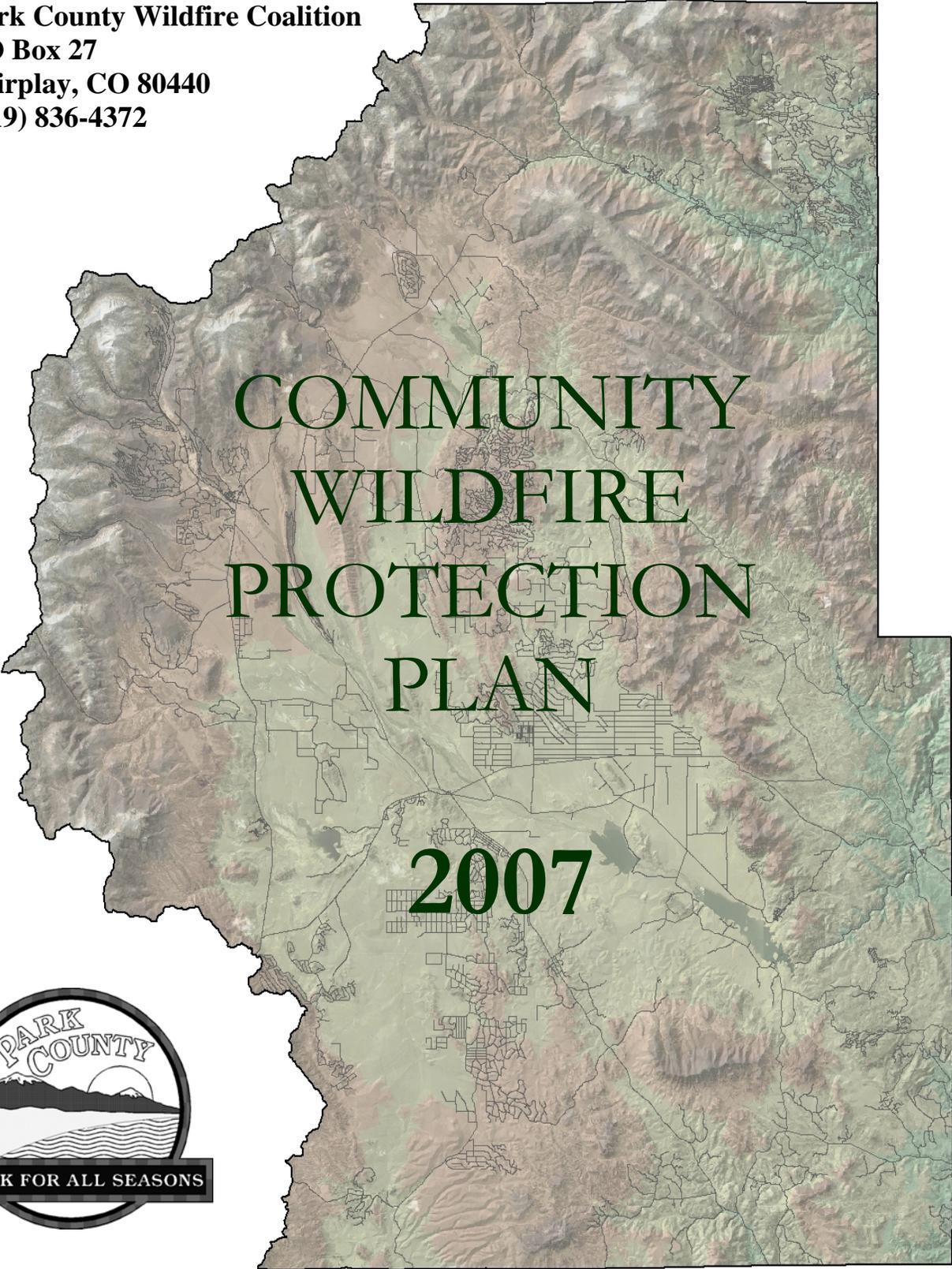


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**COMMUNITY
WILDFIRE
PROTECTION
PLAN**

2007



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I. THE COMMUNITY WILDFIRE PROTECTION PLAN (CWPP) COALITION

Creation

In April of 2005, the Park County Board of Commissioners passed resolution #2005-12 to establish the Park County Community Wildfire Protection Plan Coalition. Community Wildfire Protection Plans (CWPPs) are authorized by the Federal Healthy Forests Restoration Act, signed into law effective December 3, 2003. The purpose of the Coalition is to prepare and implement the Park County Community Wildfire Protection Plan (CWPP).

Mission Statement

The mission of the Park County Community Wildfire Protection Plan is to identify potential wildfire hazards, to prioritize those hazards as they relate to public safety and community values, and to develop activities and objectives to reduce wildfire risk in the highest priority areas.

Members

Dave Hudak	Southern Park County Fire Protection District Chief
Lori R. Hodges	Park County Director of Emergency Management
Bernie Mann	Pikes Trails Homeowners Association President
Dave Root	Colorado State Forest Service Forester
Marti Campbell	Coalition for the Upper South Platte,
Mike Hammons	Ranch of the Rockies Ranch Manager
Mike Hessler	South Park Ranger District Fire Management Officer
Tom Eisenman	Park County Development Services Coordinator
Kevin Tobey	Eleven Mile and Spinney State Parks Manager
Mike Gaylord	Bureau of Land Management
Craig Barraclough	Park County Director of GIS
Kat Buscombe	Park County Mapping/GIS
Jay Hutcheson	Hartsel Fire Protection District Chief
Joe Vieira	Bureau of Land Management
Dave Toelle	BLM – Royal Gorge Field Office, Fire Ecologist

III. UNDERSTANDING THIS DOCUMENT

This plan incorporates more than a year's worth of work by the Park County Wildfire Coalition. Our objective is to create a single resource for citizens, policy makers, and public agencies regarding wildfire danger and mitigation planning.

The plan consists of a narrative, maps, document references, survey information and tables. Documents referenced in the text can be found in the Appendices, the Bibliography, on websites, at fire stations and libraries, or the Park County Office of Emergency Management.

III. INTRODUCTION AND BACKGROUND

Park County is situated in the center of the State of Colorado, and encompasses approximately 2200 square miles. It is rural, consisting of mountains (including the Continental Divide along the northern border), canyons, open parks, and forested lands. Reservoirs provide recreation and water for the Front Range.

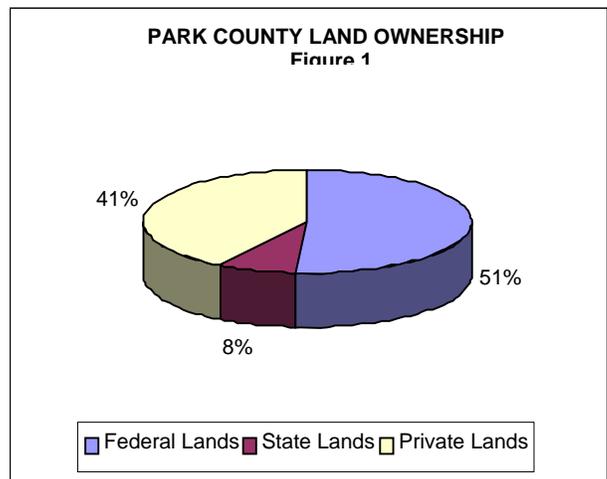
The county seat is Fairplay in the northwest corner. There are two incorporated towns (Alma and Fairplay), and several unincorporated towns, including Bailey, Jefferson, Como, Hartsel, Lake George, and Guffey. Most residential communities are without formal government, and many summer recreation homes are located throughout the County. Park County is divided into seven fire protection districts.

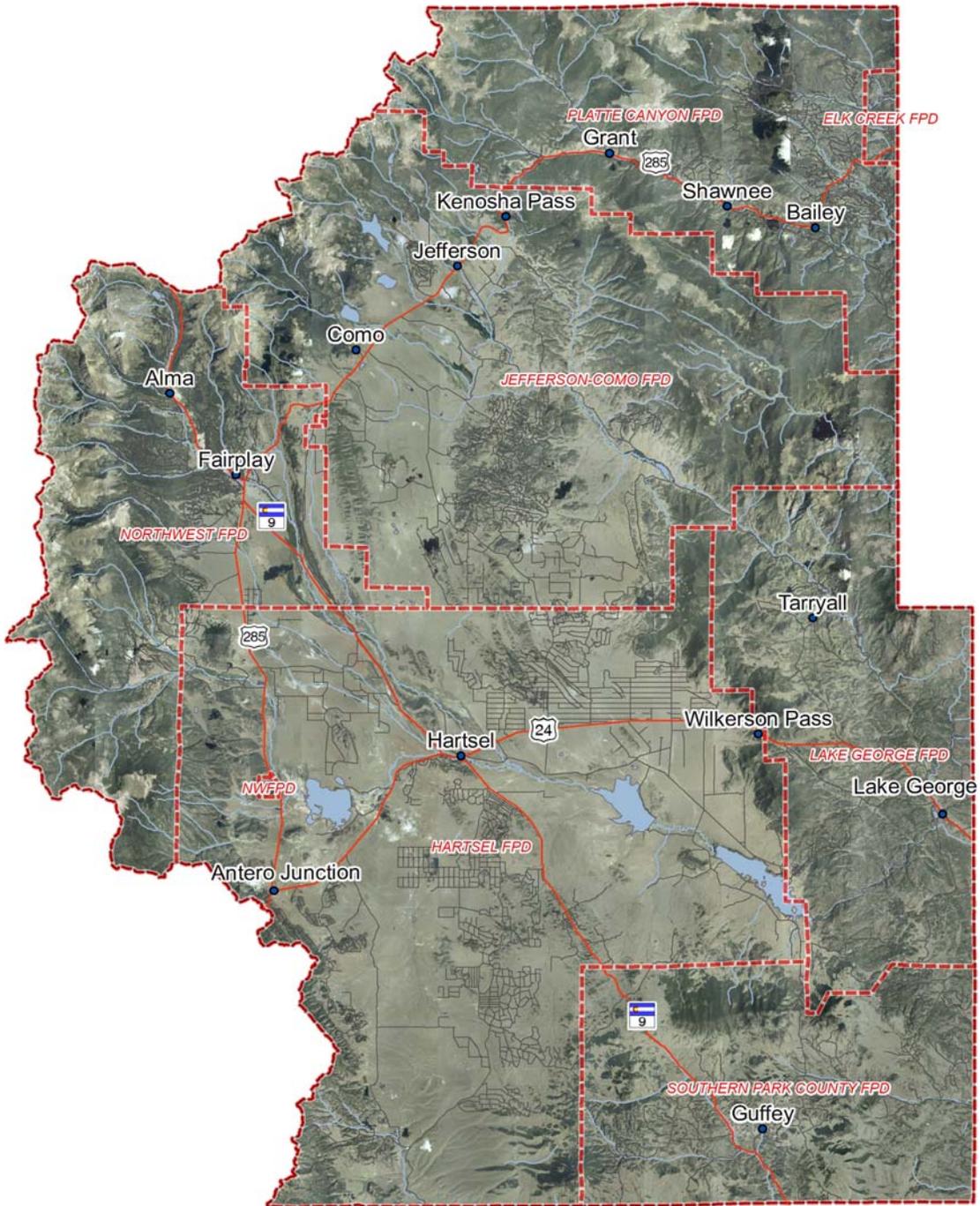
The County's major transportation infrastructure involves three highways: Highway 9 running from Hoosier Pass through Hartsel to Guffey, Highway 285, one of the major routes into the mountains from the Denver metro area, and Highway 24, the major route from the Colorado Springs area into the mountains.

Since the 1980s, Park County's population has expanded at an ever-increasing rate. According to 2004 census data, the population is approximately 17,219. Due to proximity to Denver, the highest population is in the Bailey area. Most of the growth is in unincorporated forested areas. By 2010, it is expected that the population will reach over 25,000 people.

As our population expands, so does the potential of wildfire to destroy homes and communities. Important values such as watersheds, scenic vistas and recreation areas are also threatened.

Wildfire respects no boundaries. It is imperative that all levels of government and private landowners work cooperatively. The problem is not entirely local. Thousands travel to and through Park County for summer and winter recreation each year. The combination of high hazard areas and large numbers of visitors unfamiliar with local conditions and emergency response capabilities, represent a unique emergency planning and response challenge.





Map 1: Park County Base Map. This map provides general information about county communities, fire protection districts, and major road systems.

IV. NEED FOR A COMMUNITY WILDFIRE PROTECTION PLAN

Background

Wildfire is as much a part of the forest as the trees themselves. The County's forests are diverse, and with this diversity come different types of natural fire regimes. In the lower altitudes, the dominant forest is ponderosa pine, while spruce and lodgepole pine dominate the higher altitudes. The ecology of fire in the various forest types is a complex subject far beyond the scope of this plan. What follows is some basic information necessary to understand the plan. It is most important to understand how human activity has altered the natural function of wildfire.

Park County was settled in the 1860's when gold was discovered in the Fairplay/Como area. Agriculture and logging soon followed. The forests present today are those that grew back after logging. The twentieth century brought the era of conservation. Fires were actively suppressed to protect the young trees. The present forests are quite different from those existing before settlement, when the role of fire in maintaining healthy forests was not recognized.

As fires have been suppressed, fuel levels have increased so that fires will more easily ignite and burn with more intensity. Additionally, climatic variations and drought cycles have worsened the fuel situation. The prolonged drought is making the forests drier, and the trees more susceptible to death from insects and disease. Finally, the rapid expansion of residential housing and other development in the wildlands has greatly increased the difficulty of managing wildfires.

These developments make fire management more complex. Fire managers can no longer just focus on perimeter control and putting the fire out. They must deal with evacuation and safety of residents, protection of homes, greater fire intensities, heavy media interest and other politics. There must be high levels of cooperation and coordination across jurisdictional and agency boundaries.

Wildfire poses an enormous risk to Park County and its increasing number of residents. The most devastating fires in Park County during recent years have been crown fires in ponderosa pine. Many of the most populated areas of the County, such as Bailey, Lake George, and Guffey are particularly vulnerable. It is clear that Park County must have a strategy for improving awareness, coordinating suppression response, and acting efficiently in fuel mitigation projects.

Healthy Forest Restoration Act

In 2000, more than 7 million acres burned across the United States, marking one of the worst wildfire seasons in American history. The fire season of 2002 was another reminder to citizens and governments about the severity of wildfire in America. Since then, the acreage burned each year has increased. In 2006, 9.1 million acres burned, an area eight times the size of Park County.

The fire seasons of 2000 and 2002 led to comprehensive forest planning and the enactment of the Healthy Forest Restoration Act (HFRA) in 2003. In response to HFRA, Congress directed vulnerable communities to prepare Community Wildfire Protection Plans.

Once completed, a CWPP provides statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects.

HFRA requirements for Community Wildfire Protection Plans

The Healthy Restoration Act requires the following items of a CWPP:

- a. Collaboration between private landowners, emergency services personnel and federal and state land managers.
- b. Identification and prioritization of fuel reduction strategies and treatments, with recommendations for the future.
- c. Recommendation of measures that homeowners and communities can take to reduce ignitability of structures.

Wildland Urban Interface (WUI) Description

According to the guide, *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities*, “The wildland-urban interface (WUI) is commonly described as the zone where structures and other human development meet and intermingle with undeveloped wildland or vegetative fuels.”

One of the benefits of a CWPP, under the HFRA, is the opportunity to establish a localized definition and boundary for the wildland urban interface. A minimum of fifty percent of all funds appropriated for projects under the HFRA must be used within the WUI as defined by the CWPP, or by the limited definition (one-half mile or up to one and one-half miles with mitigating circumstances) of community boundaries. HFRA also gives priority to projects and treatments on federal public lands that occur within an area defined or identified in a CWPP.

Most of the factors and treatments that determine the survivability of a structure lie within one to two hundred yards of the structure, and usually it is located on private lands. However, many other items beyond that distance are critical to a community. These include, among others, community water supplies, effects on property and real estate values, community infrastructure, economic impacts to residents and businesses, aesthetic values, and a sense of community or why “we live here.” Because of those factors, it is important for this CWPP to define a WUI that includes all items critical to the communities.

The maps enclosed in this document identify and illustrate the WUI for the top three priorities of Park County. (See maps on pages 29,30 and 31)

In addition, the WUI will also be identified as all lands within two miles of all the subdivisions identified in the table in the Appendix and all identified towns or communities not part of the subdivision list, including, but not limited to Fairplay, Alma, Lake George, Guffey, Como, Jefferson, Tarryall, Bailey, Santa Maria, Shawnee, Glenisle, and all National Forest summer home groups. It also includes a half mile area along each side of all evacuation routes for all of the above identified subdivisions and towns.

The WUI will also include all designated town or municipal watersheds if located outside of the above defined areas. It is, in addition, defined as a two-mile buffer around all water development and storage structures.

V. COALITION GOALS AND OBJECTIVES

Park County experiences frequent high winds, dry conditions, lightening storms, and heavy use of wildlands by residents and visitors alike, which can all lead to destructive wildfires. The fire does not have to be very large to cause significant damage.

