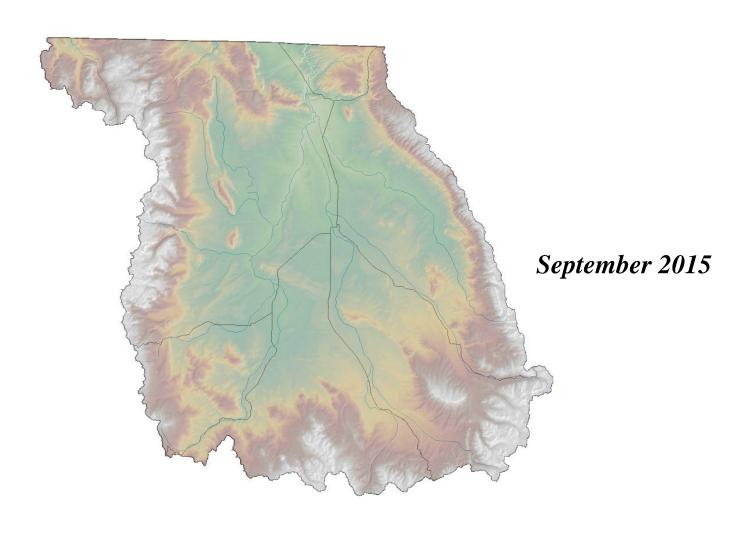
# Jackson County Community Wildfire Protection Plan



### **Process for Revision and Updates**

This CWPP is a living document that should be reviewed annually and updated as needed. The core individuals are encouraged to track projects and record needed revisions in an addendum section of their copy of the CWPP. It is requested that these revisions be submitted to Jackson County Administrator's Office once a year for inclusion in the Jackson County master CWPP. Jackson County will maintain a single master CWPP in which all revisions and updates will be tracked.

The revised CWPP will be submitted for approval to all signatories as needed.

# The following mutually agree with the contents of this Jackson County Community Wildfire Protection Plan (CWPP):

James A. Murphy	Date
Board of County Commissioners, Jackson County	
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Charles B. Clayton	Date
Board of County Commissioners, Jackson County	Date
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Betsy Blecha Board of County Commissioners, Jackson County	Date
Board of County Commissioners, Jackson County	
Kent Crowder	Date
County Administrator/Emergency Management, Jackson Cty	
Jeff Benson	Date
Fire Chief, North Park Fire & Rescue Authority	
Gary L. Cure	Date
Sheriff, Jackson County	

John Twitchell	Date
District Forester, Colorado State Forest Service	
,	
Jeremiah Zamora	Date
District Ranger, Parks Ranger District	
Routt-Medicine Bow National Forest	
Stephanie Odell	Date
Field Manager, Kremmling Field Office	
Bureau of Land Management	

### **TABLE OF CONTENTS**

INTRODUCTION	3
Overview	3
REVIEW TEAM & MEETINGS	
BACKGROUND AND HISTORY	
GENERAL FIRE INFORMATION	7
FIRE ECOLOGY	7
FIRE BEHAVIOR	8
VEGETATIVE TYPES	8
LODGEPOLE PINE	8
SUBALPINE FIR	9
ASPEN	
SAGEBRUSH	10
GAMBEL OAK	
GRASSLAND-GRASSES/FORBS	
FIRE STATISTICS	
HISTORICAL WILDFIRES	
WILDFIRE RISK ASSESMENT REPORT	16
COMMUNITY INFORMATION	17
GENERAL INFORMATION	17
TOPOGRAPHY/SLOPE	18
METEOROLOGY	19
Hydrology	
HOMES, BUSINESSES AND ESSENTIAL INFRASTRUCTURE AT RISK	22
OTHER COMMUNITY VALUES	
EMERGENCY SERVICES	
NORTH PARK FIRE RESCUE AUTHORITY	
US Forest Service (Parks Ranger District)	
BLM (Kremmling Field Office)	
COMMUNICATIONS	27
MITIGATION AREAS & STRATEGIES	29
DESIRED FUTURE CONDITIONS AND GOALS	
GOALS	
OBJECTIVES/STRATEGIES	
FIREFIGHTER RESPONSE GUIDE	
PLANNING AREA BOUNDARIES	
NORTHEAST JACKSON COUNTY	
NORTHWEST JACKSON COUNTY	
SOUTHEAST JACKSON COUNTY	
SOUTHWEST JACKSON COUNTY	
COMPLETED PROJECTS	
FUTURE PROJECTS SUMMARY	46

**APPENDIX A: MAPS** 

**APPENDIX B: CO WILDFIRE RISK ASSESSMENT** 

**APPENDIX C: OTHER INFORMATION** 

APPENDIX D: ANNUAL PROJECT UPDATES AND ADDENDUMS

**APPENDIX E: EXISTING CWPPS** 

### Introduction

### **Overview**

Members of the Jackson County community, in cooperation with local, state and federal agencies and other interested parties have collaboratively developed this Jackson County Community Wildfire Protection Plan (CWPP). This CWPP was created according to the guidelines of Preparing *a Community Wildfire Protection Plan, A Handbook for Wildland-Urban Interface Communities*, March 2004, Communities Committee, National Association of Counties, National Association of State Foresters, Society of American Foresters, Western Governors' Association. The handbook was designed to lead the community through a process that includes eight steps to completion of a CWPP.

The *Jackson County, Wildland Fire and Fuel Management Plan* was completed in 2003. All resource materials used are included or listed in the Appendix.

The Healthy Forest Restoration Act (HFRA) passed by congress on November 21, 2003 directs the federal agencies to collaborate with communities in developing hazardous fuel reduction projects, and in the prioritization of treatment areas as defined by a community's CWPP. It identifies strategies for reducing wildfire fuels while improving forest health, supporting local industry and economy, and improving fire fighting response capabilities.

More recently in 2009, Colorado Senate Bill 09-001 was passed, signed and went into effect. This bill's purpose was to establish CWPPs at the county level, most notably, determining fire hazard areas within the unincorporated portion of the county.

The wildland/urban interface is defined as an area or zone where structures and other human development meets or intermingles with undeveloped wildland or vegetative fuels. An analysis by Colorado State Forest Service in 1990 showed that an estimated 3,310 acres of wildland/urban interface exist in Jackson County with 3 subdivisions in the affected area. Obviously, many changes including increased growth rate have occurred since this study.

Some homeowners in the planning area are actively practicing the mitigation measures recommended by FIREWISE, a tool designed to protect homes and other property from the impacts of a wildfire. However, other homeowners have taken little or no action to protect their properties from wildland fire. Mitigation efforts are most effective when everyone participants.

<sup>1</sup> McPherson, Guy R., Dale D. Wade, and Clinton B. Phillips. 1990. *Glossary of Wildland Fire Management Terms Used in the United States*. Society of American Foresters, Washington, D.C. 138 pp.

The purpose of this document is to provide stakeholders and those living in the planning area with an overview of existing wildland fuel conditions, share preliminary findings, and recommend a possible course of potential strategies, projects, and priorities that will reduce the impacts of a wildland fire to the community.

A Firefighters Response Guide (separate document) was also updated as part of this process so as to better inform first responders of access/egress issues, surrounding terrain, potential hazards, and potential evacuation routes and plans.

### **Review Team & Meetings**

Initial meetings were held in September 2014, between CSFS, Jackson County and North Park Fire/Rescue Authority. An additional meeting was held in May 2015. Input from other agencies has also been provided during this time.

A public meeting was held on August 3, 2015 at the Gould Community Center to discuss this plan update. Notes and other information related to this meting are located in the Appendix.

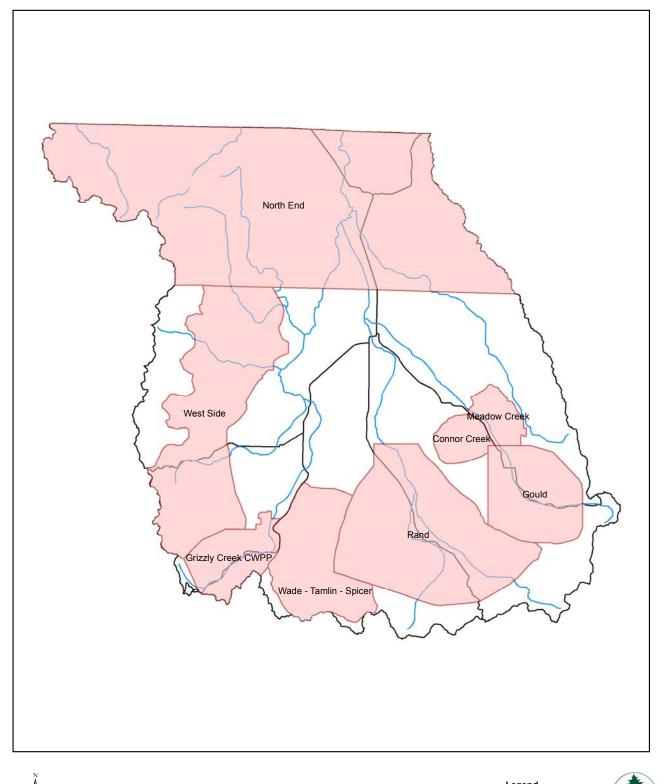
### **Background and History**

This CWPP provides a county-wide CWPP in accordance with Colorado Senate Bill 09-001. However, extensive planning in various communities began back in 2006 following the passage of the Healthy Forest Restoration Act, resulting in the creation of several CWPPs throughout Jackson County:

- Gould Area CWPP, 2006
- Grizzly Creek Area CWPP, 2006
- Rand Area CWPP, 2006
- North End CWPP, 2007
- Rainbow Lakes/West Side Area CWPP, 2007
- Wade-Tamlin/Spicer Peak Area CWPP, 2007
- Meadow Creek CWPP, 2010

These communities have already begun and/or completed projects within their respective boundaries. This county-wide CWPP will incorporate these areas as standalone and will be referenced accordingly.

### **Existing CWPPs - Jackson County, Colorado**









## General Fire Information

### Fire Ecology

Throughout history wildfire has been a dominant disturbance factor effecting the structure and composition of various ecosystems. Fire alone, however, is not the sole determining factor. Topography and climate play a vital role in the successional stages of these ecosystems. As a result, fire frequency and severity have been a critical link in determining which plant species exist and grow on a particular site.

Wildfire events are common and somewhat predictable in their frequency. The frequency varies with forest type. Climate also affects fire frequency. For example, fire frequency in ponderosa pine in Rocky Mountain National Park has been estimated at 30 years<sup>2</sup> whereas the frequency in lodgepole pine has been estimated at 50 years<sup>3</sup>. These numbers might be considered average, as some areas have estimated frequencies at 12 to 25 years or even as infrequent as 300-400 years.

Another report shows a 100-year cycle of insect mortality in lodgepole pine followed by stand-replacing wildfire in Idaho and Montana. That same report notes that the fire return interval for lodgepole pine in Colorado is 200 to 400 years.<sup>4</sup> This range in variability shows the diversity of the fire return interval for lodgepole pine.

We do know from historical accounts and from the age of existing lodgepole pine stands, that extensive forest fires occurred in Jackson County in the period from 1870s to about 1900.

Each vegetation type reacts differently to fire. Lodgepole pine, for example, has adapted to fire by requiring fire for regeneration. When lodgepole seeds dense, "doghair" stands are formed and often remain until destroyed by another wildfire. While these dense, "dog-hair" stands are very common, a given species composition is dependent on several factors such as current forest conditions, weather, topography and the individual fire intensity.

Many decades of fire suppression throughout Colorado have altered these fire regimes - Jackson County is no different. These suppression activities combined with the lack of forest management, the public's misunderstanding of forestry and fire ecology, and the interdiction of people into this fire ecology have resulted in years of fuel accumulation. Combine this with the increasing number of individual homes and communities in these forested areas, a significant wildfire problem has been created.

7

<sup>&</sup>lt;sup>2</sup> RMNP. 1992. *Fire Management Plan for Rocky Mountain National Park, Colorado.* National Park Service, Rocky Mountain National Park. 140 pp.

<sup>&</sup>lt;sup>3</sup> Skinner, Thomas and Richard Laven. 1982. *A fire history of the Longs Peak region of Rocky Mountain National Park.* Seventh Conference on Fire and Forest Meteorology.

<sup>&</sup>lt;sup>4</sup> Koch 1996: Final EIS, Arapaho/Roosevelt National Forest 1997.

#### **Fire Behavior**

Wildfire is defined as any fire occurring on wildlands that requires a suppression response. If left unchecked, it is likely these fires will threaten lives and/or property. Wildfire behavior and spread are affected by many factors.

Aspect and slope are two conditions that affect fire intensity and spread. More specifically, aspect affects the fire hazard as a result of climatic differences between slopes. North and east facing slopes are cooler and moister than south and west facing slopes, consequently, fires on west and south slopes are expected to be more severe and move faster. Slope affects fire hazard by affecting rate of fire spread. Fires on steep slopes spread faster than those on moderate or flat slopes because heat rising from fire preheats and dries fuels thus increasing the rate of ignition and fire spread.

Both type and quantity of fuel are important stand considerations. Ground fuels consist of the burnable materials on the forest floor. The amount and continuity of ground fuels will influence fire direction and rate of spread. Ladder fuels are those above the forest floor such as shrubby vegetation or even tree limbs. These fuels provide a pathway for a fire burning on the ground to reach the crowns of trees.

If fire was to reach tree crowns, the amount of canopy closure (extent to which the crowns of the trees are in contact with one another) will help determine fire behavior and intensity resulting in more difficult fire suppression activities. If the trees are in close contact, a fire may burn in the treetops without ever touching the ground.

Finally weather conditions will be the determining factor in fire hazard and suppression activities. A cool, moist day with a high humidity will obviously restrict rate of fire spread in comparison to a hot, dry, windy day. When these factors are combined, all that is needed for a wildfire is an ignition source.

### **Vegetative Types**

### Lodgepole pine

Lodgepole pine forests are a fire dependent species. It's not really a question of if, but rather when these forests will burn. Lodgepole pine is more vulnerable to ground fires than thicker barked species such as ponderosa pine or Douglas-fir. Because its thin bark has poor insulating properties, many trees are killed from ground fires as a result of cambial heating. However, some trees survive, and in general, low-intensity ground fires thin lodgepole pine stands.

Seeds are well protected from heat inside sealed cones. In the Rocky Mountain area lodgepole pines exhibit considerable variability in the percentage of seed cones that are serotinous (cone requires heat to open and disburse seed). However, intense crown fires that ignite the cones can destroy the seeds.

Post-fire recovery tends to be rapid as new stands quickly establish from seed released by serotinous cones. Stocking rates influences seedling growth in firegenerated stands. In overstocked stands, trees may not grow more than 4 feet tall in several decades, but in under-stocked stands lodgepole pine grows fast. Lodgepole pine seedling establishment following fire is influenced by many factors, including pre-fire over-story density, competing vegetation, and probably most important, fire intensity, which in turn affects seedbed condition, opening of serotinous cones, and seed survival.

High-intensity fires generally expose much mineral soil and open serotinous cones. Occasionally, crown fires may be intense enough to ignite cones in the crown. This destroys much of the seed supply resulting in low stocking. Following low-intensity fires, lodgepole pine stocking depends on the amount of mineral soil exposed. Generally if the duff is dry, ground fires will expose mineral soils, but if the duff is moist, less mineral soil is exposed resulting in lowered stocking. Surface fires will not open serotinous cones in the tree crowns, but most lodgepole stands in the Rockies have sufficient open-coned trees to provide seed for restocking.

Lodgepole pine girdled by ground fires, but with no crown scorching, may appear healthy for a couple of years after fire even though they are essentially dead. This is because it often takes more than 2 years for these trees to lose their needles. Trees injured by fire are susceptible to attack by insects. Most commonly, trees infested are those with greater than 80 percent basal girdling. Lodgepole pines that survive ground fires are susceptible to attack in later years by decay fungi that enter through basal wounds. Fire-killed lodgepole pine trees begin to fall 2 to 5 years after dying and most trees will be down in about 15 years.

### Subalpine fir

Subalpine fir is easily killed by fire. It is very susceptible to fire because it has thin bark that provides little insulation for the cambium layer. As subalpine fir matures the bark thickens and some self-pruning of lower branches occurs but both spruce and fir tends to retain lower branches that provide ladder fuels. Roots are shallow and susceptible to heat damage during a fire. Fir tends to grow in dense stands that are susceptible to crown fires. Some larger trees may survive light, surface fires but these often die later due to infection by wood-rotting fungi that enter through fire scars. Mortality in mature trees results from crown scorch, girdled stems from cambial heating and damage to shallow root systems.

Wind blown seed from surviving trees in protected pockets is responsible for most stand reestablishment. Reestablishment is more successful following small fires where surviving trees, or trees on the margin of the burn, provide a seed source. On large, high intensity fires that kill seed trees regeneration of the sub-alpine fir forest is a slow process. Seedling establishment is best on moist surfaces where fire has consumed most, or all of the duff leaving bare mineral soil. Seedlings require some shade and do best on sites with standing dead trees or logs on the ground.

### **Aspen**

Small-diameter quaking aspen is usually top-killed by low-severity surface fire but as dbh increases beyond 6 inches quaking aspen becomes increasingly resistant to fire mortality. Large quaking aspen may survive low-severity surface fire, but usually shows fire damage. Moderate-severity surface fire top-kills most quaking aspen, although large-stemmed trees may survive. Severe fire top-kills quaking aspen of all size classes. Moderate-severity fire does not damage quaking aspen roots insulated by soil. Severe fire may kill roots near the soil surface or damage meristematic tissue on shallow roots so that they cannot sprout. Deeper roots are not damaged by severe fire and retain the ability to sucker.

