. Removing trash and debris from the defensible space.
- c. Clearing leaves and other debris from roofs and gutters.
- d. Removing branches overhanging any roof and chimney.
- e. Stacking firewood uphill or on a contour away from house.

2. Using fire-resistant construction such as noncombustible roof and deck materials, fire curtains, and chimney screens.

3. Developing an emergency access and disaster plan in the event of a wildfire. This includes installing and testing smoke detectors; practicing family fire drills and evacuation plans; ensuring availability of outdoor water supply, fire tools, ladders, and fire extinguishers; posting address signs and load limits on bridges; and ensuring that driveways are wide enough for fire trucks and equipment.

• To be effective, Firewise practices require **comprehensive implementation and continual maintenance.**

• **Additional information** can be found at [www.firewise.org](http://www.firewise.org).

## SUBDIVISION-LEVEL RISK ASSESSMENT

### Teller County Multi Hazard Plan Aug 2008

#### Unincorporated Subdivision Wildfire Hazard Risk (Population 100 or More)

| Hazard Rating | Subdivision Name -<br>(subdivision with CWPP 8/2011) | Number of Structures | Improved Value      | Actual Value        | Pop. Est.     |
|---------------|--|----------------------|---------------------|---------------------|---------------|
| Extreme       | Trout Haven Subdivision                              | 146                  | \$21,319,404        | \$24,047,434        | 374           |
| Extreme       | Arabian Acres  | 134                  | \$20,255,116        | \$23,041,727        | 343           |
| Extreme       | Ute Lakes Club                                       | 41                   | \$2,620,857         | \$3,301,688         | 105           |
|               | <b>Extreme Total</b>                                 | <b>321</b>           | <b>\$44,195,377</b> | <b>\$50,390,849</b> | <b>822</b>    |
| Severe        | Colorado Mountain Estates                            | 454                  | \$72,584,591        | \$79,127,613        | 1,162         |
| Severe        | Sherwood Forest Estates                              | 239                  | \$31,085,508        | \$33,974,771        | 612           |
| Severe        | Spring Valley Subdivision                            | 215                  | \$38,590,918        | \$46,180,185        | 550           |
| Severe        | Tranquil Acres                                       | 207                  | \$15,720,041        | \$17,951,315        | 530           |
| Severe        | Rainbow Valley                                       | 139                  | \$21,442,579        | \$23,177,628        | 356           |
| Severe        | Navajo Mountain Mesa                                 | 94                   | \$9,728,748         | \$11,649,877        | 241           |
| Severe        | Turkey Rock Ranch Estates                            | 90                   | \$11,118,041        | \$13,463,577        | 230           |
| Severe        | Ranch Estates Subdivision                            | 75                   | \$12,286,510        | \$12,898,441        | 192           |
| Severe        | Goldfield  | 61                   | \$3,287,385         | \$3,810,752         | 156           |
| Severe        | Holiday Hills  | 53                   | \$12,140,281        | \$15,137,049        | 136           |
| Severe        | Sunny Slope Acres Filing No. 1                       | 52                   | \$10,376,602        | \$14,068,966        | 133           |
| Severe        | Aspen Village Subdivision                            | 40                   | \$9,412,084         | \$13,962,764        | 102           |
| Severe        | Lakemoor West  | 40                   | \$6,139,087         | \$8,263,873         | 102           |
|               | <b>Severe Total</b>                                  | <b>1,759</b>         | <b>253,912,375</b>  | <b>293,666,811</b>  | <b>4,502</b>  |
| High          | Indian Creek   | 601                  | \$75,275,428        | \$94,328,053        | 1,539         |
| High          | Highland Lakes Subdivision                           | 347                  | \$69,549,662        | \$79,205,919        | 888           |
| High          | Cripple Creek Mountain Estates                       | 309                  | \$46,631,510        | \$50,880,866        | 791           |
| High          | Westwood Lakes                                       | 137                  | \$26,638,727        | \$32,470,562        | 351           |
| High          | Florissant Heights                                   | 125                  | \$17,150,699        | \$19,851,969        | 320           |
| High          | Woodland West  | 117                  | \$22,815,406        | \$37,915,614        | 300           |
| High          | Ridgewood Subdivision                                | 85                   | \$20,432,002        | \$27,476,252        | 218           |
| High          | Druid Hills Subdivision                              | 75                   | \$15,832,850        | \$18,323,666        | 192           |
| High          | Palmer Village Subdivision                           | 74                   | \$16,810,671        | \$19,857,415        | 189           |
| High          | Golden Bell Nazarene Ranch                           | 56                   | \$7,289,110         | \$8,910,931         | 143           |
| High          | Crystal Peak Estates                                 | 54                   | \$7,052,603         | \$7,907,307         | 138           |
| High          | Twin Rocks Subdivision                               | 51                   | \$7,675,440         | \$9,340,272         | 131           |
| High          | Aspen Hills  | 48                   | \$9,438,339         | \$12,439,950        | 123           |
| High          | Rosewood Hills                                       | 48                   | \$9,330,552         | \$11,691,862        | 123           |
| High          | Valley - Hi Mountain Estates                         | 46                   | \$7,079,201         | \$8,905,644         | 118           |
|               | <b>High Total</b>                                    | <b>2,173</b>         | <b>359,002,200</b>  | <b>439,506,282</b>  | <b>5,564</b>  |
| Medium        | Wilson Lake Estates                                  | 111                  | \$12,166,474        | \$13,868,615        | 284           |
| Medium        | La Montana Mesa                                      | 93                   | \$18,673,054        | \$21,515,741        | 238           |
| Medium        | Ranch Resorts Of Colorado                            | 85                   | \$15,853,440        | \$18,140,471        | 218           |
| Medium        | Las Brisas Ranchettes                                | 81                   | \$9,480,997         | \$12,527,247        | 207           |
| Medium        | Grand View Estates Subdivision                       | 51                   | \$9,320,384         | \$10,785,576        | 131           |
| Medium        | Forest Glen Sports Association                       | 48                   | \$3,542,304         | \$4,116,147         | 123           |
|               | <b>Medium Total</b>                                  | <b>469</b>           | <b>69,036,653</b>   | <b>80,953,797</b>   | <b>1,201</b>  |
|               | <b>Grand Total</b>                                   | <b>4,722</b>         | <b>726,146,605</b>  | <b>864,517,739</b>  | <b>12,089</b> |

# APPENDICES

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## BUREAU OF LAND MANAGEMENT

### U.S. DEPARTMENT OF THE INTERIOR

BLM manages 3.5-4 million acres of forested lands in Colorado and covers a variety of terrain. These public lands play a vital role in providing open space and contribute to Colorado's quality of life.<sup>1</sup> Over 2.5 million acres are considered woodlands, dominated by pinon, juniper, and oak. The remaining forested acres consist of traditional commercial tree species such as ponderosa pine, lodgepole pine and Douglas fir. Some of the wood products harvested include sawtimber, firewood, Christmas trees, post and poles, and biomass.

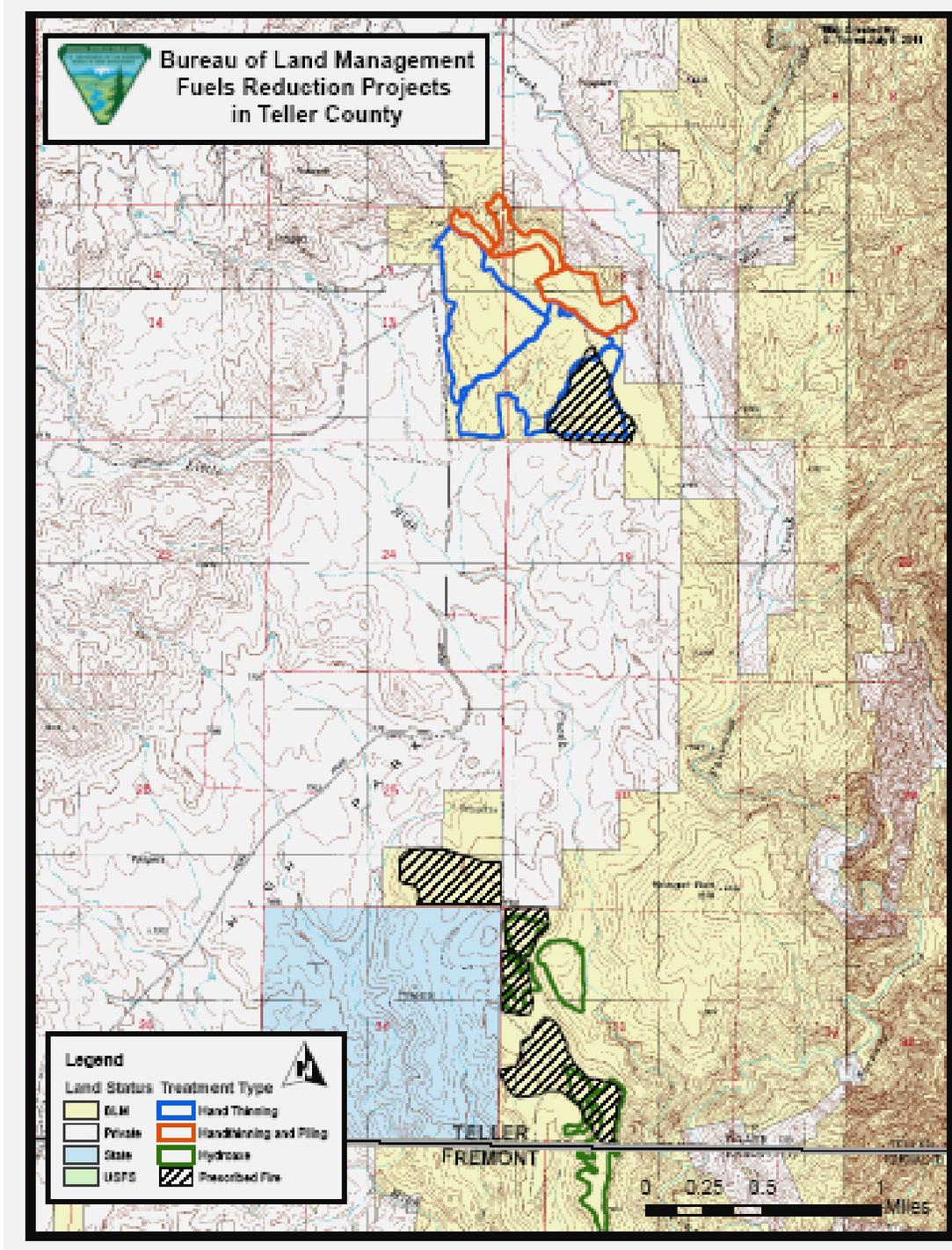
BLM acreage within Teller County is 25,469 acres. Forested lands in Colorado tend to have low productivity rates. Therefore, the BLM's management focus for forested lands in Colorado is to restore forest health conditions rather than produce commercial timber. BLM does sell non commercial fuel wood permits, but they are limited to dead and down only.

The following is a summary of fuels projects conducted since 2004 (See map on next page)

| Lakemoor West |           |                           | Booger Red Hill   |           |                             |
|---------------|-----------|---------------------------|---|-----------|-----------------------------|
| 2004          | 267 Acres | Hand Thinning             | 2008  | 94 Acres  | Hydro-axe Fuel Modification |
| 2005          | 67 Acres  | Hand Thinning             | 2010  | 162 Acres | Broadcast Prescribed Fire   |
| 2006          | 67 Acres  | Prescribed Pile burning   | 2011 (planned)  | 125Acres  | Broadcast Prescribed Fire   |
| 2008          | 55 Acres  | Broadcast Prescribed Fire | <b>Total Acres in Teller County Treated/Planned 2004-2011</b> |           | <b>837 Acres</b>            |

Beyond the Booger Red Hill project, BLM has no other identified or planned fuels reduction projects in the pipeline at the present time within Teller County. Depending on future fuels management budget, there may be some maintenance activities that could be conducted within the treated units on the projects as identified above. This will be determined by continued post treatment monitoring and evaluation to ascertain which projects would benefit from maintenance to protect the investment and preserve the effectiveness of the initial treatment.

<sup>1</sup> <http://www.blm.gov/co/st/en.html>



Based on future levels of funding, additional broadcast prescribed fire may also be implemented on both of the projects listed above. These activities are usually programmed for completion within the same fiscal year as the funding is allocated.

## Florissant Fossil Beds National Monument Fuels Management

Located 35 miles west of Colorado Springs, Florissant Fossil Beds National Monument is a 6,000 acre wonderland of meadows, forests, and wildflowers. At 8,400 feet of elevation, the Monument lies within the montane life zone. Ponderosa Pine, Aspen, Fir, and Spruce are the dominant trees. Wapiti (Elk), mule deer, coyotes, foxes, bears, mountain lions, are some of the large mammals that inhabit the area. Birds of prey scan the meadows for ground squirrels and mice.

The fossils, rocks, hills, and valleys that make up Florissant Fossil Beds N.M. reveal to us an ancient story of redwood forests, volcanic eruptions, and a climate much different than today. In addition to a rich ancient history, the Florissant valley also contains the stories of prehistoric hunting and gathering Paleo-Indians, the Ute and Jicarilla Apache peoples, the travels of a pioneer nation, and of early scientists making their way through discovery into a different time.<sup>2</sup>



The Hornbek Homestead is located within the boundaries of Florissant Fossil Beds National Monument. It was built in 1878 and owned by Adeline Hornbek a rancher and single mother of four teenage children. It is one of sites in Teller County that is listed on the National Register of Historic Places.

Over 65,000 visitors tour the Fossil Beds each year. The Monument offers over 14 miles of hiking trails and over 80% of the Monument is open to off-trail horseback riding. Ranger-guided hikes and talks are offered during the summer and self guided nature walks are offered year-round. Two picnic areas are found within the Monument, but no overnight camping is available.

### Fuels Management

Historically, the open ponderosa pine and grassland communities that characterize the monument experienced very frequent but low severity fires. This type of fire regime maintains the open appearance of the landscape by eliminating young woody plants and rejuvenating perennial grasses and forbs. During the last century of fire suppression in Colorado, woody species such as pines are able to encroach on grasslands, grow unnaturally thick stands, and hazardous amounts of fuels built up. This, combined with years-long drought conditions, resulted in unnaturally large, devastating wildfires at the turn of the 21<sup>st</sup> century.