This countywide plan is intended as a first step in the wildfire mitigation planning process. The following are the broad goals and specific objectives of the Community Wildfire Protection Plan (CWPP) set forth by the Coalition:

Planning and Collaboration

Goal:

Create a “living” flexible document that incorporates a multi-agency approach to planning.

The CWPP incorporates input from all the stakeholders in the County. These include the local citizens, representatives from selected subdivisions, the seven Fire Protection Districts, as well as the Federal Land Management Agencies (US Forest Service and BLM), the Colorado State Forest Service, and Park County Government, Emergency Services, and Sheriff’s Office.

This collaboration will provide a multi-jurisdictional approach to strategic planning, and improve fire suppression and fuel treatment efficiencies on public and private lands.

It is an “umbrella plan,” encouraging local subdivisions or communities to create their own site specific CWPP.

Specific objectives

- 1. Review the CWPP every two years and make changes as needed through consensus building process within the coalition.*
- 2. Evaluate the identified priority list at a minimum of every five years, to ensure currency.*
- 3. Conduct quarterly meetings to monitor changing circumstances and review progress.*

Public Safety and Awareness

Goal:

Promote and develop materials and programs in prevention and education that improve community wildfire awareness and safety.

The CWPP provides a forum for the coordination of public meetings, discussion groups, and public information campaigns to create awareness within Park County about wildfire danger and to create action to mitigate hazards on both public and private lands, and improve prevention and preparedness.

Specific objectives

- 1. Develop an initial assessment of subdivision risk to catastrophic wildfire and preparedness for wildfire. Present the assessment to the residents of Park County through this CWPP.*
- 2. Within three months of plan approval, create a link to the Park County website providing public access to coalition progress, and information for developing local community wildfire protection plans in their own neighborhood.*
- 3. Within three months of plan approval, distribute copies of the CWPP and reference materials to all libraries, post offices, and Fire Protection Districts.*
- 4. Promote development of local subdivision or neighborhood CWPPs by attending association meetings and public workshops as requested.*
- 5. Provide information to individuals and homeowners associations for creating defensible space and reducing the susceptibility of structures to wildfire by identifying websites and other sources in this document.*

Fuels Reduction

Goal:

Facilitate appropriate hazardous fuel reduction by illustrating the areas of greatest wildfire hazard and developing the highest priorities for fuels abatement treatments.

The CWPP displays the relative levels of wildfire hazard in the County, both private and public, and identifies the highest priority areas for land management agencies to focus their fuels treatment activities on public lands. Also, the identification of the highest areas of concern will improve multi-jurisdictional pre-suppression planning and facilitate the implementation of cross boundary projects.

Specific objectives

- 1. Develop an initial countywide assessment of wildfire hazard on both public and private lands, and display that assessment in this document.*
- 2. Provide a list, of the three highest priority areas within Park County, to public land managers to focus their fuel treatment projects. Display those priorities in this document.*
- 3. Reevaluate those priorities, at least every 5 years, or as project planning and implementation are completed on public lands.*
- 4. Provide support, through the coalition, to create cooperative efforts across jurisdictional or ownership boundaries on an ongoing basis as requested.*
- 5. Work with county and other entities to improve slash disposal opportunities for private landowners.*

VI. CURRENT RISK SITUATION

Drought

Colorado is a state with a semi-arid climate. Average annual precipitation for much of Park County is twelve to fifteen inches. Precipitation increases with increasing elevation, but most of the highest elevations are still less than 30 inches annually, except along the Continental Divide, which may see as much as 35 inches.

Colorado has a long history of periods of low precipitation and drought, including our most recent years. The period from the beginning of the 1980's to approximately the late 1990's was actually one of the wettest periods in Colorado history, and hence, is a deceptive indicator of long-term moisture regimes. Throughout history, drought is more the norm in the arid Inter-mountain West.

One of the short-term effects of drought and water shortage is an increased risk for wildfires. Prolonged weather patterns, such as drought, correlate strongly to major fire years in Park County. For example, the Hayman fire occurred during the spring of 2002, which was the driest on record for Colorado at the time. There were 15,770 fires in the Rocky Mountain Region that year. The next year saw higher precipitation and a lower incidence of wildfires; 3,957 total.

Changing Fuel Conditions

Fuel types in Park County range from open grasslands in South Park to lodgepole pine in the higher elevations, and ponderosa pine/Douglas-fir in lower portions of the County. Within all of these fuel types are patches of aspen and grass openings. Natural fire regimes differ in all these fuel types, and, therefore, so do the strategies to mitigate wildfire hazard.

Over the years, many of our forests, primarily in the mid elevation zone of ponderosa pine and Douglas fir, have become overpopulated with trees, making them more susceptible to insect and disease mortality, and have accumulated greater levels of surface fuels. Before fire suppression, this forest type was characterized by frequent, low intensity fires. Most stands burned every five to thirty years. Frequent burning had a thinning and cleansing function in this forest type. Stands maintained in this way were open, with herbaceous groundcover. There were significantly fewer, but larger, ponderosa pines since the larger trees with their thick bark were able to withstand the heat of the ground fires. In the open canopy of the ponderosa forests, large crown fires were rare events since fires were not able to move through the open canopy. The most devastating crown fires over the last decade have been in this forest type.

The result of years of fire suppression is a change in the species composition. For example, the proportion of Douglas fir has increased significantly due to the denser, more closed forests. Douglas fir does not regenerate well in the open canopy. Regeneration of Douglas fir further increases forest density and creates abundant ladder fuels to move fires into the tree crowns.

The natural fire process of lodgepole pine forest is quite different. Large fires are the norm in this forest type. These fires created openings of various sizes, which quickly sprouted with new seedlings. The structure of the lodgepole pine forests before fire suppression was patchy, with openings of various ages of trees. Scattered openings in these stands served to slow fire spread.

As a result of fire suppression stands are now continuous in the canopy and less diverse with respect to age. These dense lodgepole stands have become over mature and susceptible to attack by bark beetles as seen in Summit and Grand Counties. This creates conditions that promise rapid and extensive fire spread. If the age of the forest were more diverse, fewer trees would be susceptible to mountain pine beetles.

Many of these once open forests have become overgrown and unhealthy. Areas that once may have only supported 30 to 50 trees per acre, now often contain hundreds in the same space. Previous meadows have become forested and all of these trees now compete for limited water and nutrients. This results in trees smaller in diameter and more susceptible to drought, disease and insects.

Weakened vegetation will often fuel large, catastrophic fires that threaten lives, property and environment. The aftermath of such incidents leaves the forest void of nutrients, a clean water supply, and a home for displaced wildlife. In forests that are not overgrown, wildfire burns more slowly and often stays closer to the ground, clearing away excess fuel such as needles, litter and small seedlings and revitalizing the forest, without destroying the healthy trees. Increased mortality and lack of low intensity fires, combined with very low decomposition rates in an arid climate, adds more dead wood to the surface of the forest.

Much of the higher elevation forests are reaching the end of typical fire free cycles. There is no quick fix for the current situation we find ourselves in. It has taken almost a century to create the problem and it will take that long to correct it.

South Park itself is large high elevation grassland. Grass fires can be destructive fires that spread rapidly, threatening structures and communities. Land use practices, such as roads, grazing and irrigation, have reduced the intensity of grass fires.

Detailed Insect and Disease Conditions

Insect and disease outbreaks have several impacts on potential wildfires. First, standing dead, with their dead needles still intact, add considerably to the potential for crown fires, as well as significantly increasing the spread rates of crown fires.

Standing dead trees, known as snags, have several impacts on fires. The small dead needles act much like kindling, spreading fire to the larger diameter wood. Without the needles the fire will not often spread through the crowns. Once the needles have fallen, dead trees may actually reduce the potential for crown fires or reduce fire spread. Regardless, as snags catch fire and fall, dead trees increase hazard to firefighters. As fire burns up the trunk of dead trees, embers are carried into the air increasing the danger of new fires igniting downwind.

In the absence of fire, the snags begin to blow down. The downfall greatly increases the surface fuel load, and the likelihood of mortality or crown fire in the remaining forest. The fire's heat from large accumulations of fuel on the forest floor adds significantly to soil damage as heavy fuels burn for long periods of time. This unraveling of the forest as mortality occurs and trees start to fall is what makes many high elevation forest types flammable.

Mountain Pine Beetle

Over the last several years, communities in Colorado—most notably Summit, Jackson, Grand and Routt Counties—have been experiencing an unprecedented epidemic of mountain pine beetles. The area and number of trees infested has increased significantly since 2002. Large, mature lodgepole and ponderosa pines are the preferred hosts, and many areas are experiencing 70 percent or greater mortality. Limber and bristle cone pines are less often attacked by beetles, but are more susceptible to white pine blister rust. Mountain pine beetle, in ponderosa pine, has also reached epidemic levels in the Arkansas Valley, where over fifty percent of the ponderosa pine have died in infected areas.

In Park County, the epidemic has not reached the levels of other counties, but there are several areas of high activity. The worst activity is in the area from Weston Pass south to Trout Creek Pass. Mountain pine beetles in ponderosa pine are active in the southern end of Park County and in the Bailey area.

The beetles are at epidemic levels for the same reasons that the forests are at increased risk of devastating crown fires. A century of fire suppression contributes to unnaturally dense, unhealthy, and declining forests. As with the potential for catastrophic fire, five years of drought have intensified the problem. The devastation wrought by the beetles in neighboring counties is no different than that caused by the Hayman and other fires except that it occurs over a much longer span of time.

Ips or Engraver Beetles

These relatives of the mountain pine beetle usually attack injured or recently felled trees. They commonly attack all pines, and have been particularly devastating to piñon pines in southwest Colorado. They also commonly infest improperly treated logging slash, from which new broods emerge to attack living trees. Ips have usually been considered a killer of smaller diameter trees less than four inches in diameter, but in the aftermath of the drought they have successfully attacked larger trees in increasing numbers. Larger trees infected with dwarf mistletoe have been particularly susceptible to ips beetle. Trees in horse corrals and animal pens where soil is compacted and nutrient loads from manure stress trees are commonly attacked by ips beetles.

A particularly important difference between ips and mountain pine beetles is that ips may produce up to four generations per year as opposed to the mountain pine beetles one. Ips often infects the top of a tree first and subsequent generations continually move down the tree until the entire tree is killed.

Both beetles transmit a fungus called bluestain that is primarily responsible for the death of infested trees. Feeding activity of the larval beetles spreads the fungus throughout the tree. The fungus plugs the conductive vessels of the tree that transport water and nutrients from the roots to the needles, and the trees simply die from lack of water. Ips beetles are at normal levels in Park County, but are increasing in many locations.

Dwarf Mistletoes

Dwarf mistletoe is a serious problem in conifer forests throughout Colorado, and Park County is no exception. In fact there are likely more trees in the County infected with this parasite than there are trees infested with bark beetles. Because dwarf mistletoes kill trees slowly—it may take 60 years to kill the tree—mistletoe is often unnoticed. Most often, mistletoes weaken trees to the point that bark beetles attack them, and it is the beetle that shoulders the blame for death of the tree.

Dwarf mistletoe is a parasitic plant that grows on the branches or trunks of their host conifers. Aspen are not susceptible to mistletoe. The parasites invade the conductive tissues of the tree, and draw water and nutrients from the host. The visible shoots of the mistletoe are reproductive structures only, and produce no food for the parasite. Over time, infected branches become twisted and contorted into bizarre shapes called witch's brooms. Less visible damage caused by dwarf mistletoes includes growth reduction, loss of wood quality, poor tree form, and reduction in seed crops.

There are three species of dwarf mistletoe in the County, and they are named by their principle host. These are ponderosa pine, lodgepole pine, and Douglas fir. The Douglas-fir species occurs exclusively on Douglas fir. Both the ponderosa and lodgepole may occur on either pine species. In addition, ponderosa pine and lodgepole pine mistletoes may infect other species of pines including ornamentals.

All three species of mistletoe may expel seeds at speeds approaching 60 miles per hour and the seeds may fly as far as 40 feet. Since the seeds often strike a branch or other obstruction before traveling full 40 feet, the actual spread of most mistletoe infestations is approximately two feet per year. As a result, mistletoe tends to occur in pockets wherein all the susceptible trees are infected.

Fire is the natural control for dwarf mistletoe. As trees in mistletoe pockets succumbed to the parasite, fuels levels increase and intense fires burn the infected trees. Young trees will be quickly infected if the large trees above them are infected. Control strategies for these or any other forest insects or diseases are complex and site specific, and beyond the scope of this document. Forestry advice is available to landowners through the Colorado State Forest Service, consulting foresters, and the Colorado State University Cooperative Extension Service. Information on forest insects and disease and fire mitigation can be obtained from the Colorado State Forest Service Website at:

www.colostate.edu/Depts/CSFS

To view aerial maps of insect activity in Park County, go to:

<http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>.

VII. WILDLAND FIRE BEHAVIOR and PARK COUNTY FIRE SEASONS AND OCCURRENCE

Fire behavior

The fire behavior triangle shows the primary factors that influence how a forest fire will burn and spread. They are fuels, topography and weather. When specific characteristics of each of these factors are known, the behavior of a fire can generally be predicted, and the way it will burn on the landscape can be modeled.

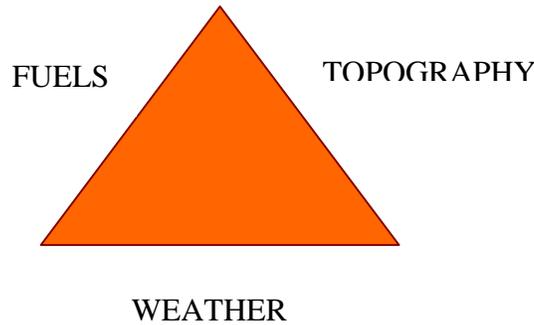


Figure 2: Fire Behavior Triangle

Primary forest fuels consist of grass, herbs, and other non-woody vegetation, downed woody material, shrubs and brush, conifer trees, duff (decaying material) and litter on the forest floor. Heavy surface fuels, such as shrubs and small trees or dense accumulations of down wood, or conifer trees with low branches, can create fuel “ladders” to carry fire from the surface to the crowns of conifer trees.

Torching is when individual trees, or small groups of trees, have burning crowns. If the trees are dense enough, and winds are high enough or the slope steep enough, flames at the top of the larger trees will spread to other trees. This is called a “crown fire,” and it can spread rapidly, given the right conditions.

Fires also commonly “spot.” Embers carried by air currents ahead of, or adjacent to, the fire cause spotting. The embers may ignite new fires and rapidly increase the rate of spread and difficulty of control. Spotting can range from small embers landing close to the existing fire, to larger burning material, such as branches, being lofted high in the air and landing up to a mile or more ahead of the fire.

Even in the open grasslands of South Park there is significant risk from wildfires. There is a common misconception that structures in open grasslands are not at risk from wildfire. Nothing could be further from the case. There is significant risk of wildfires in the open grasslands of South Park. Fires in grass tend to move with amazing speed during high winds. The risk to life and property is greatest where grasses are taller, and the most effective mitigation strategy in grass fuel types is to mow or graze the grass to keep the height low.

Fire behavior is a science that attempts to account for the interacting forces that make fire such a dynamic feature of the natural environment.

Aspen must also be mentioned in any discussion of fuels. Any mitigation activities that enlarge or regenerate aspen patches will have multiple benefits. Aspen are often the first species to regenerate after a fire, and provide important food for deer and elk. Deciduous trees, such as aspen, do not support crown fires and act as a natural fuel break. One of the most significant effects of fire suppression has been diminished numbers of aspen. There are relatively few large stands of aspen in the County, but there are many small stands scattered throughout the other fuel types.

Topography is the “lay of the land”. Critical factors that influence fire behavior are slope steepness and direction, also known as aspect. Fire will spread at a much higher rate uphill because the convective heat rising from the fire is preheating and drying the fuels up slope of the fire.

Aspect is the direction in which the slope faces. Usually lighter, faster burning fuels occur on south and west slopes, which are drier and receive the most sun. North and east facing slopes are cooler and more moist, resulting in more dense vegetation. In the lower elevations of the County, south and west slopes are usually open ponderosa forests, while north and east slopes consist of dense stands of ponderosa and Douglas fir. Aspect can also increase the effects of wind, or shelter the fire from wind. A critical combination that may increase fire intensity is when slopes are aligned with the wind and the sun, such as on southwest slopes in the afternoon.

Special features, like drainages, saddles, and canyons, funnel wind and the heat of the fire and produce much higher intensities and spread rates. Many firefighter fatalities have occurred in these features.

Weather is the leg of the fire behavior triangle that will always remain uncontrollable and sometimes, unpredictable. Unlike fuels, which can be managed, and topography, which remains fixed, weather is a dynamic force that can quickly change a small ground fire into a roaring crown fire.

Another factor in fire behavior is air and fuel temperature. High air temperatures reduce the amount of pre-heating necessary to bring fuels to the temperature of ignition. Bright sunshine can raise the surface temperature of ground fuels to 150°F, much higher than the temperature of surrounding air.

When air temperature rises, relative humidity falls. Humidity quickly affects the lighter fuels that are critical for carrying fires. Smaller fuels dry or absorb moisture more quickly than large diameter fuels. When humidity decreases, smaller fuels will dry quickly, and ignite more easily.