Mortality does not always occur immediately after fire. Sometimes buds in the crown will survive and leaf out prior to the death of the tree. Even when quaking aspen is not killed outright by fire, the bole may be sufficiently damaged to permit the entrance of wood-rotting fungi. Basal fire scars may also permit entry of borers and other insects, which can further weaken the tree. Quaking aspen on slopes generally show greater damage than do trees on flatter areas. Flames moving uphill often curl up the lee side of trees when fanned by upslope wind, charring the stem further up its bole.

Quaking aspen generally sprouts vigorously after fire. Long-term growth and survival of quaking aspen sprouts depend on a variety of factors including pre-fire carbohydrate levels in roots, sprouting ability of the clone(s), fire severity, and season of fire. Moderate-severity fire generally results in dense sprouting. Fewer sprouts may be produced after severe fire. Since quaking aspen is self-thinning, however, sprouting densities are generally similar several years after moderate and severe fire. A low-severity surface fire may leave standing live trees that locally suppress sprouting, resulting in an uneven-aged stand.

### Sagebrush

Most sagebrush species are easily killed by fire. Site productivity affects the ease with which sagebrush will burn. Highly productive sites have greater plant density and more biomass, which, in turn, provide more fuel to carry a fire. Big sagebrush, which comprises a majority of the sagebrush association, has a shorter fire return interval than the low sagebrush types. Among the three major subspecies of big sagebrush, basin big sagebrush is considered intermediate in flammability. Mountain big sagebrush is most flammable, and Wyoming big sagebrush is least flammable. Fire return intervals for mountain big sagebrush are in the 15-40 year range, for basin big sagebrush in the 25-70 year range, and for Wyoming big sagebrush in the 50-100 year range.

All subspecies of big sagebrush re-invade a site by soil-stored or off-site seed. The rate of stand recovery depends on the season of fire, availability of seed, post fire precipitation patterns, and the amount of competition provided by other plant species regenerating after the fire. If a good moisture year occurs soon after the fire, reestablishment can be greatly accelerated. Pattern of burning also greatly influences

the rate of post fire reestablishment. Small areas are more rapidly re-invaded from adjacent seed sources; individuals surviving within the fire perimeter may provide much of the seed for re-colonization. Sagebrush seed is not disseminated for great distances; most is shed near the base of the parent plant.

Sagebrush seedlings re-establish readily and grow rapidly on light to moderate intensity burns; reproductive maturity may occur in 3 to 5 years when competition is removed and growth conditions are optimal. Desirable pre-burn density and cover may be achieved in 15 to 20 years under favorable conditions. It may take 30 years or more before desirable pre-burn densities and coverage of big sagebrush subspecies are regained on high intensity, large burns or where herbaceous competition impedes sagebrush reestablishment.

Currently, many sagebrush communities are at or beyond the age (structure and composition) when fire would normally have intervened to move these communities back to an earlier serial stage. Lack of fire may be due in part to fire suppression efforts, lack of fine fuels related to grazing issues, or many other factors that influence the susceptibility of a vegetation community to fire. Continued exclusion of fire from these communities has and will continue to allow succession of sagebrush to advance to a point where native herbaceous plant species (fine fuels) may be limited where fuels are currently not limited. Many of these sagebrush communities in the lodgepole pine zone have seen an increased abundance of lodgepole pine trees, which replace sagebrush and more importantly, the herbaceous species needed to carry fire. These herbaceous species are critical to maintenance of the natural fire regime for these communities.

Decreased herbaceous species in the sagebrush community extends the fire return interval outside the norm until extreme conditions are necessary for a fire or other disturbance to occur. At that point, the site is susceptible to cheat grass or other non-native plant invasion and the fire return interval may become much shorter than normal. A non-desirable sagebrush community (lacking or devoid of native herbaceous vegetation) may increase the chance for cheat grass invasion following a disturbance, which in turn would be perpetuated by more frequent fire events.

### Gambel oak

Gambel oak is a fire-adapted species. It responds to fire by vegetative sprouting. Fire in Gambel oak may promote a brief grass-forb stage depending upon fire intensity and frequency. In most situations, Gambel oak sprouts vigorously the first growing season following fire. If successive fires occur at this stage, Gambel oak may be reduced to a grass-forb stage. In the absence of fire, Gambel oak reaches maturity in 60-80 years.

Gambel oak appears to be a relatively benign fire type. Its appearance is deceptive. When live fuel moistures get below 130% Gambel oak becomes very volatile. Unexpectedly hot, fast spreading fires in Gambel oak have killed over nineteen firefighters in Colorado over the last two decades.

### Grassland-Grasses/Forbs

Fire effects depend on the growth habit and phenology of affected plants, as well as season of burn, fire intensity, and burn severity. Fires usually top kill and consume vegetation to ground level. Rhizomatous grass and forb species are frequently favored by fire, as fire may stimulate the initiation of new shoots. Rhizomatous species usually have coarse stems and lesser amounts of leafy material, which results in rapid combustion, and little downward transfer of heat to below ground plant parts. Heat transferred downward may adversely impact meristematic growth tissues and injure the affected plant. Bunchgrass crowns characterized by coarse stems and leaves are generally considered to be less prone to prolonged burning than fine-leaved bunchgrasses.

Burns occurring in the spring, an unlikely scenario given the rare incidence of natural ignitions at that time of the year, after new growth is initiated can severely injure most grass and forb species. Likewise, burns when grasses and forbs are in the fruiting stage (generally in early to mid-summer) when root carbohydrate reserves are low can result in significant damage.

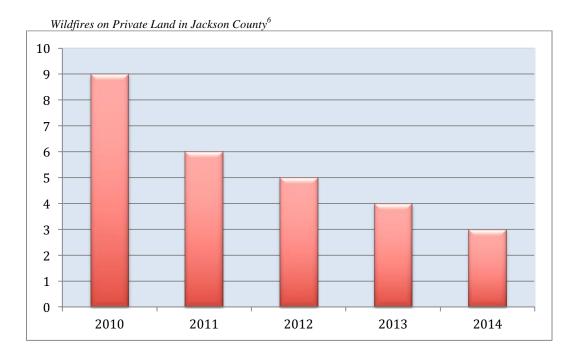
Grasses and forbs spread rapidly via surviving rhizomes following a burn. Non-rhizomatous plants establish relatively rapidly from seed banks in the soil or from off-site seed sources. Composition and production of most grass and forb species usually exceed (under optimal conditions) pre-burn levels within two growing seasons following a burn.

### **Fire Statistics**

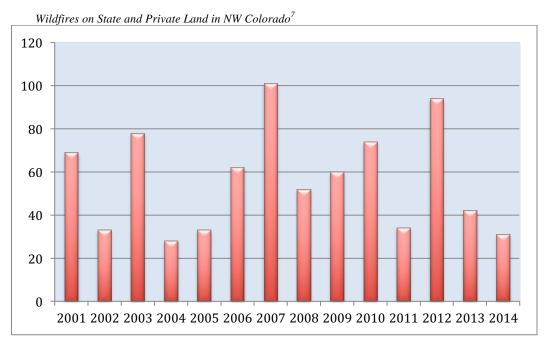
Historically, 85.25 percent of fires on state and private lands in Colorado are human caused<sup>5</sup>. However, the data in northwest Colorado shows 35 percent are human caused (13 year average).

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<sup>&</sup>lt;sup>5</sup> CSFS. 1995. *State of Colorado – Wildfire Hazard Mitigation Plan.* Annex I. Colorado State Forest Service. Ft. Collins, Colorado.



Annual wildlfire occurrence on private land in Jackson County is generally low to moderate – averaging 6 fires/year for an average of 32 acres.



Data from Craig Interagency Dispatch Center shows an annual average of 57 fires for 3,464 acres on state and private land in their NW Colorado jurisdiction. Of those fires on state and private land, 35% were human caused.

<sup>&</sup>lt;sup>6</sup> Craig Interagency Dispatch Center Year End Reports, 2010-2014

<sup>&</sup>lt;sup>7</sup> Craig Interagency Dispatch Center Year End Reports, 2001-2014

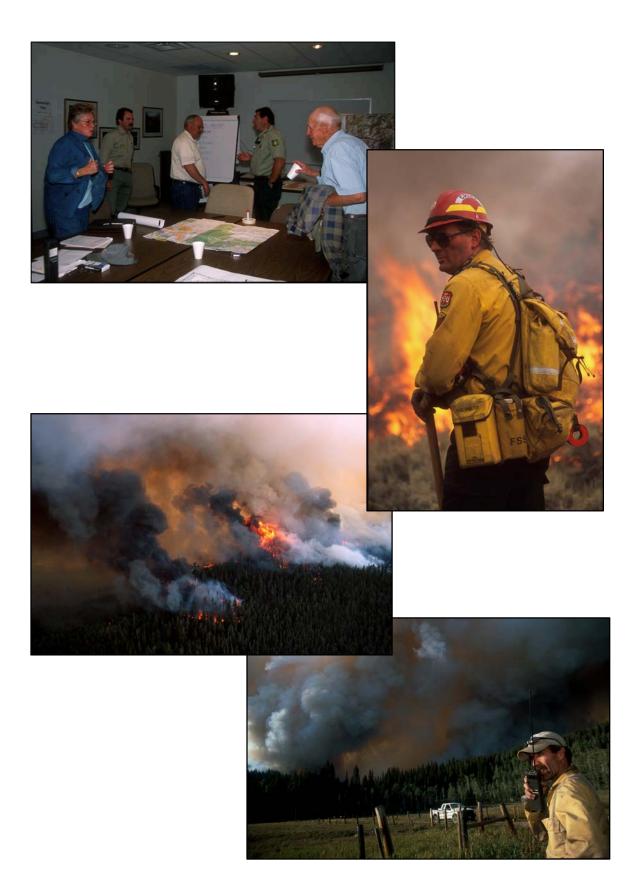
### **Historical Wildfires**

Disastrous wildfires are not uncommon throughout Colorado. The most historic example of this wildland urban interface is the Hayman Fire (largest in Colorado's history) southwest of Denver in 2002. It was a human caused fire that consumed 137,760 acres, destroyed 600 structures (133 homes), cost \$39,000,000, and resulted in 5 firefighter deaths. The most destructive in Colorado's history was in 2013 – the Black Forest Fire near Colorado Springs. 511 homes were destroyed, 14,280 acres burned, two fatalities and \$420 million in losses. Other notable fires in Colorado's recent history include: the Waldo Canyon Fire in Colorado Springs area in 2012 which destroyed 346 homes and had two fatalities; and the High Park Fire in 2012 involving 87,284 acres, destroying 248 homes and one fatality.

The majority of these fires have been along Colorado's Front Range and, fortunately, Jackson County has not experienced a major residential catastrophe such as those along the Front Range. This can be attributed to the demographics and population centers in the state. However, Jackson County as well as the remainder of the western slope is certainly not immune from large wildfire incidents. The most impactful to Jackson County was in 2002. The Mt Zirkel Complex (approx. 30,000 acres) began in the Zirkel Wilderness in Routt County and progressed across the continental divide into Jackson County. As so many fire ecologists, firefighters, and others have said, the question is no longer **if** a major wildfire is likely to occur, but **when** and **where** the fire will burn.



Burn Ridge Fire, 2002



Mt Zikel Complex photos, 2002

### Wildfire Risk Assesment Report

In addition to the above information, a comprehensive Wildfire Risk Assessment Report is included in the appendix.

This report is generated utilizing the Colorado Wildfire Risk Assessment Portal (COWRAP) and elaborates on several additional wildfire related metrics.

# **Community Information**

### **General Information**

When the Colorado Territory was organized in 1861, there were 17 counties, and North Park was believed to be part of Summit County. In 1874 Grand County (including North Park) was formed out of Summit County. Both Larimer and Grand County claimed jurisdiction over North Park. In 1886, the Colorado Supreme Court ruled that the territorial legislature of 1861 intended that North Park be part of Larimer County, and until 1909 North Park remained a part of Larimer. On May 5, 1909, Jackson County was formed out of Larimer County with Walden as the county seat. It is believed that Jackson County was named after President Andrew Jackson.



Jackson County as part of Grand County in 1879



Jackson County as part of Larimer County in 1895

17

<sup>&</sup>lt;sup>8</sup> Jackson County website: http://www.jacksoncountyco.com/#!vstc1=history

Jackson County encompasses 1,621 square miles (1,037,440 acres) of which 372,584 acres (36%) are private ownership, 541,303 are managed by federal government and 122,858 acres are state ownership. The Routt National Forest, Mt Zirkel Wilderness and Never Summer Wilderness areas are located within Jackson County. Colorado State Parks has one park in Jackson County: the Colorado State Forest. The Arapaho National Wildlife Refuge is also located in Jackson County.

Prior to the settlers arrival in North Park, the Utes found the area ideal for summer hunting. Trappers began to come to the valley in the early 1800s and miners in the mid 1800s.

In 1879 during George Grinnell's visit to North Park, he observed and stated that the "the timber on the Michigan was burning." There is little doubt that prior to settlement wildland fire played a significant role in creation and perpetuation of native plant communities. The influence of wildland fire was disrupted with the arrival of early settlers into the area. The consequences of burning by the Utes, logging, grazing, and fire suppression have lead to a more or less even-aged stands of mixed conifer, an increased accumulation of forest fuels on the ground, an increase in tree density in forested areas, and an increase of trees, brush, and other species in prairie areas.

The Town of Walden is the only incorporated community within the planning area. Other communities include: Rand, Gould, Cowdrey and Coalmont.

### Topography/Slope

Jackson County is a high, isolated, intermountain basin that lies in the northern tier of Colorado. Forming the headwaters of the North Platte River, the basin opens north into Wyoming. The valley of North Park is interspersed with many slow meandering streams that come together in the north central part of the county to form the North Platte River. Main tributary rivers to the North Platte are Michigan, Illinois, Canadian and Grizzly Rivers. Rimmed on the west by the Park Range, and on the east by the Medicine Bow Mountains, the elevation ranges from 7,800 to 12,953 feet above sea level.

The topography of the planning area is widely varied. Generally, the terrain in the lower elevations/valleys is relatively flat but rolling, while the mountainous terrain in the northern and eastern portion is broken. Elevations range from approximately 6,200 to just over 12,000 feet. While slope is not a factor on the plains, except in drainages there is enough topographic relief that all aspects and degrees of slope are present. Jackson County is on the western slope meaning it is located on the western side of the Continental Divide.

### Meteorology

The planning area rises from the plains/valleys to the summit of the Park Range and Elk Mountains. As a result, there are definite variations in the weather. The Wet Mountains can receive heavy snowfall and spawn severe storms that can produce lightning, hail, and lead to flash flooding.

Although floods make up about 75 percent of the state's natural disasters, experts say that Colorado is also vulnerable to a severe, long-term drought that also could have devastating impacts on people, property and the economy.<sup>9</sup>

Droughts are a normal part of the climate for all regions of the United States, but are of particular concern to the arid West where any interruption of the region's already limited water supplies over extended periods of time can produce significant impacts.<sup>10</sup>

Western Colorado generalizations: At the summits of mountains, temperatures are low, averaging less than 32° F over the year. Snow-covered mountain peaks and valleys often have very cold nighttime temperatures in winter, when skies are clear and the air is still – occasionally to 50° F below zero. Summer in the mountains is a cool and refreshing season. At typical mountain stations the average July temperature is in the neighborhood of 60° F. The highest temperatures are usually in the seventies and eighties, but may reach 90° F to 95° F. Above 7,000 feet, the nights are quite cool throughout the summer, while bright sunshine makes the days comfortably warm. <sup>11</sup>

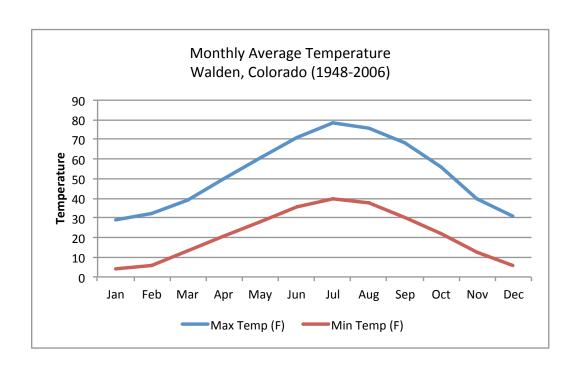
Based on 78 years of records (1948-2006)<sup>12</sup>, the annual average temperature for the Walden area is 37.0° F. The average temperature range during that period of time varies from a high of 78.3° F in July to an average minimum temperature of 4.1° F in January. Average annual precipitation is 10.95 inches. The Walden area receives 57.5 inches of snow a year, on average. The graphs below help illustrate these trends.

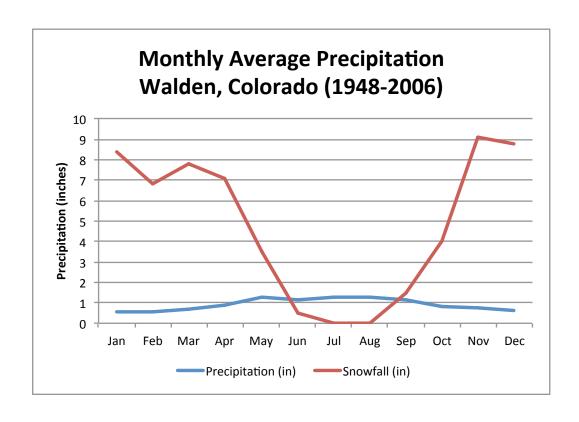
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<sup>&</sup>lt;sup>9</sup> Office of the Governor. 1999. Public Invited To Governor's Flood and Drought Preparedness Conference. Press Release. Available on the internet at www.state.co.us/owenspress/11-10-99a.htm

<sup>&</sup>lt;sup>11</sup> Western Regional Climate Center. Available on the internet at: http://www.wrcc.dri.edu/narratives/COLORADO.htm

<sup>&</sup>lt;sup>12</sup> Western Regional Climate Center.