The National Park Service responded by prioritizing fuels reduction for community and natural resource protection adjacent to and within National Parks. Florissant Fossil Beds (FFB) began a program of fuel reduction along the predominantly downwind boundary. This consisted of removing large dead fuels that accumulated on the forest floor, thinning and limbing trees, and removing brush under trees that could act as a ladder for fire to enter the forest canopy. The resulting material was piled and burned under winter conditions. To date this fuels reduction

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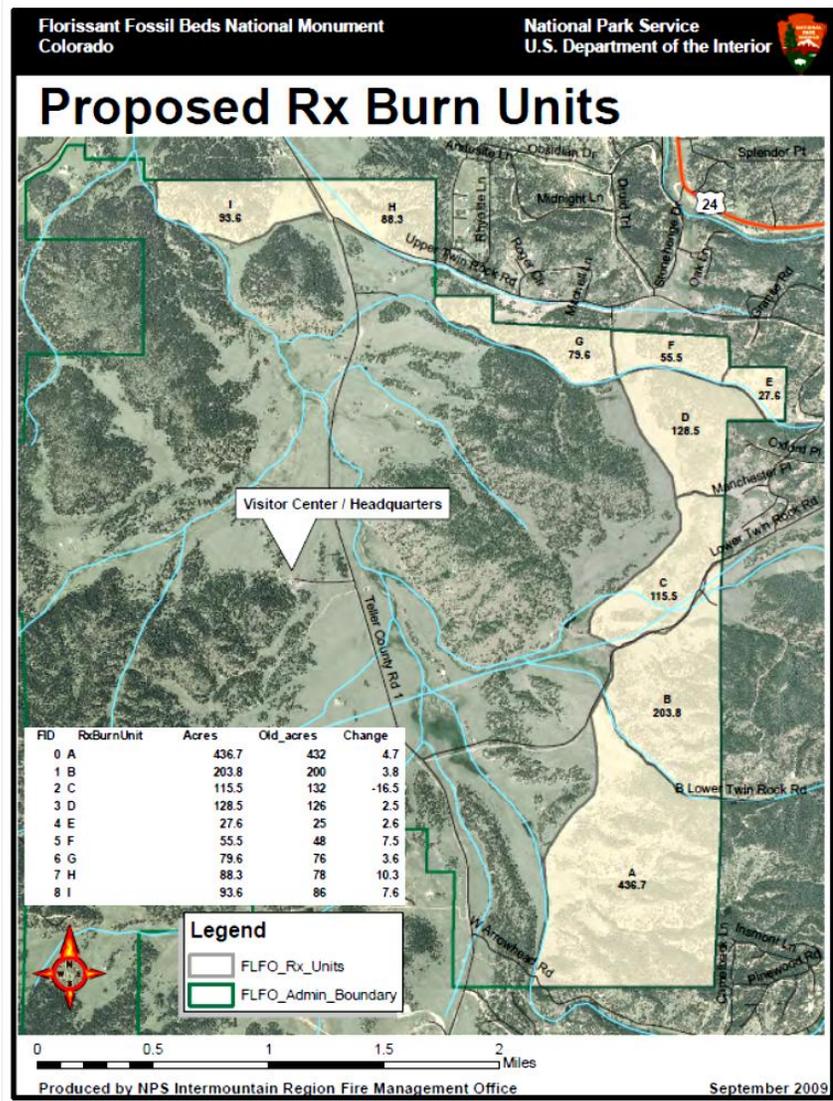
<sup>2</sup> <http://www.nps.gov/flfo/index.htm>

work has covered a 300 foot buffer inside the park's northern, eastern, and portions of the southern boundaries (roughly 300 acres of critical boundary cleared). Initially, park neighbors were very dubious about the safety of burning of the piles, even during the winter. After several successful and safe seasons of pile burning, the public attitude has become much more supportive as people come to understand the community protection benefits outweigh the low impacts and risk involved.

Much more work is needed in the future to better protect the adjacent communities, preserve the natural resources, and better maintain a natural fire ecosystem. To increase the width of the fuels reduction zone and its effectiveness, broadcast burns are planned in future years. (See map).

In addition to reducing fuel loads these burns will provide an opportunity for many fire adapted plants and animals to continue to thrive. Long term planning extends the thinning, piling, pile burning and broadcast burning to the remaining boundaries once archeological and natural resource surveys and compliance are completed.

Wildfire prevention is not just focused on reducing fuel loads in the forest. A large proportion (over 45%) of FFB is grass and low shrubs with the remainder a mixed conifer forest interspersed with aspen groves. There is a potential for damaging and quick moving grass fires to occur. Some of the largest and most viewed fossils are the sequoia stumps above ground and in these flashy fuels. The heat of a high intensity wildfire could damage the precious remnants of ancient times, as well as the fragile fossil bearing paper-shale that lies just below the surface of the meadows. FFB works with neighboring residents, Fire departments and the Forest Service to reduce the risk of fire moving off of, or into, Monument lands. Do your part to prevent wildfires from starting and enjoy the natural wonders that remain.



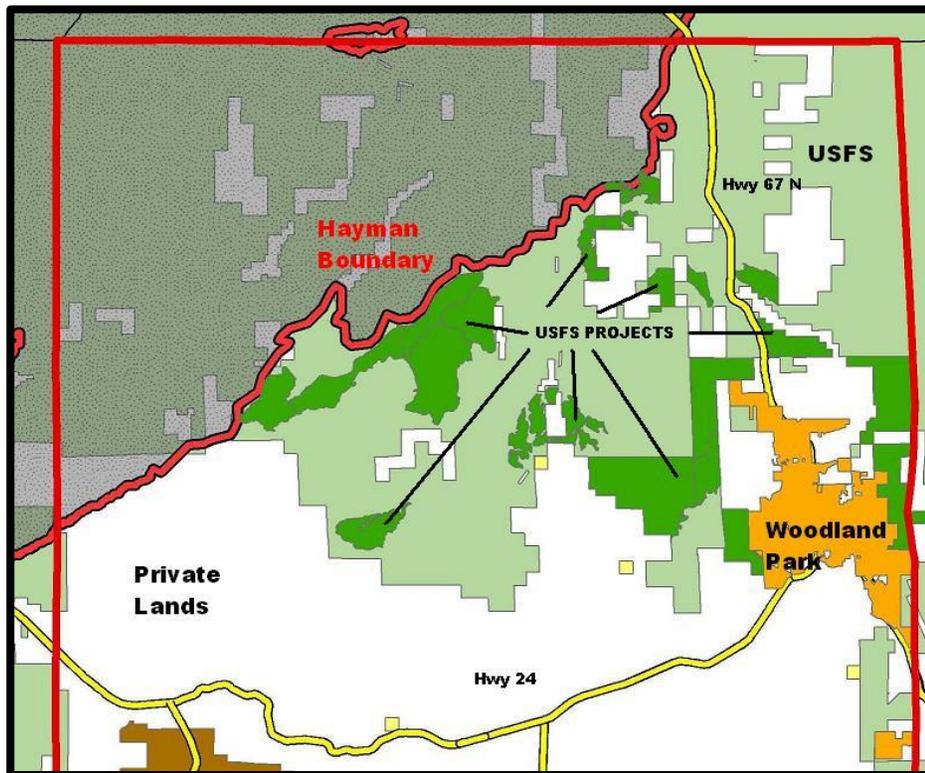
### Pike and San Isabel National Forest

The USDA Forest Service, Pike District, manages over 190 sq miles of Teller County lands and forests and is the largest public land management agency in the county. In 2001 the Forest Service had undertaken the lengthy process of establishing the Trout-West Hazardous Fuels Reduction Project which is in compliance with the National Environmental Policy Act and Forest Service policy for environmental analysis. According to the Final Environment Impact Statement published June 2003, the guiding principles for this project were:

*#4 "Assign highest priority for hazardous fuel reduction to communities at risk and readily accessible municipal watersheds."*

*#5 "Restore healthy, diverse and resilient ecological systems to minimize uncharacteristically intense fires on a priority watershed basis. Methods will include removal of excessive vegetation and dead fuels through thinning, prescribed fire and other treatment methods."<sup>3</sup>*

Due to the timely approval of this project in 2003, the USFS was able to begin management and fuels mitigation treatments soon after the Hayman fire and have treated, to date, 12,000 acres of the Trout-West project.



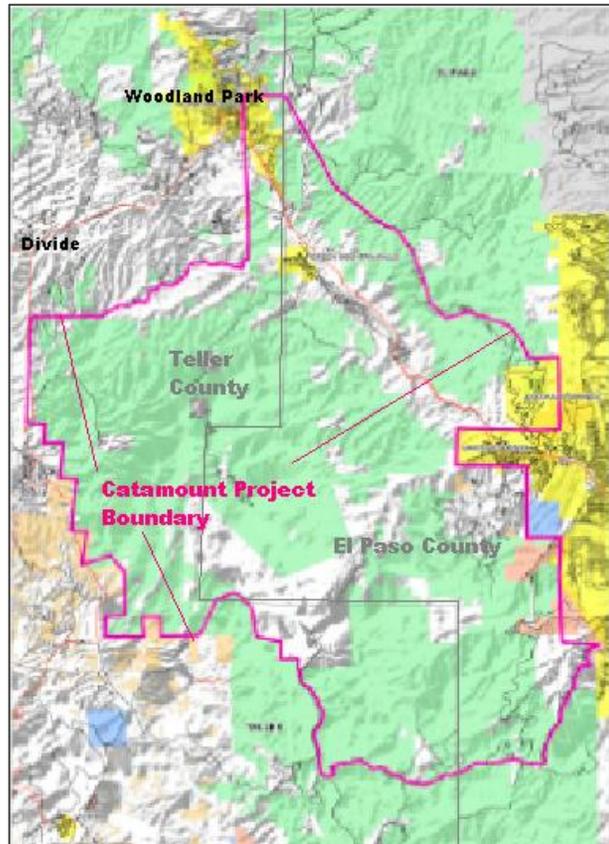
<sup>3</sup> Final Environmental Impact Statement, Trout-West hazardous Fuels Reduction Project, USDS Forest Service, June 2003

## Appendix A Reports

Another new assessment for proposed management was completed and signed February of 2011 for the greater Pikes Peak area identified as Catamount Forest Health and Hazardous Fuel Reduction Project with an anticipated treatment of 21,000 acres. Project areas are in the planning phase.

*“This project is needed because of the high potential for catastrophic wildfires to occur in the area. There are hundreds of homes, critical watersheds and significant associated infrastructure at risk in, adjacent to and near the project area. The steadily increasing population and associated development in the area will proportionally increase this risk in the future. Tree thinning, prescribed burning and/or other fuel reduction methods can significantly reduce the hazard of intense fires.*

*Further, the need for the proposed project is driven by deteriorating forest conditions. Historic fire suppression has created forests that are more susceptible to large scale, high intensity wildfire, as well as insect epidemics. The need to reduce forest fuels has been clearly demonstrated by the recent large-scale high intensity fires occurring across the western United State and on the Front Range of Colorado.”<sup>4</sup>*



For more information regarding planned Forest Service fuel reduction in Teller County, please visit the website at [www.fs.fed.us](http://www.fs.fed.us) (Pike and San Isabel National Forest)

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<sup>4</sup> Catamount Forest Health and Hazardous Fuel Reduction Project- Environmental Assessment, Oct. 2010

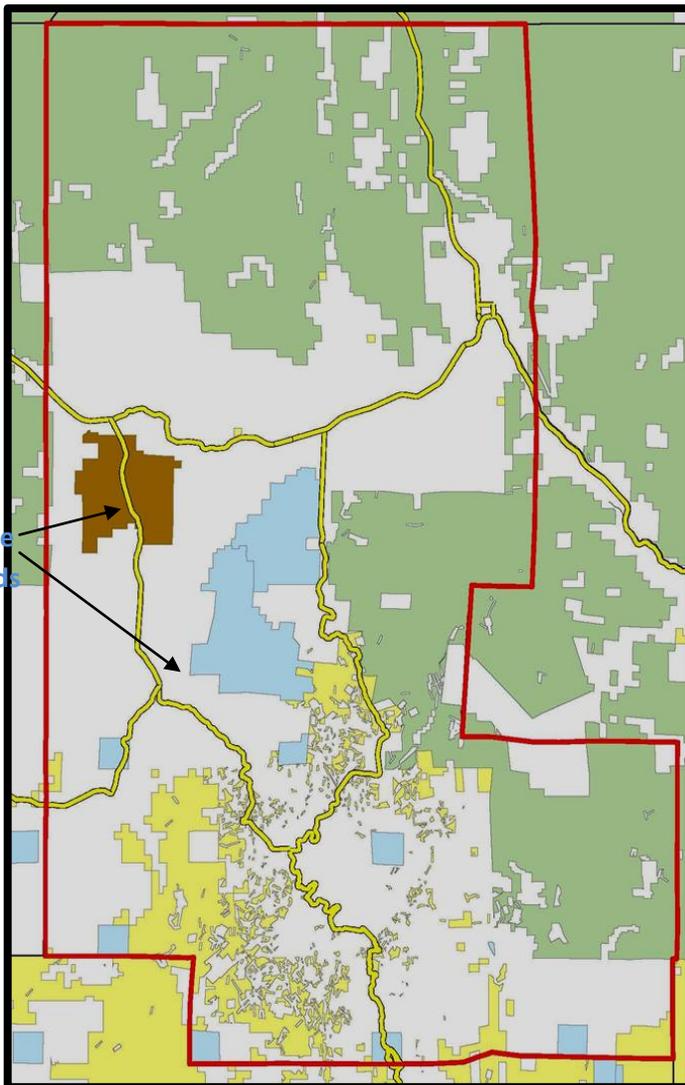
### Teller County State Lands /Colorado State Forest Service

#### History:

In 1876, Colorado was granted admission into the Union and the Federal Government granted, in trust to the state of Colorado, approximately 4.5 million acres of land for the specific purpose of generating revenue to support state schools. (Congress granted lands to all western states for use in establishing and maintaining public schools.) In the original grant, Colorado received sections 16 and 36 in every township. (A section is a block of 640 acres, or one square mile.)

Over the years many of the sections surrounded by national forests have been traded for isolated National Forest land to consolidate the parcels into contiguous units. Some sections have also been sold. Administration of State Trust Lands is vested with the Board of Land Commissioners within the Department of Natural Resources

The Colorado State Forest Service (CSFS) manages the forests on Colorado's Trust Lands under a silvicultural lease with the Board of Land Commissioners. Essentially the CSFS leases the trees, and does not control other uses or access to the lands. Access to trust lands are controlled by the lessee of the surface rights.



Under terms of the silvicultural lease the CSFS manages the forests through sales of forest products, and profits above CSFS costs are placed in the School Trust.

The CSFS also functions as the forestry division within the Department of Natural Resources. Thus it assists with implementation and administration of forestry practices on State Parks and Wildlife Areas, but overall administration of these lands is through the Division of Parks and Wildlife.

#### Accomplishments 2005-2011:

Colorado State Forest Service, Woodland Park District office has the responsibility of managing State lands in Teller County. This includes the "State School Sections" where all projects are wood sales only.