Weather patterns change rapidly, often making wildfires difficult to control. Fire behavior can be relatively accurately predicted when one has knowledge of the fuels, fuel moistures, predicted weather, and the terrain on which the fire is burning in. However, interaction of the various fire triangle elements, spotting, and high intensity fires can result in behavior that can catch both firefighters and residents unaware, if they don't plan for all contingencies.

Fire Seasons

Park County has a wide range of elevations and topography that influence where and when fires burn. The majority of the fire activity occurs in the lower to middle elevations, which is comprised mostly of ponderosa pine and Douglas fir. Weather is dominated by lesser snow amounts, which often melt after storms and a wet July and August monsoon season.

Although fires can occur year round here, there are three typical periods when high fire danger can occur. The first is spring after snowmelt, when the grass has not greened up, shrubs have not leafed out, and fuel moistures in the conifers are low. Strong winds are common. The next and typically highest period of fire danger is late May through early July before the onset of the monsoon season, when fuel moistures are still low, lightning has started, air temperatures are high, humidity is low, high winds are common, and burning periods (daylight) are at their longest. During this fire danger period the Hayman, Buffalo Creek, Hi Meadow and Schoonover fires were ignited.

The monsoon season is the period of the greatest number of fires, because of the extensive thunderstorms and lightning. However, because of the rain, there is usually less potential for large fires and most fire spread is extremely slow, if at all.

Finally, in the fall after the monsoon season, there can be periods of higher fire danger with the return of drier conditions, dormancy of vegetation, and winds. Even though there is potential, no large fires have occurred in Park County during this time period over the last several decades.

The higher elevations, especially the northern and northwest part of Park County, consist of subalpine (lodgepole pine, spruce, bristle cone pine, etc) or alpine (tundra above tree line) vegetation. These areas have a low fire occurrence in most years. Typically, the monsoons start shortly after snowmelt, and fuels rarely have time to dry out significantly. Temperatures are lower and humidities higher at these higher elevations. The greatest potential for large fires for these locations are drought years with low snowfall, late or limited monsoons, or worse, both. However, these conditions have not occurred very often.

Fire Occurrence

Over 770 fires have occurred on National Forest and BLM lands in Park County over the last 30 years, or an average of 25 per year. During this same time period 23,500 acres have burned on National Forest and public lands within Park County. While lightning is responsible for the majority of the fire starts, the largest and most damaging fires are human caused. Education is critical to prevent the most dangerous types of wildfires.

VIII. COMMUNITY ASSESSMENT STRATEGIES

Methods

Most of the factors and treatments that determine the survivability of a structure lie within one to two hundred yards of the structure, and usually it is located on private lands. Public land managers do not have any legal authority or responsibility for fire mitigation on those private lands. Likewise, the fire districts do not have mandated responsibility for preparing private property for fire safety. Therefore, the largest opportunity to decrease risk from wildfire lies with the private property owners acting individually or as a community.

The wildfire risk to the community involves many exposures. Among these are water supplies, natural resources, land values, critical infrastructures (such as highways and bridges which can be affected by fire), and even a sense of community. The responsibility for mitigating risk to these critical values crosses all jurisdictional boundaries, including public lands, which make up a large portion of Park County.

Risk from wildfires can be viewed at the individual home, structure, or other development level, whether it is public or private. The bigger picture of evaluating risk is at the community level and beyond. Thus, two methods of assessment were done. HFRA, as discussed earlier, requires CWPPs to identify and prioritize fuel reduction treatment areas, and recommend measures homeowners and communities can take to reduce the ignitibility of structures.

The first is an overall assessment of all lands in Park County. This is the bigger picture of community risk, which provides the information necessary to identify and prioritize fuels treatment areas. The treatment includes both public and private lands.

The second is an evaluation of individual subdivisions, and is a more specific assessment of risk to homes and developments. This assessment of potential for catastrophic fire and preparedness is also the first step in meeting the goal, identified by HFRA, of reducing the ignitibility of structures.

It is also important to understand that the subdivision assessment was purposely done at a broad, strategic level for this CWPP. This Community Wildfire Protection Plan encompasses seven fire districts, 270 subdivisions, and approximately 2,200 square miles. Therefore, the results were not intended to be absolute at the lot size or small acreages. Subdivisions and communities should expect to do more site-specific analysis as it relates to their lot or acreage, through a neighborhood wildfire protection plan.

The key element of the CWPP assessment was to utilize objective, quantifiable data that already existed or could be relatively easily collected (subdivision surveys). This data was then incorporated in a table and mapped for the subdivision assessments. A Geographic Information System (GIS) analysis was used for the overall lands assessment.

Overall Lands Assessment

The standard methodology for assessing overall wildland fire hazard consists of analyzing at least three core inputs: fuels hazard, ignition risk, and values at risk. All these factors can, then, be combined into one overall wildfire risk rating.

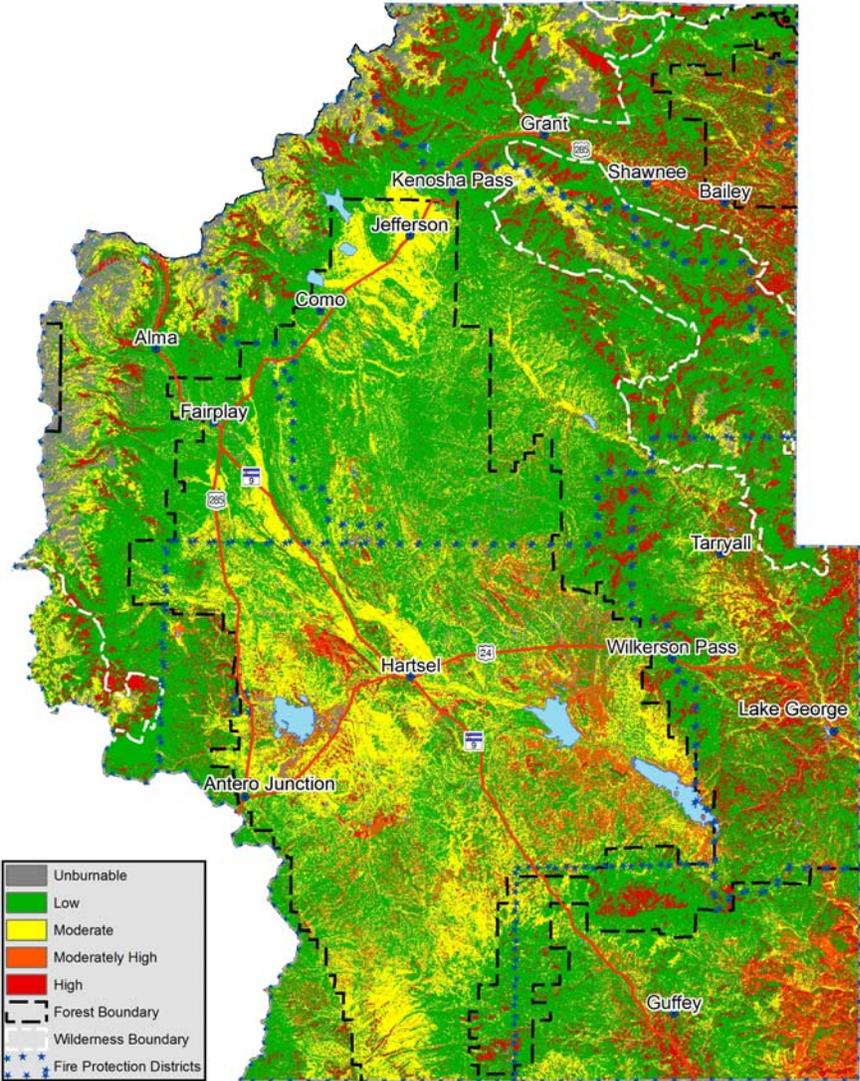
Fuels Hazard

Fuels hazard is based on the type of fire behavior that could result if a fire occurs and spreads in the vegetation type or “fuel bed” that exists at a given location. This is done by the use of “fuel models” which are mathematical representations of various vegetation types with fuel moisture, weather, and topographical variables or inputs. The modeling program mathematically calculates the expected behavior of a wildfire. The important information calculated by the modeling program is flame length (the amount of heat produced or fire intensity), rate of spread (how fast it moves), and what type of general fire behavior would occur (surface fire only, surface fire with torching, or crown fire).

Flame length or fire intensity is especially critical, because it indicates the difficulty in controlling a wildfire. Higher flame length means a fire produces more heat. Hand crews working directly next to the fire can safely fight flame lengths of four feet or less. When flame length exceeds four feet, fires must be fought by machinery (dozers, air tankers, etc.) a safe distance away from the actual flames. Crews, engines, dozers, and even aircraft may be ineffective against high intensity fires.

Weather data utilized in these models represents actual weather collected over decades from local fire weather stations. The data represents weather that is typical on summer days when the fire danger is “high” or “very high”. It is not meant to represent the worst conditions, such as extended drought years like 2002.

An overall rating for Fuels Hazard is then created from these inputs and mapped on Map #2.



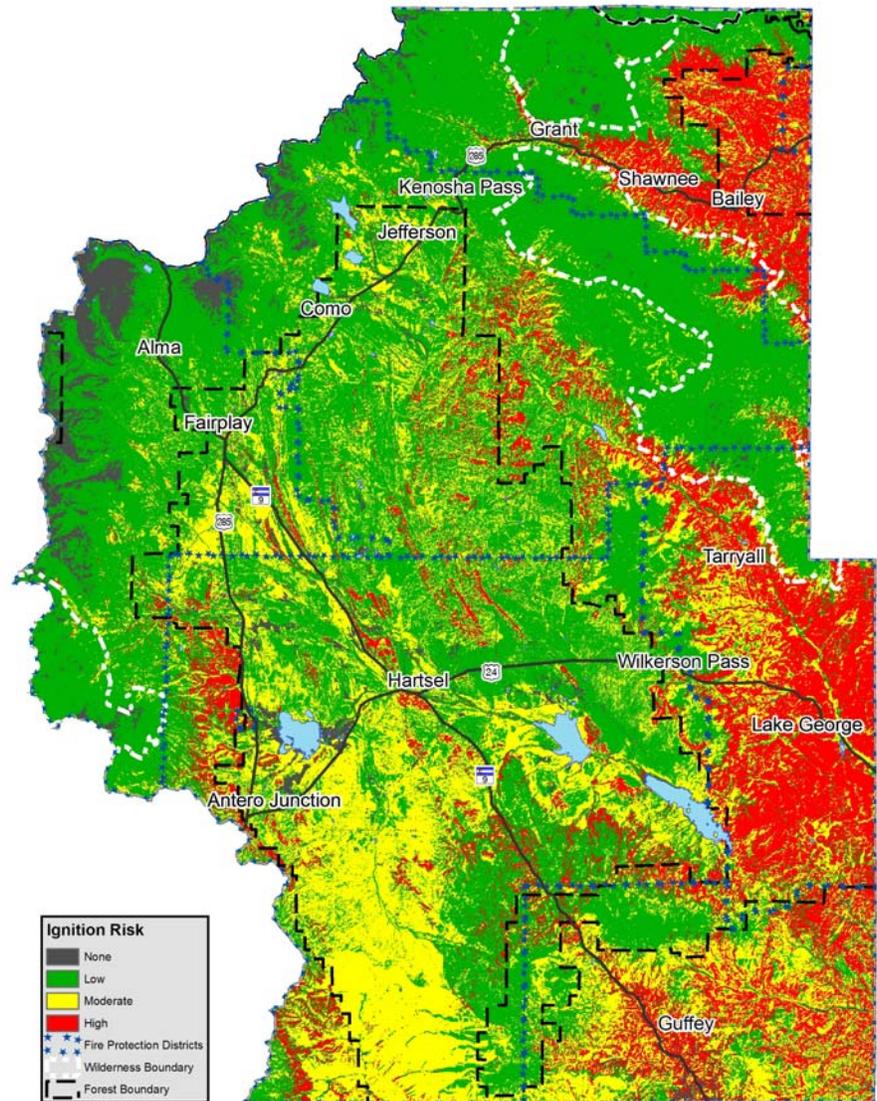
Map 2: Fuels Hazard Map

Ignition Hazard

Ignition hazard measures the likelihood of fire starting in an area. There are many factors that control this issue, such as vegetation type, lightning, weather patterns, amount of human activities, recreational use, and others. The key to obtaining reliable results is to use quantifiable, available data.

The overall indicator of potential ignition hazard is past fire occurrence. Therefore, this CWPP uses fire occurrence from the past 30 years.

Changing trends, such as greater human caused fires because of increasing recreational use and residential development, may not be represented just by historical data. However, it is difficult to find reliable data, which can easily be mapped, to characterize any of these trends.



Map 3 – Ignition Risk

Values At Risk

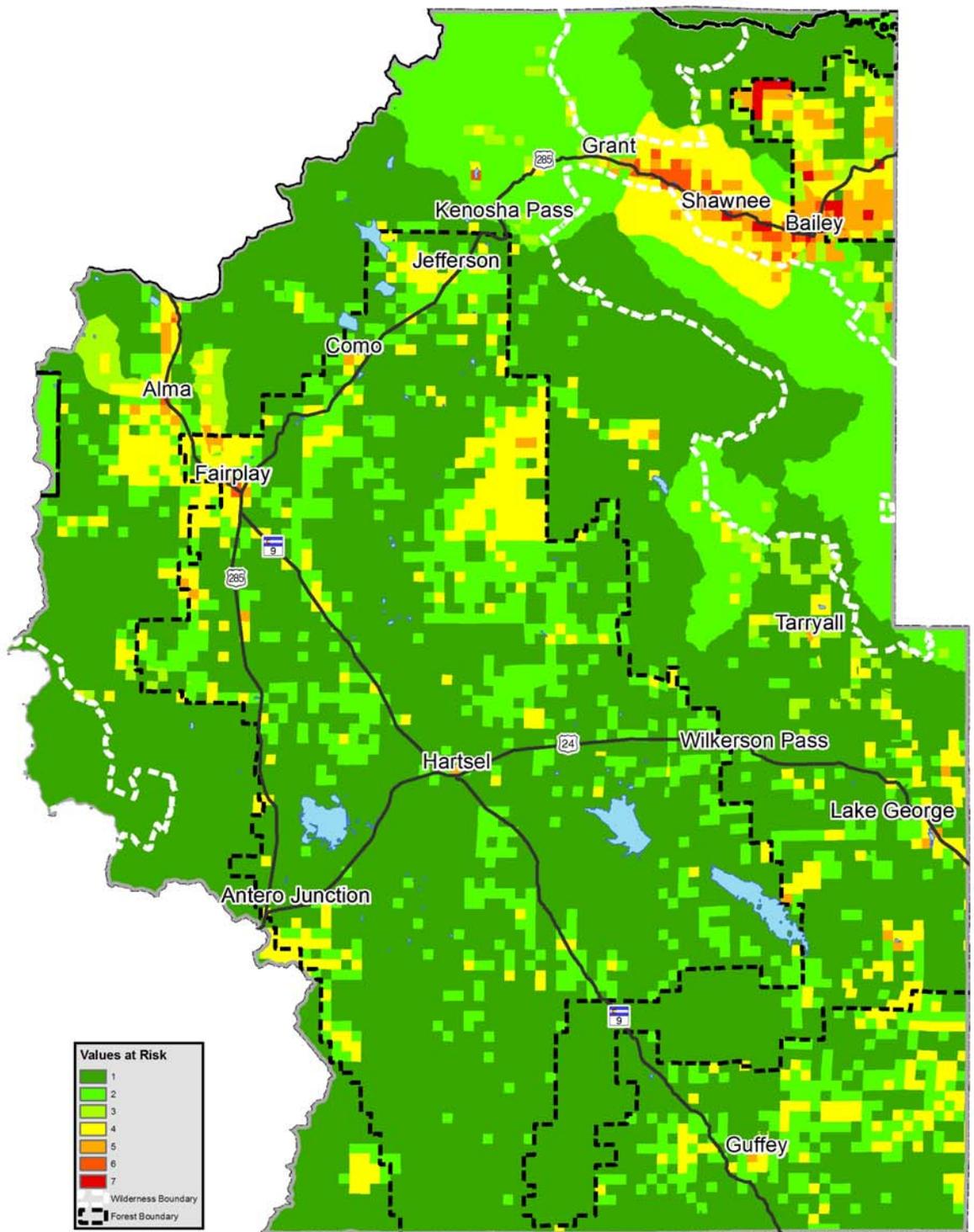
The final category for assessing wildfire hazard is an assessment of the values at risk, should a fire occur at a given location. A greater hazard is indicated in areas where values such as homes, critical watersheds, or other items important to the community would be threatened by a fire.

A critical part of this process was to determine what is important to residents and communities of Park County. A Critical Values Assessment was conducted as part of the CWPP development process. This was accomplished by conducting a Critical Values Survey in the fall of 2005, asking all residents of Park County to rate various values to determine what would be most important to them. According to this data, the priorities were as follows:

1. Population Density
2. Subdivisions
3. Watersheds
4. Economic Resources
5. Historical/Cultural Resources
6. Endangered Species
7. Utilities
8. Recreation Areas
9. Travel Corridors
10. View Shed/ Aesthetics

While all of these ten values are important, this assessment included only the top three when determining priorities for this plan, as those three were by far the most important to residents surveyed.