### **Hydrology**

The only municipal watersheds located within the planning area is for the Town of Walden. All other consumers receive their water from wells and/or surface sources. These watersheds are extremely important to the communities that depend on them and thus any large-scale damage to the watershed would have a direct impact on the respective community.

Large fires in the Front Range, especially the Hayman Fire (2002) and Buffalo Creek Fire (1996) have demonstrated the importance of protecting watersheds. For example, a flash flood that occurred shortly after the Buffalo Creek Fire caused a great deal of damage to local infrastructure, greatly impacted a water storage facility operated by the Denver Water Board, and most importantly took two lives.

Heavy rains over the Mason Gulch Fire (2005) area in June and July of 2006 resulted in significant runoff in North Creek and Red Creek which damaged access roads and deposited extensive debris downstream from the burn. As indicated previously, several water systems in the planning area rely on surface water to provide the majority of the drinking water to the local community. The protection of these water sources from the impacts of a high-intensity wildland fire is extremely important.

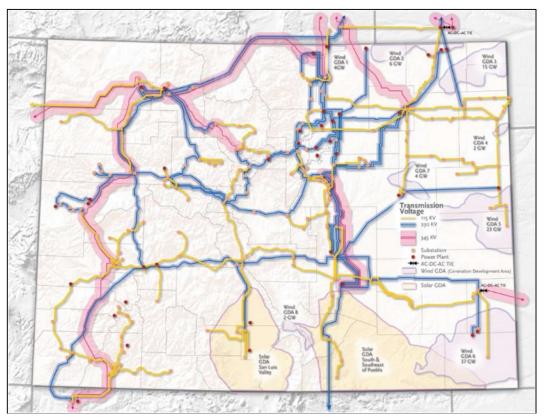
Dams throughout Jackson County could be adversely affected by a large wildfire event. The domino effect of such event could be damage or failure of the structure itself; damage to the surrounding community; and/or loss of life.

### Homes, Businesses and Essential Infrastructure at Risk

Ranches, small groupings of homes, and freestanding homes are present throughout Jackson County. Widely scattered homes located on large 35+ acre lots are prevalent in subdivisions. The total population for the planning area, according to the 2010 census is 1,394. An estimate in 2013 shows the population to have decreased 2.1% to 1,365. The median home value within the planning area is \$121,800<sup>13</sup>.

A variety of businesses, some of which cater to area visitors because of tourism, as well as churches, and other local businesses provide area services that are located in Walden, Rand, Gould and Cowdrey. The only municipality (Walden) is served by their own water company. Electrical power, telephone service, and cable and internet service are provided primarily by local companies or regional companies; i.e., Mountain Parks Electric, Centurylink.

A high voltage transmission line that is part of Colorado's transmission infrastructure transects Jackson County.



Colorado's Transmission Infrastructure. Courtesy: Colorado Energy Office

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<sup>&</sup>lt;sup>13</sup> U.S. Census Bureau.

The Walden-Jackson County Airport (33V) is a county owned and operated public airport utilized by general aviation aircraft.

One school district, North Park School District R-1, is within the planning area.

While there is a medical clinic in Walden, the nearest emergency medical facilities are located in Steamboat Springs, Colorado or Laramie, Wyoming.

Oil and gas exploration and production is also quite active in Jackson County. There are approximately 143 active wells, many with pits, tanks, and other associated equipment/facilities<sup>14</sup>.

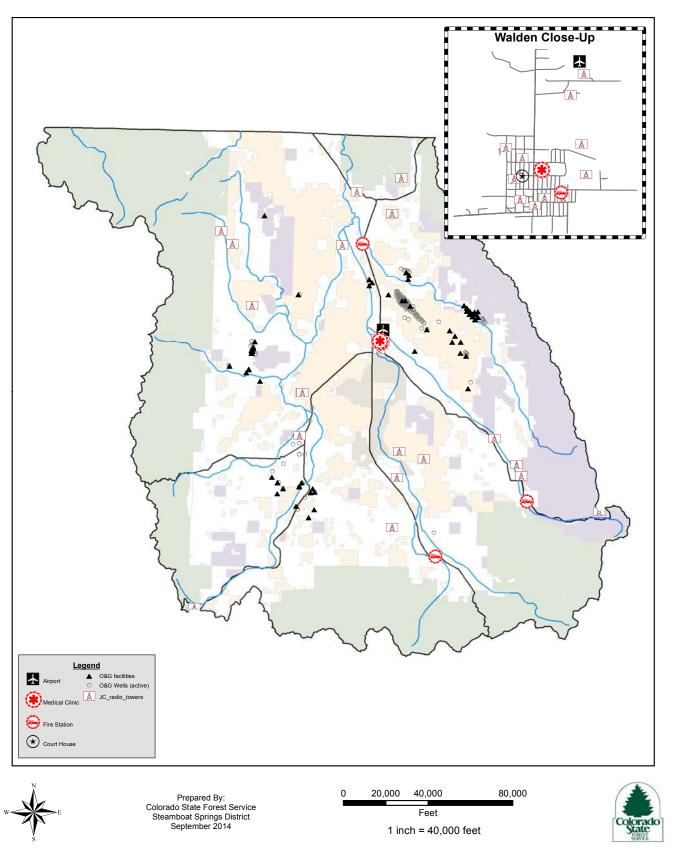
Several communication towers are located throughout Jackson County along with local government facilities (including fire and law enforcement).

The Jackson County Critical Infrastructure Map illustrates these concerns.

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<sup>&</sup>lt;sup>14</sup> Colorado Oil and Gas Conservation Commission data, 2014





### **Other Community Values**

Recreational and day use activities (picnicking, fishing, hunting, hiking, mountain biking, skiing, etc.) are important to the area's economy. Key recreational areas include the Colorado State Forest/State Park, Lake John and Delaney Butte Lakes as well as recreation and wilderness areas in the Routt National Forest. Many visitors to the area enjoy the views along Cache la Poudre - North Park Scenic Byway from Walden to Ft. Collins.

Because of the vast history and heritage of North Park, a few properties have been listed in the National Register of Historic Places.

**Table 1.** National Register of Historic Places – Jackson County

Name	Location
Hog Park Guard Station	NW Jackson County
Lake Agnes Cabin	Cameron Pass Area

Many ranches in Jackson County, while not listed on a register, are historic and important to the community. A few are recognized as Centennial Farms for being owned and operated by the same family for over 100 years.

Table 2. Centennial Farms – Jackson County

Name	Location	Established
Kohlman Ranch	Walden	1879
North Park Registered Herefords	Walden	1887
Wattenberg Ranch, Inc.	Walden	1884
Fred Brands & Son	Walden	1892
Berquist Ranch	Walden	1893
Fischer Ranch	Walden	1898

The existing CWPPs incorporated into this county-wide plan, may include additional historic areas. Please reference those plans for more information.

### **Emergency Services**

Emergency and wildland fire suppression services in Jackson County are provided by three local, state and federal agencies:

- North Park Fire Rescue Authority
- US Forest Service (Parks Ranger District)
- BLM (Kremmling Field Office)

Significantly, for over a decade the majority of these departments have routinely provided each other support during wildland fire suppression activities in the form of mutual aid – both within and outside of the wildland-urban interface. The overarching goal has been the timely suppression of wildland fire in order to protect life and property. North Park Fire Protection District adopted standardized wildland fire fighting training (beginning with basics taught in S-130/190), to acquire and use wildland fire personal protective equipment, to acquire appropriate wildland fire apparatus (when afforded the opportunity), and to use the Incident Command System in an ever increasing fashion.

North Park Fire Rescue Authority provides structural and wildland fire protection within their district as well as mutual aid to surrounding areas. The USDA Forest Service has responsibility for wildland fire suppression on Forest Service lands within the Jackson National Forest, and likewise the BLM with suppression on BLM Lands.

The resources of and relationship between the wildland fire response agencies in Jackson County are reviewed and updated annually in the Annual Fire Operations Plan (AOP). The Jackson County Sheriff, Jackson County Board of County Commissioners, Colorado Department of Fire Prevention and Control, U.S. Forest Service and U.S. Bureau of Land Management formally sign it. Jackson County is a cooperator with the Northwest Colorado Fire Management Unit

### **North Park Fire Rescue Authority**

North Park Fire Rescue Authority is the only local response agency in the planning area. The Authority was formed in 2012 and has a total response area of 1628 square miles. The North Park Fire Rescue Authority was created by Intergovernmental Agreement (IGA) entered into and effective the 31<sup>st</sup> day of December 2012, by and between the Town of Walden, a municipal corporation organized under the laws of the State of Colorado, acting by and through its Board of Trustees, and the County of Jackson, a body corporate and politic existing pursuant to the laws of the State of Colorado, acting by and through its duly elected Board of County Commissioners. The North Park Fire Rescue Authority is a political subdivision and a public corporation of the State of Colorado, separate from the Town and the County, and is a validly created and existing political subdivision and public corporation of the State of Colorado formed pursuant to Article XIV, Section 18 of the Colorado Constitution and C.R.S. Section 29-1-203. It has the duties, privileges, rights, liabilities and disabilities of a public body politic and corporate.

North Park Fire Rescue operates out of four fire stations (Walden, Gould, Rand, Cowdrey) with a staff of 14 volunteer firefighters. Their equipment includes 2 type-1 engines, 1 type-2 engine, 3 type-3 engines, 1 type-4 engines, 4 type-6 engines, 1 type-7 engines, 1 rescue truck, 2 – 1500 gal portable tanks and other associated equipment. Ambulance service is provided by North Park Hospital District.

### **US Forest Service (Parks Ranger District)**

The Parks Ranger Districts administer approximately 330,000 acres of public lands. The agency maintains and staffs one Type-6 engine based in Walden. The agency provides initial attack assistance through mutual aid agreements on lands identified in the Jackson County AOP.

### No index entries found.BLM (Kremmling Field Office)

The Bureau of Land Management administers approximately 190,000 acres of public lands in Jackson County. The agency staffs and maintains 3-Type 6X engines, 1-Type 4 engine, out of Craig and The Craig Hot Shots, and 1-4 person initial attack squad. The BLM provides support as outlined in the Annual Operating Plan. Support and resource ordering is provided through the Craig Interagency Fire Dispatch Center.

#### **Communications**

The Office of the Jackson County Sheriff provides Emergency-911 dispatch services (E-911) to all fire departments based in Jackson County. Along with the E-911 telephone service, the Jackson county Dispatch Center also provides emergency notification to the residential public through the Emergency Preparedness Network (EPN), sometimes referred to as "Reverse 911".

In addition to utilizing traditional wide-band VHF and UHF radio frequencies, Jackson County Sheriffs Office has Colorado's 800 MHz Digital Trunked Radio System (DTRS). While the Sheriffs Office can utilize the DTR system, North Park Fire utilizes the traditional VHF system.

The Sheriffs Office coordinates communication with fire, EMS, law enforcement, public works, emergency management and other responders such as federal fire resources from Craig Interagency Dispatch Center. Craig Dispatch is located in Craig, Colorado. Their coverage area includes all of northwest Colorado, including Jackson County.

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# Mitigation Areas & Strategies

### **Desired Future Conditions and Goals**

The important goal of this plan is protecting the communities and homeowners from a catastrophic wildland fire while also providing appropriate information and safety to the emergency responders. Full support by the community and stakeholders of the plan is critical to its success. Actions taken by the communities and around individual homes will provide for the safety of firefighters and the public in the event of a wildfire. One of the components of a successful program is to provide on-going educational opportunities to fully inform homeowners about *FIREWISE*. Recognizing the importance of attempting to properly sequence treatments on the landscape by working first around individual homes and within the communities, and then moving further out into the surrounding landscape is necessary.

The desired outcomes of this plan would include: to reduce the amount of hazardous fuels within and adjacent to the community; reduce and regulate fuel loading; modify the vegetation structure and stand composition as necessary to protect life, property and resources; provide evacuation and contingency plans for emergency responders and residents alike. Thinning trees and reducing ground and ladder fuels will accomplish this. When fully implemented, the stand composition in combination with a *FIREWISE* community will provide for firefighter and public safety and afford fire suppression personnel a greater than ninety percent success rate when defending a community or isolated home against a wildland fire, while respecting the aesthetic values important to the local residents and visitors.

In order to accomplish this future condition reasonable mitigation objectives and goals must be formulated.

#### Goals

- Provide for firefighter and public safety.
- Protect the public and private property resource from wildfire.
- Maintain healthy watersheds.
- Coordinate fire protection strategies across property boundaries.
- Continue to raise awareness by building on the ongoing public information/Firewise programs in Jackson County.

### **Objectives/Strategies**

- Provide defensible space around individual structures by reducing the fuel load
- Coordinate fuels management activities across ownerships such as US Forest Service/BLM boundary areas.

- Create different vegetative communities and vegetation patterns that are less continuous, include more random openings, and consist of a variety of age classes.
- Create shaded fuel breaks in appropriate locations.
- Reduce structural ignitability.
- Increase emergency preparedness.
- Establish lines of communication with stakeholders necessary to set project priorities, request and receive funding, and carryout fuel management projects.
- Provide homeowners and others with the information necessary to fully implement the *Firewise* programs on a property-by-property basis.
- Enhance ecosystem health by reducing the fuel loading and stand composition.
- Use a variety of treatment methods that will provide the least impact to the community and neighboring lands and, when possible, utilize the by-products.

### Firefighter Response Guide

In an effort to provide for firefighter and public safety, one of the primary goals of this CWPP and planning process is to modify and update a previous version of a Firefighter Response Guide. This guide is an aid for first responders for response to the more remote areas of Jackson County. This guide provides: aerial photos, location information (section, township, range), contact information, evacuation routes, meeting/staging areas, fuel types, access and topography issues and water resource information.

This guide, while part of this planning process and project, is a separate document.

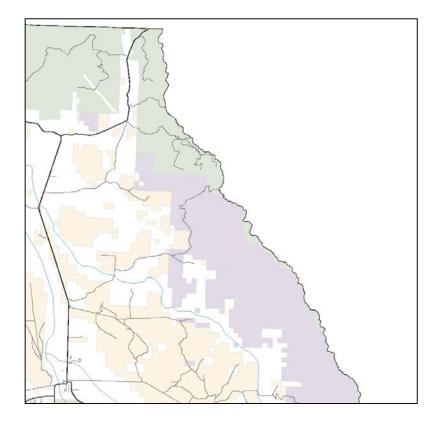
### **Planning Area Boundaries**

The planning area is the entire Jackson County area. It is formed by the boundary between Routt County on the West, Larimer County on the east, Grand County to the south and the state of Wyoming to the north.

For ease of discussion and reference the entire planning area has been divided into four quadrant areas: Northwest Jackson County, Northeast Jackson County, Southwest Jackson County, and Southeast Jackson County. These quadrants originate from the Town of Walden as it is centrally located within the county.

These boundaries are by no means absolute as they are only meant as a guide. Many properties and/or existing CWPPs might cross more than one of these boundaries.

#### **Northeast Jackson County**



The area of focus is northeast of the Town of Walden and it is covered by the North End CWPP in its entirety, including the unincorporated areas to the north and east up to the Jackson County line. The tables therefore are taken from that single CWPP, finalized in 2007.

The following tables were taken from the North End CWPP plan and illustrate specific projects in the northeast quadrant of Jackson County that the community deemed appropriate, the responsible parties and the level of priority for implementation:

Table 3. Fuel Treatment Projects – Northeast Jackson County

Project or Activity	Responsible Party	Priority
Engage Federal partners in CWPP process	USFS and BLM	High
Complete hazardous fuel reduction within	USFS, BLM, CSFS	High
WUI on private, state and federal lands.	and private	
	landowners	
Remove downed fuels after they are cut	USFS, BLM, CSFS	High
from private, state and federal lands.	and private	
	landowners	
Designate several wood slash-piling areas	USFS, BLM, CSFS	High
on private an/or public lands	and private	
	landowners	
Remove USFS fuels on the ground on	USFS	High
USFS 600		
Develop free firewood removal program	USFS, BLM	High
Remove fuels on Big Creek Falls Trail	USFS	High
Remove 50%-75% of hazardous fuels on	BLM	High
BLM lands including Pinkham Creek,		
Kings Canyon and North Sand Hills		

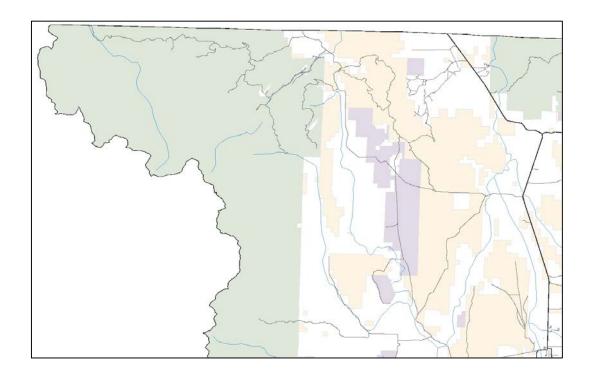
 Table 4. Projects to Reduce Structural Ignitability – Northeast Jackson County

Project or Activity	Responsible Party	Priority
Create defensible space and reduce fire	CSFS, NPFRA and	High
hazards on private property	Private landowners	
Remove dead hazardous materials in areas adjacent to private or community valued property.	USFS, BLM, CSFS	High
Create fuel breaks between federal and private lands	USFS, BLM and private landowners	High
Establish proper right-of-way clearance along WUI roads, especially in Big Creek/Twisty/Pearl area	USFS and BLM	High
Investigate grant sources to assist landowners in completing hazard mitigation work	CSFS, NPFRA, USFS, BLM, Jackson County and private landowners	High
Encourage Jackson County to recommend fire bans	CSFS, NPFRA, USFS, BLM, Jackson County and private landowners	Other

 Table 5. Projects to Increase Emergency Preparedness – Northeast Jackson County

Project or Activity	Responsible Party	Priority
Develop individual evacuation plans	Private landowners, NPFRA and Jackson	High
	County	
Designate/identify potential evacuation	Private landowners,	High
routes, especially in Big Creek/Twisty area	NPFRA and Jackson	
	County	
Request proper county road signage	Private landowners	High
	and Jackson County	
Resolve address inconsistency problem	Jackson County	High
Resolve communication problems,	Jackson County,	High
especially in the Big Creek/Twisty area	private landowners	
Encourage Jackson County residents to	Jackson Area	Other
become members of North Park Fire	residents and	
Rescue Authority	NPFRA	
Investigate grants to resolve communication	Private landowners,	High
problems	NPFRA and Jackson	
	County	
Record GPS locations of community value	Private landowners	Other
	and Jackson County	
Explore feasibility regarding utilization of	USFS, BLM, CSFS,	Other
federal air support in fire emergency	NPFRA and Jackson	
	County	

## **Northwest Jackson County**



The area of focus is northwest of the Town of Walden and it is covered by the North End CWPP and the Rainbow Lakes CWPP, including the unincorporated areas to the north and west up to the Jackson County line. The tables therefore summarize the information contained in both of those CWPP, finalized in 2007.