This map refers to the Rhyolite Mountain and Grassy Creek School Sections that have been managed to maintain the health of the forest and provide income to Colorado public schools. These management practices are also designed to reduce the risk of catastrophic wildfire impacts

**Rhyolite Mountain (Sec 36, T14S, R70W)**

- 2007-2008: Group Selection cut of Englemann Spruce and Aspen- 50 acres, 240,000 ft<sup>3</sup> of sawtimber and firewood sold
- 2009: 23 cords of firewood sold
- 2010: 30 cords of firewood sold

**Grassy Creek (Sec 16, T15S, R69W)**

**Public firewood site, Permit required. Permits are 10 cords for \$100**

- 2009-2010: 310 cords of firewood sold
- 2011: 140 cords of firewood sold

**Proposed Projects:** Wood products will continue to be sold based on demand.

**Pikes Peak Watershed Lands**

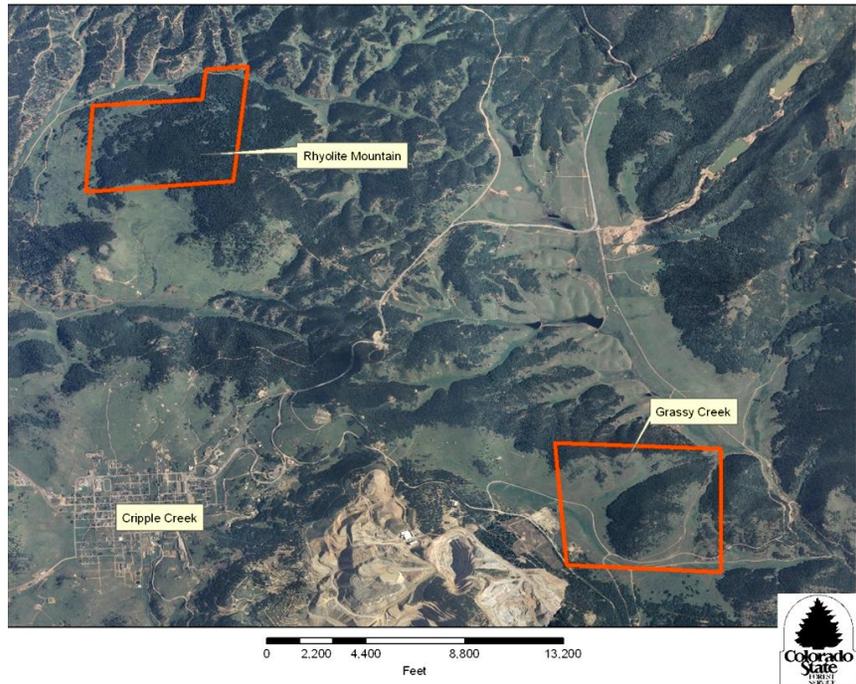
Prior to the creation of the Pike Timber Reserve in 1892, the City of Colorado Springs began amassing large tracts of land on Pikes Peak through various Acts of Congress as well as other means of land acquisition for the purposes of developing a clean and reliable water supply. As these lands accumulated, they were set aside by City Ordinance to be held in trust and protected as watershed reserves for the City's water supplies. The Pikes Peak

Watershed System (PPWS) consists of nearly 13,000 acres owned by the City of Colorado Springs. Colorado Springs Utilities, an enterprise of the City of Colorado Springs, is the responsible agency for ensuring the management of the City's watershed lands for the ongoing protection of the water supply, infrastructure, and forest resources.

The watershed annually produces more than 5.5 billion gallons of water, or approximately 20 percent of the total water supplied by the Colorado Springs water system. Since 1987, with the completion of the Pikes Peak Watershed Forest Management Plan, Colorado Springs Utilities has managed these lands through cooperative agreements with the Colorado State Forest Service and other State and Federal resource agencies in keeping with the original forest management goals.

Wildfire has always been a common natural disturbance shaping the Pikes Peak ecosystem. Current conditions also suggest wildfire as the biggest threat to the resources of the watershed. Although no major wildfires have occurred on the Pikes Peak Watershed during the past one hundred years or so, the potential for a major wildfire exists.<sup>5</sup>

Rhyolite Mountain and Grassy Creek State Land Sections



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<sup>5</sup> **Pikes Peak Watershed Forest Management Plan January, 2010** , Naomi J. Marcus, Colorado State Forest Service

There are two primary water collection and storage systems on the PPWS: South Slope and North Slope. The following is a listing of projects completed and planned by CSFS on Watershed lands:

**Completed 2005-2010:** *(Unless otherwise noted, projects were forest thinning by mechanical mastication)*

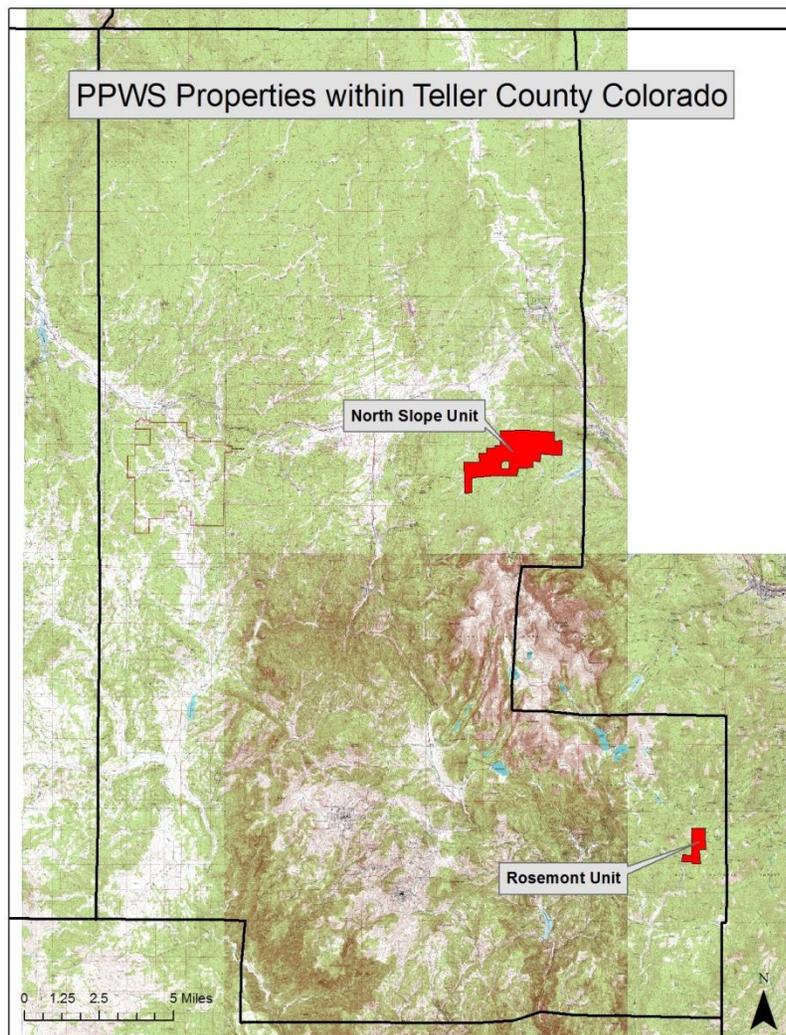
- North Slope Unit, 2005, 55 acres
- North Slope Unit, 2006, 100 acres
- North Slope Unit, 2006, 110 acres
- North Slope Unit, 2007, 40 acres
- Rosemont Unit, 2008, 72 acres
- North Slope Unit, 2010, 133 acres
- North Slope Unit, 2010, 3 acres of forest thinning by hand felling and lop and scatter
- North Slope Unit, 2010, 114 acres of prescribed broadcast burning

**In Progress:**

- North Slope Unit, 2011, 343 acres of forest thinning by mechanical mastication

**Planned:**

- North Catamount RX fire, approximately 100 acres of broadcast burning annually as conditions permit



CSFS plans approximately 200 to 400 acres of forest management work annually on PPWS properties in both Teller and El Paso Counties.

## **Dome Rock State Wildlife Area,**

### **Teller County, Colorado**



It is the policy of the State of Colorado that wildlife species and their environments are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of this state and its visitors. To carry out this policy, the **Colorado Division of Wildlife** employs a continuous operation of planning, acquisition, and development of wildlife habitats and facilities for wildlife-related opportunities.

The following management principles represent some of the core beliefs that guide the Division in fulfilling its mission, creating its goals and management strategies, and in the decision-making processes at all levels of the organization. These principles reflect the Division's most deeply held values and ideals.

- Wildlife conservation, use and enjoyment including the rich traditions of fishing, hunting and wildlife viewing are part of Colorado's outdoor heritage, economic future, and overall quality of life.
- A primary consideration in wildlife management decisions is to maintain healthy, diverse and abundant wildlife.
- The quality, quantity, and conservation of wildlife habitat are essential to maintaining the state's diverse wildlife population and wildlife related uses.<sup>6</sup>

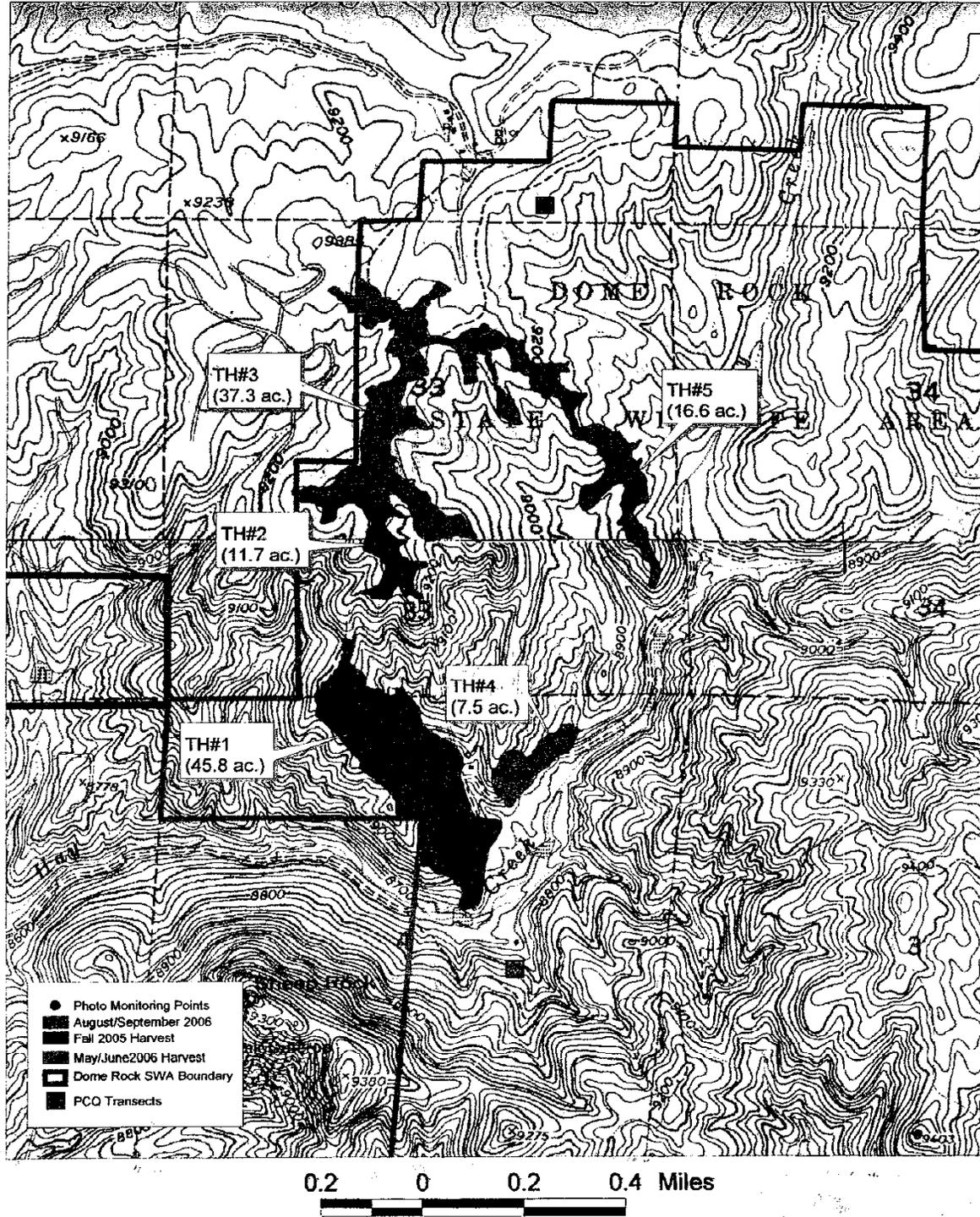
Based on these principles, Dome Rock State Wildfire Area plans and completes habitat improvement projects throughout the 6,980 acre property in targeted locations. This includes thinning of the forest and opening up of the forest canopy to restore and enhance wildlife habitats. A side benefit of this project is the reduction in catastrophic wildfire hazards. In the last five years these projects have included the mechanical treatment of approximately 57.5 acres and 171 acres of ponderosa pine/ Douglas –fir habitat types. These treatments were performed near the Colorado Mountain Estates (CME) subdivision on Colorado Parks and Wildlife land.

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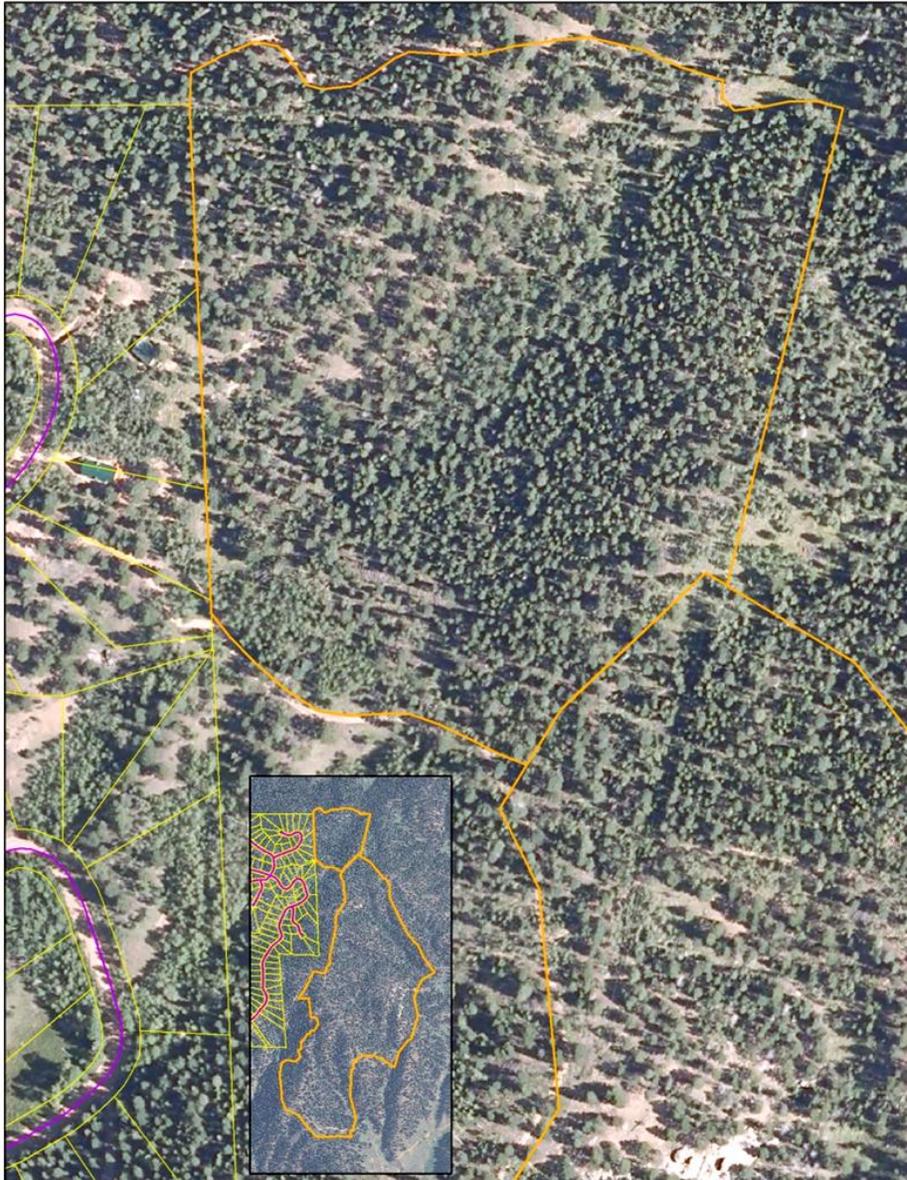
<sup>6</sup> <http://www.landscape.org/colorado/partners/Colorado%20Division%20of%20Wildlife/>



### Dome Rock SWA Timber Enhancement Project



The following map illustrates the treatment areas where the mechanical felling and stacking of the targeted trees was performed in 2006.