Due to the most recent data available, the density of structures was used to represent the values of homes, infrastructure, population, and other important development. Municipal watersheds and forested watersheds on steep slopes (areas that would be highly susceptible to severe erosion into water courses if a severe fire occurred) represent the watershed values.



Map 4: Values at Risk Map indicating low (1) to high (7) risk.

Overall Wildfire Risk Rating, or “Putting it all together”

The final stage of the assessment of wildfire risk in Park County combined all the factors discussed above into one overall rating. The various inputs into the analysis model are illustrated below in Figure 3.

All three major factors were weighted or valued equally in the CWPP analysis. Thus, what was at risk was not considered more or less important than how likely the location was to have a fire or how the fire would burn there if it occurred. Different weights could be applied, but numerous previous analyses demonstrate this to be the most effective.

Again, the most critical part of the analysis is to differentiate between locations. All areas are important to their residents and visitors. All areas have some degree of fire occurrence and fuels risk.

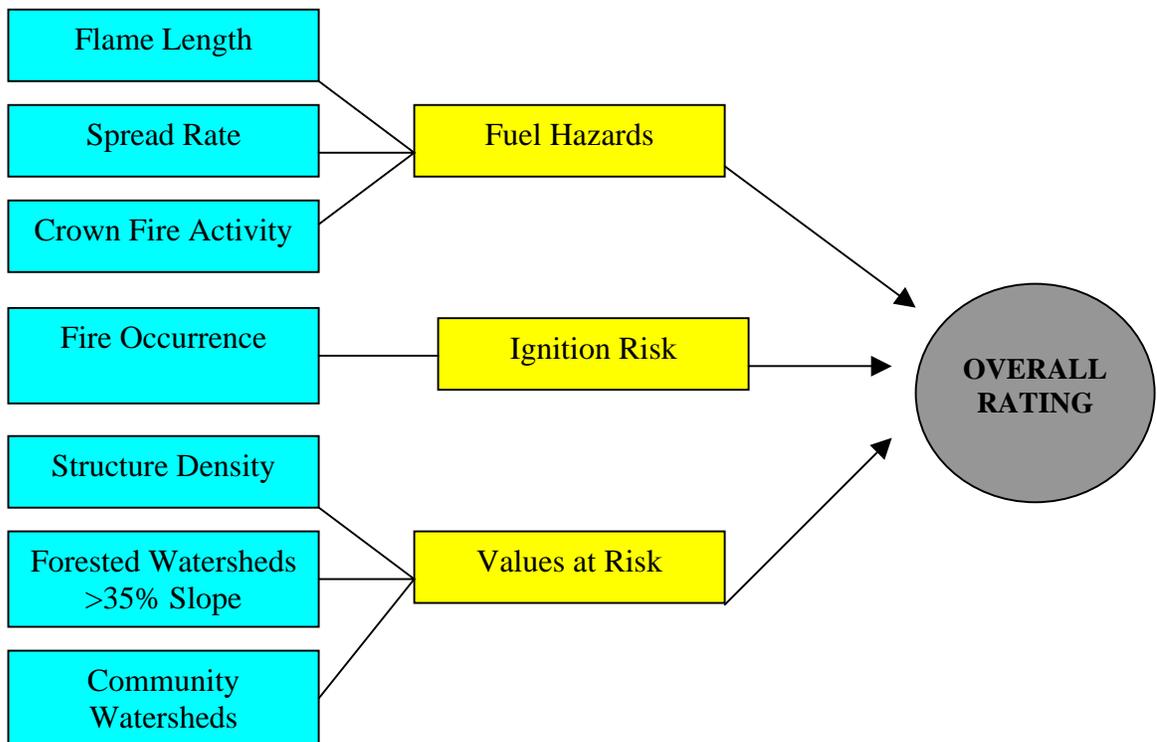
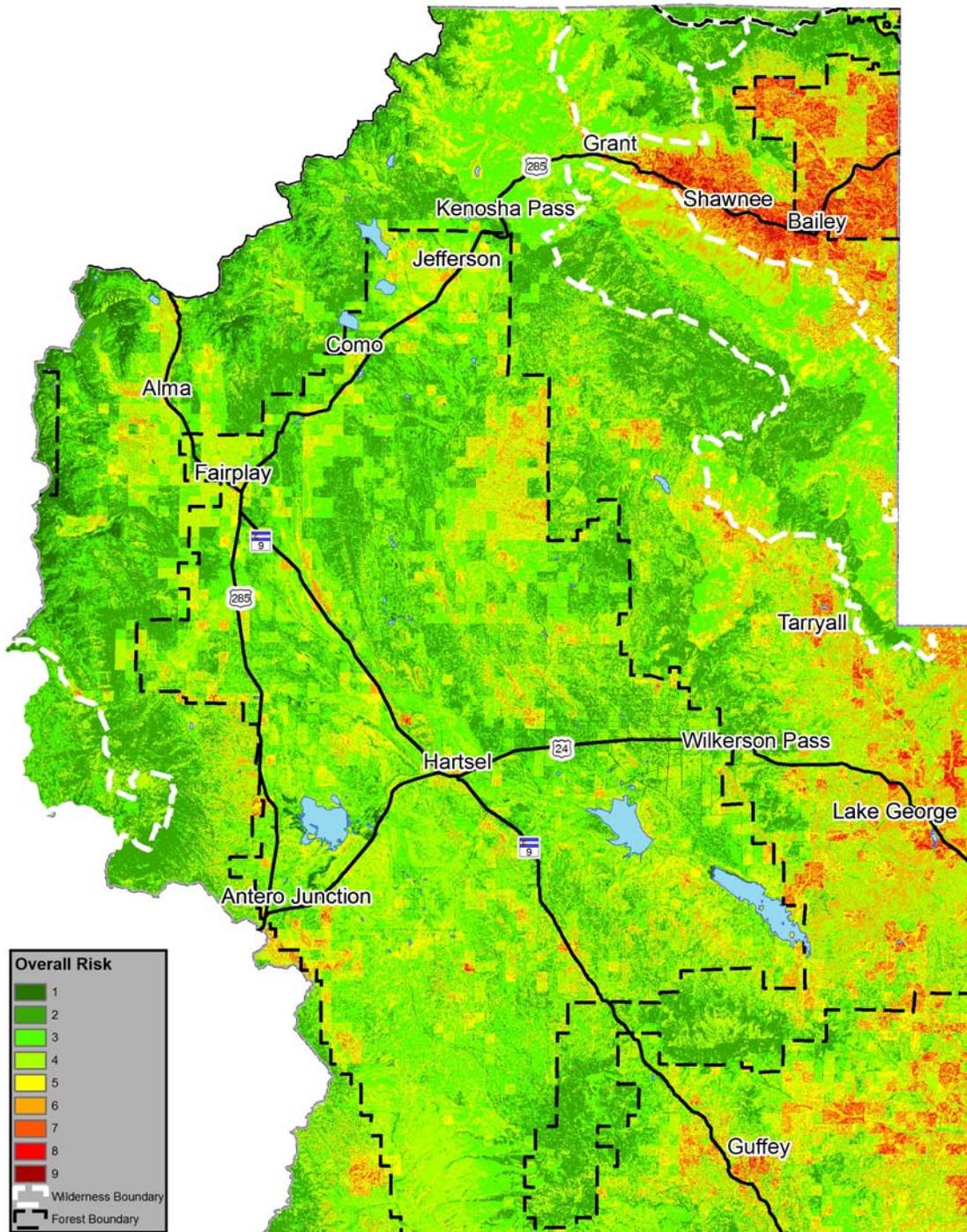


Figure 3: Factors used in developing overall wildfire risk rating for lands in Park County



Map 5: Overall Wildfire Risk Rating Map for Lands in Park County indicating low (1) to high (9) risk based on combination of the ratings for fuels, ignition and values at risk

Map 5 illustrates the overall wildfire risk for lands in Park County. Again, this is based on the factors described above and shown in Figure 3.

This is a broad strategic look at wildfire risk in Park County. The data used was not intended to provide exact information for site-specific project implementation, but rather identification of areas with the highest relative exposures when planning projects. This depiction is a useful tool to prioritize locations for fuels mitigation or other work on private lands. It also enables Park County to display its highest priorities for Federal land managers for fuels mitigation projects on public lands.

Subdivision Assessment

As previously stated, most of the mitigation work to protect individual homes or structures will occur on private lands. The assessment displays which subdivisions may be at highest risk from a damaging fire, and which have factors that are not conducive to successful fire suppression and structure defense.

Members of all of the fire districts within Park County performed an assessment of each of the 270 subdivisions included in this plan. The survey data was summarized into two overall ratings: Risk of Property Damage or Level of Preparedness (Figure 3) and Catastrophic Wildfire Hazard (Figure 4).

These are ratings for the subdivision as a whole. They are not meant to be indicative of individual homes or lots. Fire professionals used averages for the overall subdivision ratings.

The rating for Catastrophic Wildfire Risk was based on the following factors:

- Vegetation – Fuels and Density
- Topography – Slope Steepness
- Subdivision Design – Lot Size

Of these factors, only the type and quantity of vegetation can be changed by property owners.

The factors used for rating the preparedness of a subdivision and the resulting risk to property are:

Subdivision Design

- Ingress/Egress
- Primary Road Widths
- Accessibility
- Dead ends (Secondary Road Terminus)
- Presence of Street Signs

Vegetation

- Defensible Spaces Created

Structure Design

- Materials

Fire Protection

- Response Time
- Hydrants
- Draft Sources (locations where fire engines can “suck up” or draft water into the engine if hydrants or pump sites don’t exist)

Utilities

- Utilities – Placement above or below ground

Many of these factors are not easily changed in the short term; however, there are several, which can be significantly improved. The two with the greatest potential for improvement are defensible space and water sources.

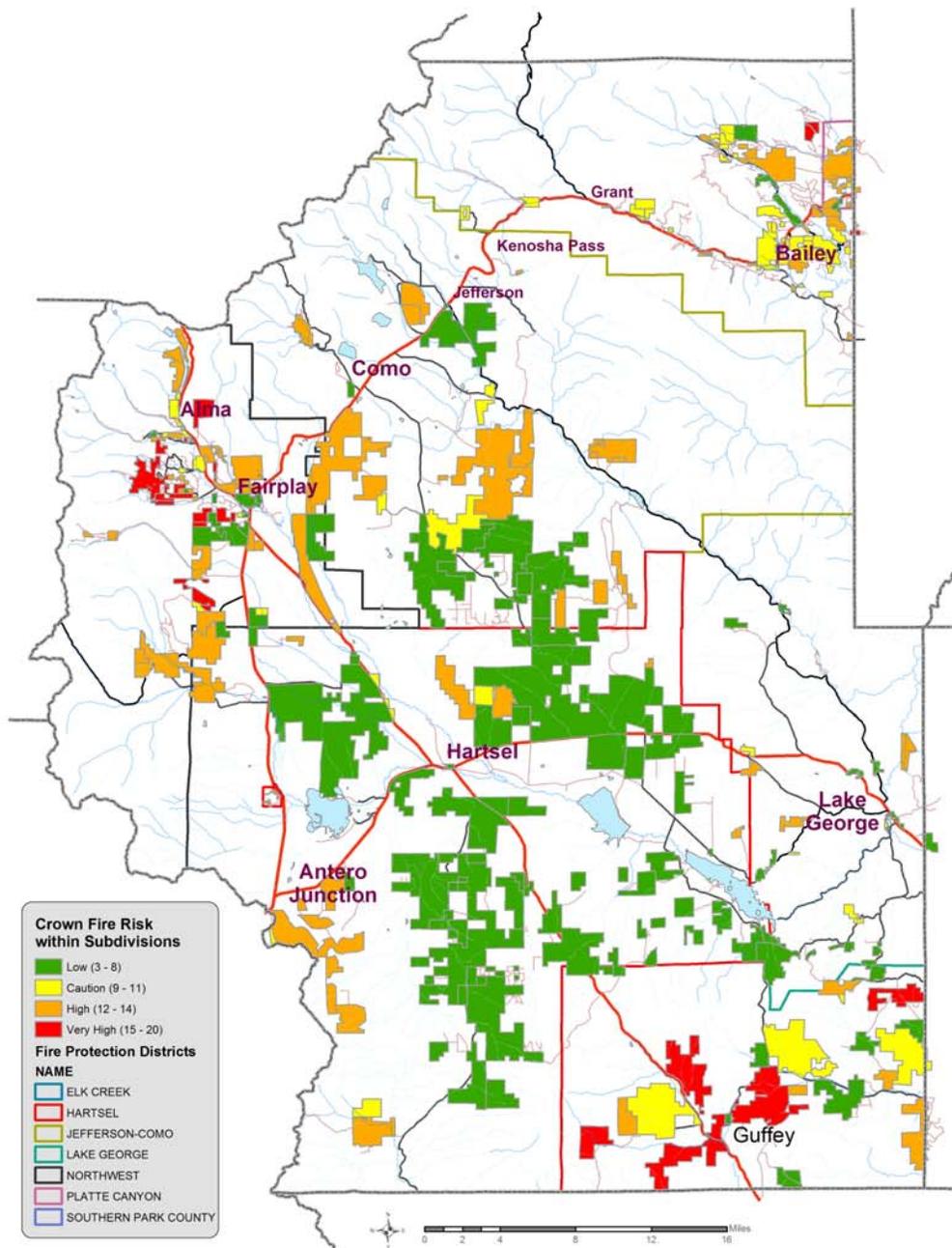
Results

The results of the surveys are illustrated in the maps below. A tabular summary can be found in Appendix 6. A more detailed summary, including the ratings for each category, can be viewed at your local Fire Protection District.

The following table displays what the results mean in general terms for the Catastrophic Fire Hazard Rating:

Rating Range	Category	Description
3 to 8	Low	Low fuels, moderate terrain. Maintain.
9 to 11	Caution	Moderate fuel accumulation with steeper slopes. Has an opportunity for improvement.
12 to 14	High	Heavy fuel accumulation and steeper slopes. Clear need for improvement.
15-20	Very High	Extreme fuel hazards and steep slopes. High priority, mitigation is essential for safety.

Figure 4

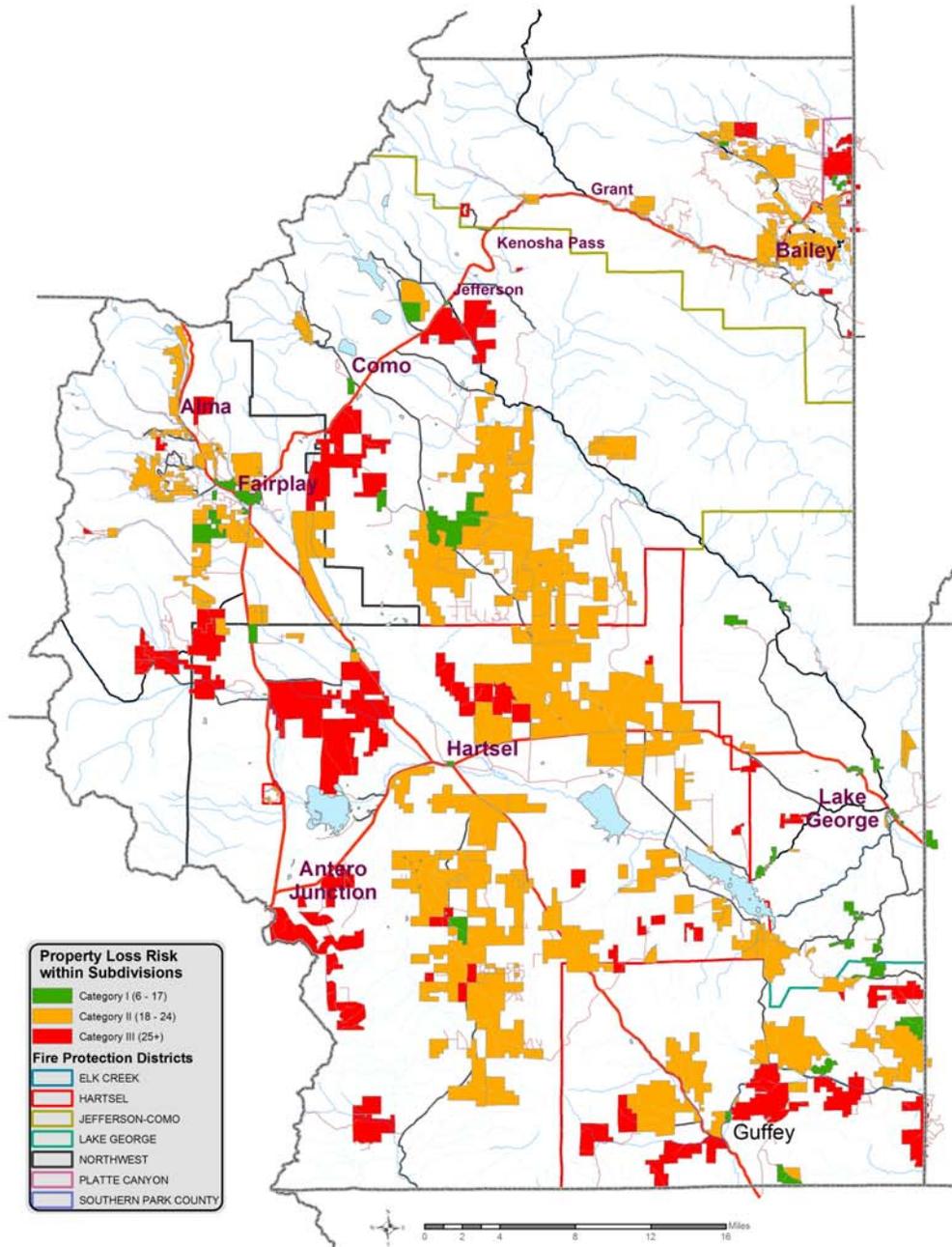


Map 6: Subdivision Catastrophic Fire Hazard

This table displays the meaning of the ratings for Property Loss Risk or Level of Preparedness:

Rating Range	Category	Description
Less than 17	Low	Moderate Hazards
18 to 24	Caution	Problem areas. Significant opportunities to increase safety and potential success of firefighting & structure defense actions
25 +	Very High	Significant controllable hazards and major opportunity to improve safety and potential success of firefighting & structure defense actions

Figure 5



Map 7: Subdivision Preparedness Ratings Map

The results, displayed in Maps 6 and 7, are a starting point for subdivision residents and homeowners' associations to evaluate their wildfire risk.