 Table 6. Fuel Treatment Projects – Northwest Jackson County

Project or Activity	Responsible Party	Priority
Engage Federal partners in CWPP process	USFS and BLM	High
Complete hazardous fuel reduction within	USFS, BLM, CSFS	High
WUI on private, state and federal lands.	and private	
	landowners	
Remove downed fuels after they are cut	USFS, BLM, CSFS	High
from private, state and federal lands.	and private	
	landowners	
Finalize plans to implement Independence	BLM and private	High
Mountain Stewardship Project	landowners	
Designate several wood slash-piling areas	USFS, BLM, CSFS	High
on private an/or public lands	and private	
	landowners	
Remove USFS fuels on the ground on	USFS	High
USFS 600		
Develop free firewood removal program	USFS, BLM	High
Remove fuels on Big Creek Falls Trail	USFS	High
Remove 50%-75% of hazardous fuels on	BLM	High
BLM lands including Pinkham Creek,		
Sentinel Mountain, Independence		
Mountain		***
Treat fuels near homes	Private landowners	High
Designate a better place for slash	Private landowners	High
Encourage landowners to work on their	Private landowners	High
properties	HOEG DIM C	TT: 1
Clear right-of-ways along road and	USFS, BLM, County	High
powerlines in WUI	and MPEI	III: ~l.
Encourage federal and state partners to	USFS, BLM, CSFS	High
prioritize projects on the West Side		

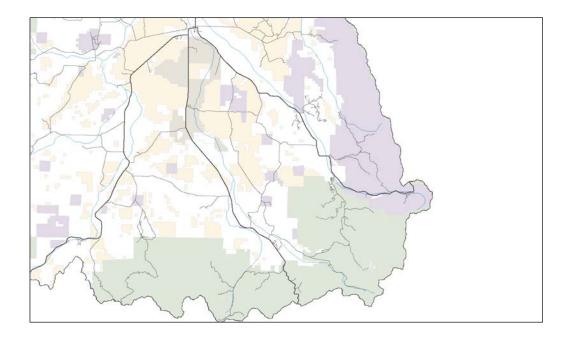
 Table 7. Projects to Reduce Structural Ignitability – Northwest Jackson County

Project or Activity	<b>Responsible Party</b>	Priority
Create defensible space and reduce fire	CSFS, NPFRA and	High
hazards on private property	Private landowners	
Remove dead hazardous materials in areas	USFS, BLM, CSFS	High
adjacent to private or community valued		
property.		
Create fuel breaks between federal and	USFS, BLM and	High
private lands	private landowners	
Establish proper right-of-way clearance	USFS and BLM	High
along WUI roads, especially in Big		
Creek/Twisty/Pearl area	CCEC NIDED A	TT' 1
Investigate grant sources to assist	CSFS, NPFRA,	High
landowners in completing hazard	USFS, BLM,	
mitigation work	Jackson County and	
Engourage Jackson County to recommend	private landowners CSFS, NPFRA,	Other
Encourage Jackson County to recommend fire bans	USFS, BLM,	Other
The bans	Jackson County and	
	private landowners	
	Private landowners	
Complete recommendations made by	1 11 vate failed whers	High
NPFRA and CSFS	County and Private	111611
Broaden turn-around space on private and	landowners	High
county roads for emergency equipment		

**Table 8.** Projects to Increase Emergency Preparedness – Northwest Jackson County

Project or Activity	Responsible Party	Priority
Develop individual evacuation plans	Private landowners, NPFRA and Jackson County	High
Designate/identify potential evacuation routes, especially in Big Creek/Twisty area	Private landowners, NPFRA and Jackson County	High
Request proper county road signage	Private landowners and Jackson County	High
Resolve address inconsistency problem	Jackson County	High
Resolve communication problems, especially in the Big Creek/Twisty area	Jackson County, private landowners	High
Investigate grants to resolve communication problems	Private landowners, NPFRA and Jackson County	High
Post standardized address signs	Private landowners, Jackson County	High
Develop Northwest Jackson Area individual and community evacuation and communication plans.  www.readycolorado.gov	Landowners, CSFS, NPFRA, Jackson County,	High
Encourage Jackson County residents to become volunteer firefighters with North Park Fire Rescue Authority	Jackson Area residents and NPFRA	Other
Identify residents with mobility issues and inform NR Fire and Rescue	North Jackson Area residents	Other
Annual review of CWPP	Jackson Area residents, NPFRA, CSFS, USFS, State Parks, DOW, BLM	Other
Explore funding opportunities and grants for fire suppression projects	Private landowners	High
Request fire danger notices/signage for recreators	USFS	High

## **Southeast Jackson County**



The area of focus is southeast of the Town of Walden and it is covered by the Meadow Creek CWPP, the Rand CWPP and the Gould CWPP, including the unincorporated areas to the south and east up to the Jackson County line. The tables therefore summarize the information contained in all three of these CWPP, finalized in 2007.

Table 9. Fuel Treatment Projects – Southeast Jackson County

Project or Activity	Responsible Party	Priority
Trimming trees on power lines in the area	MPEI, Private landowners	High
Planning and implementation of community projects to reduce fuel hazards	Private landowners	High
Develop fuel break system along roads in WUI	Private landowners, and Jackson County, USFS and BLM	High
Implement fuel break projects along exit roads in the area	Private landowners	High
Implement Green Ridge Timber Sale	USFS	High
Complete Fuel hazard reduction on Hwy 125 right of way.	CO Dept of Transportation	High
Planning and implementation of Owl Mountain projects to reduce fuel hazards	USFS	High
Implement fuel break projects along Gould Loop, near Lohrs' property, adjacent to developed recreation areas, and east of Michigan River Ranch	CSFS, CPW, Private landowners	High

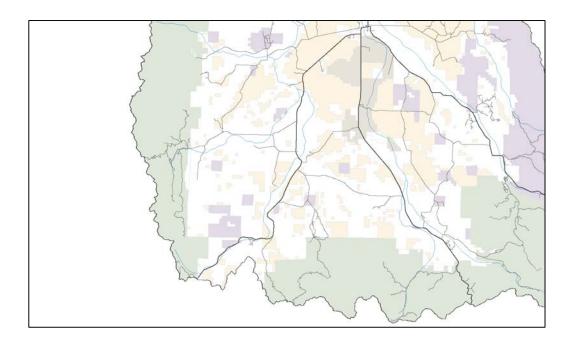
Table 10. Projects to Reduce Structural Ignitability – Southeast Jackson County

Project or Activity	Responsible Party	Priority
Create defensible space and reduce fire	CSFS, NPFRA and	High
hazards on private property	Private landowners	
Evaluate defensibility of private property	CSFS, NPFRA and	High
	Private landowners	
Post standardized address signs	Private landowners,	High
	Jackson County	
Research cost and feasibility of dry	CSFS, NPFRA	Other
hydrant placement		
Ensure proper handling of power and	CSFS, NPFRA,	Other
electric line slash generated during hazard	residents	
reduction projects		
Establish proper right-of-way clearance	MPEI	Other
for all power lines in the area.		
Educate community about Fire Wise	CSFS, NPFRA, CSU	Other
concepts	Extension	
Evaluate existing Wildland Urban	NPFRA	Other
Interface codes for rural communities		

 Table 11. Projects to Increase Emergency Preparedness – Southeast Jackson County

Project or Activity	Responsible Party	Priority
Post standardized address signs	Private landowners,	High
	Jackson County	
Develop Southeast Jackson Area individual	Landowners, CSFS,	High
and community evacuation and	NPFRA, Jackson	
communication plans.	County,	
www.readycolorado.gov		
Encourage Jackson County residents to	Jackson Area	Other
become volunteer firefighters with North	residents and	
Park Fire Rescue Authority	NPFRA	
Identify community members to serve as	North Jackson Area	Other
communication liaisons in the event of	residents	
evacuation		
Identify residents with mobility issues and	North Jackson Area	Other
inform NR Fire and Rescue	residents	
Properly maintain road signage	Jackson County,	Other
	USFS, BLM and	
	CSFS	
Annual review of CWPP	North Jackson Area	Other
	residents, NPFRA,	
	CSFS, USFS, State	
	Parks, DOW, BLM	

## **Southwest Jackson County**



The area of focus is southwest of the Town of Walden and it is covered by the Rainbow Lakes CWPP, the Wade-Tamlin/Spicer Peak Area CWPP and the Grizzly Creek CWPP, including the unincorporated areas to the south and west up to the Jackson County line. The tables therefore summarize the information contained in all three of these CWPP, finalized in 2007.

 Table 12. Fuel Treatment Projects – Southwest Jackson County

Project or Activity	Responsible Party	Priority
Designate a better place for slash	Private landowners	High
Discuss fuel breaks around community	USFS	High
areas with the USFS		
Encourage landowners & communities to	Private landowners	High
work on their properties		
Clear right-of-ways along road and	USFS, BLM, County	High
powerlines in WUI	and MPEI	
Encourage federal and state partners to	USFS, BLM, CSFS	High
prioritize projects on the West Side		
Ask for feedback regarding specific	USFS, BLM	High
projects on USFS and BLM on the West		
Side		
Complete fuel hazard reduction projects on	USFS, BLM, and	High
Federal and State lands within the Grizzly	CSFS	
Creek Area WUI		
Implement fuel break projects along exit	CSFS, Colorado State	High
roads in the area	Parks, private	
	landowners	

 Table 13. Projects to Reduce Structural Ignitability – Southwest Jackson County

Project or Activity	Responsible Party	Priority
Create defensible space and reduce fire	CSFS, NPFRA and	High
hazards on private property	Private landowners	
Evaluate defensibility of private property	CSFS, NPFRA and	High
	Private landowners	
Complete recommendations made by	Private landowners	High
NPFRA and CSFS		
Post standardized address signs	Private landowners,	High
	Jackson County	
Research cost and feasibility of dry	CSFS, NPFRA	Other
hydrant placement		
Ensure proper handling of power and	CSFS, NPFRA,	Other
electric line slash generated during hazard	residents	
reduction projects		
Establish proper right-of-way clearance	MPEI	Other
for all power lines in the area.		
Educate community about Fire Wise	CSFS, NPFRA, CSU	Other
concepts	Extension	
Evaluate existing Wildland Urban	NPFRA	Other
Interface codes for rural communities	County and private	
	landowners	High
Broaden turn-around space on private and	Private landowners,	
county roads for emergency equipment	Jackson County	High

**Table 14.** Projects to Increase Emergency Preparedness – Southwest Jackson County

Project or Activity	Responsible Party	Priority
Post standardized address signs	Private landowners,	High
	Jackson County	
Develop Southwest Jackson Area individual	Landowners, CSFS,	High
and community evacuation and	NPFRA, Jackson	
communication plans.	County,	
www.readycolorado.gov		
Encourage Jackson County residents to	Jackson Area	Other
become volunteer firefighters with North	residents and	
Park Fire Rescue Authority	NPFRA	
Explore possibility of building a fire sub-	Private landowners,	High
station in the Grizzly Creek area	NPFRA, Jackson	
	County	
Identify residents with mobility issues and	North Jackson Area	Other
inform NR Fire and Rescue	residents	
Properly maintain road signage	Jackson County,	Other
	USFS BLM and	
	CSFS	
Annual review of CWPP	North Jackson Area	Other
	residents, NPFRA,	
	CSFS, USFS, State	
	Parks, DOW, BLM	

#### **Completed Projects**

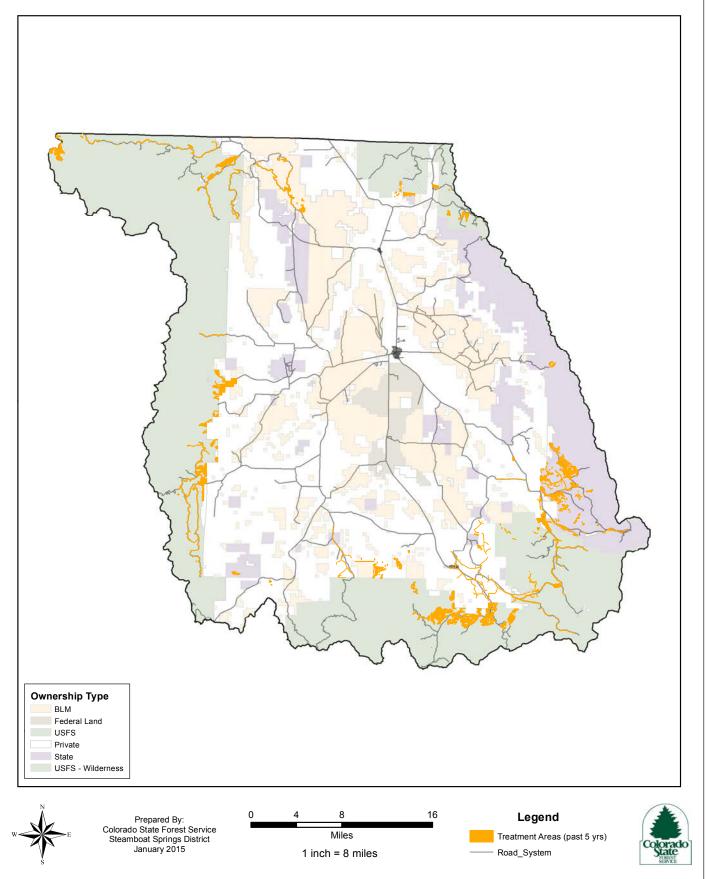
Over the past five years, State, Federal and private landowners have completed many projects throughout the county. Most projects were focused on defensible space and/or fuels reduction related to wildland urban interface areas, roads, and other key infrastructure. The table below illustrates the quantity of treatments occurring from 2009 to 2014.

**Table 15.** Completed Projects by Quadrant (2009 – 2014)\*

Quadrant	Treatment	Responsible Party	Acres
NE	Defensible space & fuels reduction	Private	84
	Fuels reduction & other treatments	USFS	3204
	Timber sales & fuels reduction	State	154
NW	Defensible space & fuels reduction	Private	89
	Fuels reduction & other treatments	USFS & BLM	5229
SW	Defensible space & fuels reduction	Private	86
	Fuels reduction & other treatments	USFS	6311
	Timber sales & fuels reduction	State	2683
SE	Defensible space & fuels reduction	Private	18
	Fuels reduction & other treatments	USFS	6600
	Power line related fuels reduction	MPEI	348

<sup>\*</sup>Projects known at time of report. Additional treatments not reported should be expected

## Hazard Fuel Treatments & Projects - 2009-2014



### **Future Projects Summary**

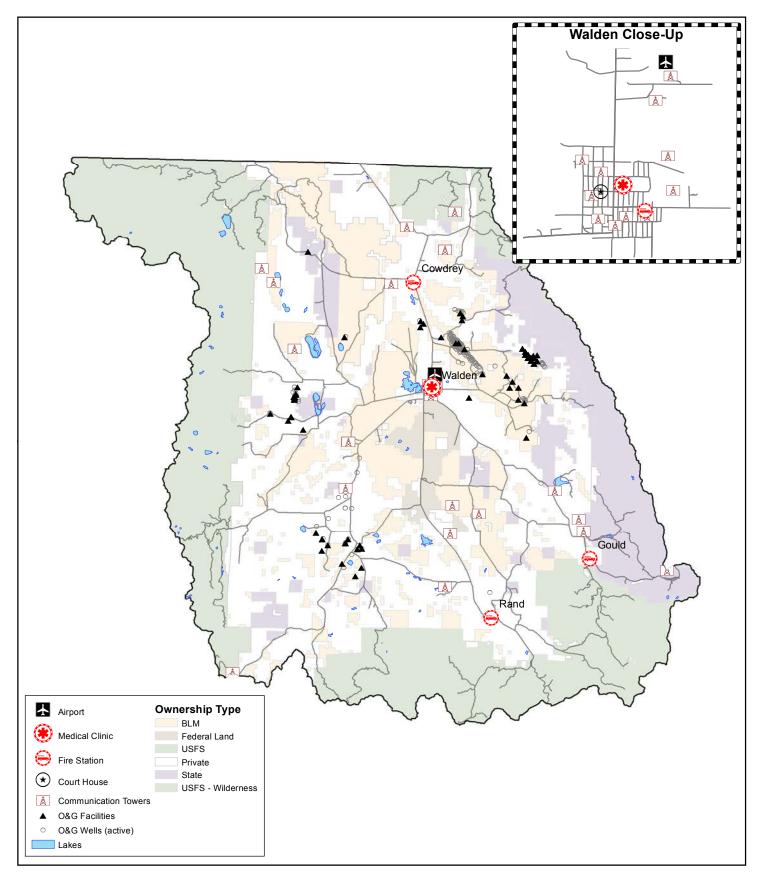
While much has been accomplished over the past 5 years, several projects are currently planned to help facilitate the implementation of this plan. Fire mitigation is an ongoing and fluid process as vegetation grows back, new houses are built and conditions change on the ground. Most of the smaller, private projects are not listed as they are difficult to track and are constantly in flux. The following table summarizes these known projects.