The Colorado Parks and Wildlife (CPW) was responsible for mechanically treating approximately 19 acres on Dome Rock State Wildlife Area. The 19 acres prescription called for the removal of Douglas-fir, Limber Pine and aspen snags. This was performed in June 2011. The CPW used a Timber Axe attached to a New Holland skid steer outfitted with tracks. The treatment took about 2 and half weeks to perform.

Within these treated acres wildlife will be able to find more vegetation, cover and improved habitat; all important factors in ensuring that wildlife will be around for future generations to enjoy.

## **Mueller State Park Fuels Management**

### **Background**

The area which is now Mueller State Park sits at the base of Pikes Peak where elk, black bear, eagles and hawks are able to roam amongst the 5,121 acres of natural land. With the park's groves of aspen trees, each season is a delight for photographers and sightseers alike. Over 200,000 annual visitors to the park traverse the park's 55 miles of trails on foot, snowshoes, cross-country skis, horseback and mountain bike, depending on the season. Mueller also has a visitor center with educational exhibits, a campground with 132 sites and modern camper services building, and three deluxe rental cabins.

The abundant outdoor recreation opportunities that occur within Colorado's state parks are directly linked to the unique natural resources, scenic amenities, and historic values that comprise each park. Proactively managing and maintaining these resources is essential, because our visitors are accustomed to outdoor recreation experiences in a high quality, natural setting. Whether camping under an umbrella of stars, rafting a rushing river, snapping a photograph of an eagle, fishing for a trophy trout, or simply accessing a trail to enjoy the scenery, quality natural settings and surroundings make such activities worthwhile.

Natural resource management is a major component of Colorado State Park's mission that the natural, scenic, scientific, and outdoor recreation areas of this state are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of this state and visitors of this state.

### **Forest Management**

While fire is natural in this environment, the Colorado wildfires of 2000-2002 demonstrated how quick and devastating high intensity wildfires can be. The wildfire's impact is not limited to State Park lands that burn causing long term disruption and destruction of natural resources and facilities. There is also economic damage to neighboring communities that rely on tourism.

Colorado State Parks works very closely with the Colorado State Forest Service (CSFS) and leverages Great Outdoors Colorado (GOCO) funding in a unique cooperative project. The goal is to conduct work in and around our State Parks, working with neighbors on a landscape scale to reduce the risk of wildfires and improve forest resiliency to insect and disease epidemics.

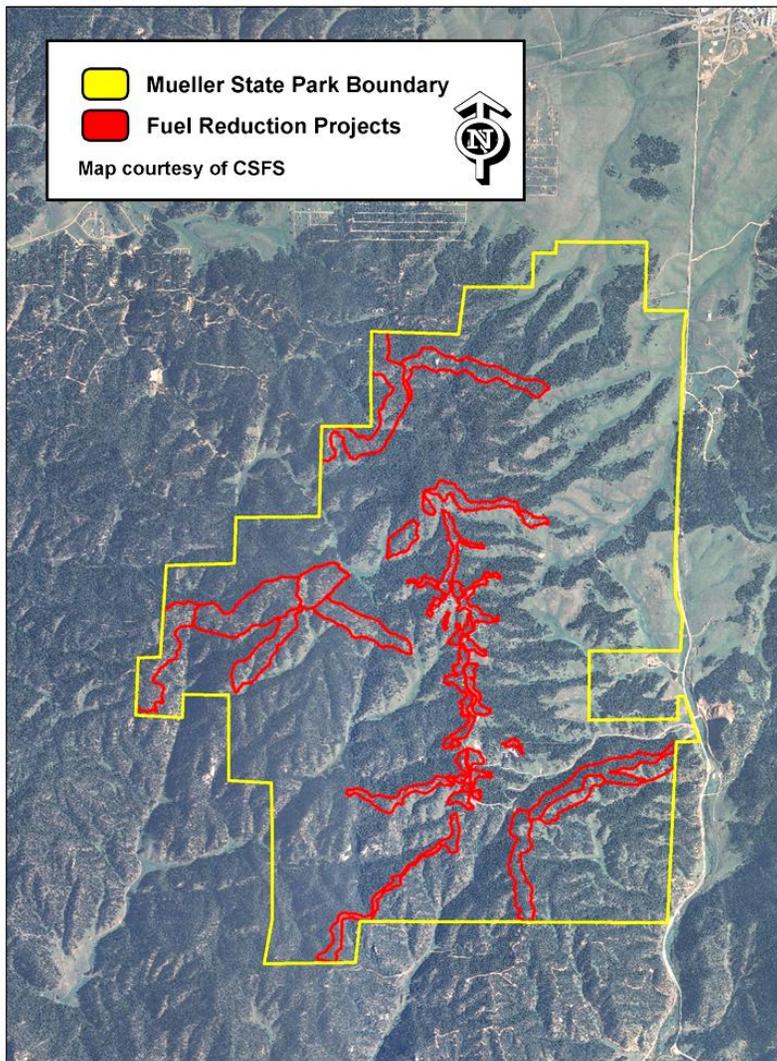
This partnership has been very successful and due to its demonstrated track record of careful planning and efficient implementation, CSFS has received a \$2.5 million dollar grant from FEMA that is the first of its kind for proactive watershed protection. This grant funded fuels mitigation projects at 7 parks through 2010!

## Fuel Hazard Projects<sup>7</sup>

In 2008, the Park undertook three fuel reduction projects totaling 123 acres in key high priority areas. (See attached map) These objectives of these projects were to

- Create fuel breaks by utilizing the existing network of trails and roads
- Reduce wildfire hazards by reducing tree densities, removal of ladder fuels and modifying stand structure
- Reduce the threat of insect and disease attacks by reducing stand densities and improving retention tree vigor

Care is taken in timing forest management projects to avoid negative impacts during elk calving season and to minimize inconvenient trail and road closures for visitors.



### Long Term Benefits

These projects will provide long term benefits to several aspects of the Strategic and Stewardship Plans. Not only will the fire hazard be reduced, opening the forest stands provides increased wildlife habitats, a mimic natural forest succession, and improves forest health and vigor which will reduce the occurrence of insect or disease epidemics. Maintenance plans are in place for future forest treatments.

<sup>7</sup> Mueller State Park 2008 Fuel Management Program Project Review

**Teller County Private Lands /Coalition for the Upper South Platte**

The Coalition for the Upper South Platte (CUSP), a local nonprofit watershed organization, continues to coordinate and manage forest projects within Teller County and surrounding areas. CUSP operates the Divide Slash Site, and The Neighborhood Fuels Reduction Program. Both programs provide essential services to the community by providing residents a location to drop off woody debris from owner performed forest work, and an onsite chipper service. CUSP acts as a fiscal host and project manager for other forestry work as well, offering contracts for larger forest management projects, with funding attained from a variety of sources. In addition, CUSP maintains a six-person fuels reduction crew that performs projects around Teller County and in surrounding communities.



**Divide Slash Collection Site ([www.divideslash.org](http://www.divideslash.org))**

In 2007 CUSP assumed responsibility of the Divide Slash Collection Site and entered into an agreement with Teller County to take over all aspects of operation of the Divide Site. The Divide Slash Collection Site is centrally located within Teller County and is easily accessible by major transportation routes.

***2007 -2011***

Annual average of 1400 loads per year and 86 acres treated.

**Neighborhood Fuels Reduction Program / CUSP Fuels Crew**

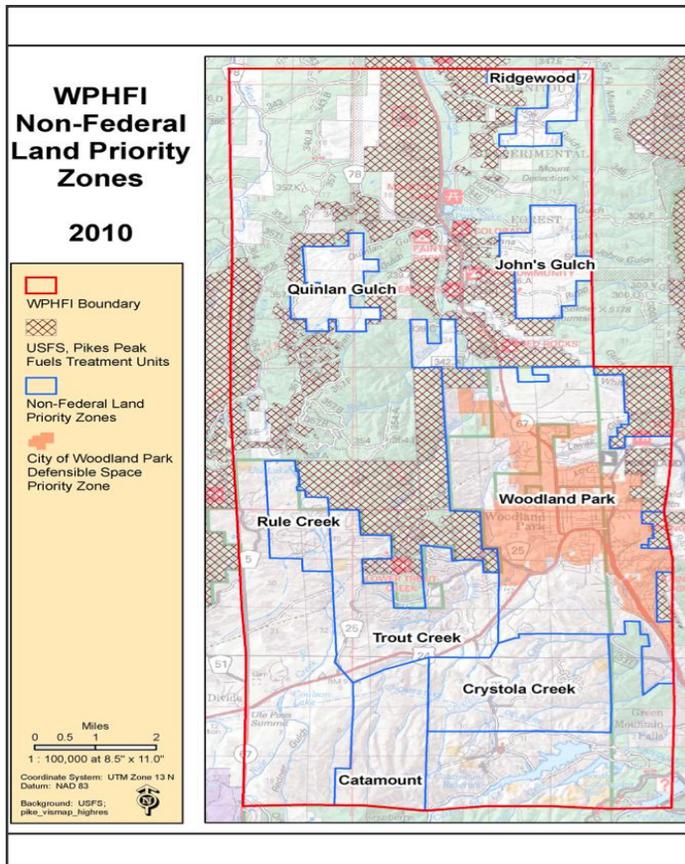
CUSP purchased a large capacity wood chipper in 2003 and currently operates the Neighborhood Fuels Reduction Program, which provides two distinct services; chipping of forest waste created by homeowners working on their own land or for slash management at fuels reduction and forest management operations completed by CUSP staff. Members of the CUSP field crew are certified as wildland fire fighters, working with area fire departments. They also use their fire skills to manage forests and handle slash through prescribed fire and pile burns. CUSP partners with another nonprofit, Help The Needy, to provide area residents with fuel wood.



***2005-2011***

300 acres per year on average treated through the Neighborhood Fuels Reduction Program

Created/burned 2496 piles  
Cut 395 cords for needy community members



**Woodland Park Healthy Forest Initiative Community Wildfire Protection Plan**

In 2008 the County and the Woodland Park area were selected as a demonstration site from the Front Range Fuels Treatment Partnership Roundtable. With the selection of Woodland Park as a demonstration site came the designation and creation of The Woodland Park Healthy Forest Initiative. CUSP serves as the WPHFI facilitator.

The geographical boundary was selected due to its Wildland-Urban Interface (WUI) characteristics, and because of the high fire risk identified in the 2005 Teller County CWPP. The ongoing project is designed to foster improved local forest management and reduce fire risk through, contiguous treatments across jurisdictional boundaries, paired with local utilization and processing facilities for woody biomass, and to foster active participation by local residents.

The Woodland Park Healthy Forest Initiative area (WPHFI) comprises 63,500 acres, including and the City of Woodland Park, and surrounding areas of Teller County. The area has 127 subdivisions and includes approximately 27,000 acres of US Forest Service land in the Pike National Forest. Like the National Forest Area, the WPHFI area is very densely forested in mixed conifer (primarily Ponderosa Pine and Douglas Fir), with steep terrain and limited access. In June of 2010 the WPHFI CWPP was completed.

**American Recovery and Reinvestment Act (ARRA)**

In 2009 CUSP received significant funding for projects in the southern five counties of the Front Range Roundtable area (Teller, Douglas, El Paso, Jefferson, Park). Thanks to this funding, CUSP has worked to write and update over a dozen CWPP's, including xx in Teller County. CUSP has also implemented CWPP treatments across the five-county area. CUSP has offered and managed a number of projects that were completed by local contractors through an open-bid process. ARRA brought \$1.18 million into the region for forest work over a twenty month period.

**Teller County Acres Treated (WPHFI and ARRA): 2009 through June, 2011**

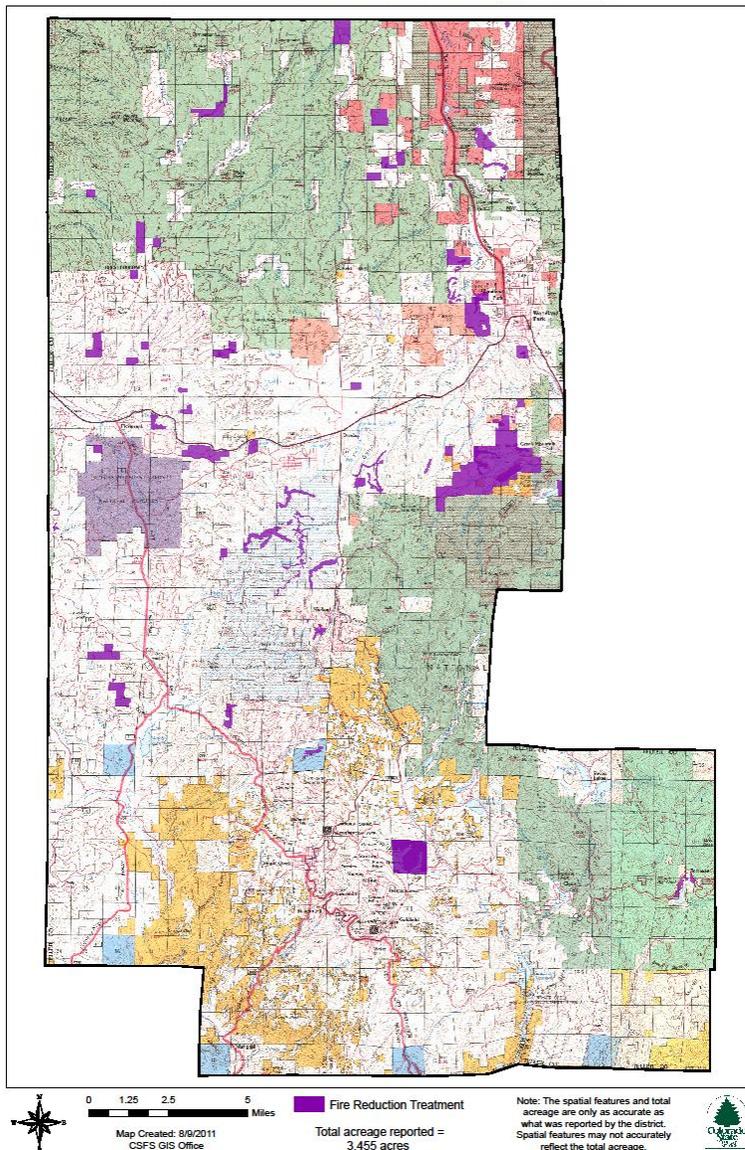
- 2009: 322 acres
- 2010: 324
- 2011 (through June 30<sup>th</sup>): 330 acres

## Private Land Mitigation Projects

The Colorado State Forest Service tracks acres of fuel mitigation on accomplished private and state lands as a result of CSFS involvement through cost share, forest agriculture, and other landowner assistance programs. Twice yearly the Woodland Park District office sends surveys to contractors to track acres that have been done without direct CSFS involvement. The data shows 3,455 acres since the Teller CWPP was written in 2005.