Mitigation by individual landowners is effective. Individual effort is commendable and encouraged by this plan. It has also been amply demonstrated that when individual landowners work together to mitigate fire hazard across property boundaries the effectiveness is increased many times over.

Communities should be encouraged to work together to develop "neighborhood CWPPs" which are specific to the community. This County plan may be used as a foundation for a neighborhood plan, thus making the process less cumbersome for a smaller community. Neighborhood CWPPs can also prescribe specific treatments desired by a community at a level of specificity that would be impossible in a countywide plan.

Information Sources for Reducing Subdivision Risks

There are many sources for finding additional information about methods and resources for community and structure protection. These include the Park County Emergency Service's Office, the Colorado State Forest Service Offices in Woodland Park and Golden, the US Forest Service, and the FireWise program.

Also, the following websites contain a wealth of information on fire protection.

<http://www.firewise.org/>

<http://www.colostate.edu/Depts/CSFS>

<http://www.healthyforests.gov/community/cwpp.html>

<http://www.fireplan.gov/>

http://www.fs.fed.us/fire/prev_ed/index.html

Refer to Appendix 3 for more information on information sources.

IX. PRIORITY AREAS / RECOMMENDATIONS

Locations

One of the requirements of a CWPP is to identify to the public land managers the County's highest priorities. The overall risk rating maps were used extensively in this process, as well as additional professional judgment. Again, the role of the CWPP was to prioritize at the broader scale. It is also important to focus on a few priority areas, rather than many. Focusing on too many locations is usually ineffective because effort and resources are diluted, and although many areas receive attention, none are significantly changed.

These recommendations do not preclude individual home and property owners, subdivision homeowners associations, or other groups from pursuing work in their areas. Nor do they prevent public land management agencies from pursuing any projects outside those areas identified below.

The following areas should be given the highest priority by public land managers. Public land managers should also practice high levels of collaboration with the local fire protection districts, homeowners associations, and landowners during the development and implementation of projects in these locations.

Three priority treatment areas were highlighted through the analysis process. There are many other areas in Park County that may rate very high in one or two of the factors, but the three priority areas rated high in all three factors. The higher overall rating is evident on the overall wildfire risk map (Map 5). Additional priority areas may be identified as the on-going process continues, and projects are implemented.

Priority One: Bailey Area

The Bailey area is the largest area of high risk, in that it contains the largest population and amount of development in Park County. This area is located within, and adjacent to, heavily forested lands with a high fire occurrence history, including several large fires. The region has high values at risk, generally high fuels risk, and a high ignition risk. Large acreages of National Forest lands are also located here.

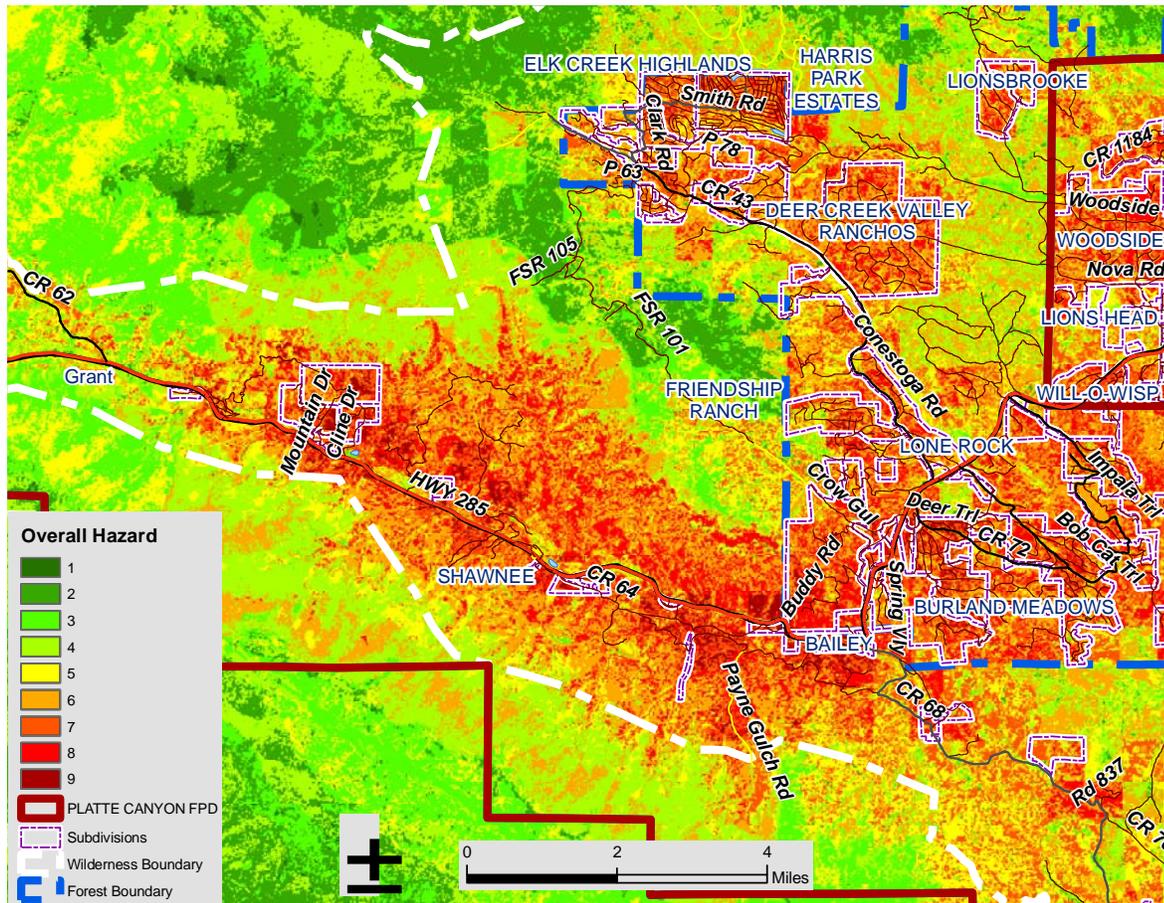
Currently, the Platte Canyon Fire Protection District and the Elk Creek Fire Protection District are both working on mitigation efforts through wildfire protection plans already developed in that area. Platte Canyon Fire Protection District completed their Wildfire-Risk Assessment in July 2003. The district was divided into 20 communities with risk assessments assigned. Three were designated as extreme, four as high, twelve as moderate, and one as low. In addition, evacuation routes for many of the areas were identified. The Behave Fire Behavior Prediction and Fuel Modeling System were utilized to help determine the wildfire hazard for the study.

In 2004, in response to the Healthy Forest Restoration Act, members of the South Platte Ranger District and the Colorado State Forest Service partnered with the Platte Canyon FPD to develop the CWPP for that fire district. From this, the 285 Conifer-Bailey Fuels Management Initiative was started, which is an extension of the Platte Canyon CWPP.

Work in the Platte Canyon FPD has included a partnership with Colorado State Forest Service to obtain grant monies to support mitigation efforts in the district adjacent to the Pike National Forest. This includes the hiring of additional personnel to contract with local homeowners to cut and thin the forest area on private lands, as well as coordinating a chipping program to remove the slash that all homeowners in the district have accumulated for removal.

The US Forest Service has completed an Environmental Assessment (EA) for the area to the north of Platte Canyon FPD and will start actual thinning of the forest early in 2007. Prioritization of these areas will be in cooperation with the efforts on private lands by the Platte Canyon FPD.

Future efforts planned are working with the Firewise Communities program to promote the continuation of mitigation efforts within the various Home Owners Associations (HOA's). This will transfer the ownership of much of the mitigation efforts to the HOAs. For more information on the Bailey area, please refer to Community Wildfire Protection Plan for the Platte Canyon Fire Protection District.

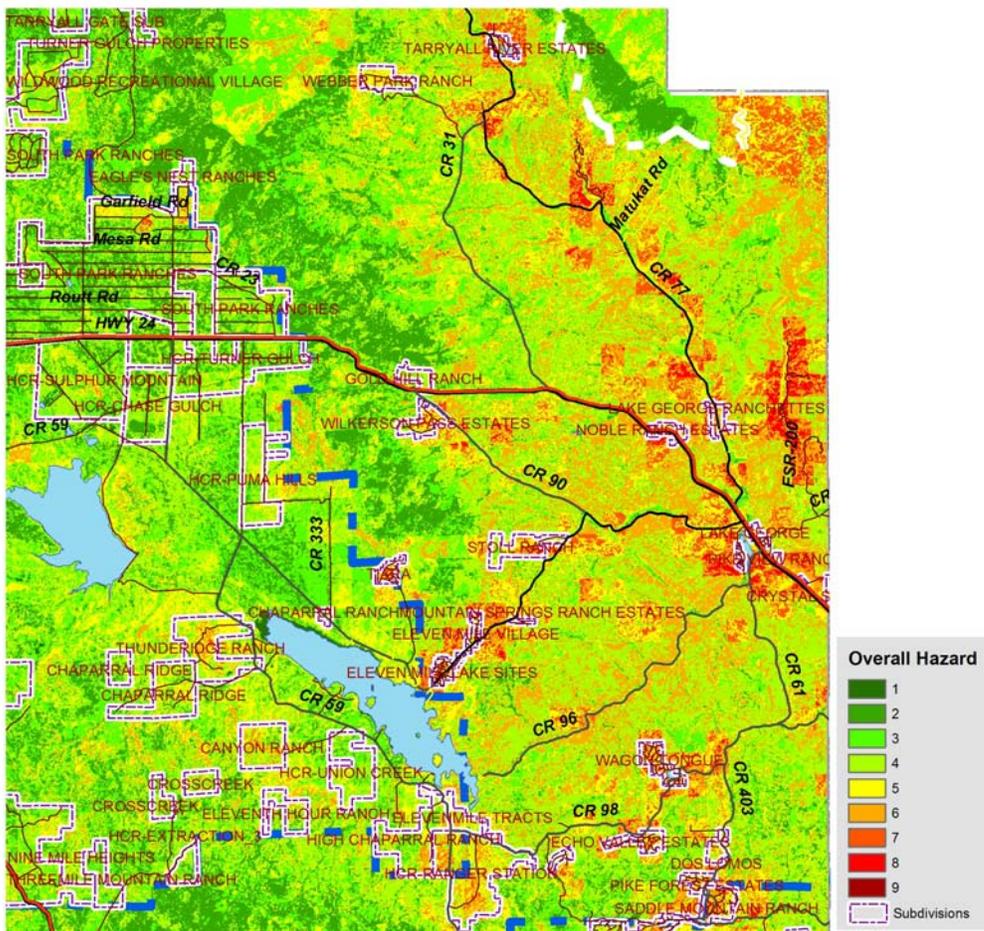


Map 8: Priority One – Bailey Area indicating wildfire hazards from low to high (1-9)

Priority Two: Lake George Area

The general Lake George – Lower Tarryall Road area is the second highest priority identified. This area includes large tracts of National Forest lands, and significant population and development. The adjacent area in Teller County has been rated as the second highest priority area in the Teller County CWPP. Most of the development is in forested locations. Development is growing at an increasing rate. Fuel hazards are generally moderate to high. Ignition risk is high, historical fire occurrence is very high, primarily due to the extensive lightning, but human caused occurrence is increasing. The South Platte River, above the Hayman fire, is one of the few segments left of the River that has not been burned over. The South Platte River and associated recreation is critical to the local community, and a major water supply for the Front Range.

Currently, the US Forest Service is implementing two large fuels mitigation projects, Sledgehammer (which covers the area south of the river and north of County Road 98), and Rocky Messenger – Howard (which covers the area north of the river and south of County Roads 90 and 92, and east of Cty. Rd. 62) as well as smaller projects around Wagon Tongue, Beaver and Echo subdivisions.

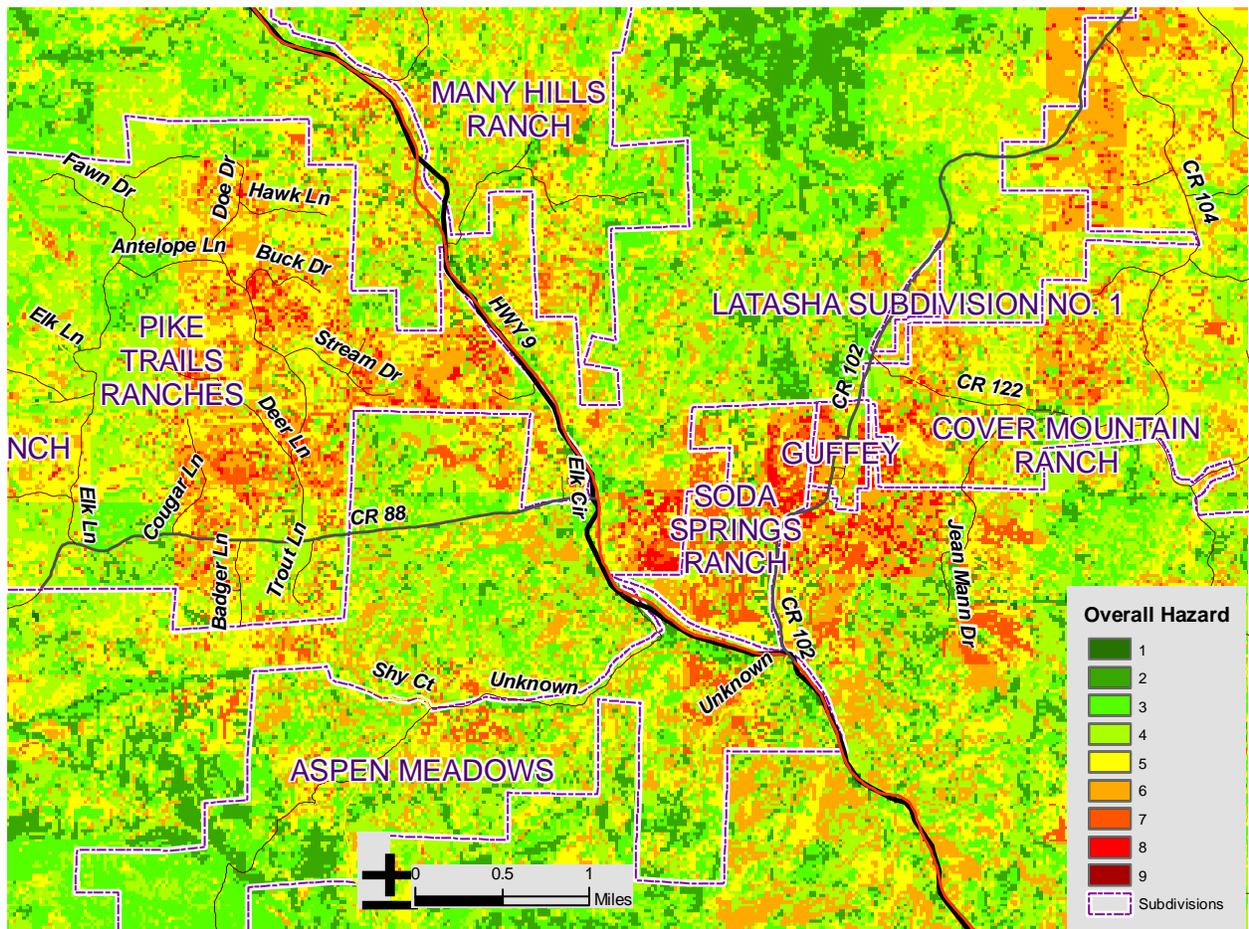


Map 9: Priority Two – Lake George Area indicating wildfire hazards from low(1) to high (9).

Priority Three: Guffey - South Eastern Park County

This area is characterized by moderate to high fuel hazards with high fire risk and occurrence. Forested cover is not as continuous as in the other two priority zones, but can be extensive. This area has been one of the driest areas of the County over the past several years. There have been several moderate sized fires in this general area, including the largest all private land wildfire. Population is increasing rapidly, as it is in the adjacent portions of Fremont and Teller Counties.