**Table 16.** Current & Future Projects by Quadrant

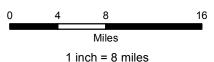
Quadrant	Treatment	Responsible Party
NE	Continue defensible space & fuels reduction	Private
	Establish better evacuation routes and meeting areas	Private, NPFRA
NW	Continue defensible space & fuels reduction	Private
	Independence Mountain – fuels reduction/timber sale	BLM
	Establish better evacuation routes and meeting areas	Private, NPFRA
SW	Continue defensible space & fuels reduction	Private
	Establish better evacuation routes and meeting areas	Private, NPFRA
SE	Continue defensible space & fuels reduction	Private
	Establish better evacuation routes and meeting areas	Private, NPFRA
	Willow Creek Pass ROW fuels reduction	CDOT
	Owl Mountain – Fuels reduction/timber sale	BLM

# Appendix A: Maps

## Critical Infrastructure - Jackson County, Colorado

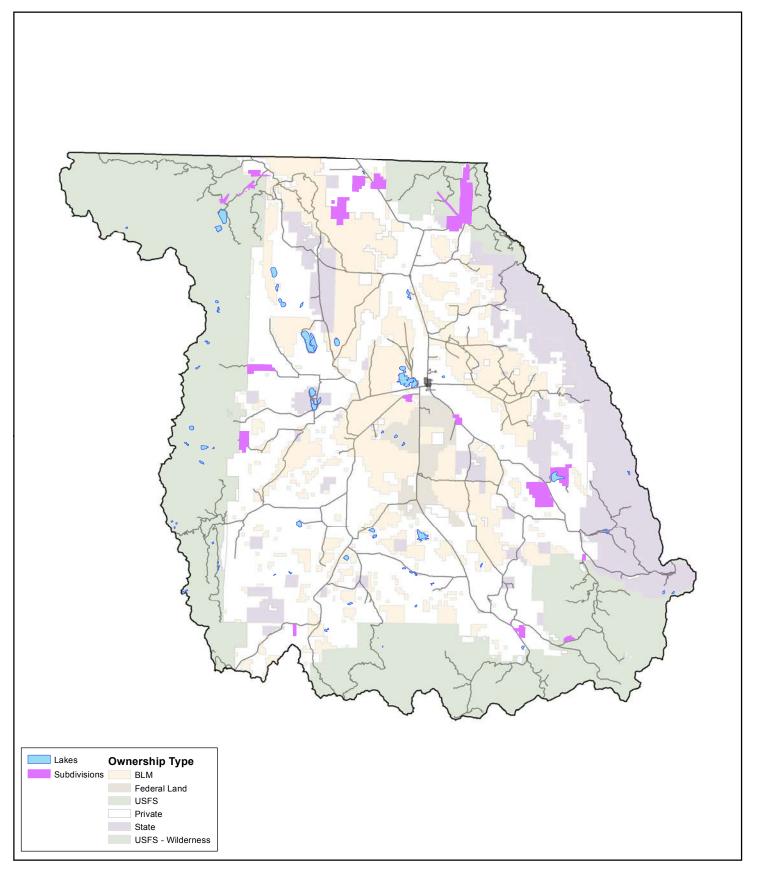




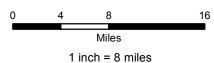




# **Subdivisions - Jackson County, Colorado**

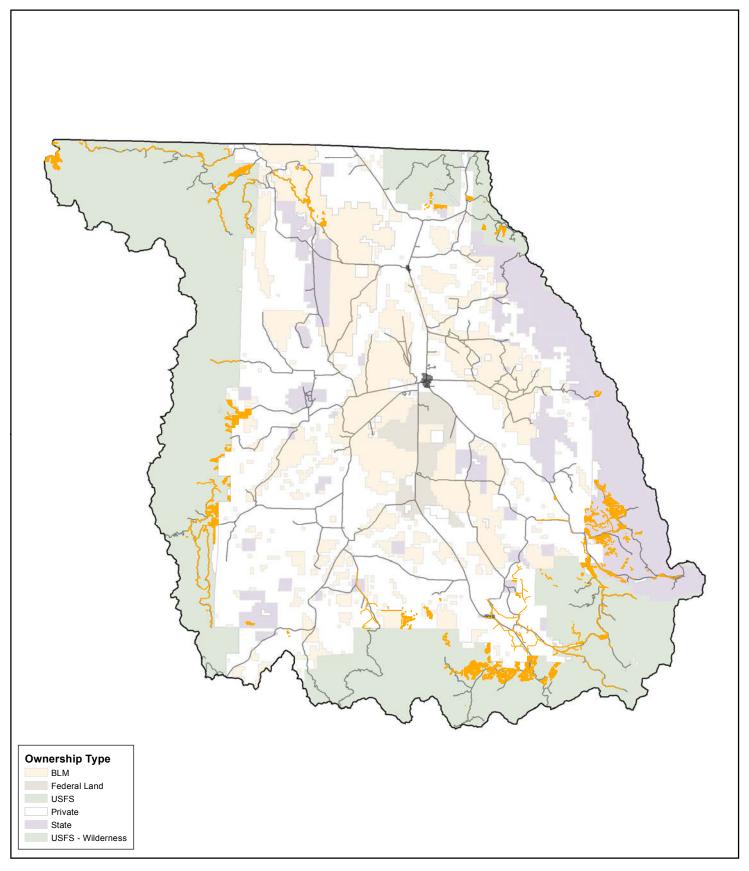






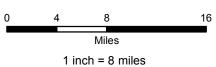


# **Hazard Fuel Treatments & Projects - 2009-2014**



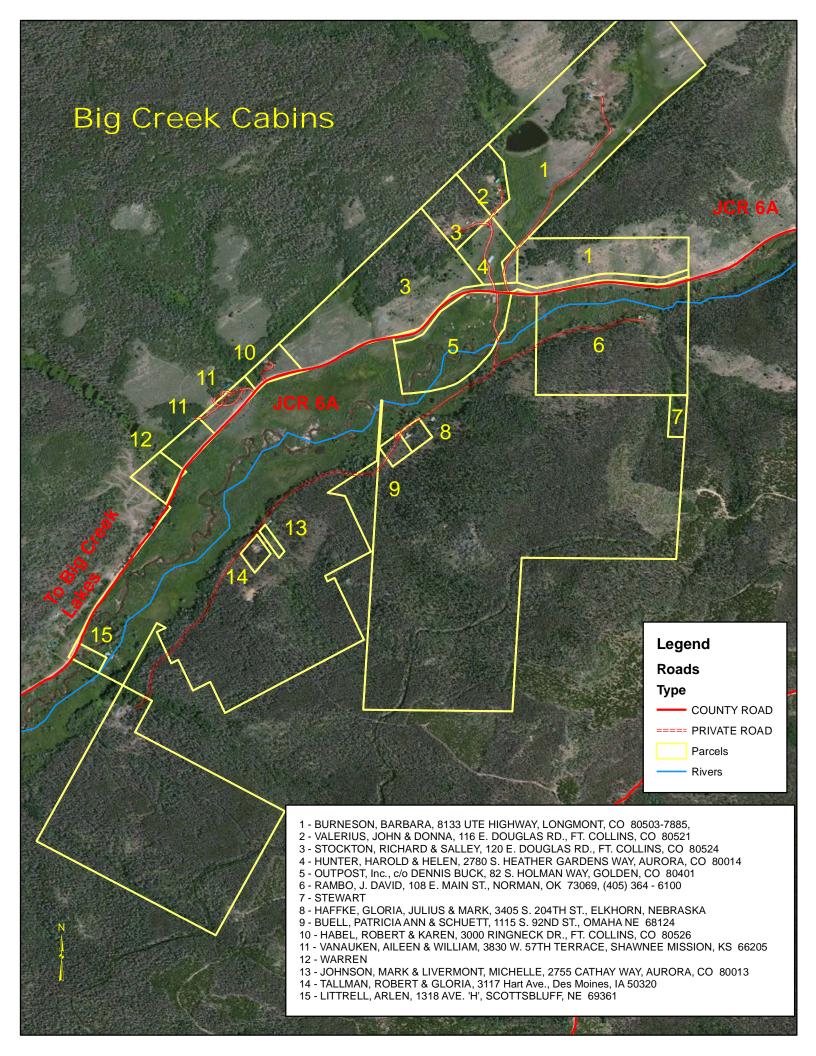


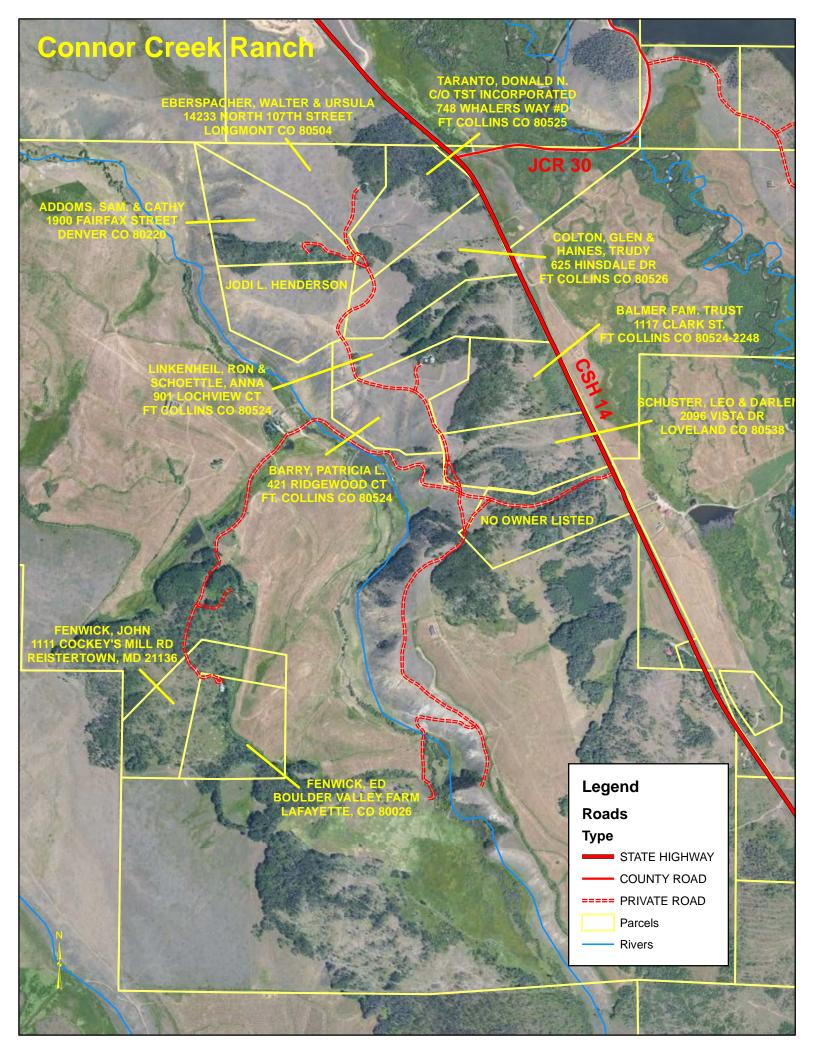
Prepared By: Colorado State Forest Service Steamboat Springs District January 2015