Fire Reduction Treatments in Teller County (2005 - 2011)



There are undoubtedly some acres that have not been reported. Often landowners do mitigation without direct CSFS involvement or without the services of a contractor, and these are not reported. Since the CWPP was written the CSFS, CUSP and others have made concerted efforts to educate landowner about the importance of fuel mitigation and thinning for forest health. Many landowners have taken these messages home and have done mitigation on their own initiative.

**Teller County Land Use Regulations - CHAPTER 6: CRITICAL AREAS - Page 38 of 41**

Adopted 12-06-07 – Effective 01-01-08 – Amended 01-14-10

**Section 6.5**

**WILDFIRE HAZARD AREAS**

Certain lands in Teller County have been identified by Federal, State, and County fire protection and emergency services agencies as having high potential to pose wildfire hazards to human life and property. While the causes of wildfire are many, in Teller County threats from over-vegetation, the naturally occurring number of lightning strikes, human activities in the National Forest and elsewhere, and increased development of private lands surrounded by or adjoining and/or adjacent to State and Federal land, are real. When the Standards for approval of a development permit application require that Wildfire Hazard Areas be satisfactorily addressed, the provisions of *Section 6.5 Wildfire Hazard Areas* apply.

**A. Purpose.** These Regulations are intended to help ensure that development avoids Wildfire Hazard Areas whenever possible. When it is not possible to avoid these areas, these Regulations provide Standards to minimize the potential impacts of these hazards on the occupants of the property and, as applicable, the occupants of adjoining and/or adjacent properties.

**1. Time of Initial Development.** Except as may otherwise be approved and collateralized in phases by the Board of County Commissioners for a phased project, all provisions for the reduction or elimination of wildfire hazards, including roads, water supply and delivery system, “defensible space,” and other fire protection and mitigation measures, will occur at the time of initial development, and, as necessary, be adequately collateralized.

**B. Submittal Requirements.** If in an area identified as having Moderate, High, Severe, or Extreme Fuel Hazard according to the map(s) contained in the Teller County Community Wildfire Protection Plan adopted June 2, 2005 by the Teller County Board of County Commissioners, or if in a subdivision specified in that Plan as having a Category II or III Property Loss Hazard rating; or if in an area subsequently determined by the County to be potentially wildfire hazard prone, Applicant shall provide either:

1. Evidence prepared by a professional forester that the proposed development is not in a Moderate, High, Severe, or Extreme Fuel Hazard area or having a Category II or III Property Loss Hazard rating; **or**
2. Evidence that the Standards of *Section 6.5.C* are met.

**C. Standards**

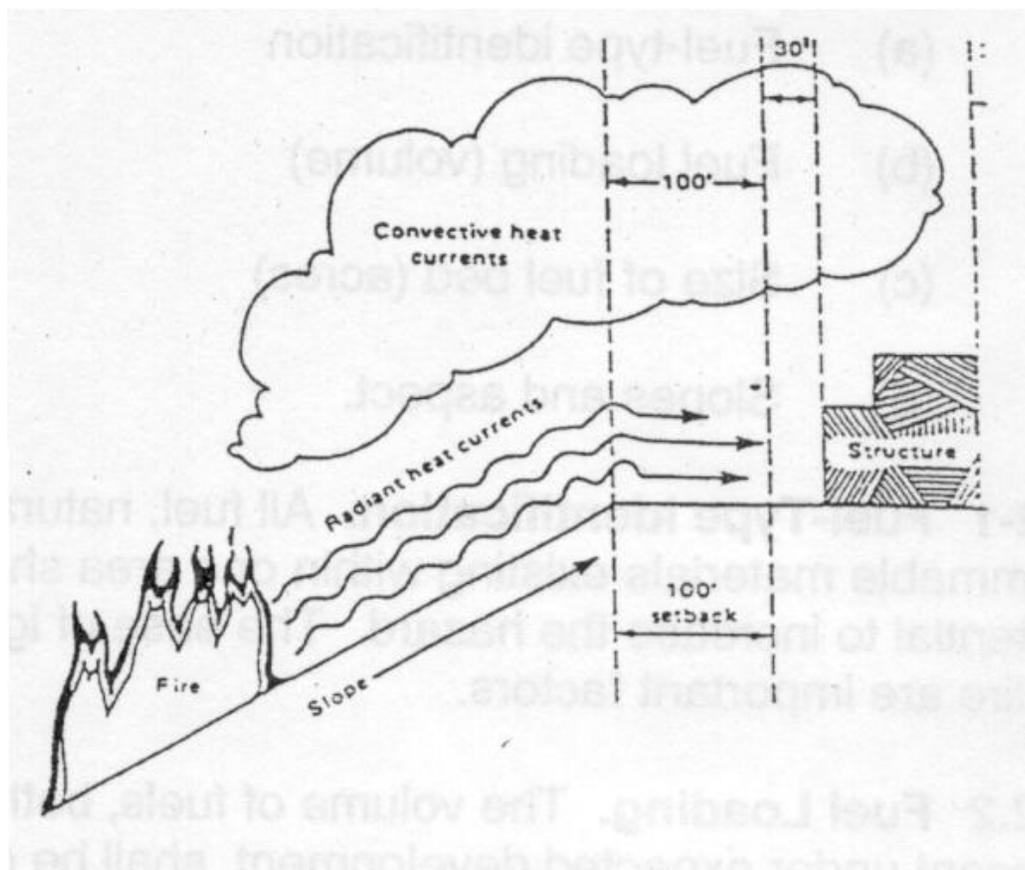
**1. Hazards Minimized.** The development is designed to minimize conditions that compromise public health and safety and help protect private property, and ensure by enforceable means, either public or private, that these conditions will be maintained. Techniques to minimize these hazards include the following:

a. Incorporating appropriate location-specific “defensible space” fuel modification requirements into protective covenants or other development documents (see *Figure 6-2: Creating Defensible Space* following). “Defensible space” requirements may include ensuring that:

- (1) Trees and brush are cleared around buildings, and the clearance maintained.
- (2) Grasses are kept mowed to a maximum of four inches.
- (3) Ground litter around structures is removed.
- (4) The structure of surrounding foliage is kept pruned to prevent “fuel ladders.”
- (5) Trees are thinned to provide adequate crown separation.
- (6) The recommendations of the Teller County Community Wildfire Protection Plan for that area are followed.

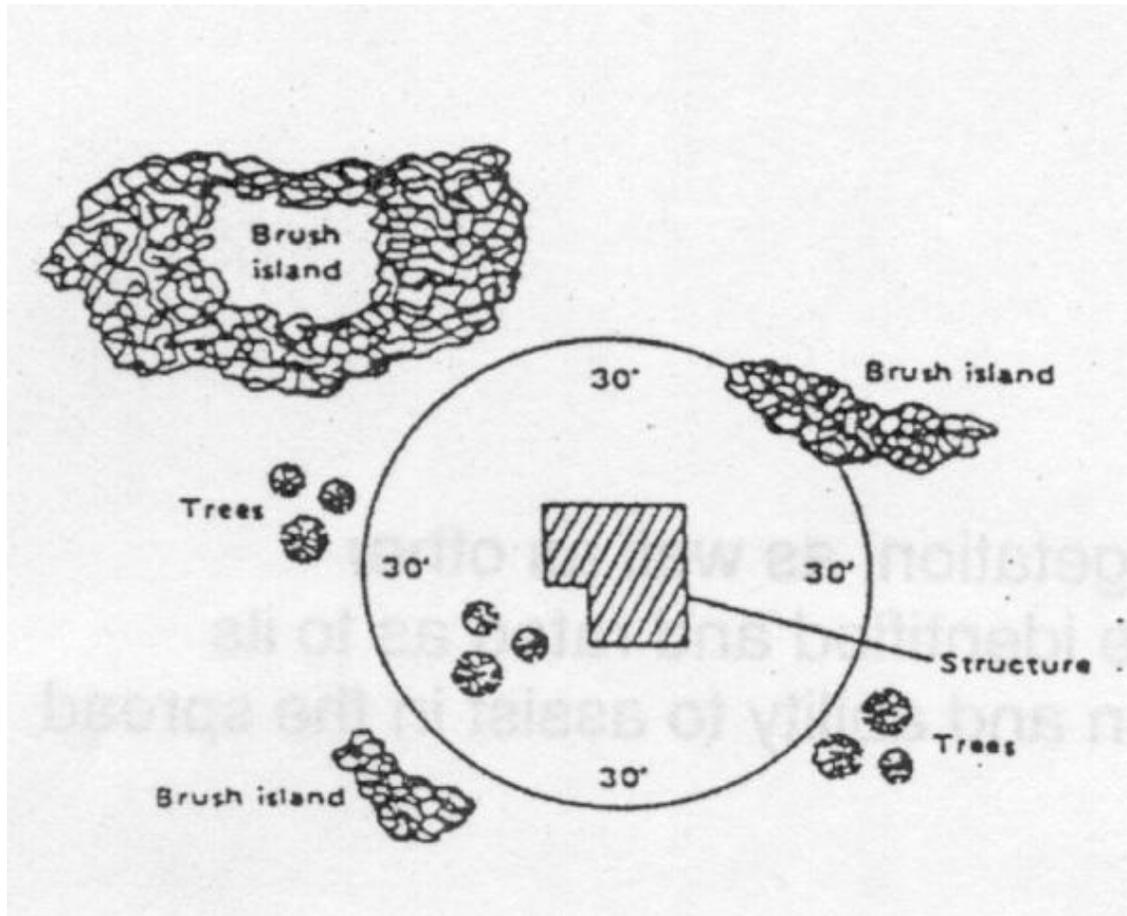
Appendix B

- b. Modifying or designing structures in terms of roof materials, screening of vents, and the enclosure of decks, eaves and overhangs.
- c. Constructing exterior walls of fire retarding materials.
- d. Providing emergency water supplies.
- e. Siting structures to compensate for hazardous conditions associated with slope and aspect (see *Figure 6-3: Slope and Aspect Compensation Example* below).



- f. Other such mitigation measures as may be recommended by Protection District or in instances where the proposed development lies outside of any District boundaries, by the Teller County Fire Marshall or his or her designated representative.
- g. Otherwise ensuring that the recommendations of the Teller County Community Wildfire Protection Plan for that area are followed.

Figure 6-2: Creating Defensible Space



**2. Adequate Roads and Firebreaks.** The development has provided adequate roads for access by fire trucks, fire fighting personnel, and other safety equipment, as approved in writing by the local Fire Protection District, or in instances where the proposed development lies outside of any District boundaries, by the Teller County Fire Marshall or his or her designated representative.

**3. Adequate Water Supply and Facilities for Fire Suppression.**

The development has provided a legal, adequate, and dependable supply of water for fire suppression, and the system for its delivery, as approved in writing by the local Fire Protection District, or in instances where the proposed development lies outside of any District boundaries, by the Teller County Fire Marshall or his or her designated representative.

**4. Referral Agencies.** The specific recommendations, if any, of the Colorado State Forest Service and local Fire Protection District, or in instances where the proposed development lies outside of any District boundaries, the Teller County Fire Marshall or his or her designated representative, are incorporated into the development plan. In the event that there are no specific recommendations, the following shall apply:

**a. Colorado State Forest Service Guidelines and Standards.**

The Colorado State Forest Service “defensible space” and “firewise construction” guidelines for wildfire protection and mitigation are followed.

### TELLER COUNTY INSECT AND DISEASE CONDITIONS

Literally thousands of insect and diseases are present in the forests of Teller County--or any forested area for that matter. Like the common cold, most do no serious or lasting damage. When in poor health, trees, like humans, are more prone to infection from other causes; the concept of preventive medicine applies to forests, as well. Maintaining forests in good health will prevent problems in the future.

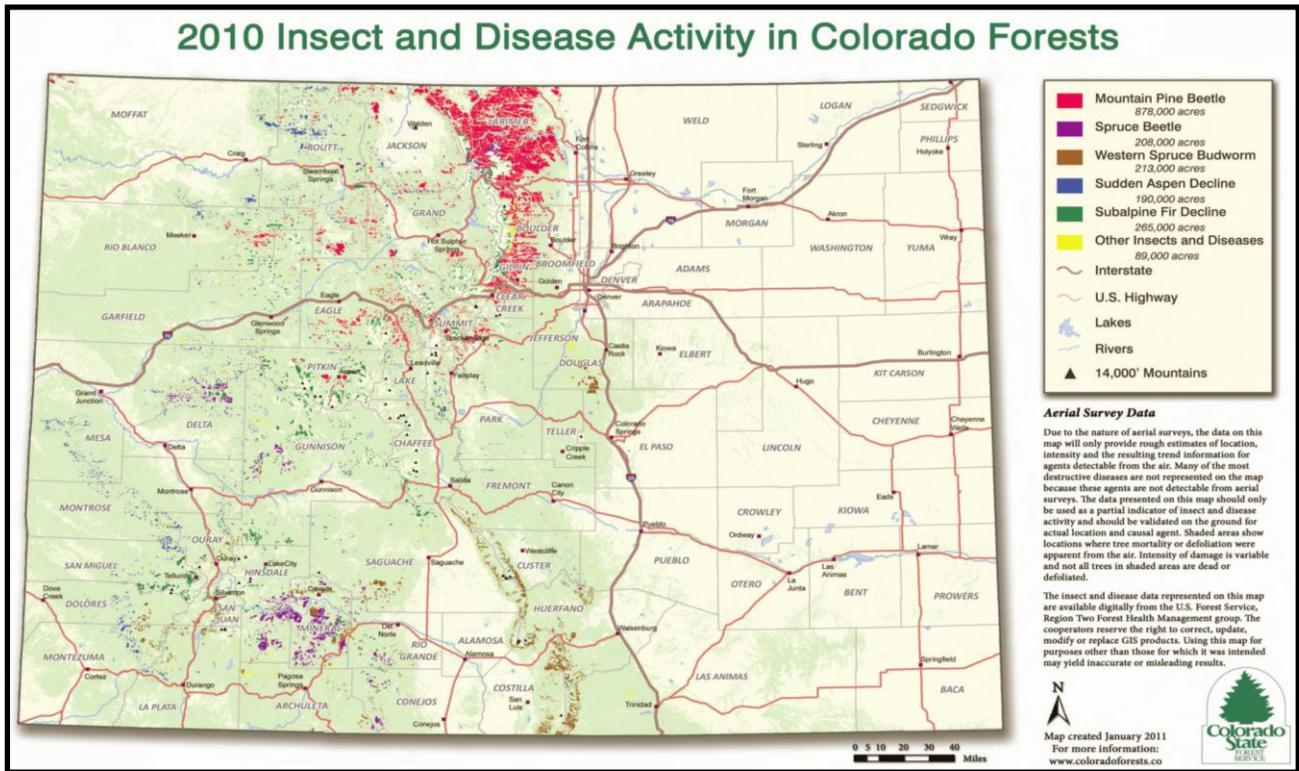


Figure 1: Aerial detection of insect and disease conditions in Colorado from the 2010 flight. Courtesy of Colorado State Forest Service,

Every summer, insect and disease specialists from the USDA Forest Service and Colorado State Forest Service (CSFS) survey Colorado’s forests from the air to monitor insect and disease outbreaks. These flights are an excellent means to find new areas of insect and disease activity and monitor trends in existing outbreaks. Maps of the previous year’s findings are published in January and can be found on the CSFS website at <http://csfs.colostate.edu/pages/common-insects.html>. This link also contains more detailed information on the insect and disease issues presented here.