There are no areas of National Forest within the priority 3 zone. However, there are numerous areas of BLM public lands, though generally smaller and scattered.



Map 10: Priority Three – Guffey Area indicating wildfire hazards from low to high (1-9).

Treatment Recommendations

No site specific treatment locations or types are going to be recommended by the Park County CWPP to the public land managers, in order to allow them the flexibility to be most efficient with limited resources, utilize their professional expertise in fuels management, and be able to work with adjacent landowners. General strategies will be provided. A discussion of fuels management strategies and techniques is also included in Appendix 4.

Treatment efforts on public lands, within the priority areas, should focus on areas adjacent to homes, structures, businesses, and other critical infrastructure first. Treatments further away from structures should focus on limiting the potential for large landscape sized high intensity fires that negatively impact watersheds, economic interests, and other community values. It is not necessary, nor desired, to treat all the acres within a given project.

Treatment types should be utilized that will change potential fire behavior in the general vicinity of homes, structures, and other infrastructure from a high intensity crown or torching fire to a surface fire. Mechanical treatments should be emphasized. Pile burning and broadcast burning should be employed where it can be done so with acceptable levels of risk.

Treatments, outside of the above-described areas, should create a mosaic across the landscape, which breaks up the continuity of vegetation/fuel types that are capable of high intensities and crown fires. Areas with the potential to be successful wildfire control locations should be created. Critical watersheds, recreation or other areas essential to local economics, public land infrastructure, and important wildlife habitat areas should be prioritized for treatment. Both mechanical (with and without follow up burning) and broadcast burning treatments should be applied.

X. PROJECT IMPLEMENTATION AND MONITORING

Public land managers have legal requirements for monitoring projects under the National Environmental Protection Act, National Forest Management Act and other Acts. These requirements also employ monitoring to evaluate the success of projects or changes needed to improve projects. Ad hoc teams will be created from the coalition members, relevant fire protection district, and other interested parties (such as homeowners association representatives) to visit project sites to assess implementation progress and results. The team will meet with representatives of the public agencies on-the-ground and provide any input they have. The coalition will ensure that input is provided to agencies during future planning efforts on public lands.

XI. APPROVAL OF PLAN BY GOVERNING BODIES AND COALITION MEMBERS

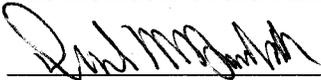
Each of the following organizations has been directly represented on the wildfire coalition and concurs with the adoption of this CWPP:

- Park County Office of Emergency Management
- Coalition for the Upper South Platte
- Colorado State Forest Service
- Fire Districts
- Pikes Trails Homeowners Association
- Ranch of the Rockies Ranch
- USFS - South Park Ranger District of the Pike National Forest
- Eleven Mile and Spinney State Parks
- Bureau of Land Management
- Park County Mapping and GIS

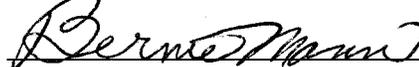
Each of the following organizations has participated in and provided technical support to the CWPP, and recommends that this CWPP should be adopted by Park County.

- County Fire Protection Districts
- Eleven Mile and Spinney State Parks
- United States Forest Service
- Bureau of Land Management

The members of the Park County CWPP Coalition hereby recommend adoption of this CWPP.



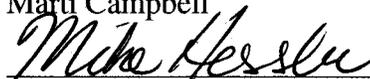
Dave Hudak



Bernie Mann



Marti Campbell



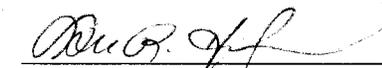
Mike Hessler



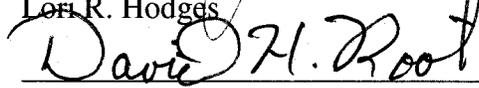
Craig Barraclough



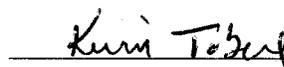
Tom Eisenman



Lori R. Hodges



Dave Root



Kevin Tobey

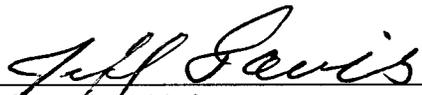


Mike Gaylord

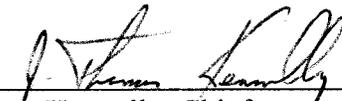


Kat Buscombe

This plan has been reviewed and approved by all fire protection districts within Park County as indicated by the following signatures:



Jeff Davis, Chief
Platte Canyon Fire Protection District



Thomas Kennelly, Chief
Elk Creek Fire Protection District



Steve Bargas, Chief
Jefferson / Como Fire Protection District



Mike Roll, Chief
Northwest Fire Protection District



Jay Hurcheson, Chief
Harstel Fire Protection District

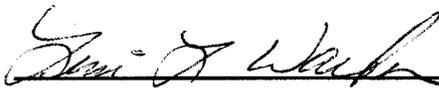


Dutch Klienhesselink, Chief
Lake George Fire Protection District



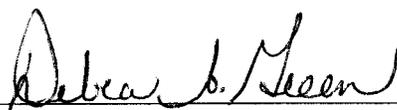
Dave Hudak, Chief
Southern Park County Fire Protection District

The Park County Community Wildfire Protection Plan is hereby approved and adopted by the Park County Board of Commissioners on this 31st day of January, 2007.



Leni Walker, Chair

ATTEST:



County Clerk



APPENDIX

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APPENDIX ONE: BIBLIOGRAPHY

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APPENDIX TWO: DEFINITIONS AND GLOSSARY OF TERMS

Age Class – A classification of trees of a certain range of ages.

Aspect – The direction in which any piece of land faces.

Biological Diversity – The variety of living organisms considered at all levels of organization, including the genetic, species, and higher taxonomic levels, and the variety of habitats and ecosystems, as well as the processes occurring therein.

Bole – The main stem or trunk of a tree.

Canopy – The more or less continuous cover of branches and foliage formed collectively by adjacent trees and other woody species in a forest stand. Where significant height differences occur between trees within a stand, formation of a multiple canopy (multi-layered) condition can result.

Citizen Safety Zone – An area that can be used for protection by residents, and their vehicles, in the event that the main evacuation route is compromised. The area should be maintained, clear of fuels and large enough for all residents of the area to survive an advancing wildfire without special equipment or training.

Coarse Woody Material – Portion of tree that has fallen or been cut and left in the woods. Pieces are at least 16 inches in diameter (small end) and at least 16 feet long.

Cohort – A group of trees developing after a single disturbance, commonly consisting of trees of similar age, although it can include a considerable range of tree ages of seedling or sprout origin and trees that predate the disturbance.

Community Assessment – An analysis designed to identify factors that increase the potential and/or severity of undesirable fire outcomes in WUI communities.

Crown Class – A class of tree based on crown position relative to the crowns of adjacent trees.

Crown Fire – Fire that advances through the tops of the trees.

Defensible Fuel Reduction Zones – Areas of modified and reduced fuels that extend beyond fuel breaks to include a larger area of decreased fuels. These would include managed stands with reduced amounts, continuities, and/or distributions of fuels that would provide additional zones of opportunity for controlling wildfire.

Defensible Space – An area around a structure where fuels and vegetation are modified, cleared or reduced to slow the spread of wildfire toward or from a structure. The design and distance of the defensible space is based on fuels, topography, and the design/materials used in the construction of the structure.

Density Management – Cutting of trees for a variety of purposes including, but not limited to: accelerating tree growth, improved forest health, to open the forest canopy, promotion of wildlife and/or to accelerate the attainment of old growth characteristics if maintenance or restoration of biological diversity is the objective.

Dominant – Crowns extend above the general level of crown cover of others of the same stratum and are not physically restricted from above, although possibly somewhat crowded by other trees on the sides.

Co-Dominant – Crowns form a general level of crown stratum and are not physically restricted from above, but are more or less crowded by other trees from the sides.

Down, Dead Woody Fuels – Dead twigs, branches, stems, and boles of trees and shrubs that have fallen and lie on or near the ground.

Extended Defensible Space – A defensible space area where treatment is continued beyond the minimum boundary. This zone focuses on forest management with fuels reduction being a secondary consideration.

Fire Behavior Potential – The expected severity of a wildland fire expressed as the rate of spread, the level of crown fire activity, and flame length. Derived from fire behavior modeling programs utilizing the following inputs: fuels, canopy cover, historical weather averages, elevation, slope and aspect.

Fire Hazard – The likelihood and severity of Fire Outcomes (Fire Effects) that result in damage to people, property, and/or the environment. Derived from the Community Assessment and the Fire Behavior Potential.

Fire Mitigation – Any action designed to decrease the likelihood of an ignition, reduce Fire Behavior Potential, or to protect property from the impact of undesirable Fire Outcomes.

Fire Outcomes (Fire Effects) – A description of the expected effects of a wildfire on people, property and/or environment based on the Fire Behavior Potential and physical presence of Values-At-Risk. Outcomes can be desirable as well as undesirable.

Fire Risk – The probability that an ignition will occur in an area with potential for damaging effects to people, property and/or the environment. Risk is based primarily on historical ignitions data.

Fuel Break – A natural or constructed discontinuity in a fuel profile utilized to isolate, stop or reduce the spread of fire. Fuel breaks may also make retardant lines more effective and serve as control lines for fire suppression actions. Fuel breaks in the WUI are designed to limit the spread and intensity of crown fire activity.

Hazard – The combination of the wildfire hazard ratings of the WUI communities and the fire behavior potential as modeled from the fuels, weather and topography of the study area.

Intermediate – Trees are shorter, but their crowns extend into the general level of dominant and co-dominant trees, free from physical restrictions from above, but quite crowded from the sides.

Risk – The likelihood of an ignition occurrence that results in a significant fire event.

Shelter-In-Place – A method of protecting the public from an advancing wildfire involving instructing people to remain inside their homes or public buildings until the danger passes. This concept is a dominant modality for public protection from wildfires in Australia where fast moving, short duration fires in light fuels make evacuation impractical. The success of this tactic depends on a detailed preplan that takes into account the construction type and materials of the building used, topography, depth and type of the fuel profile, as well as current and expected weather and fire behavior.

Suppressed – Also known as overtopped. Crowns are entirely below the general level of dominant and co-dominant trees and are physically restricted from immediately above.

Values-At-Risk – People, property and environmental features within the project area, which are susceptible to damage from undesirable fire outcomes.

APPENDIX THREE: REFERENCE INFORMATION

Colorado State Forest Service: State Foresters are able to provide management assistance and fire protection for much of the nation's private forestland. Private landowners interested in learning more about natural resource protection and educational programs such as forest stewardship can contact their Service Forester (SF) at the following website: www.stateforesters.org.

U.S. Department of Agriculture: Along with state agricultural colleges, the U.S. Department of Agriculture works to develop educational materials, demonstrations, and workshops to provide landowners with information of forest ecology and natural resource management and protection. The Colorado State Extension Forestry office can be contacted at: Colorado State University, Department of Forest Science, 100 Natural Resources Lab, Fort Collins, CO 80523; (970) 491-7780.

The Tree Farm System: The American Tree Farm System provides conservation education and certification to promote sustainable forest management on private lands. It is a non-profit, non-governmental organization established in 1941 with programs in each state. Current information on how to contact the Colorado State Tree Farm program is on the website: www.treefarmssystem.org. It can also be obtained by phoning the American Forest Foundation at (888) 889-4466.

Woodland Owner Associations: Colorado is part of a small group of states that have a woodland owners association. These groups provide an educational forum and represent the interests of small woodland owners so they will be able to practice good stewardship. If interested, contact: Colorado Forestry Association, PO Box 270132, Fort Collins, CO 80527, (970) 491-6303.

Firewise Program: The Firewise Program is sponsored by the National Association of State Foresters, and it provides information for homeowners who live in or adjacent to wildland fuels. The website is: www.firewise.org.

Southern Rockies Conservation Alliance: This program offers neighborhoods with information, possible funding opportunities and mitigation project assistance. Contact John Chapman, Wildland Fire Coordinator, for more information at (303) 650-5818 x113. The website is: www.southernrockies.org.

APPENDIX FOUR: FUELS MITIGATION STRATEGIES AND TREATMENT OPTIONS

Strategies

There are three broad components to mitigating the risk of wildfire impacts. The first is prevention, which applies only to human-caused fires and is not the focus of this section. The second is defensibility of the structures themselves. This includes how structures are built, access and defensible space. This is also not the subject of this section.

The focus of this section is modification of fuel beds to alter the behavior of fires. This may be directly adjacent to structures or across large tracts of wildlands. Generally, this involves changing potential fire behavior from high intensity to a lower intensity that is more conducive to control actions. It normally does not do away with fire, only changes it. It could, however, include eliminating fire behavior, such as paving or clearing all vegetation around a structure, or eliminating all burnable vegetation and replacing it with less flammable vegetation.

General Treatment Objectives

The objective of fuels mitigation treatments is to alter one or more components of the existing fuel bed enough to create the type of fire behavior, which is acceptable or desired. There are four main components which can be altered, fuel moistures, arrangements, loading, and continuity. There are three main parts of the fuel bed, surface, ladders, and crowns.

Changing fuel moistures is not normally practical, except, watering grass vegetation around homes to keep it green and less flammable. Most people have well water rights that do not allow for watering.

Most fuels treatments focus on the remaining components. These include reducing the continuity, such as thinning trees, eliminating trees from specified areas all together, or removing large portions of brush or shrub fields, removing ladder fuels such as smaller trees and shrubs, and/or removing down dead material. All can alter fire behavior, while still maintaining other objectives, such as aesthetics, wildlife habitat, or landscaping needs.

Treatment Methods

There are only two basic ways to alter fuels, either by controlled burning or mechanical treatments, or a combination of both.

Mechanical

Mechanical treatment of fuels changes the structure of the fuel bed. There are many treatments, but they usually involve thinning of trees or shrub/brush fields, removal of ladder fuels, and/or altering surface fuels. The objective is to prevent crown fires in trees or brush fields, and/or reduce the intensity of surface fires.

Treatment by mechanical means is normally done by one of two broad methods: (1) mechanically removing the material for use as a product, or (2) mechanically altering the material for later removal or other treatment. Mechanical methods must be followed up by removal of the residue or slash created, or by changing that residue to a different form. Otherwise, the only accomplishment will be to change one type of high intensity fire to another form, often worse than the original situation.

The following are typical mechanical treatments:

Thinning

This is the use of handsaws, power saws, or heavy mechanized equipment to reduce the density of, primarily, conifer forests. The objective is to create openings in the forest canopy to reduce the potential of high intensity crown-to-crown fire. It can be done across large acreages or in backyards. The acceptable level of risk and other objectives determines the amount of thinning.

It is normally implemented with a secondary objective of producing or salvaging some level of product, such as firewood. Forest residue or slash will be produced and needs to be treated.

Mastication

Mastication is used to thin conifer trees, reduce or eliminate brush or shrub fields, eliminate ladder fuels, and/or change surface fuels such as large down logs. Specially designed equipment is used to chew up trees, brush, or dead wood. It is very effective in brush, shrubs, and trees, and is a thinning method when there is no value to the trees (which is often the case here in Colorado). The size of the material left depends on the type of equipment used. Sizes range from small chips to large chunks of logs.

Pruning

Pruning is removal of lower branches to reduce the potential for fire spread into the tree crowns. It is more common as a follow up treatment, after thinning, to prevent or reduce the likelihood of the remaining trees from “torching” and being killed or throwing burning embers onto nearby structures. It is also used to prepare areas for broadcast burning.

Slash treatments

Slash treatments may be needed to cleanup the residue from the primary mechanical treatments. These fall into two categories: (1) removal of all slash, or (2) alter the slash to reduce intensity. Removal is primarily accomplished by prescribed burning, and will be discussed further below. However, chipping and removal can also be utilized.

The other secondary treatments consist mostly of lowering the height of the remaining material and changing its size to smaller pieces. This reduces the intensity of any fire that occurs and speeds up decomposition.

Both removal and alteration are also used, at times, to prepare areas for controlled burning. It can reduce the risk and the amount of smoke produced.

Lop and Scatter:

This treatment consists of using saws or equipment to cut the slash into smaller pieces so that the height of the remaining slash is reduced, usually 12 inches or less. It may be the only practical treatment in areas where chippers are unavailable, prohibitively expensive, or in inaccessible locations. It is usually the lowest cost treatment since no special equipment, other than a chainsaw, is required.

The treated slash is left to decompose or can be broadcast burned. Over the course of several winters, snow pack pushes the slash down and it decomposes. Decomposition usually requires three to five years or longer if larger material was present. It is the most aesthetically unappealing method since the slash remains visible until it breaks down. It also creates an extremely flammable fuel bed until it decomposes, which can be easily ignited, and burns with high intensities. It should not be used adjacent to high values, such as homes, or areas prone to regular fire occurrence.

Lopped and scattered slash can also lead to problems with *ips* beetles. The beetles may lay eggs in green slash and the brood may emerge to attack living trees. This problem can be alleviated by doing any forest restoration treatments requiring this method in the fall and winter when *ips* are not active and by cutting slash into small pieces that dry out quickly.

Chipping:

Chipping is the grinding up of the slash into small pieces, usually less than a few inches in diameter. Material can be chipped and left, or removed for off-site disposal or as a product.