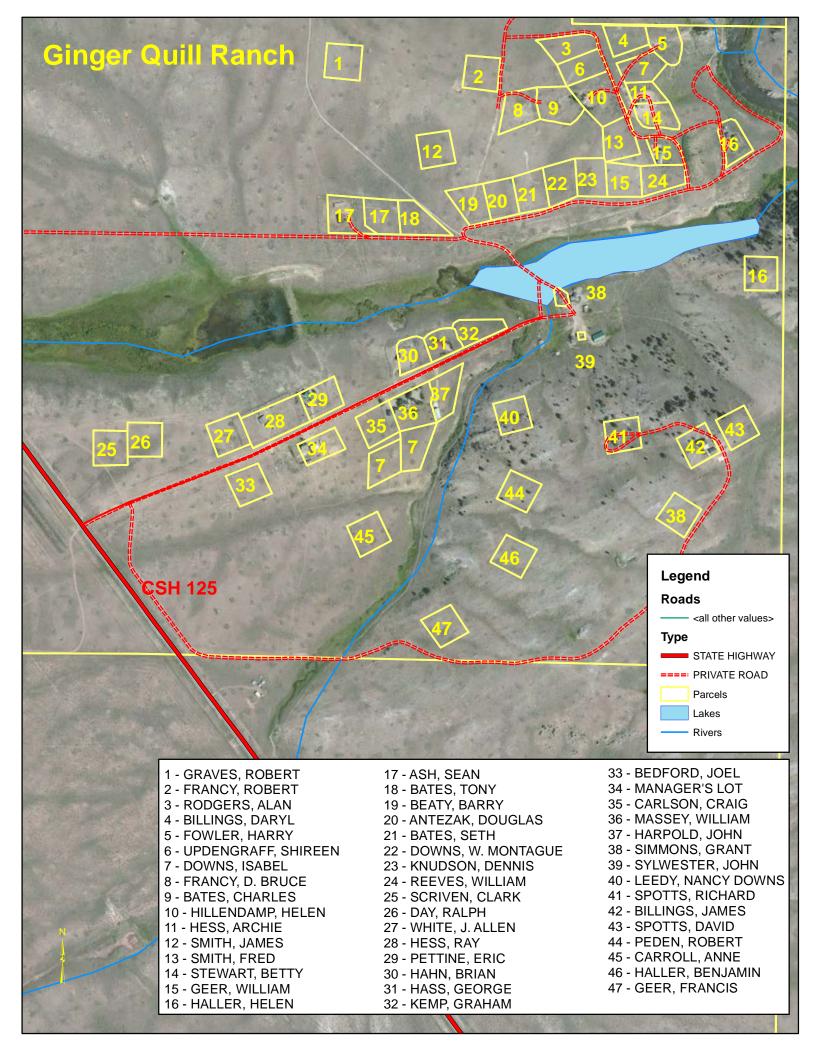


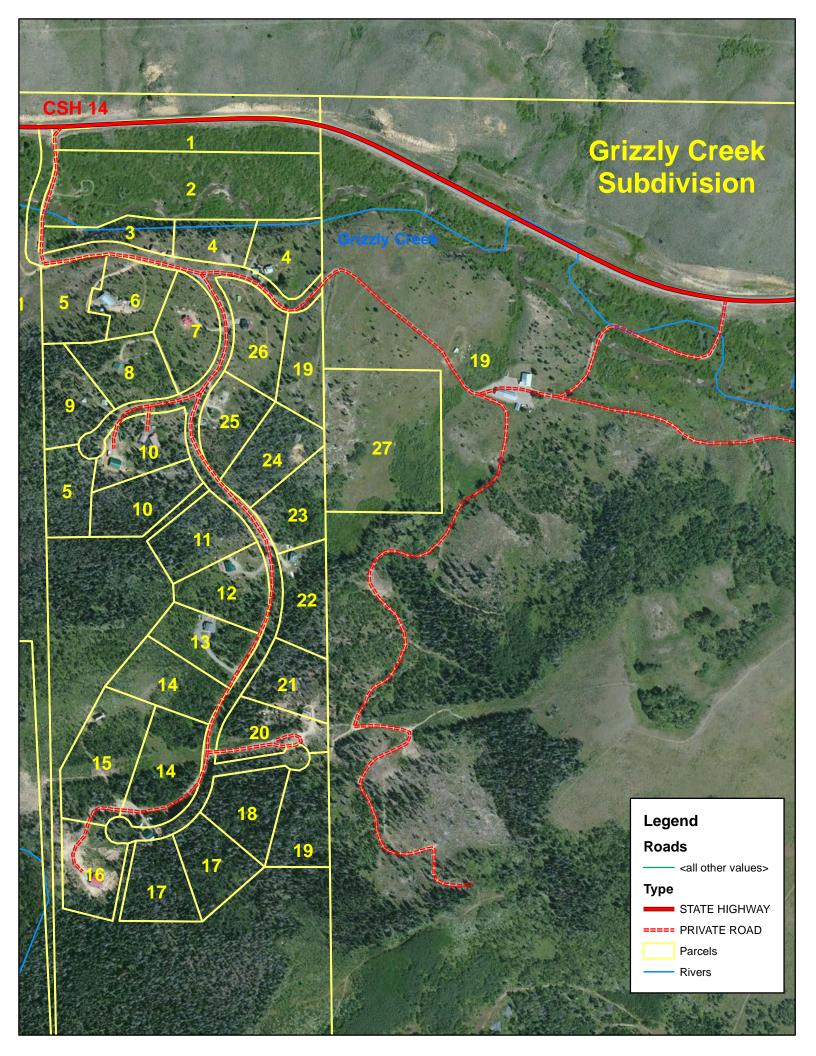


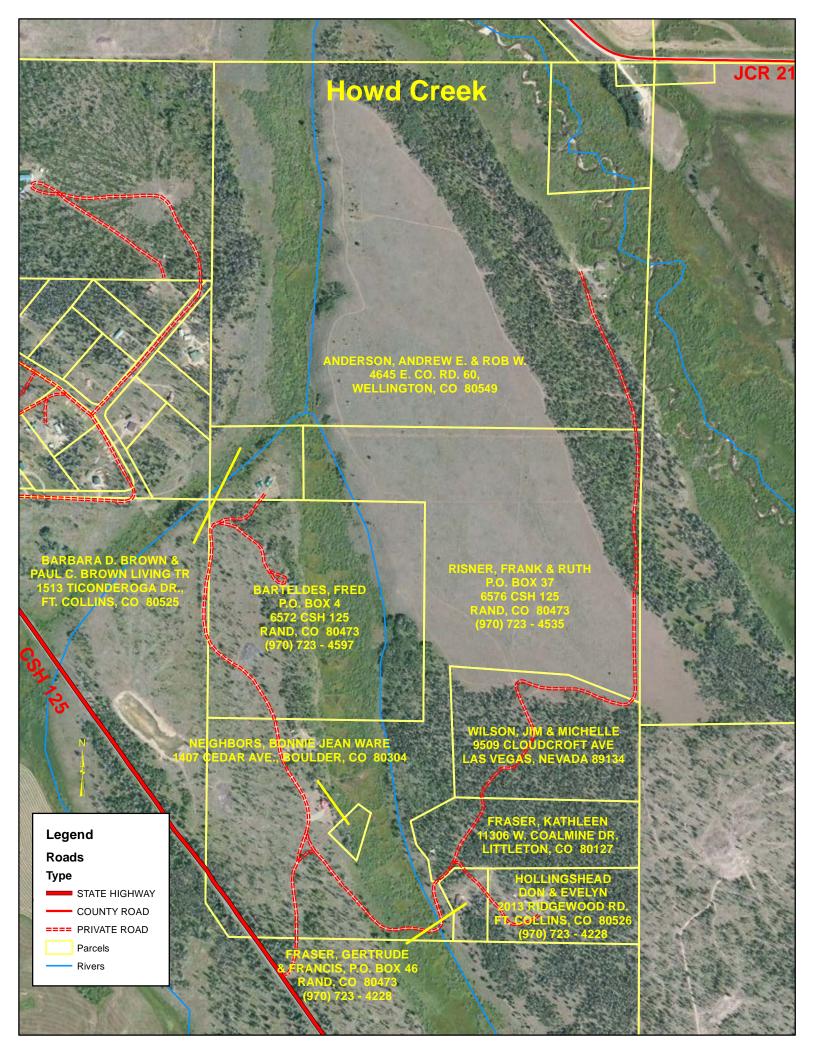


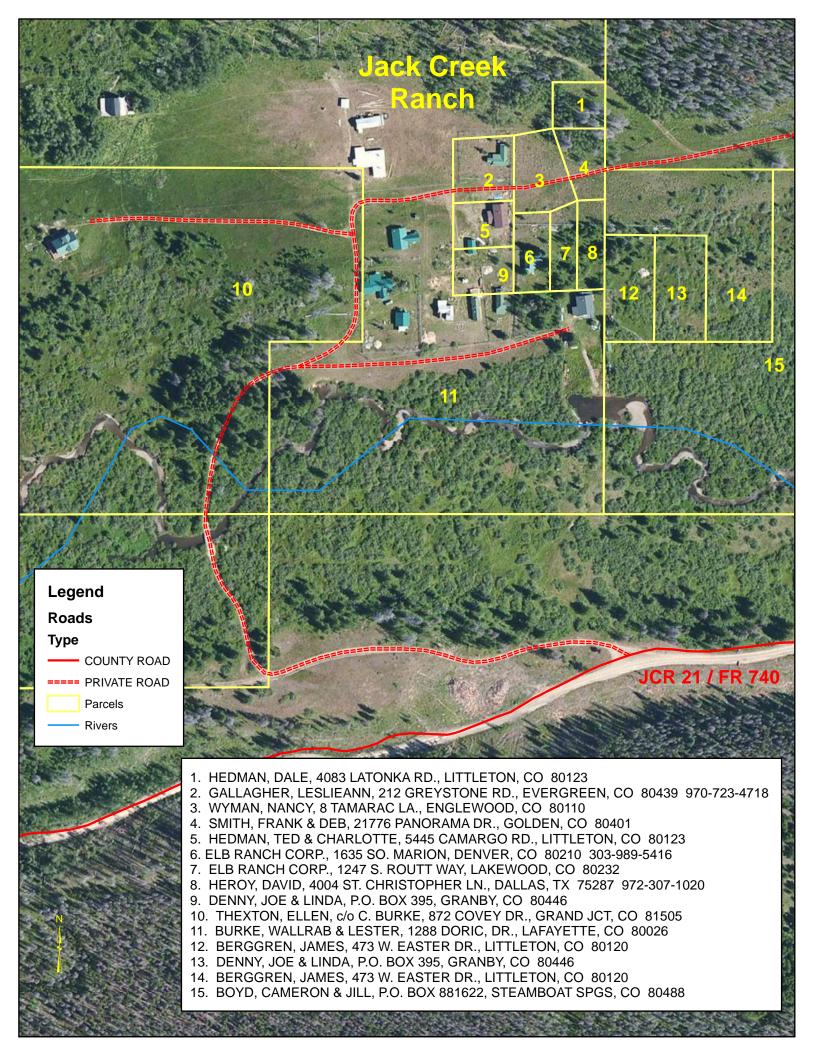


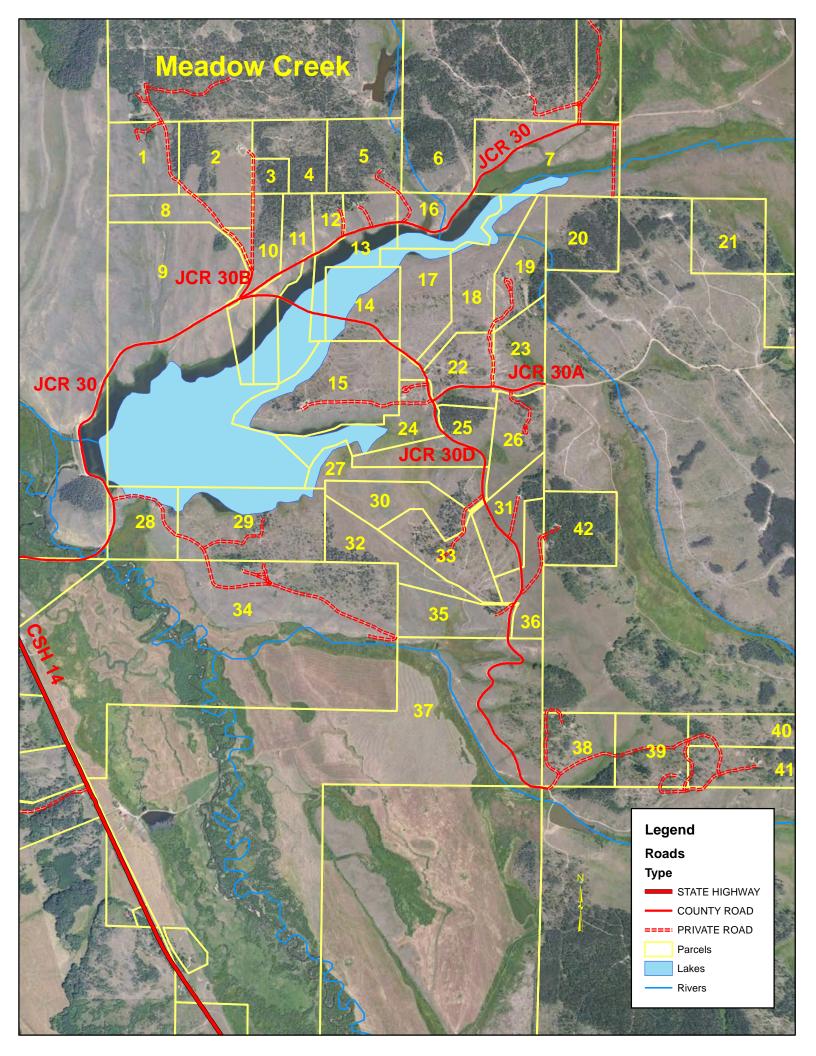


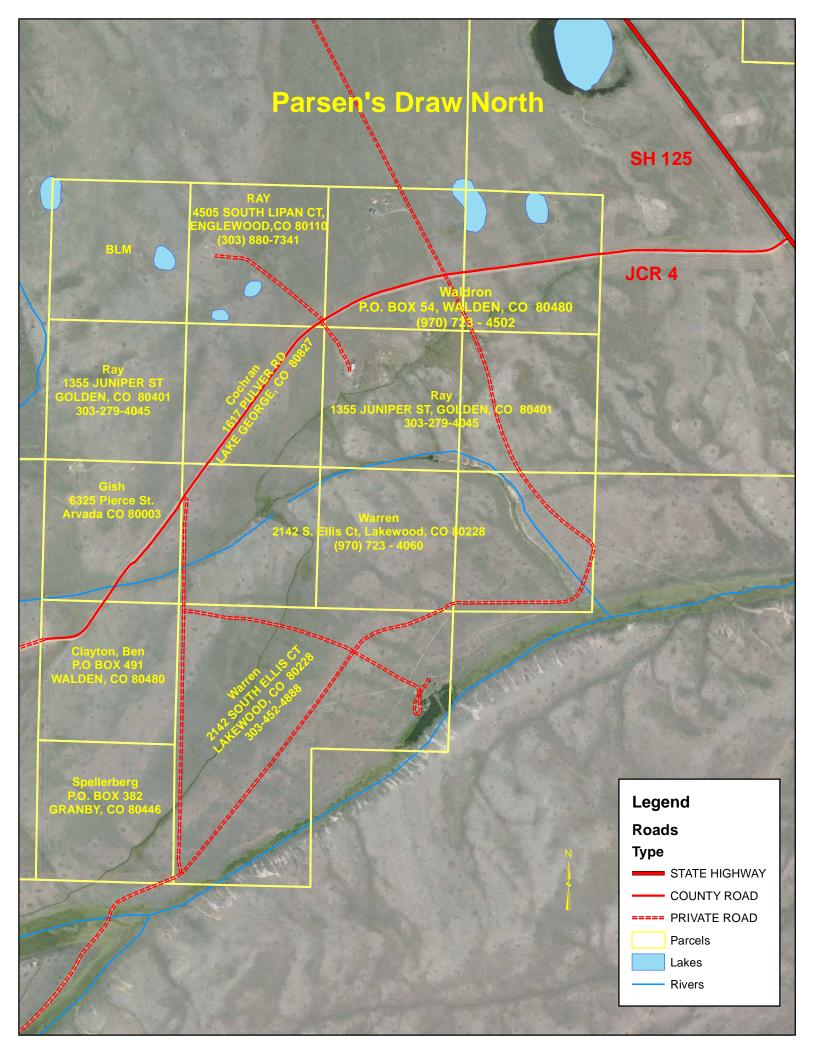


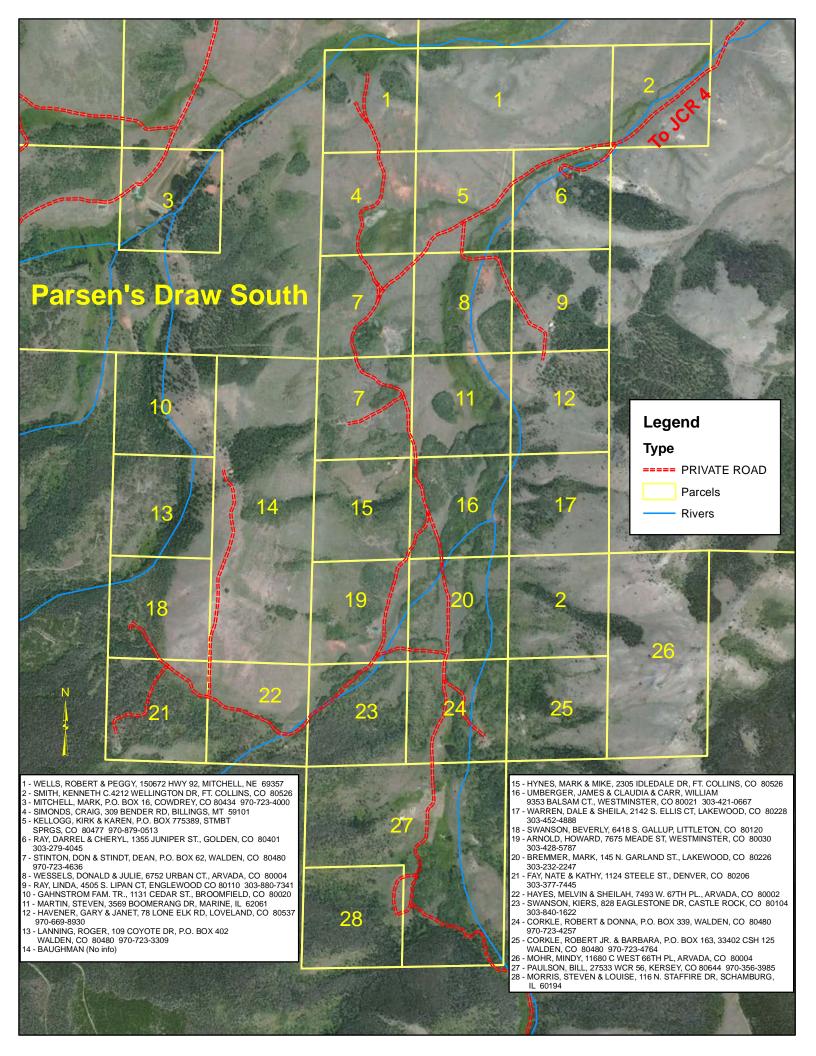


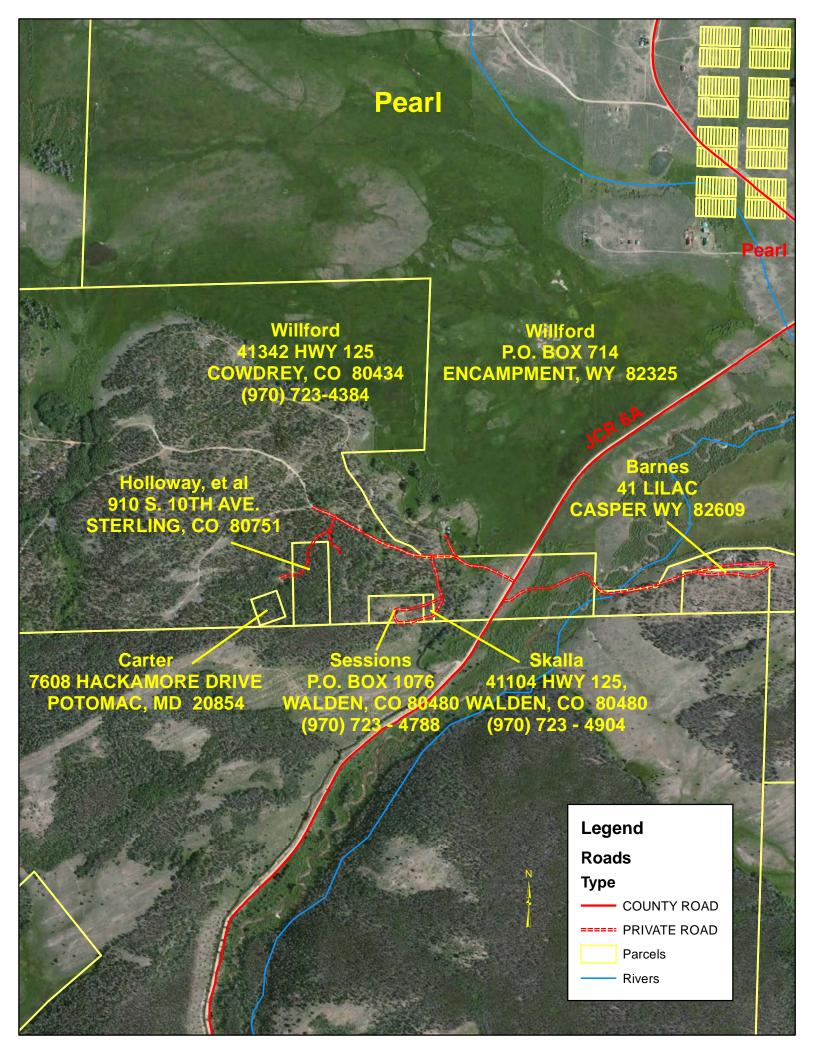


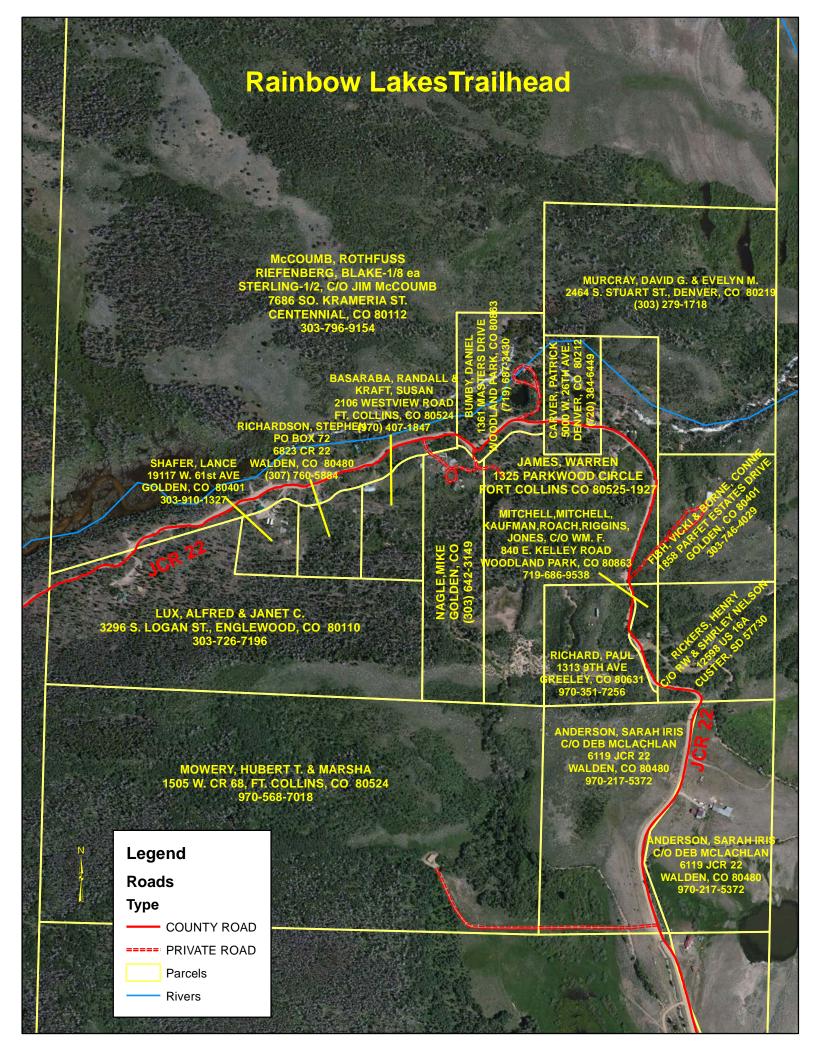


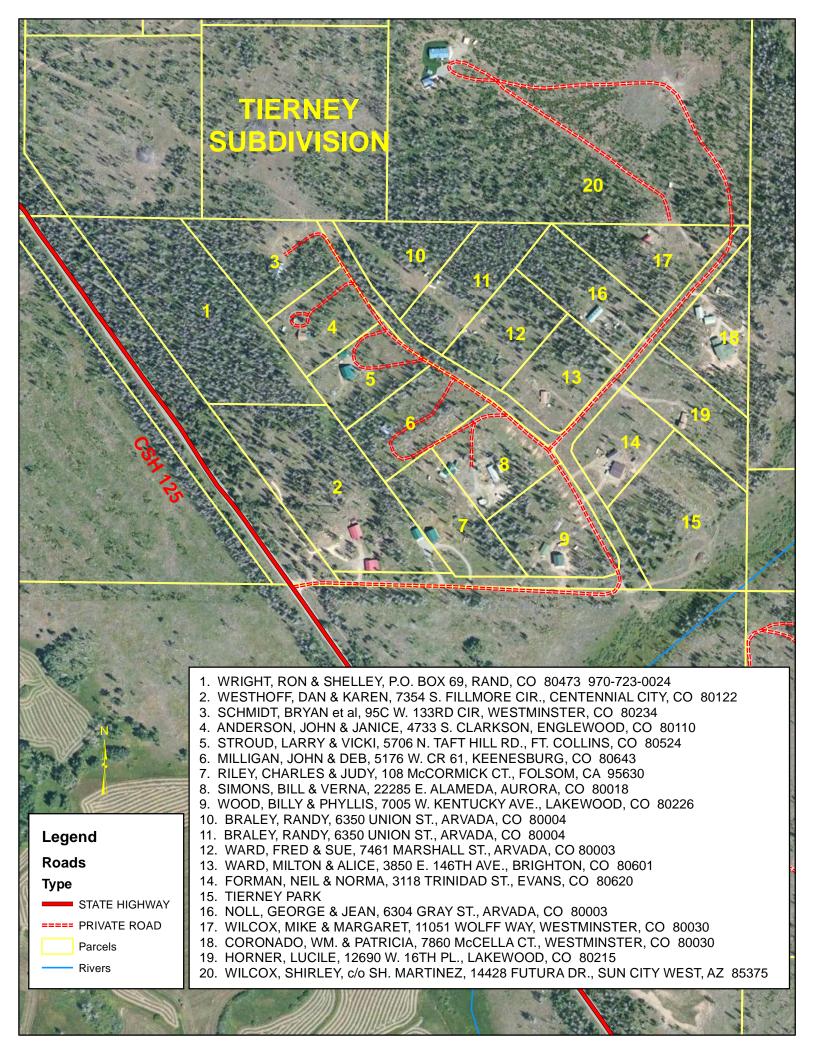


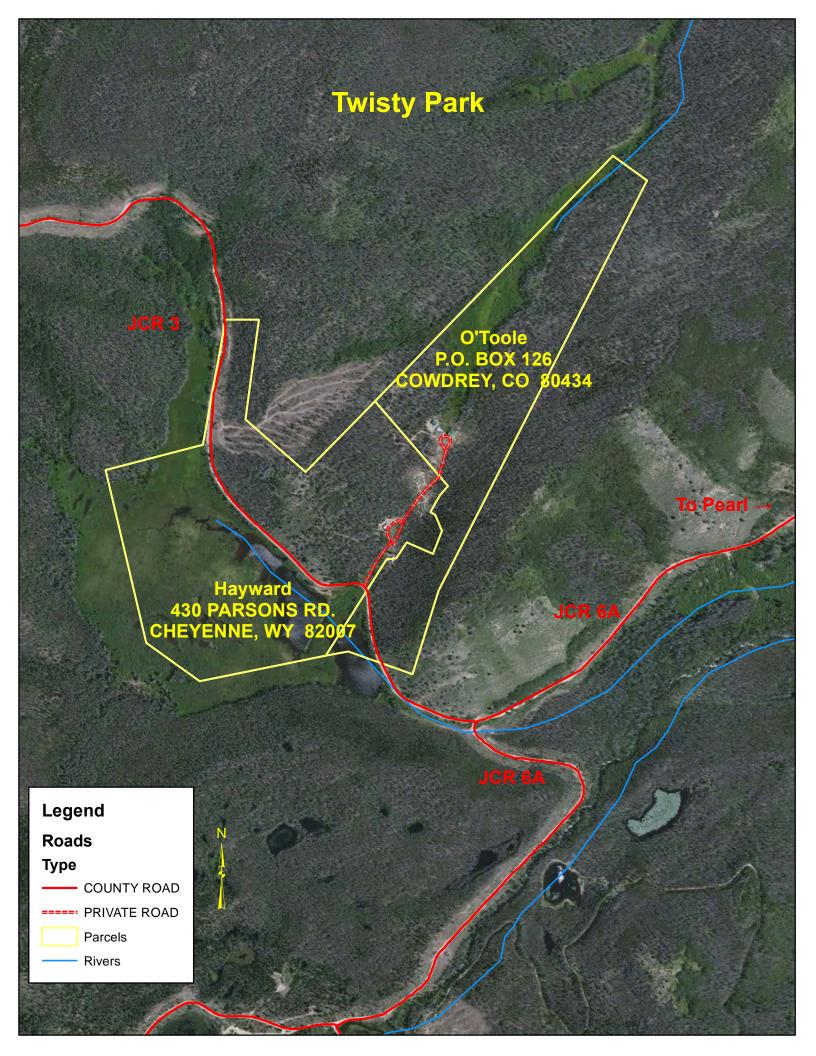


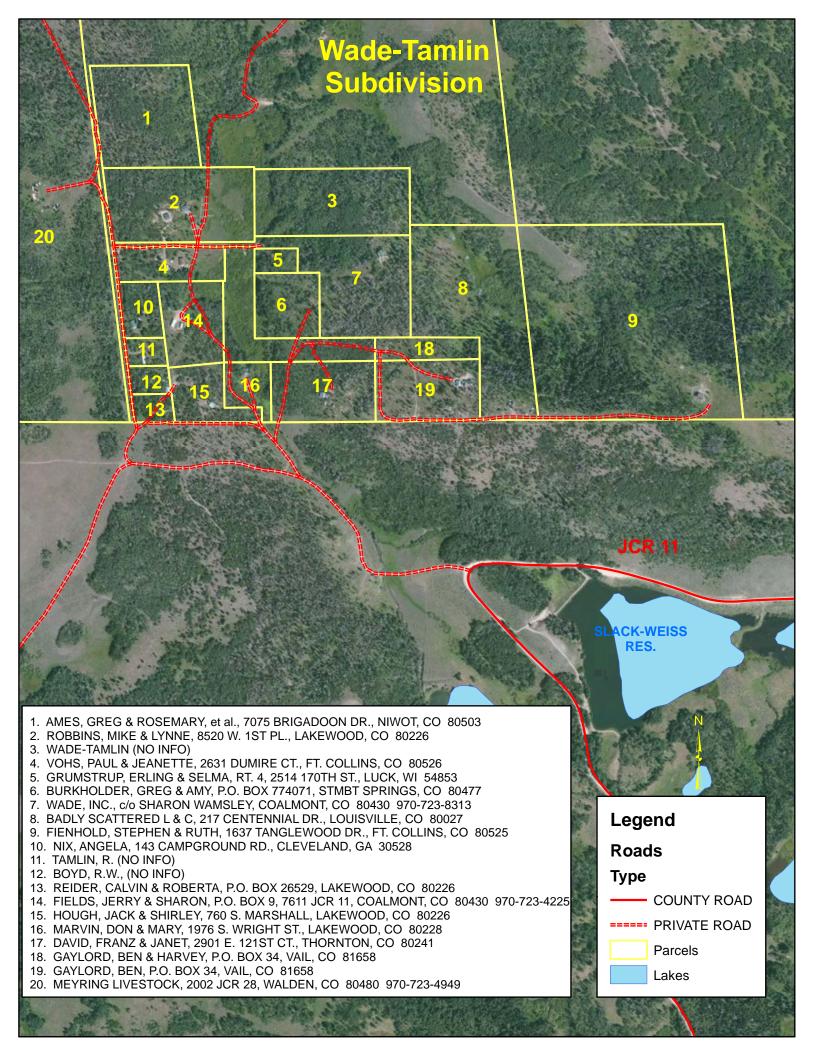












# Appendix B: CO Wildfire Risk Assessment

# COLORADO WILDFIRE RISK ASSESSMENT SUMMARY REPORT

Jackson County



Report was generated using www.ColoradoWildfireRisk.com

Report version: 1.1

Report generated: 8/12/2014

# **Table of Contents**

Disclaimer	2
Introduction	3
Wildland Urban Interface	5
Wildland Urban Interface (WUI) Risk Index	10
Wildfire Risk	13
Wildfire Threat	16
Values Impacted Rating	19
Suppression Difficulty Rating	22
Fire Occurrence	25
Fire History Statistics	29
Fire Behavior	35
Characteristic Rate of Spread	37
Characteristic Flame Length	40
Fire Intensity Scale	43
Fire Type – Extreme Weather	47
Surface Fuels	51
Vegetation	55
Drinking Water Importance Areas	60
Drinking Water Risk Index	64
Riparian Assets	67
Riparian Assets Risk Index	70
Forest Assets	73
Forest Assets Risk Index	74
References	77

## **Disclaimer**

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Users should also note that property boundaries included in any product do not represent an on- the-ground survey suitable for legal, engineering, or surveying purposes. They represent only the approximate relative locations.

## Introduction

### **Colorado Wildfire Risk Assessment Report**

Welcome to the Colorado Wildfire Risk Assessment Summary Reporting Tool. This tool allows users of the Professional Viewer application of the Colorado Wildfire Risk Assessment (Colorado WRA) web portal to define a specific project area and generate information for this area. A detailed risk summary report can be generated using a set of predefined map products developed by the Colorado Wildfire Risk Assessment project which have been summarized explicitly for the user defined project area.

The Colorado WRA provides a consistent, comparable set of scientific results to be used as a foundation for wildfire mitigation and prevention planning in Colorado.

Results of the assessment can be used to help prioritize areas in the state where mitigation treatments, community interaction and education, or tactical analyses might be necessary to reduce risk from wildfires.

The Colorado WRA products included in this report are designed to provide the information needed to support the following key priorities:

- Identify areas that are most prone to wildfire
- Plan and prioritize hazardous fuel treatment programs



- Allow agencies to work together to better define priorities and improve emergency response, particularly across jurisdictional boundaries
- Increase communication with local residents and the public to address community priorities and needs
- Identify areas that may require additional tactical planning, specifically related to mitigation projects and Community
   Wildfire Protection Planning
- Provide the information necessary to justify resource, budget and funding requests
- Plan for response and suppression resource needs

### **Products**

Each product in this report is accompanied by a general description, table, chart and/or map. A list of available Colorado WRA products in this report is provided in the following table.

Colorado WRA Product	Description
Wildland Urban Interface	Depicts where humans and their structures meet or intermix with wildland fuels