The 2010 flight did not pick up large areas of insect and disease activity in Teller County, but a lack of large scale insect and disease activity does not infer no insect or disease activity. All the insects and diseases that are shown on the above map are doubtless active within Teller County, but at low levels not detectible from the air. Landowners should monitor their forests several times a year for new insect or disease activity.

Residents should not be complacent. Particularly in view of the current drought, forest trees are stressed and vulnerable to insect and disease attack.

The unnaturally dense forest condition that causes the fire threat in Teller County also creates the potential for cyclical insect and disease outbreaks. Trees weakened by overcrowding and lacking adequate water and sunlight are more susceptible insects and disease. When planning wildfire hazard mitigation projects, it is important to address current insect or disease issues and prevent those that are likely to occur. Following is information on some of the common forest insect and disease problems that have been identified in the county.

### **Dwarf Mistletoe**

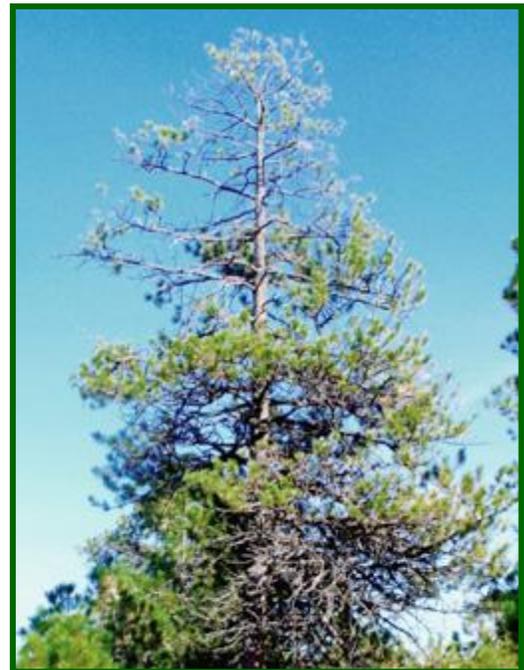
The most prevalent disease problem in Teller County forests is, in fact, not detectable from aerial surveys. Dwarf mistletoe infects large areas of pine and Douglas-fir trees throughout the county. Aerial flights do not detect dwarf mistletoe pockets, so they are not shown on the above map.

Dwarf mistletoe is a parasitic plant that robs moisture and nutrients from the host tree. Over many years, it causes the tree to decline in vigor and eventually may cause death. More commonly, the tree declines to the point where bark beetles attack and kill it.

Three common species of dwarf mistletoe are found in the region, each named after its principle host – ponderosa pine, lodgepole pine and Douglas-fir. Locally, ponderosa and lodgepole varieties grow on any pine species, but Douglas-fir dwarf mistletoe is exclusive to Douglas-fir trees. Spruce, true firs and deciduous trees are immune to all three species of dwarf mistletoe.

The most obvious symptom of dwarf mistletoe infection is the dense, distorted growth of the branches, called witch's brooms that appear to be twisted or tied in knots. The shoots of ponderosa and lodgepole dwarf mistletoe are visible on the branch as thick fingerlike growths extending out of the branch or trunk. The shoots of ponderosa and lodgepole dwarf mistletoe are long and obvious to casual observation, but Douglas-fir dwarf mistletoe shoots are shorter than the needles and are not easy to see.

Mistletoe shoots are only reproductive structures with no photosynthetic function. Removing the shoots from a branch does not control dwarf mistletoe, except to temporarily halt seed production. Structures called sinkers, (analogous to roots in plants) embedded in the wood cause the damage, and the mistletoe plant continues to absorb the host tree's water and nutrients. Shoots that are removed grow back in two or three years.



*Figure 2: A ponderosa pine with advanced dwarf mistletoe infection. Note the heavy contorted "witch's brooms" in the lower branches. After long periods of infection, the needles at the top of the tree become sparse and shorter. Colorado State Forest Service photo by*

During the growing season, dwarf mistletoe shoots develop berries containing a seed. In August, the berries fill with water and explode, shooting the seed as far as 40 feet. Most seeds strike branches of the host tree and do not travel the full 40 feet, so the expansion of dwarf mistletoe pockets averages two feet per year.

## Appendix C

When the seed strikes a branch, it germinates and the sinkers penetrate the bark into the tree's conductive tissues. The growing mistletoe begins to steal the tree's food and water. The first visible symptom of infection is swelling in the branch at the site of the growing mistletoe plant, but nubs of the emerging shoots won't be visible for three years and a shoot won't bear its first seeds until seven years after germination. As seeds spread, all susceptible trees in the vicinity may become infected; it is extremely rare to find an isolated infected tree in the forest.

The tendency of mistletoe to infect all trees in a stand makes eradication difficult. No effective chemical treatment exists for mistletoe, and the only way to kill the parasite is to kill the host. In stands where only the susceptible species of tree exists, total eradication of the mistletoe would require a clearcut, which is unacceptable to most landowners.

Fortunately, mistletoe kills trees slowly, so it is not necessary to eradicate the parasite. The disease can be controlled by a program of thinning to increase tree vigor. Pruning the more heavily infected branches also helps, even if not all the mistletoe is eliminated. The final step in the process is to replant with non-susceptible species so that new trees will grow before the mistletoe kills the remaining trees.

The spread of mistletoe can be halted by a minimum 40-foot buffer zone between infected and non-infected trees. In this situation, cut 20 feet into non-infected trees to remove any mistletoe that is not yet visible; cut the remaining 20 feet into the infected stand. Non-infected trees outside the buffer should be checked each spring for mistletoe and any infected branches should be immediately pruned before seeds develop.

In forest stands with mixed tree species, it may be possible to eliminate all mistletoe by retaining only non-susceptible trees if they are in good health. For example, in a mixed stand of ponderosa and Douglas-fir, if the ponderosa are infected, leave only Douglas-fir. Aspen are always desirable trees in situations where fire mitigation and mistletoe control are objectives, as aspen are not prone to crown fires and are immune to all species of dwarf mistletoe.

Dwarf mistletoe treatment is a complicated process that depends on the site conditions and the landowner's tolerance for cutting trees. In most cases, a combination of treatment methods will best suit the landowner's objectives. Consultation with a qualified forester is recommended to develop an effective and acceptable treatment plan.

### **Mountain pine beetle**

Unlike the Western Slope, mountain pine beetle (MPB) is at normal levels in the county. The beetles have crossed the Continental Divide in northern Park County and northern Larimer County, and activity currently is confined mostly to higher altitude lodgepole pine. It presently is not known if or when the beetles will reach into the lower-elevation ponderosa forests, but where they have reached ponderosa, heavy mortality has occurred.

The 2010 flight detected 100 acres affected in Teller County, but several points should be born in mind about the statistics developed from the flights. First, since trees fade almost a year after they are infested, the trees detected in the 2010 flight were actually attacked in 2009. Second, the flight can only pick up



*Figure 3: Mountain pine beetle galleries under the bark. The maternal beetle burrowed straight up the tree, creating the darker central gallery. Larval beetles feed horizontally, creating the smaller galleries. A larva is in the upper right and pupae in the lower left. Note the bluestain in the wood. (Colorado State Forest Service photo by David Leatherman.)*

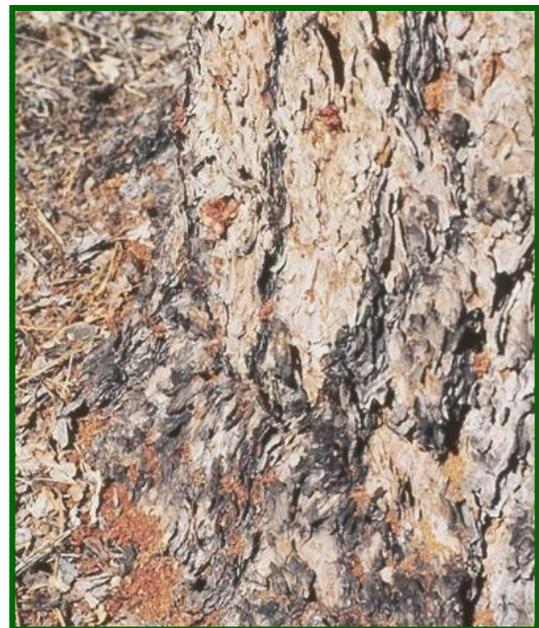
areas where numerous trees are infested. Individual scattered MPB trees are not detected by the aerial surveys, so landowners should not assume from this data that they have no infested trees on their property.

Several areas of MPB activity along the Highway 24 corridor near the Teller, El Paso County line have been successfully treated by removal of infested trees and forest thinning over the past two years. These pockets indicate that, even before the current drought, Teller County forests are at risk of epidemic mountain pine beetle outbreaks.

Adult beetles fly from midsummer through the first frost, although the vast majority fly between mid-July through the middle of September. Females seek a large, weak tree in which to mate and lay eggs. Vigorous trees generate enough pitch to prevent the female from burrowing through the bark, and this attempt by the tree to prevent entry creates the pitch tubes symptomatic of beetle attack. Pitch tubes are **not** a particularly reliable indicator of a successful attack. If pitch tubes are seen, check for reddish boring dust (fine sawdust) at the base of the tree and in the bark crevices. Boring dust is a more reliable indicator of successful attack.

Once a female penetrates the bark, she hollows out a circular mating chamber between the bark and the wood, releasing a pheromone (scent) to attract a mate. The pheromone also attracts additional females to the tree and the tree is attacked en masse. After mating, the female burrows up the trunk between the bark and wood laying eggs. She inoculates the tree with spores of bluestain fungus, which provides food for the larvae, and the fungus clogs the tissues that conduct water throughout the tree, leading to death within a few weeks.

Eggs hatch within a few days. The developing larvae feed horizontally from the maternal gallery over winter. The vertical maternal gallery and horizontal larval galleries are characteristic of the mountain pine beetle. The feeding larvae spread the bluestain fungus horizontally through the tree, and it becomes visible in the wood around February. The presence of bluestain is absolute confirmation that beetles have successfully attacked a tree.



*Figure 4: Boring dust on a ponderosa pine after bark beetle attack. The reddish brown sawdust at the base of the tree and in the bark crevasses is a strong indication of successful beetle attack. Colorado State Forest Service photo by David Leatherman.*

## Appendix C

Woodpeckers feed on the larvae through the fall and winter. The holes made by the woodpeckers are a visual clue to an infested tree. Untrained observers often are confused by the holes woodpeckers make when they feed on beetle larvae and sapsuckers feed on the sap. Woodpecker feeding is characterized by random holes about one-half inch in diameter that make it appear as though the tree was peppered with a shotgun. Sapsuckers, on the other hand, make a small hole about one-eighth inch in diameter, and the holes are in straight lines or a grid pattern. Sapsuckers do not indicate the presence of beetles in the tree.

Although the tree is dead within a few weeks of a successful attack, needles remain green until the following spring. Within the space of a few weeks, in late May or early June the tree will turn straw-yellow and then reddish-brown. Once beetles invade a tree, nothing can be done to save it; the tree must be cut and disposed of in a way that will kill the beetles. No insecticide is available to kill beetles under the bark; thus, some sort of mechanical treatment is necessary. Any wood greater than four inches in diameter may harbor beetles and must be treated.

Following are treatment options for beetle-infested trees:

- Cut the tree and move all wood greater than four inches in diameter to a designated mountain pine beetle-safe site – usually an area at least one mile away from the nearest pine tree. The Colorado State Forest Service office in Woodland Park (719-687-2921) should be contacted for the location of approved safe sites.
- Move all wood to a landfill or bury it under at least eight inches of dirt.
- Completely debark any wood that is larger than four inches in diameter.
- Chip the tree. Many tree services have chippers capable of chipping large diameter trees. The beetles are killed when the wood is chipped.
- Cover wood with at least six-mill clear plastic. This method, known as solar treatment, warms the wood to lethal temperatures and increases moisture, encouraging mold growth in the logs to kill the beetles. Treat the wood properly for successful control. Cut into firewood lengths and stack no more than two logs high. Be sure there are no exposed stubs or sharp edges that might tear the plastic. Trench around the pile and, if possible, wet down the pile to encourage mold growth. Cover the pile with plastic, push the edges of the plastic into the trenches, and seal with dirt. Check periodically to be sure the plastic has not torn. If torn, it can be repaired with duct tape.

It is best to check for infested trees in October of each year – remember that infested trees, although dead, are still green at this time. Pitch tubes and boring dust will be the most obvious clues. If infested trees are located early, there is adequate time to treat them.

While no insecticide effectively treats infested trees, spraying with insecticides such as carbaryl or permethrin prevents attack. Preventive sprays will not kill beetles under the bark. Spray trees between May 1<sup>st</sup> and July 1<sup>st</sup> each year for maximum effectiveness. It is not practical to spray every tree on a large tract of land, so choosing which trees to spray depends on the landowner's budget and the value of individual trees to the landowner. It is advisable to solicit bids from several different spray companies, as prices can vary widely. It also is wise to request and check references.

Thinning forests for increased health and vigor by far is the best preventive measure for mountain pine beetle. Because trees require several years to respond to thinning, it is best done before beetles reach epidemic levels. Follow thinning guidelines for wildfire mitigation to reduce susceptibility to MPB.

### **Western Spruce Budworm**

The western spruce budworm (WSBW), a defoliating insect of Douglas-fir and spruce, is a growing threat. Depending on the intensity of defoliation, budworm may damage or kill the host tree. The 2010 aerial survey detected 2,700 acres of budworm activity in Teller County, compared to no acres of activity in 2009. Site visits by CSFS foresters and reports from landowners indicate that WSBW is active in Ridgewood and Colorado Mountain Estates. Other areas of the county are likely affected as well.

A severe outbreak of WSBW in the late 1980s damaged or killed large areas of Douglas-fir throughout the region. Trees with dead branch tips or those with forked or dead tops are legacies of the previous epidemic. Many of the dead Douglas-fir were first weakened by budworm and then killed by Douglas-fir beetles (see section on Douglas-fir beetle).

The grayish, mottled adult moths are active in July and August when females lay eggs on the underside of needles. Eggs hatch within days and the larvae migrate to bark scales where they overwinter. The following spring, larvae invade the new buds and feed on the emerging needles. Webbing around the new growth is an obvious sign of budworm activity and if heavy defoliation continues for three to five years, the tree will die. If shorter-term defoliation occurs, the branch tips or the entire top of the tree could die.



*Figure 5: WSBW larva feeding on the needles of Douglas-fir. Note the typical webbing in the bottom of the photo. (Colorado State Forest Service photo by David Leatherman.)*

Natural predators or severe winter weather helps control budworm populations, which keeps them at non-threatening levels. Spraying with *Bacillus thuringiensis* may be useful to protect high value trees, but is not practical on a large scale.