It requires mechanized equipment to perform the chipping. The slash must be brought to the chipper, unless it is an expensive mobile chipping piece of equipment. Either way, it can quickly become a very expensive operation.

Chipping is a common method of slash disposal in the defensible zones around structures. Chips do not significantly contribute to fire hazard around structures since they produce low intensity fire behavior. Large piles of chips should be avoided as they could smolder for a significant amount of time. Chips should be spread along the ground to a depth of less than four inches.

Chipping is an effective means of treating wood infested with bark beetles since the insects will not survive in the small bits of wood. Green slash that is promptly chipped will not harbor infestations of *ips* or other bark beetles. Chips also can pull nitrogen out of the soil, reducing the productivity of the ground.

Trampling, Crushing, or Roller Chopping

This is using heavy equipment, usually a dozer, to run over the slash, breaking it down in both size and height. It can be done with just the tracks or by also pulling a heavy, water filled drum with cutting blades welded on it.

It is very effective and can also crush and break up heavy fuels such as down logs. However, the slash must dry, usually for several seasons, to make this treatment truly effective. There is an increased fire hazard in the interim.

There is an additional benefit to crushing or trampling. The material is not only broken down, but also driven into the soil. This can add nutrients to the soil faster, create small pockets in the soil surface for holding water, and decrease the potential for erosion.

Piling

This is the use of mechanized equipment, or by hand, of placing the residue or slash into piles for later disposal by burning. This will be discussed in more detail below under burning.

Burning

This is the use of controlled burning, either broadcast (over an entire area) or pile, done under specific conditions, as either a primary or secondary fuels treatment. Broadcast burning can be utilized by itself to thin, remove forest or brush fuels, reduce ladder fuels, and/or reduce surface fuels such as litter, duff, and down dead woody material.

Pile burning is normally utilized as a secondary treatment to remove slash residue, either as a final stand-alone treatment, or to prepare for broadcast burning.

Pile Burning

Any form of open burning requires a permit, and burning must be done only under the conditions stipulated in the permit. Local fire districts in Park County issue information and permits. Public land burning, as well as some private land burning, is regulated through the State Air Pollution Control Board, and requires a smoke permit.

Piles can be constructed with equipment or by hand. Piling with heavy equipment should only be done with a brush rake and not a regular blade. Piling with a regular blade will include significant amount of dirt, which will make the pile harder to burn, create more smoldering and smoke, and will hold heat longer adding to the risk of an escape at a later date.

For most landowners, the slash is piled by hand and burned when conditions are safe—usually several inches of snow on the ground that will persist for a couple days. This will depend on what type of material is contained in the pile. Material greater than five inches will take longer to burn and will hold heat for more time. Piles burn best when they are relatively compact, contain material less than one inch in diameter, and the height is greater than the diameter. This arrangement promotes hotter burning and less smoke.

It is important that burn piles not located directly adjacent to or under the canopy of trees or other flammable material. Separation should be greater on the down wind side. It is easy to scorch living trees from the heat of the burning pile, even in winter. Avoid making burn piles on top of stumps. Stumps will hold heat for extended periods of time.

Often piles must sit through the summer in order to dry, or piles from one season may be left over the next summer if proper burning conditions were not available during the winter. In each case the dry woodpiles will sit through a burning season with the risk of ignition.

The fire should be monitored during the day and for several days thereafter. The center of a pile usually burns completely, but often wood around the edges does not. To ensure that the slash at the edge of each pile burns it is necessary to “chunk in” the piles periodically. This means that as the fire at the middle of the pile burns down, wood from the edges should be thrown into the center to insure complete burning of all slash.

The ash pile must be monitored and may need to be cooled below the point of combustion, which is a process called “mopping up.” This is especially important on south and west slopes where the snow melts off quickly and may be followed by dry windy weather.

For several years after a pile is burnt, an unsightly black ring remains where the heat of the fire scorched the soil. Many landowners find these unpleasant to look at. They may also present an opportunity for noxious weed to colonize the bare soil. Breaking up the burned soil with a rake and reseeding with native plants is recommended.

Broadcast Burning

This method is more often used by the Federal or State land management agencies than by private landowners. Private landowners, interested in broadcast burning, should contact a knowledgeable consultant or the Colorado State Forest Service since there are numerous legal issues. A great deal of expertise is required to carry out the burn.

Broadcast burning can be a “stand alone” treatment for fuels mitigation, or the final step following mechanical treatments and even pile burning. It is an effective method for reducing surface fuels, reducing the density of shrubs, and reducing ladder fuels. It can also be used to thin larger trees, but it obviously can’t be done with the precision of mechanical treatments. It is more effective in thinning the smaller trees and in patches or groups of trees.

Land management agency burns require a burn plan. The burn plan is an extensive legal document that describes the conditions under which the burn may be carried out, the organization required, and all the other activities that must be done. There is also a closely monitored smoke permit process with the State of Colorado that must be followed.

Broadcast burning can also be used to accomplish other objectives, such as regenerating decadent grass and shrubs, providing a seedbed for new trees, promote growth of wildlife forage, and many other items. There are also limits on its effectiveness for fuels treatments. Sites may be so dense or contain so much down dead material that a burn might kill everything. Certain species, like spruce and lodgepole pine, can easily be killed, even with light under burning, since these species naturally burn in high intensity fires that kill almost all the trees. Burned sites also have to be monitored for other problems, such as undesirable noxious weeds, *ips* beetles or other issues.

APPENDIX FIVE: SUBDIVISION WILDFIRE HAZARD RATING FORM

Name of Subdivision: _____ Date: _____
 County: _____ Size (AC): _____ # Lots: _____
 Rating: _____ Comments: _____

A. SUBDIVISION DESIGN

1. Ingress/Egress:

- Two or more roads, primary route
- One road, primary route, plus alternative
- One way in/out

1 _____
 3 _____
 5 _____

2. Primary Road Widths:

- Minimum 24 ft.
- Less than 24 ft.

1 _____
 3 _____

3. Accessibility:

- Smooth road, grade less than 5%
- Rough road, grade less than 5%
- Other

1 _____
 3 _____
 5 _____

4. Secondary Road Terminus:

- Loop road or cul-de-sacs w/turn-around radius greater than 45 ft.
- Cul-de-sac turnaround radius less than 45 ft.
- Dead-end roads less than 200 ft. in length
- Dead-end roads over 200 ft. in length

1 _____
 2 _____
 3 _____
 5 _____

5. Average Lot Size:

- More than 10 acres
- Between 1 and 10 acres
- Less than 1 acre

1 _____
 3 _____
 5 _____

6. Street Signs:

- Present
- Not Present

1 _____
 5 _____

B. VEGETATION

1. Fuels/Density (General):

- Grass w/scattered trees or oak brush
- "Thinned" Conifers (10ft. or more between trees)
- Sagebrush/willow
- Moderately dense conifers or oak brush
- Dense, continuous conifers and/or thick oak brush

1 _____
 3 _____
 5 _____
 7 _____
 10 _____

2. Defensible Spaces Completed:

- More than 70% of sites
- Between 30 – 70% of sites
- Less than 30% of sites

1 _____
 5 _____
 10 _____

C. TOPOGRAPHY

1. Slope (Predominant):

- Less than 8%
- Between 9 – 20%
- Between 21 – 30%

1 _____
 4 _____
 7 _____

D. FIRE PROTECTION

1. Response Time:

- Within 15 minutes
- Within 16 – 30 minutes
- Greater than 31 minutes

1 _____
 5 _____
 10 _____

2. Hydrants:

- 500 gpm hydrants on less than 1,000 ft. spacing
- Hydrants, but less than above or pump-site available on-site.
- No hydrants or pump-site

1 _____
 2 _____
 3 _____

3. Draft Sources:

- (Complete only if no hydrants or pump-site available)
- Draft sources within 20 minutes round trip
 - Draft sources within 21-45 minutes round trip
 - Draft sources greater than 46 minutes round-trip

1 _____
 5 _____
 10 _____

E. STRUCTURE HAZARD

1. Materials (Predominant):

- Roof and siding materials non-wood
- Flammable siding/non-flammable roof (includes mobile home)
- Flammable roof

1 _____
 5 _____
 10 _____

F. UTILITIES (Gas and/or Electric)

1. Placement:

- All underground
- One underground, one aboveground
- All aboveground

1 _____
 3 _____
 5 _____

TOTAL FOR SUBDIVISION

Low Hazard	0 – 29
Moderate Hazard	30 – 39
High Hazard	40 – 48
Severe Hazard	49 – 59
Extreme Hazard	60 +

Park County Subdivision Ratings 1/4/07

Park County Subdivision Ratings 1/4/07					
Rating Key:	Crown Fire Hazard		Property Loss Risk		
	LOW	3 to 8	LOW	6 to 17	
	CAUTION	9 to 11	CAUTION	18to 24	
	HIGH	12 to 14	VERY HIGH	25+	
	VERY HIGH	15 to 20			
Subdivision Name	District	CROWN FIRE		PROPERTY LOSS	
1000 Peaks Ranches	Hartsel Fire	LOW	5	VERY HIGH	27
11 mile tracts	Hartsel Fire	LOW	5	CAUTION	22
Adventure Placer	Northwest	HIGH	13	CAUTION	19
Alma Park Estates	Northwest	CAUTION	10	CAUTION	19
Alma, Town of	Northwest	CAUTION	10	CAUTION	18
Antero Vista	Hartsel Fire	CAUTION	10	VERY HIGH	34
Arcadia	Platte Canyon	HIGH	13	CAUTION	18
Arrowhead	Platte Canyon	HIGH	13	CAUTION	22
Aspen Acres Subdivision	Northwest	CAUTION	10	CAUTION	19
Aspen Creek Ranch	Southern Park	LOW	7	CAUTION	18
Aspen Meadows	Southern Park	VERY HIGH	17	VERY HIGH	28
Aspen Park	Hartsel Fire	LOW	4	LOW	16
Aspen Point Ranch	Southern Park	LOW	5	LOW	12
Badger Creek Ranch	Hartsel Fire	HIGH	13	VERY HIGH	25
Bailey	Platte Canyon	CAUTION	9	CAUTION	19
Bailey Estates	Platte Canyon	CAUTION	9	CAUTION	19
Bailey Mountain	Platte Canyon	HIGH	13	CAUTION	19
Bailey View	Platte Canyon	CAUTION	9	CAUTION	19
Balfour	Hartsel Fire	LOW	6	CAUTION	18
Bar D Owners Association	Jeff/Como	LOW	7	VERY HIGH	23
Bar-D Filing	Northwest	HIGH	13	VERY HIGH	26
Bayou Salado	Hartsel Fire	LOW	5	VERY HIGH	29
Bear mountain Ridge	Elk Creek	HIGH	13	LOW	15
Bear Trap Ranch	Southern Park	HIGH	14	VERY HIGH	30
Beaver Creek Meadows	Northwest	HIGH	13	CAUTION	18
Beaver Creek Ranches	Northwest	HIGH	13	CAUTION	18
Beaver Meadows	Northwest	LOW	3	LOW	12
Beaver Ridge	Northwest	HIGH	13	LOW	16
Beaver Springs	Southern Park	VERY HIGH	20	VERY HIGH	30
Beaver Valley Estates	Lake George	LOW	6	CAUTION	22
Beebe Ranch	Southern Park	LOW	5	CAUTION	24
Belford Mountain Heights	Platte Canyon	CAUTION	9	CAUTION	22
Bighorn	Jeff/Como	LOW	7	LOW	17
Black Mountain	Northwest	HIGH	13	VERY HIGH	25
Black Mountain Ranch	Hartsel Fire	HIGH	14	VERY HIGH	27
Blue Mountain Ranch	Lake George	LOW	4	LOW	14
Breakneck Pass Ranch	Hartsel Fire	CAUTION	11	VERY HIGH	32
Breakneck Pass Ranch	Northwest	HIGH	13	VERY HIGH	26
		A-12			

Park County Subdivision Ratings 1/4/07

Rating Key:	Crown Fire Hazard		Property Loss Risk	
	LOW	3 to 8	LOW	6 to 17
	CAUTION	9 to 11	CAUTION	18to 24
	HIGH	12 to 14	VERY HIGH	25+
	VERY HIGH	15 to 20		

Subdivision Name	District	CROWN FIRE		PROPERTY LOSS	
Breckenridge Mountain Estate	Northwest	VERY HIGH	17	VERY HIGH	30
Briton	Northwest	HIGH	13	VERY HIGH	27
Brookside	Platte Canyon	HIGH	13	CAUTION	24
Buckskin Creek	Northwest	HIGH	13	CAUTION	22
Buffalo Owners Association	Jeff/Como	LOW	7	CAUTION	20
Burland Meadows	Platte Canyon	CAUTION	9	CAUTION	18
Burland Ranchettes	Platte Canyon	CAUTION	9	CAUTION	18
Buttermilk Park	Northwest	LOW	3	LOW	9
Camelot	Jeff/Como	LOW	7	CAUTION	21
Camp Alexander	Lake George	LOW	6	LOW	13
Campground of the Rockies	Northwest	HIGH	12	CAUTION	20
Canyon Ranch	Hartsel Fire	LOW	6	CAUTION	22
Carol Jean Meadows	Northwest	CAUTION	9	CAUTION	24
Castle Mountain Ranch	Southern Park	CAUTION	9	LOW	17
Chaparral Meadows	Hartsel Fire	LOW	5	CAUTION	21
Chaparral Ranch	Hartsel Fire	LOW	5	CAUTION	20
Chaparral Ridge	Hartsel Fire	LOW	5	CAUTION	20
Charmetella Park	Platte Canyon	CAUTION	10	LOW	17
Chilton's manor	Elk Creek	CAUTION	9	VERY HIGH	31
Chilton's Subdivision	Elk Creek	CAUTION	9	VERY HIGH	34
Circle R Ranch	Jeff/Como	CAUTION	9	CAUTION	23
Columbine Park	Northwest	LOW	3	LOW	9
Como, Town of	Northwest	LOW	4	LOW	17
Cover Mountain	Southern Park	VERY HIGH	17	VERY HIGH	25
Crooked Top Ranch	Platte Canyon	LOW	6	CAUTION	21
Crosscreek	Hartsel Fire	LOW	5	VERY HIGH	28
Crystal Springs Ranch	Lake George	LOW	3	LOW	10
Cycle Park	Platte Canyon	CAUTION	10	CAUTION	24
Deer Creek Corners	Platte Canyon	LOW	8	LOW	15
Deer Creek Estates	Platte Canyon	HIGH	12	CAUTION	23
Deer Creek Valley Ranch	Platte Canyon	HIGH	12	CAUTION	18
Deerview	Southern Park	CAUTION	10	VERY HIGH	27
Delta Vacation Homes	Jeff/Como	LOW	7	CAUTION	21
Dolly Varden	Northwest	CAUTION	10	CAUTION	18
Dos Lomos	Lake George	LOW	6	LOW	10
Double C Acres	Platte Canyon	CAUTION	11	CAUTION	18
Double S Ranchettes	Platte Canyon	CAUTION	11	CAUTION	18
Dream Lake Heights	Platte Canyon	HIGH	13	CAUTION	24
Eagles Nest Ranch	Hartsel Fire	HIGH	13	VERY HIGH	33
		A-13			

Park County Subdivision Ratings 1/4/07

Rating Key:	Crown Fire Hazard		Property Loss Risk
	LOW	3 to 8	LOW 6 to 17
	CAUTION	9 to 11	CAUTION 18to 24
	HIGH	12 to 14	VERY HIGH 25+
	VERY HIGH	15 to 20	

Subdivision Name	District	CROWN FIRE	PROPERTY LOSS	
Echo Valley Estates	Lake George	LOW 6	LOW	17
El Rancho	Hartsel Fire	LOW 4	CAUTION	19
El Rancho Estates	Northwest	VERY HIGH 16	CAUTION	21
Eleven Mile Lake Sites	Lake George	LOW 6	LOW	10
Eleven Mile Ranch	Lake George	HIGH 12	VERY HIGH	28
Eleven Mile Village	Lake George	LOW 4	LOW	13
Eleventh Hour Ranch	Hartsel Fire	LOW 7	VERY HIGH	28
Elk Creek Highlands	Platte Canyon	CAUTION 10	CAUTION	23
Elk Creek Meadows	Platte Canyon	CAUTION 9	CAUTION	20
Elk Falls	Elk Creek	HIGH 13	VERY HIGH	27
Elk Meadows	Northwest	LOW 3	LOW	11
Elk-Horn Acres	Platte Canyon	HIGH 13	CAUTION	24
Elkhorn Ranch	Jeff/Como	CAUTION 10	LOW	17
Estates of Colo	Hartsel Fire	LOW 6	CAUTION	18
Fairplay Fishing Village	Northwest	LOW 3	LOW	9
Fairplay Heights	Northwest	LOW 3	LOW	9
Fairplay Spur	Northwest	LOW 3	LOW	9
Fairplay, Town of	Northwest	LOW 3	LOW	9
Fitzsimmons Private	Platte Canyon	HIGH 13	CAUTION	22
Forest Park	Hartsel Fire	CAUTION 11	VERY HIGH	33
Forest Edge	Platte Canyon	HIGH 13	CAUTION	24
Fourmile Creek Ranch	Northwest	HIGH 13	CAUTION	24
Fourmile Fishing Club #1	Northwest	LOW 4	CAUTION	18
Fourmile Fishing Club #2	Hartsel Fire	LOW 4	LOW	12
Fourmile Ranch	Southern Park	LOW 7	VERY HIGH	30
Fourmile Ranch 2000	Southern Park	CAUTION 11	CAUTION	23
Foxtail Estates	Northwest	LOW 4	CAUTION	18
Foxtail Pines	Northwest	LOW 8	LOW	17
Foxtail Pines Heights	Northwest	LOW 8	CAUTION	18
Firendship Ranch	Platte Canyon	CAUTION 11	CAUTION	24
Garo	Hartsel Fire	LOW 4	LOW	12
Gatewood	Elk Creek	HIGH 13	VERY HIGH	34
Glacier Ridge	Northwest	HIGH 13	CAUTION	22
Glen-Isle	Platte Canyon	HIGH 12	CAUTION	19
Gold Hill Ranch	Lake George	CAUTION 10	CAUTION	20
Golden Hills Estates	Northwest	HIGH 13	CAUTION	20
Guffey, Town of	Southern Park	LOW 5	LOW	17
Harris Park Estates	Platte Canyon	LOW 8	VERY HIGH	28
Hartsel Park Estates	Hartsel Fire	LOW 3	LOW	12
		A-14		