WUI Risk Index	Represents a rating of the potential impact of a wildfire on people and their homes in the WUI
Wildfire Risk	Possibility of loss or harm occurring from a wildfire, obtained by combining Wildfire Threat and Fire Effects Index
Wildfire Threat	Likelihood of a wildfire occurring or burning into an area
Values Impacted Rating	Represents an overall rating of the potential impact of a wildfire on all values and assets
Suppression Difficulty Rating	Represents those areas where terrain and vegetation characteristics impede dozer operability
Fire Occurrence	Likelihood of a wildfire starting based on historical ignition patterns
Fire History	Information regarding number of fires, acres suppressed and cause of fires
Characteristic Rate of Spread	Represents the speed with which a fire moves in a horizontal direction across the landscape based on historical percentile weather
Characteristic Flame Length	Represents the distance between the tip and base of the flame based on historical percentile weather
Fire Intensity Scale	Quantifies the potential fire intensity for an area by orders of magnitude based on historical percentile weather
Fire Type – Extreme Weather	Represents the potential fire type under the extreme percentile weather category
Surface Fuels	Description of surface vegetation conditions described by fuel conditions that reflect fire behavior characteristics
Vegetation	General vegetation and land cover types
Drinking Water Importance Areas	Measure of quality and quantity of public surface drinking water categorized by watershed
Drinking Water Risk Index	Measure of wildfire risk to drinking water importance areas
Riparian Assets	Forested riparian areas characterized by functions of water quantity, quality and ecology
Riparian Assets Risk Index	Measure of wildfire risk to forested riparian areas
Forest Assets	Forested lands characterized by height, cover and susceptibility/response to fire
Forest Assets Risk Index	Measure of wildfire risk to forested lands characterized by height, cover and susceptibility/response to fire

### Wildland Urban Interface

### **Description**

Colorado is one of the fastest growing states in the Nation, with much of this growth occurring outside urban boundaries. This increase in population across the state will impact counties and communities that are located within the Wildland Urban Interface (WUI). The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels. Population growth within the WUI substantially increases the risk from wildfire.



For the **Jackson County** project area, it is estimated that **1,394** people or **100 percent** of the total project area population (1,394) live within the WUI.

The Wildland Urban Interface (WUI) layer reflects housing density depicting where humans and their structures meet or intermix with wildland fuels. In the past, conventional wildland-urban interface data sets, such as USFS SILVIS, have been used to reflect these concerns. However, USFS SILVIS and other existing data sources did not provide the level of detail needed by the Colorado State Forest Service and local fire protection agencies.

The new WUI data set is derived using advanced modeling techniques based on the Where People Live data set and LandScan USA population count data available from the Department of



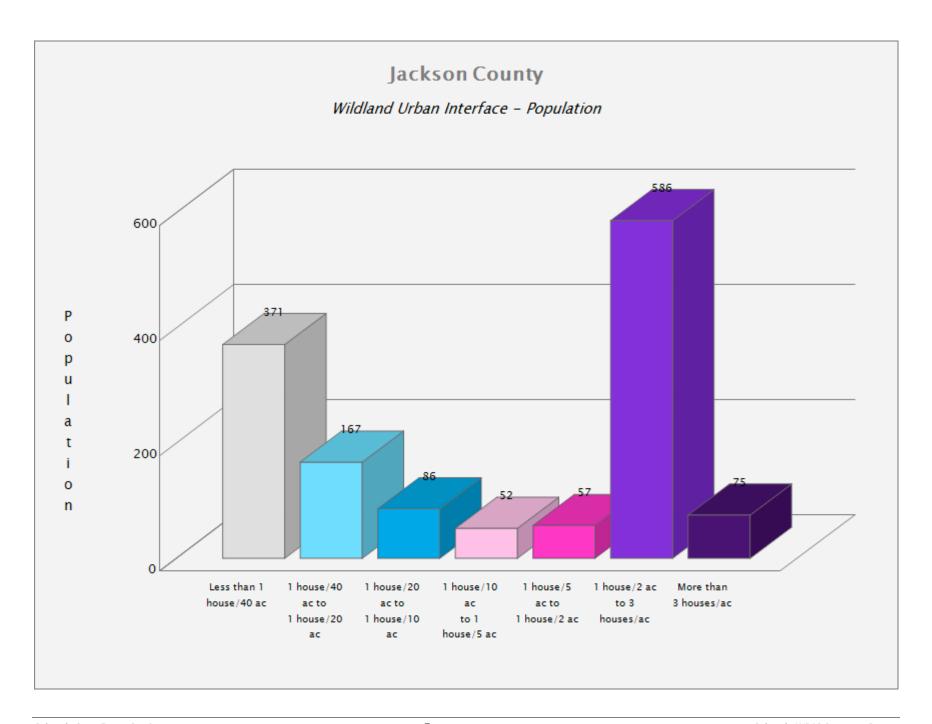
Homeland Security, HSIP Freedom data set. WUI is simply a subset of the Where People Live data set. The primary difference is populated areas surrounded by sufficient non-burnable areas (i.e. interior urban areas) are removed from the Where People Live data set, as these areas are not expected to be directly impacted by a wildfire.