### **Ips (engraver) Beetles**

Ips beetles, relatives of the mountain pine beetle, usually attack trees less than four inches in diameter and, in such circumstances, may be useful in thinning dense stands of young trees. Thus, it usually is not considered as threatening as its larger cousin. Ips will attack larger trees if they are severely weakened by disease



*Figure 6: The reddish-brown sawdust on this freshly cut ponderosa pine slash indicates it has been invaded by ips beetles. Adult beetles will emerge in less than eight weeks if the slash is not properly treated. Colorado State Forest Service photo by Dave Root.*

(most often dwarf mistletoe), or are damaged by construction, lightning strikes or in horse corrals where soil compaction injures the roots. Like the mountain pine beetle, ips burrow beneath the bark and inoculate the tree with bluestain fungus, often following mountain pine beetles into larger trees.

The differences between mountain pine beetle and ips are significant to anyone implementing a forest management program. In contrast to MPB, which produce one generation per year, ips may produce up to four. Ips become active in spring when the weather exceeds 50 degrees F, developing from egg to adult within eight weeks. They continue to attack trees until the first fall frosts. For this reason, preventive spraying should be done with permethrin or carbaryl in April and repeated in July. When spraying preventively for ips, it is important to spray the branches, as well as the trunk.

Ips attack causes no pitch tubes to form, so the only visual clue is boring dust or woodpecker holes in the trunk. Smaller trees quickly turn reddish-brown, but when they attack larger trees, ips often infest only the upper portion of the tree. The first symptom is browning of the top, but subsequent generations emerge and continue down the tree.

Ips will infest green slash and downed logs from forest management projects. If slash is not promptly treated, ips will emerge to attack living trees; treat slash within four to six weeks after cutting. If weather conditions permit, thinning trees in winter when ips are dormant will prevent problems with beetles in slash. However, slash cut after March 1 may still be green enough to attract ips when the weather warms.

Chipping slash will kill ips beetles. Lopping and scattering slash into lengths less than 24 inches promotes rapid drying and prevents infestation. Slash cut late in fall that is subsequently infested can be treated or piled and burned over the winter, but untreated slash left over the winter will produce live broods the following April. Due to their short lifecycle, solar treatment of ips-infested logs is ineffective. Bucking larger diameter logs and promptly splitting them into firewood accelerates the drying process and usually is effective in preventing ips infestations.

Many high value trees have been lost as a result of the common, and ultimately costly, practice of stacking firewood against green trees. Ips beetles will burrow out of infested firewood directly into standing trees.

### **Douglas-fir Beetle**

Douglas-fir beetles also are present in the county, but are not killing large numbers of trees. The 2010 flight detected only six acres affected in Teller County, but, as is the case with mountain pine beetle, scattered single trees would not be detected. If the current western spruce budworm defoliation seriously harms trees in the area, the beetles may become a serious threat. Some similarities exist between Douglas-fir beetle and MPB, but there are important differences that require different treatment strategies for infested trees.



*Figure 7: Pitch streamers on the bark of a beetle-infested Douglas-fir. Not all infested trees will exhibit pitch. Trees should be checked for boring dust in the early fall. Colorado State Forest Service photo by*

Both species burrow under the bark to lay eggs and both carry blue stain fungus that kills the tree within a few weeks of infestation. Each beetle prefers dense stands with large diameter, low vigor trees; thus, thinning Douglas-fir for wildfire mitigation also reduces susceptibility to beetles.

Adult Douglas-fir beetles emerge in mid-June, and a few adults may overwinter in trees and emerge as early as April. There are no insecticides available for treatment of beetle infested trees. Infested trees should be treated prior to April of each year to prevent emergence of overwintering adults. Effective treatments are whole tree chipping, debarking of all wood greater than four inches in diameter, transportation to a safe site or landfill, and burying under eight inches of dirt. Solar treatments should begin in the fall, preferably early fall.

Preventative spraying is an option for high value trees. Permethrin or carbaryl are effective as Douglas-fir beetle preventatives, but, because of the earlier emergence of overwintering adults, spraying should be done in April. Preventative sprays are not an effective treatment for infested wood.

Unlike MPB-infested trees, Douglas-fir trees do not form pitch tubes when attacked, so there may not be an obvious visual indication of infestation. Some Douglas-fir bleed sap when attacked, resulting in rivulets of sap on the trunk; however, this does not occur in all infested trees. Trees should be checked carefully for boring dust in early October. Later in the year, woodpecker holes may provide a visual clue that trees are infested.

Trees partially defoliated by western spruce budworm are particularly susceptible to attack by Douglas-fir beetles. Injury, overcrowding or any conditions that adversely affect the vigor of the tree will make it more susceptible. Managing the forest for open, vigorous stands of Douglas-fir is the best prevention.

### **Aspen Diseases**

Many diseases affect aspen trees – far more than can be covered in the scope of a Community Wildfire Protection Plan. The common thread among aspen diseases is that landowners can do little about any of them. Treatments are always costly and usually ineffective.

A rather cynical forester once described aspen this way: “New aspen sprout from the roots. The tree grows. A deer rubs his antlers on the bark, and a fungus invades the wound. The tree dies. New sprouts come up from the roots.”

The quote reflects aspen’s role as a short-lived species that colonizes a site after fire or other disturbances remove existing conifers since sun-loving aspen do not grow well in shade. After a fire kills the existing trees, aspen roots resprout vigorously in the full sunlight. As aspen shade the site, shade-tolerant conifers sprout in the aspen understory. Eventually, the conifers will over-top and shade out the aspen; thus, disturbance – usually fire – is necessary to maintain pure aspen stands.

Aspen are prized by most landowners and, as noted earlier, are valuable trees for fuel breaks and wildlife. Diseased aspen are a serious concern for most residents. The most logical way to consider aspen diseases within the scope of this plan is to divide them into diseases of the stem and diseases of the leaves.

Most fungal diseases of aspen stems are the result of wounds to the bark. The thin bark is easily wounded; when it is, several species of fungi may invade the tree. If the tree is healthy, it will tolerate the fungus for many years, but unhealthy trees usually will succumb within a short time. As noted earlier, little can be done to treat an aspen invaded by fungus. The tree will die and resprout. It is impossible to prevent deer and elk from wounding aspen, but it is possible to prevent human wounding of the tree. Avoid any practice that will injure the bark. Managing the forest to give aspen adequate sunlight will improve their vigor and tolerance to disease.

Fungal diseases of the leaves are a concern to landowners, but they rarely cause any real harm. Several fungi attack aspen leaves and usually are recognized by yellow or brown spots on the leaves. Leaf diseases are more common in wet years, as humid conditions are favorable for the fungi. Treatment is not necessary, but raking up dead leaves to reduce the number of fungal spores may reduce the infection of new leaves. If the following year is drier, there will be less fungus. The CSFS website at <http://csfs.colostate.edu/pages/forest-types-aspen.html> has detailed information about the many insect and disease problems of aspen.

A new phenomenon observed in recent years is “sudden aspen decline,” and ten acres of moderate decline were observed in Teller County in 2010. Aspen stands that appear to be healthy undergo rapid dieback and decline. A lack of resprouting after the older aspen die is the most disconcerting aspect of sudden aspen decline.

The causes of sudden aspen decline are not completely understood and are a subject of debate among researchers studying the phenomenon. The stress of the recent drought followed by invasion of insects and disease are cited by most researchers as likely causes. Lack of aspen regeneration due to fire suppression also has been cited as a contributing cause by some scholars. Low elevation, open aspen stands on south and west facing slopes are most often affected. Tree age does not appear to be a factor.

Given the uncertain cause of sudden aspen decline, the best method of prevention also is unclear. Encouraging regeneration of aspen clones by clearcutting or burning while they are healthy seems to hold the most promise. Because sudden aspen decline is a landscape level phenomenon, landowners with small lots may not be able to address the problem. Currently, the best option is to manage for healthy aspen stands.

### **Winter Drying and Drought Stress**

Not all tree problems are the result of invasion by insects or disease agents. Many are the result of environmental conditions. With the current drought, an increase of drought related conditions is inevitable. Usually this takes the form of needles browning in the late spring and early summer.

Dry Chinook winds during the winter will dry needles when trees cannot absorb water from frozen soils. Drying usually appears on the south or south west sides of the tree first, but can appear over the entire tree. Drying usually begins at the tips of the needles and progresses toward the base, and appears similar to fading from mountain pine beetle. If the cause is winter drying, the new growth can be seen at the tips of the branches, but trees fading from bark beetles will not show new growth. Living buds will be soft and pliable.

## Appendix C

Summer drought stress usually is indicated first by browning at the tips of needles or by yellowing or browning at the margins of leaves on deciduous trees.

On large acreages there is little that can be done to prevent drying, and damage already done to leaves or needles cannot be reversed. Most native trees are drought tolerant and can survive dry periods and tolerate minor drying. In zone one of defensible spaces, it may be possible (many well permits prohibit outdoor irrigation) to prevent drought stress by giving trees additional water. Deeply irrigating soil once a month during the growing season (to a depth of about 12 inches) will provide sufficient moisture. If the ground is not frozen during the dormant seasons irrigation every two months should be sufficient. Trees with sufficient moisture content will be less prone to ignition in a fire than those stressed by drought.

Landowners should be aware that conditions similar to drought stress can be caused by over watering native trees, and the guidelines for watering trees should not be exceeded. Excessive watering fills soil pores with water, depleting oxygen in the soil. Without soil oxygen, roots cannot absorb water and will exhibit drought symptoms. Native plants are adapted to tolerate the normal arid conditions of the local environment.

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**Wildfire Hazard By Fire Protection District- Reprinted From The Teller County PDM 2008.**

August 2008

**Figure 4.23. Teller County Subdivisions Wildfire Hazard & Fire Protection Districts**

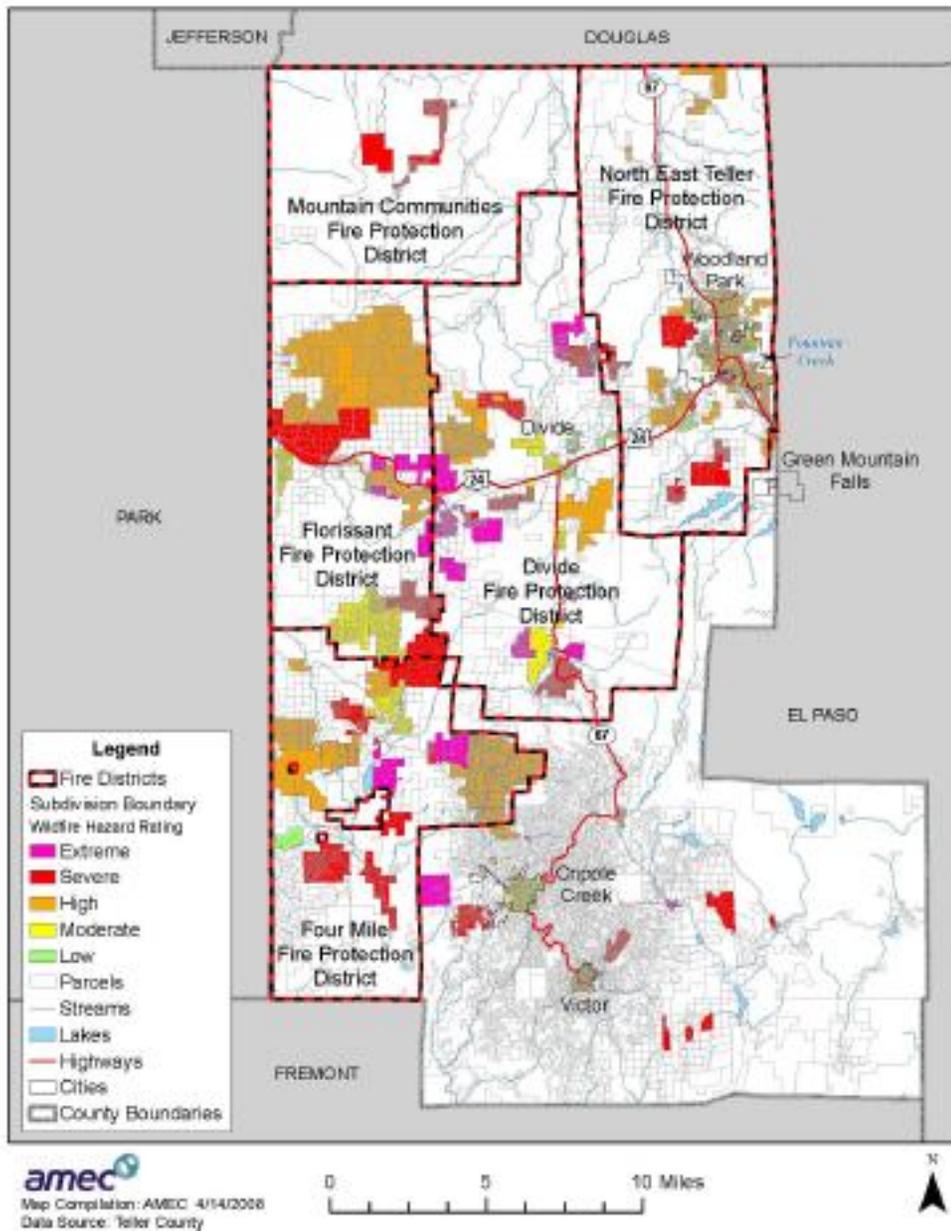


Figure 4.24. Woodland Park Subdivisions Wildfire Hazard & North East Teller Fire Protection District

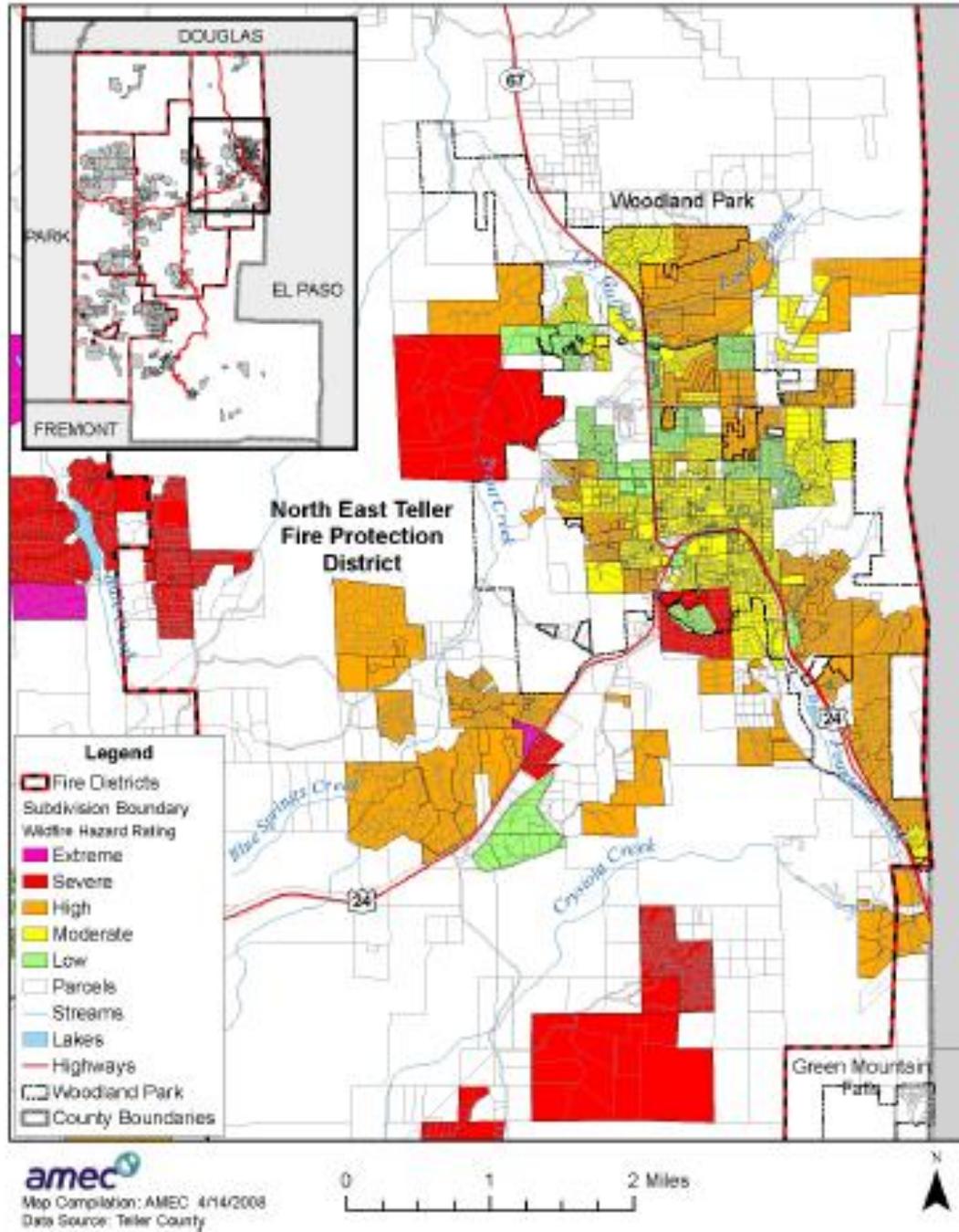


Figure 4.25. Teller Subdivisions Wildfire Hazard & Florissant Fire Protection District