Park County Subdivision Ratings 1/4/07

Rating Key:		Crown Fire Hazard		Property Loss Risk	
	LOW	3 to 8		LOW	6 to 17
	CAUTION	9 to 11		CAUTION	18 to 24
	HIGH	12 to 14		VERY HIGH	25+
	VERY HIGH	15 to 20			
Subdivision Name	District	CROWN FIRE	PROPERTY LOSS		
Hartsel Ranch	Hartsel Fire	LOW	6	CAUTION	18
Hartsel Springs Ranch	Hartsel Fire	LOW	6	CAUTION	18
Hartsel, Town of	Hartsel Fire	LOW	3	LOW	14
Haywood Placer	Northwest	HIGH	13	CAUTION	21
Hidden Valley Ranches	Platte Canyon	VERY HIGH	15	CAUTION	23
High Chapparel Ranch	Hartsel Fire	LOW	5	CAUTION	18
High Country	Northwest	HIGH	13	CAUTION	18
Highland Pines	Elk Creek	HIGH	13	VERY HIGH	26
Hill and Dale	Platte Canyon	CAUTION	11	CAUTION	23
Holiday Hills	Northwest	HIGH	13	CAUTION	22
Holly Commercial	Platte Canyon	CAUTION	11	LOW	15
Homestead Acres	Hartsel Fire	HIGH	13	CAUTION	22
Horseshoe Gulch Acres	Northwest	HIGH	13	CAUTION	22
Horseshoe Park	Platte Canyon	HIGH	13	CAUTION	19
House Creek	Jeff/Como	HIGH	13	CAUTION	20
Hyndman Bungalow Townsite	Northwest	LOW	5	CAUTION	20
Indian Mountain	Jeff/Como	HIGH	13	CAUTION	24
Indian Paintbrush Ranch	Lake George	LOW	6	LOW	12
Insmont Subdivision	Platte Canyon	HIGH	12	CAUTION	24
J.M.Holt	Elk Creek	HIGH	13	CAUTION	18
J.M.Holt	Platte Canyon	HIGH	13	CAUTION	18
Jefferson Heights	Jeff/Como	HIGH	13	LOW	17
Jefferson, Town of	Jeff/Como	LOW	4	LOW	11
Jim's Subdivision	Elk Creek	HIGH	12	VERY HIGH	28
Kenosha Village	Jeff/Como	HIGH	13	VERY HIGH	27
Key Placer	Northwest	VERY HIGH	16	CAUTION	24
K-Z Ranch Estates	Platte Canyon	CAUTION	9	CAUTION	21
K-Z Rock Estates	Platte Canyon	CAUTION	9	CAUTION	21
Lake George Park	Lake George	LOW	3	LOW	10
Lake George Ranchettes	Lake George	LOW	4	LOW	16
Lake George, Town of	Lake George	LOW	3	LOW	12
Landis Ranch	Lake George	LOW	6	VERY HIGH	26
Latasha Subdivision	Southern Park	VERY HIGH	17	CAUTION	21
Linger Lake	Platte Canyon	CAUTION	9	VERY HIGH	32
Lions Head Subdivision	Elk Creek	HIGH	13	LOW	16
Lionsbrooke	Platte Canyon	VERY HIGH	15	CAUTION	23
Logan Hill	Jeff/Como	HIGH	14	CAUTION	21
Lone Rock	Platte Canyon	HIGH	13	CAUTION	18
Lost Acres	Platte Canyon	HIGH	12	VERY HIGH	25
		A-15			

Park County Subdivision Ratings 1/4/07

Rating Key:		Crown Fire Hazard		Property Loss Risk	
	LOW	3 to 8		LOW	6 to 17
	CAUTION	9 to 11		CAUTION	18 to 24
	HIGH	12 to 14		VERY HIGH	25+
	VERY HIGH	15 to 20			
Subdivision Name	District	CROWN FIRE		PROPERTY LOSS	
Lost Park Ranch	Jeff/Como	HIGH	13	CAUTION	20
Many Hills	Southern Park	HIGH	14	CAUTION	24
McKinley Subdivision	Elk Creek	HIGH	13	CAUTION	24
Meadow View	Northwest	CAUTION	10	CAUTION	19
Mercury Hill	Northwest	HIGH	13	CAUTION	20
Michigan Hill	Jeff/Como	HIGH	13	CAUTION	20
Mill-Iron D Estates	Platte Canyon	LOW	6	CAUTION	20
Moore Dale Ranch Resort	Platte Canyon	HIGH	13	CAUTION	24
Mountain Springs Ranch	Lake George	CAUTION	10	CAUTION	20
Moynahan's Addition to the T	Northwest	CAUTION	10	CAUTION	18
Nine Mile Heights	Hartsel Fire	LOW	6	CAUTION	22
Noble Ranch Estates	Lake George	LOW	4	LOW	11
Old Kathleen Ranch	Southern Park	CAUTION	10	CAUTION	19
Olsen's Slater Creek Ranch	Southern Park	LOW	5	CAUTION	21
Paris Creek Ranch	Southern Park	HIGH	14	VERY HIGH	28
Paris Creek Ranch Estates	Southern Park	HIGH	14	CAUTION	22
Park 80 West	Platte Canyon	HIGH	13	CAUTION	22
Park City	Northwest	LOW	5	CAUTION	22
Park City South	Northwest	LOW	5	CAUTION	22
Park Ridge Ranch	Southern Park	VERY HIGH	17	VERY HIGH	32
Parkview	Platte Canyon	CAUTION	11	CAUTION	22
Peak and the Ponds	Southern Park	HIGH	14	CAUTION	19
Penn Mountain Estates	Northwest	VERY HIGH	16	VERY HIGH	26
Petrified Forest	Hartsel Fire	CAUTION	10	VERY HIGH	29
Pike - San Isabel Village	Hartsel Fire	LOW	8	VERY HIGH	25
Pike Forest Estates	Lake George	LOW	4	LOW	16
Pike Meadow Estates	Southern Park	LOW	5	CAUTION	19
Pike Trails Ranch	Southern Park	CAUTION	10	CAUTION	21
Pike View Ranch	Lake George	LOW	4	LOW	10
Pine Ridge	Northwest	CAUTION	10	CAUTION	20
Placer Valley	Northwest	HIGH	13	CAUTION	19
Platte River Ranch Estates	Northwest	CAUTION	10	CAUTION	19
Ponderosa Estates	Elk Creek	HIGH	13	LOW	17
Ponderosa Ranch	Southern Park	HIGH	14	CAUTION	20
Puma Valley	Hartsel Fire	LOW	7	VERY HIGH	30
Ranch of the Rockies	Hartsel Fire	HIGH	13	VERY HIGH	35
Rancho Jubilee	Platte Canyon	LOW	6	CAUTION	21
Rangeview	Jeff/Como	LOW	7	CAUTION	21
Ravenswood	Platte Canyon	CAUTION	11	CAUTION	23
		A-16			

Park County Subdivision Ratings 1/4/07

Rating Key:		Crown Fire Hazard		Property Loss Risk	
	LOW	3 to 8		LOW	6 to 17
	CAUTION	9 to 11		CAUTION	18to 24
	HIGH	12 to 14		VERY HIGH	25+
	VERY HIGH	15 to 20			
Subdivision Name	District	CROWN FIRE	PROPERTY LOSS		
Red Hill Forest	Hartsel Fire	HIGH	13	CAUTION	18
Redhill Forest	Northwest	HIGH	13	CAUTION	18
Reinecker Ranch	Northwest	LOW	4	CAUTION	21
Reservoir Acres Rhodes	Lake George	CAUTION	10	CAUTION	19
Ridgedale Park	Northwest	LOW	7	LOW	16
Rivercliffe Ranch	Platte Canyon	CAUTION	10	VERY HIGH	25
Rocker 7 Ranch	Jeff/Como	LOW	8	VERY HIGH	28
Roland Valley	Platte Canyon	HIGH	13	CAUTION	18
Round Mountain	Northwest	CAUTION	11	CAUTION	19
Royal Park	Platte Canyon	CAUTION	10	CAUTION	23
Saddle Mountain Heights	Southern Park	HIGH	13	CAUTION	20
Saddle Mountain Ranch	Southern Park	LOW	5	LOW	17
Santa Maria Ranch	Jeff/Como	LOW	5	CAUTION	18
Shawnee	Platte Canyon	CAUTION	11	CAUTION	22
Silver Horseshoe Heights	Northwest	HIGH	13	VERY HIGH	31
Silver Springs	Elk Creek	VERY HIGH	18	VERY HIGH	33
Silverheels	Northwest	HIGH	13	CAUTION	19
Singleton Estates	Platte Canyon	CAUTION	11	CAUTION	24
Slash 6 Ranch	Jeff/Como	LOW	8	VERY HIGH	29
Snowstorm	Northwest	HIGH	13	CAUTION	20
Soda Springs Ranch	Southern Park	VERY HIGH	17	CAUTION	19
South Forty	Northwest	HIGH	13	CAUTION	19
South Park Meadows	Jeff/Como	LOW	4	CAUTION	20
South Park Ranch	Hartsel Fire	LOW	4	CAUTION	20
Sportsman Valley	Northwest	HIGH	13	VERY HIGH	29
Sportsman's Paradise	Lake George	HIGH	13	CAUTION	21
Spruce Hill	Northwest	LOW	3	LOW	11
Stagestop	Jeff/Como	LOW	13	LOW	18
State Additions Sub	Hartsel Fire	LOW	4	CAUTION	20
Stoll Ranch	Lake George	HIGH	14	VERY HIGH	25
Stone Creek	Northwest	LOW	3	LOW	9
Sun Mountain	Northwest	VERY HIGH	16	CAUTION	20
Surles Meadow	Platte Canyon	HIGH	13	CAUTION	24
Sylvanhurst	Lake George	LOW	6	LOW	10
Tarryall Gate Subdivision	Jeff/Como	HIGH	13	CAUTION	24
Tarryall River Estates	Lake George	LOW	6	LOW	11
Teaspoon Ranch	Southern Park	CAUTION	10	CAUTION	19
Ten High	Northwest	VERY HIGH	16	VERY HIGH	36
The "O" Ranch	Platte Canyon	CAUTION	11	CAUTION	24
		A-17			

APPENDIX SEVEN: INDIVIDUAL STRUCTURE TRIAGE FORM

In the event of a fire, department personnel use a similar form to determine which structures they will be able to defend safely and effectively.

Evaluate these items when you arrive at the scene.

- 1. Provide for SAFETY FIRST!**
- 2. ESCAPE ROUTES and SAFETY ZONES in place.**
- 3. Poor access and narrow one-way roads.**
- 4. Bridge load limits.**
- 5. Power lines, propane tanks, septic tanks, and Haz-Mat threats.**
- 6. Inadequate water supply.**
- 7. Natural fuels 30 feet or closer to structures.**
- 8. Structures located in chimneys, box canyons, narrow canyons, or on steep slopes (30% or greater).**
- 9. Extreme fire behavior.**
- 10. Strong winds.**
- 11. Evacuation of the public.**

Fire Department Site Evaluation Checklist

Incident Name: _____

Structure Address: _____

Driveway

Roof

YES Too narrow or steep to back in? **NO** **YES** Roof of Class A Materials **NO**
YES Branches overhanging driveway? **NO**
YES Down and dead fuels line driveway?

DRIVEWAY – dead end or more than 200’ long? **YES NO**

ROOF – combustible (wood or asphalt shingles)? **YES NO**

TREES – overhanging roof? **YES NO**

TREES/BRUSH – NOT thinned 30’ from structure? **YES NO**

VEHICLES – parked outside within 30’ of structure? **YES NO**

SLOPE – more than 20% within 30’ of structure? **YES NO**

SLOPE – more than 40% within 30’ of structure? **YES NO**

DECK/STILT – not enclosed to the ground? **YES NO**

POWERLINE – overhead within 30’ of structure? **YES NO**

STRUCTURE TYPE

___ Single Story
 ___ Two Story

___ Wood ___ A-Frame
 ___ Log ___ Other

___ Full-time Residence
 ___ Vacation Home
 ___ Outbuilding
 ___ Business
 ___ Gov’t Building

Other Hazards:

0 – 2 YES Survivable - Doesn’t Need Defending	3 – 5 YES Defend Aggressively	6 – 7 YES Defend Cautiously Safety First	8 – 10 YES Dangerous Conditions WRITE OFF!
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APPENDIX EIGHT: NEIGHBORHOOD WILDFIRE PROTECTION PLAN OUTLINE

Step 1 – Meet with local property owners interested in the project.

The benefits of community wildfire protection planning are multiplied when properties share boundaries. Include in the initial meeting representatives of the local fire department, Colorado State Forest Service, and, if necessary, adjacent federal land managers.

Step 2 - Establish Community Base Map that demonstrates:

Determine area to be covered by CWPP (not necessarily the subdivision boundary).

Inhabited area at potential risk

Areas of critical infrastructure

Preliminary designation of WUI zones

Areas of potential and practical mitigation (i.e. vegetation and terrain)

Your base map can be a simple topographic map with your area boundaries outlined and structures, roads, evacuation routes, and water sources identified.

Step 3 - Develop Community Risk Assessments

- Refer to the 2007 Park CWPP for data.
- Fuel hazards

*Identify areas of dead and down fuels. Rate High Medium or Low.

*Identify safety zones

*Identify high crown fire potential.

*Identify water sources *other than home wells*.

- Homes, Business and Infrastructure at Risk

*Assess structure vulnerability, document concern (refer to Park County CWPP for fire department ratings.)

*Identify human improvement (power lines, water tanks, antennas etc) that would be adversely affected by wildfire

*Categorize identified areas as High Med Low value and concern.

*Other Community Values at risk (Community opinion - use rating of high, medium and low.)

Wildlife habitat

Significant recreation & scenic areas

Landscapes of historical, economic or cultural value

- Meet with local Fire Department to discuss:

*Local Preparedness and Firefighting Capability, and Access

*Assess emergency preparedness

Evacuation planning

Safety zones

Fire assistance agreements

Response capability

Incorporate into base map as appropriate.

Step 4 Establish Hazard Reduction Priorities & Recommendations to reduce structure ignitability.

Develop community prioritized fuel treatment projects

Indicate in report whether project protects community & infrastructure or is geared toward protecting other values.

Recommend preferred treatment methods. Colorado State Forest Service and or public land managers will gladly provide assistance and expertise.

Step 5 Develop Action Plan and Assessment Strategy

Identify roles & responsibilities

Identify funding needs

Develop information and education strategy

Develop timetable

Develop plan to ensure document remains relevant & effective.

Step 6 Finalize CWPP

Core team mutually agrees:

Fuels treatment priorities

Preferred treatment method

Location of wildland urban interface

Structure ignitability recommendations

Other information & actions in the final document

NOTE: IF AN ASSOCIATED ACTION PLAN HAS NOT BEEN DEVELOPED, THE CORE TEAM SHOULD IDENTIFY STRATEGY FOR COMMUNICATING RESULTS OF THE PLANNING PROCESS TO COMMUNITY MEMBERS AND KEY LAND MANAGERS IN A TIMELY MANNER.

Step 7 Submit signed plan including signature of responsible fire department chief and CSFS to the Park County Wildfire Mitigation Coalition for inclusion in the County Wildfire Protection Plan.

Minimum requirements of CWPP as described in the Healthy Forest Restoration Act:

1) Collaboration with local representatives and consulting with Federal and State land managers and other interested parties.

2) Prioritize fuel reduction projects and preferred treatment methods and types.

3) Address treatment of structure ignitability – Recommend measures for homeowners and communities to reduce ignitability of structures throughout area addressed by plan.

HFRA requires mutual agreement of final plan by:

1) Community CWPP Committee,

2) Local fire departments,

3) Colo. State Forest Service, and

4) Local government.