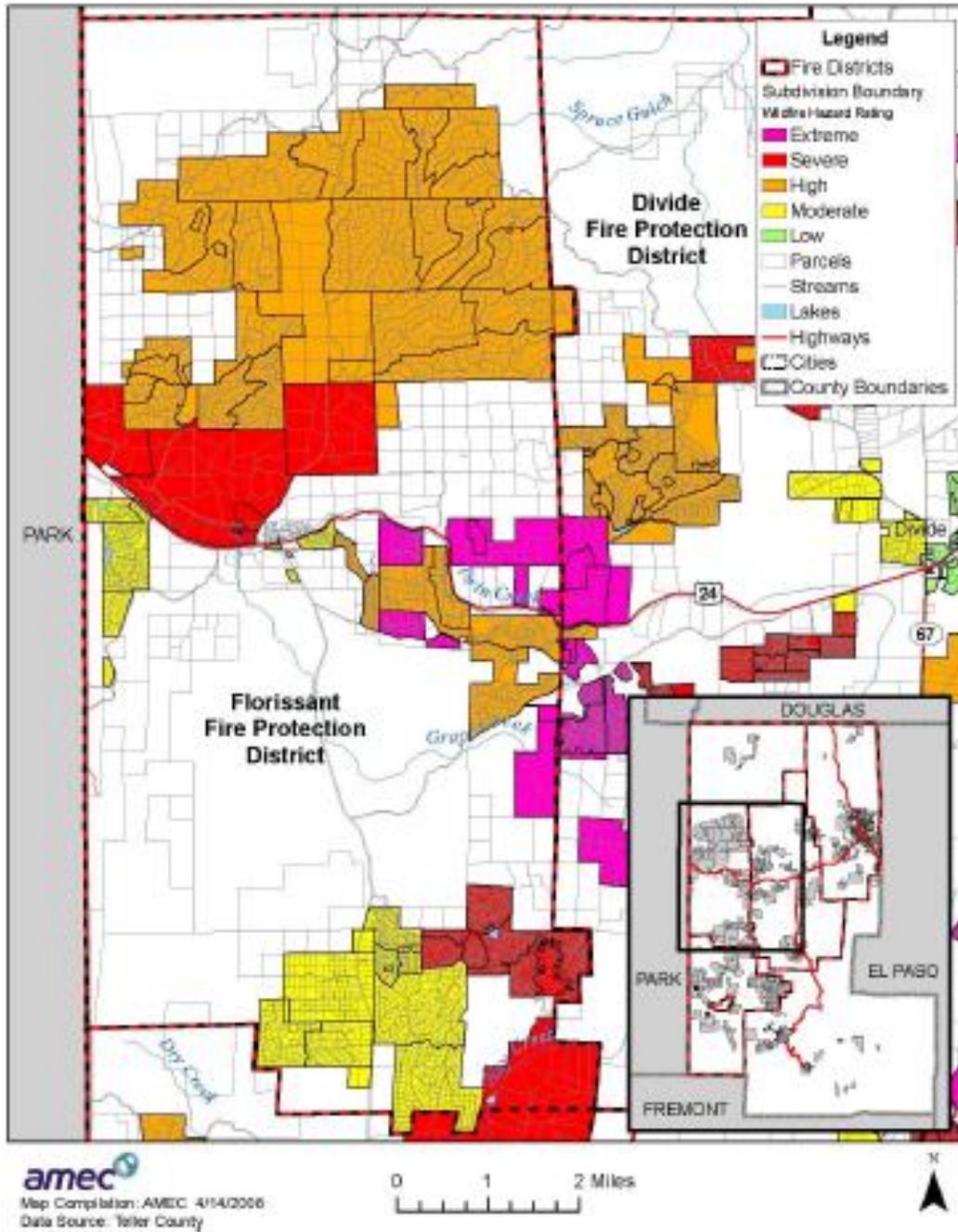
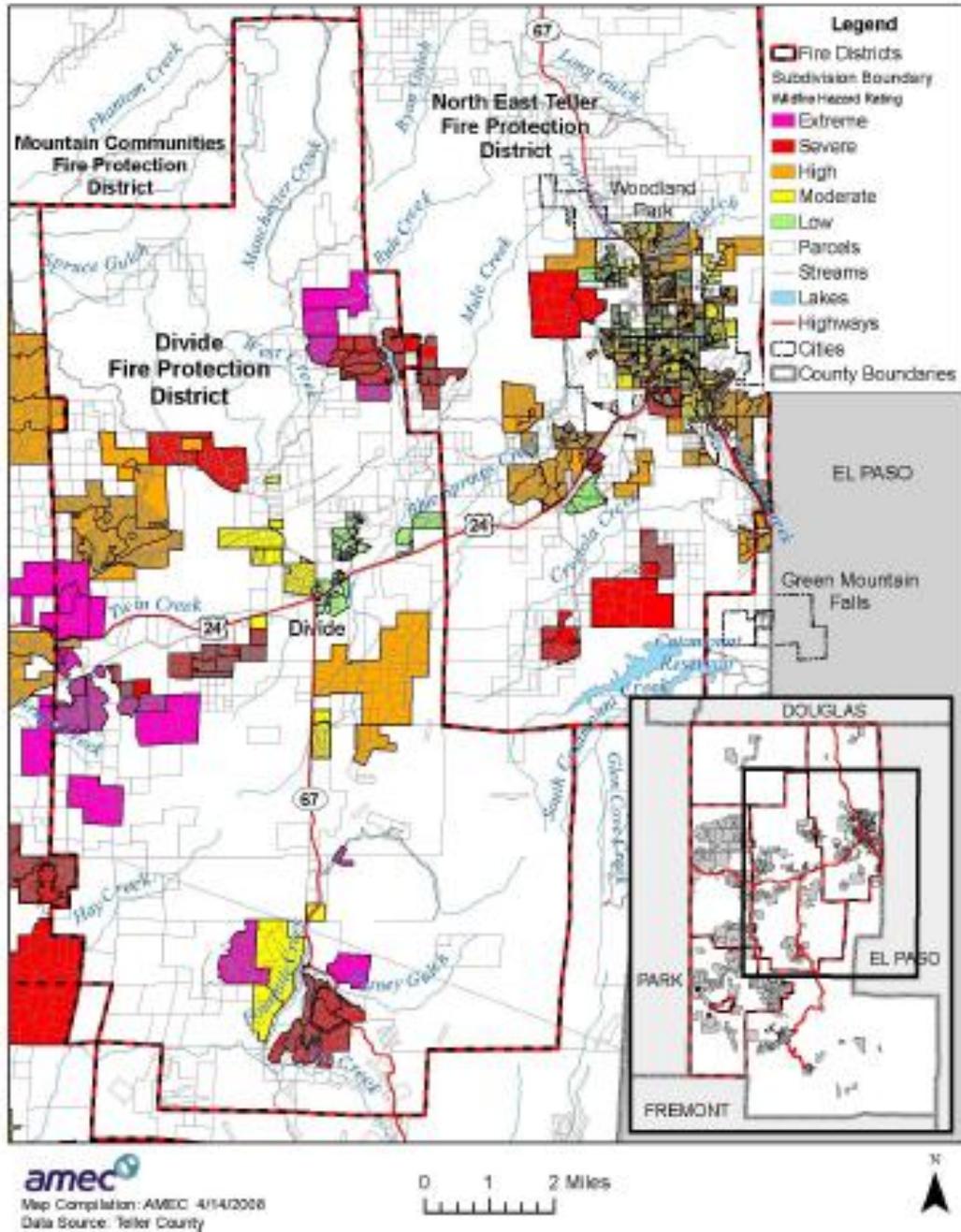


Figure 4.26. Teller Subdivisions Wildfire Hazard & Divide Fire Protection District



## Mapping Protocol - Teller County 4.105 Multi-Hazard Mitigation Plan

The County's parcel layer was used as the basis for the inventory of developed parcels. GIS was used to create a centroid, or point, representing the center of each parcel polygon, which was overlaid on a subdivision polygon layer which has wildfire hazard ratings within its attributes. For the purposes of this analysis, the subdivision that intersected the centroid was assigned with the wildfire zone rating for the entire parcel.

Another assumption with this model is that every parcel with an improved value greater than 0 was assumed to be developed in some way. Only improved parcels, and the value of those improvements were analyzed and aggregated by property type and wildfire zone. Population was estimated by applying the 2000 Census average household size of 2.56 to each improved parcel. The parcels were segregated and analyzed based on the summarized number of structures and population estimate by subdivision as well as unincorporated and incorporated areas. The results are summarized in Tables 4.43 through 4.44. Table 4.45 groups the subdivisions by hazard rating, in order of estimated structures and population, for those subdivisions with a population of 100 or more. Appendix E contains the results for all subdivisions.

Based on this analysis, the Teller County Planning Area (including unincorporated county and all cities) has significant assets at risk to wildfire. 545 improved parcels are within the Extreme hazard zone, a total value of \$85,878,856. 2,183 parcels are within the Severe hazard zone, a total value of \$339,210,191. 4,159 parcels are within the High hazard zone, a total value of \$756,541,864. The unincorporated areas of the county contain the subdivision with the highest risk, but Woodland Park has potential for significant wildfire losses as well. Based on observations in wildland-urban interface fires, structures and contents are often completely destroyed, thus the estimated total value also represents potential dollar losses, not including content losses. Content losses could be estimated by adding an additional 50% of the structure value. Note: a wildfire is not likely to burn all the wildland-urban interface areas in Teller County at once.

The population estimates by subdivision assumes complete occupancy. This should be considered 'worst case,' as many properties, possibly as much as 25%, are either second homes or vacation retreats that sit unoccupied during much of the year. The high occupancy times typically coincide with the wildfire season. The wildfire hazard by subdivision ratings may not reflect improvements, such as defensible space, that may have been made since 2005.

Note that assessed values were separated out from the total assessed value so that losses to structures could be quantified. However, land value can decline following a large wildfire. This reduction in property value results in lower property taxes collected, and can significantly impact the County's tax revenue.

For more information regarding the [Teller County Multi Hazard Mitigation Plan, 2008](#), Visit the Office of Emergency Management link at the Teller County Website, [www.co.teller.co.us](http://www.co.teller.co.us)

**Contacts For More information**

Colorado State Forest Service, Woodland Park Office  
113 South Boundary St., PO Box 9024  
Woodland Park, CO 80866  
Phone: 719-687-2921  
Website: [www.csfs.colostate.edu](http://www.csfs.colostate.edu) (use search box at upper right)

US Forest Service, Pike District  
601 S. Weber Ave.  
Colorado Springs, CO 80903  
Phone: 719-636-1602  
Website: [www.fs.fed.us/R2](http://www.fs.fed.us/R2)

**TELLER COUNTY FIRE DEPARTMENTS - FOR EMERGENCIES ALWAYS CALL 911**

**Cripple Creek Emergency Services**

Address: 147 E. Bennett Ave, Cripple Creek, CO 80813  
Telephone (719)689-0240 non emergency      Fax: (719)689-0292

**Divide Fire Protection District**

Address: 103 Cedar Mountain Rd., Divide Co 80814  
Telephone (719)687-8773 non emergency      Fax: 719-687-9334

**Florissant Fire and Rescue**

Address: 2606 W. Hwy 24, Florissant, CO 80816  
Telephone: 719-748-3090 non emergency      Fax: 719-748-5342

**Four Mile Fire Protection District**

Address: 8437 Teller Rd. 11, Florissant, CO 80816  
Telephone 719-689-3417 non emergency      Fax: 719-689-0283  
[www.Fourmilefire.net](http://www.Fourmilefire.net)

**Victor City Volunteer Fire Department**

Address 501 Victor Ave, Victor CO 80860  
Telephone 719-689=2284 non emergency      Fax: 719-689-2703

**Mountain Communities Volunteer Fire Department**

15000 Westcreek Rd, Woodland park, CO 80863  
Telephone: 303-647-2361 non emergency      Fax: 303-647-2361

**Northeast Teller County Fire District**

Address: 1010 Evergreen Heights, Woodland Park, CO 80863  
Telephone: 719-687-1866 non emergency      Fax: 719-687-1885  
[www.netellerfire.org](http://www.netellerfire.org)

**Websites For More Information**

Creating Wildfire Defensible Zones: [www.csfs.colostate.edu/pdfs/6302.pdf](http://www.csfs.colostate.edu/pdfs/6302.pdf)

Firewise Construction: [www.csfs.colostate.edu/pdfs/construction\\_booklet.pdf](http://www.csfs.colostate.edu/pdfs/construction_booklet.pdf)

Firewise Plant Materials: [www.csfs.colostate.edu/pdfs/6305.pdf](http://www.csfs.colostate.edu/pdfs/6305.pdf)

Forest Home Fire Safety: [www.csfs.colostate.edu/pdfs/6304.pdf](http://www.csfs.colostate.edu/pdfs/6304.pdf)

Forest Landscape Restoration: <http://www.fs.fed.us/restoration/CFLR/index.shtml>

Homeowner Firewise Information: [www.Firewise.org](http://www.Firewise.org)

Other grants and information: <http://www.rockymountainwildlandfire.info/grants.htm>

Teller County Building Department: <http://www.co.teller.co.us/CSD/BuildingDept.aspx>

Teller County Office of Emergency Management: <http://www.co.teller.co.us/OEM/default.aspx>

Teller County Roads, Parks, Open Space: <http://www.co.teller.co.us/PublicWorks/default.aspx>

Ute Cultural Trees: [www.pikespeakhsmuseum.org/Museum/Main/Headings/Ute](http://www.pikespeakhsmuseum.org/Museum/Main/Headings/Ute)