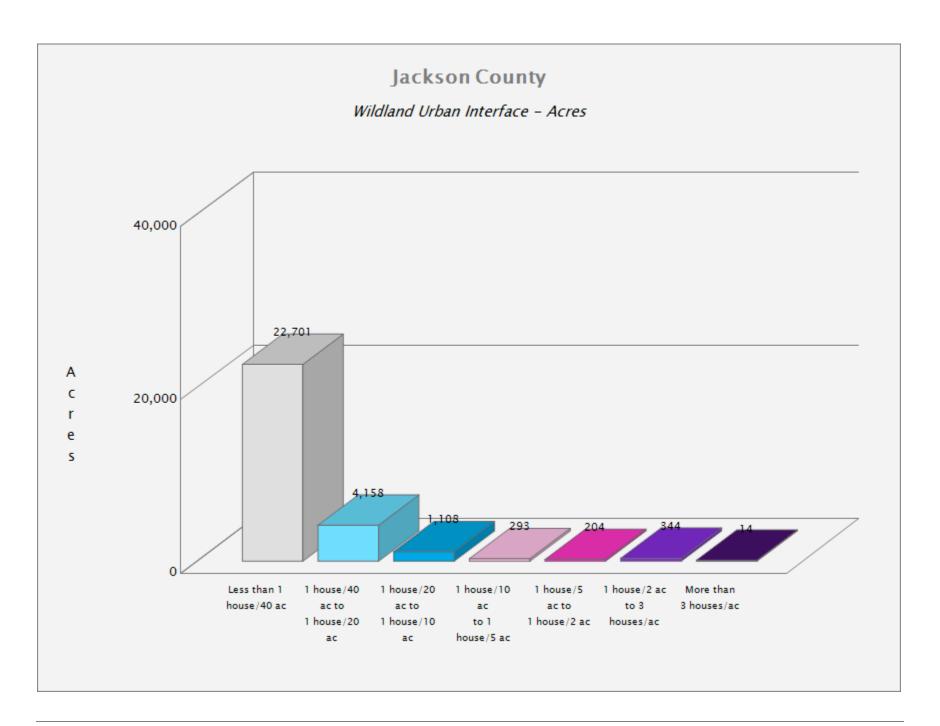
A more detailed description of the risk assessment algorithms is provided in the Colorado Wildfire Risk Assessment (Colorado WRA)

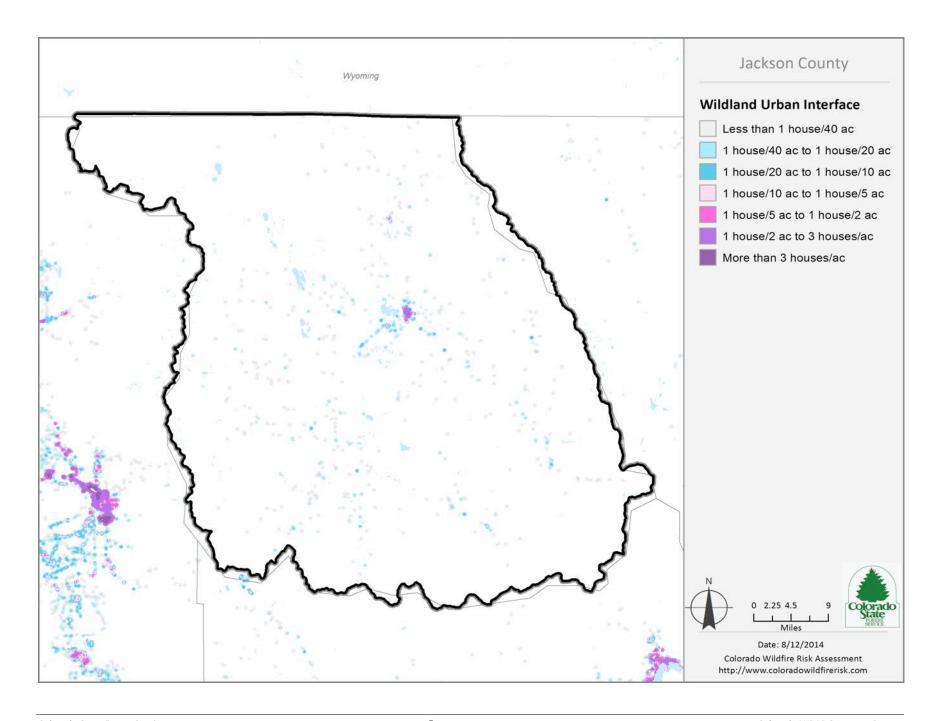
Final Report, which can be downloaded from www.ColoradoWildfireRisk.com.

Data is modeled at a 30-meter cell resolution, which is consistent with other Colorado WRA layers. . The WUI classes are based on the number of houses per acre. Class breaks are based on densities understood and commonly used for fire protection planning.

Housing Density	WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
Less than 1house/40ac	371	26.6%	22,701	78.8%
1house/40ac to 1house/20ac	167	12.0%	4,158	14.4%
1house/20ac to 1house/10ac	86	6.2%	1,108	3.8%
1house/10ac to 1house/5ac	52	3.7%	293	1.0%
1house/5ac to 1house/2ac	57	4.1%	204	0.7%
1house/2ac to 3house/1ac	586	42.0%	344	1.2%
More than 3house/1ac	75	5.4%	14	0.0%
Total	1,394	100.0%	28,822	100.0%







## Wildland Urban Interface (WUI) Risk Index

#### **Description**

The Wildland-Urban Interface (WUI) Risk Index layer is a rating of the potential impact of a wildfire on people and their homes. The key input, WUI, reflects housing density (houses per acre) consistent with Federal Register National standards. The location of people living in the wildland-urban interface and rural areas is essential for defining potential wildfire impacts to people and homes.

The WUI Risk Index is derived using a response function modeling approach. Response functions are a method of assigning a net change in the value to a *resource* or *asset* based on susceptibility to fire at different intensity levels, such as flame length.

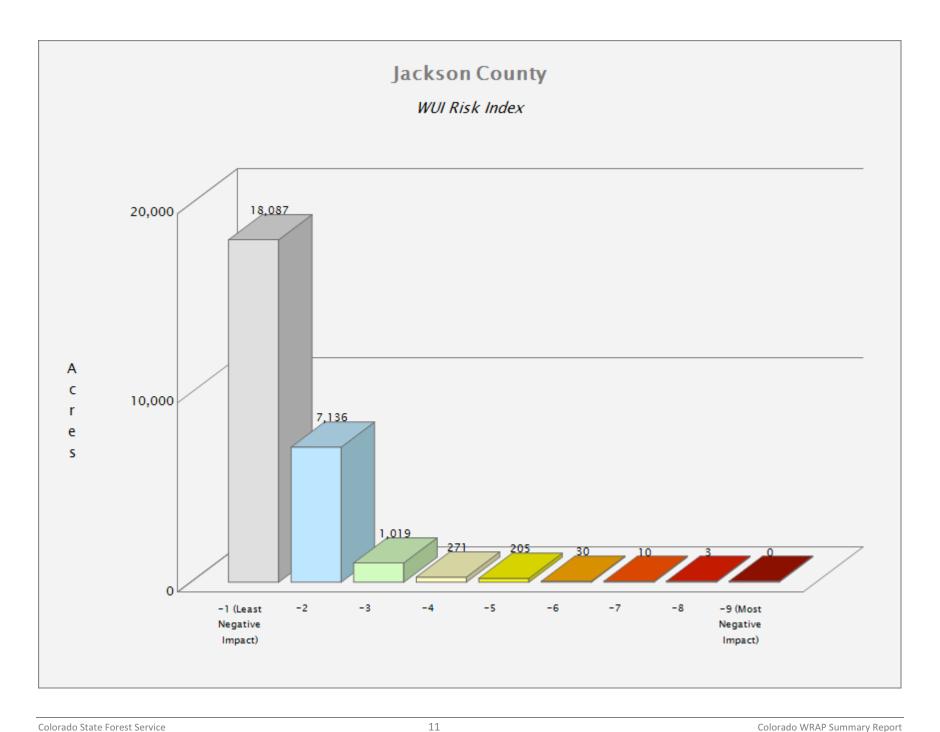
To calculate the WUI Risk Index, the WUI housing density data was combined with flame length data and response functions were defined to represent potential impacts. The response functions were defined by a team of experts led by Colorado State Forest Service mitigation planning staff. By combining flame length with the WUI housing density data, it is possible to determine where the greatest potential impact to homes and people is likely to occur.

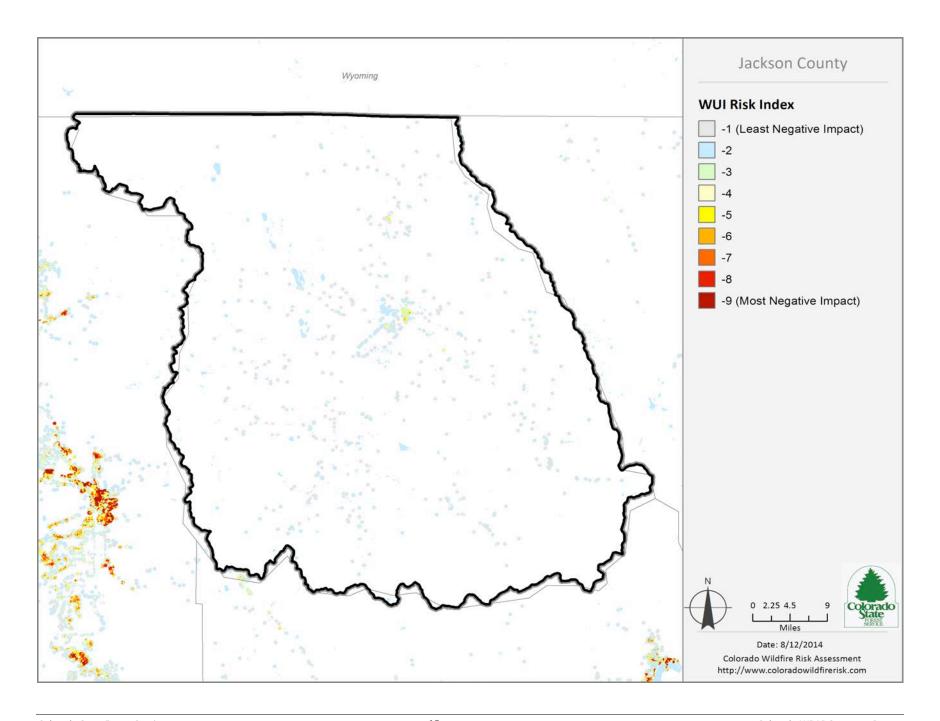
The range of values is from -1 to -9, with -1 representing the least negative impact and -9 representing the most negative impact. For example, areas with high housing density and high flame lengths are rated -9, while areas with low housing density and low flame lengths are rated -1.

The WUI Risk Index has been calculated consistently for all areas in

Colorado, which allows for comparison and ordination of areas across the entire state.
Data is modeled at a 30-meter cell resolution, which is consistent with other Colorado WRA layers.

WUI Risk Class	Acres	Percent
-1 (Least Negative Impact)	18,087	67.6%
-2	7,136	26.7%
-3	1,019	3.8%
-4	271	1.0%
-5	205	0.8%
-6	30	0.1%
-7	10	0.0%
-8	3	0.0%
-9 (Most Negative Impact)	0	0.0%
Total	26,760	100.0%





## Wildfire Risk

### **Description**

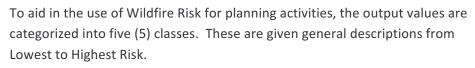
Wildfire Risk represents the possibility of loss or harm occurring from a wildfire. It is the primary output of the Colorado Wildfire Risk Assessment (Colorado WRA). Risk is derived by combining the Wildfire Threat and the Fire Effects assessment outputs. It identifies areas with the greatest potential impacts from a wildfire – i.e. those areas most at risk - considering all values and assets combined together.

Wildfire Risk combines the likelihood of a fire occurring (threat), with those areas of most concern that are adversely impacted by fire (fire effects), to derive a single overall measure of wildfire risk.

Since all areas in Colorado have risk calculated consistently, it allows for comparison and ordination of areas across the entire state.

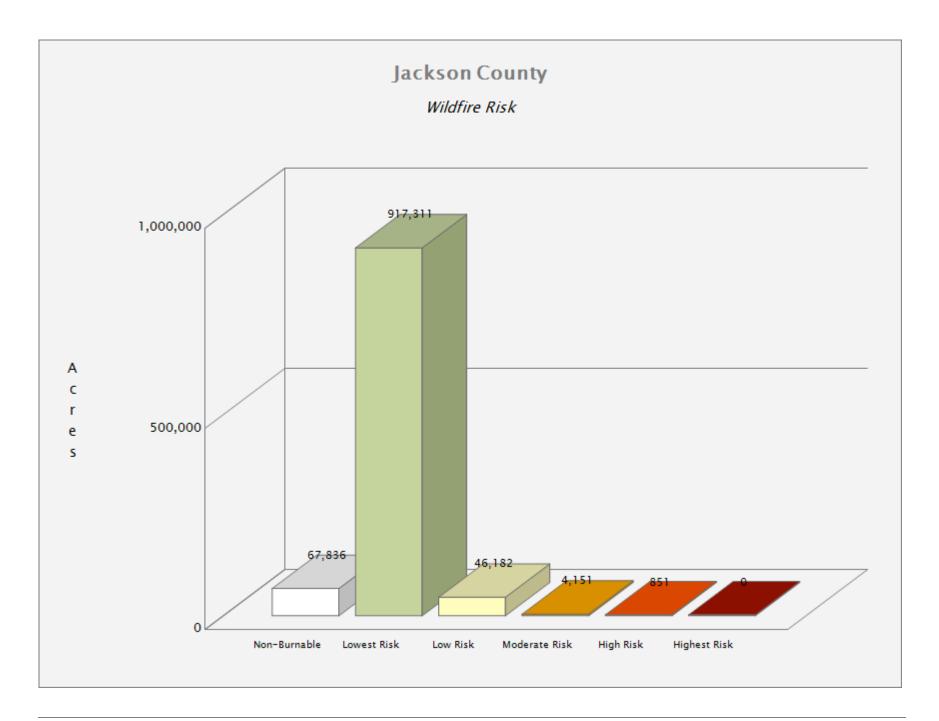
Fire Effects are a key component of Wildfire Risk. Fire Effects are comprised of several inputs focusing on values and assets at risk. The purpose of Fire Effects is to identify those areas that have important values or assets that would be adversely impacted by a wildfire. Fire Effects inputs include Wildland Urban Interface, Forest Assets, Riparian Assets and Drinking Water Importance Areas (watersheds). Refer to the Values

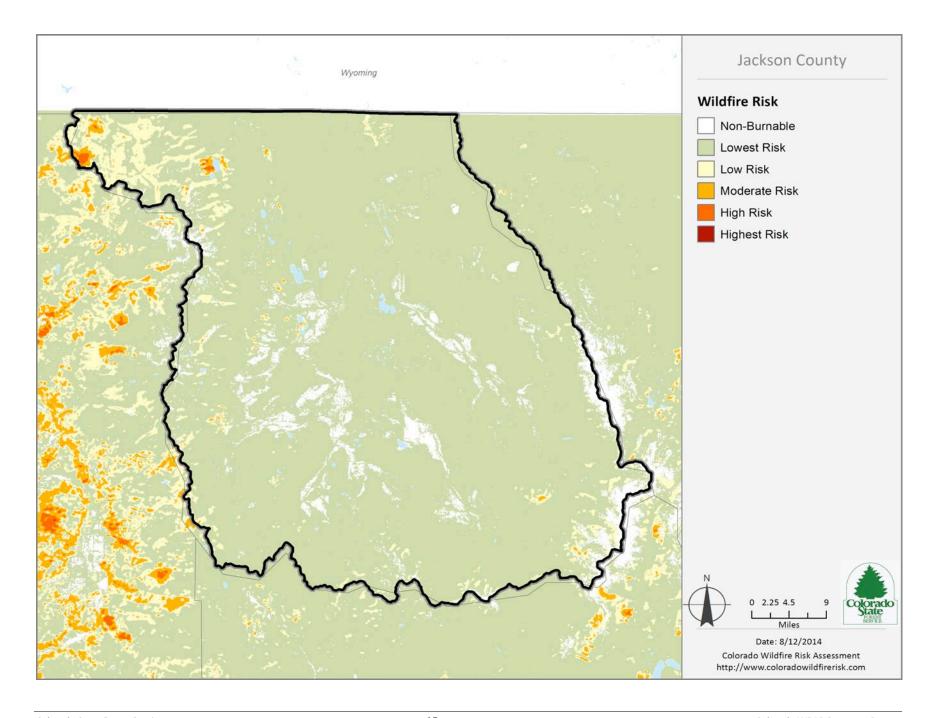
Impacted Rating for more information about Fire Effects.





Wildfire Risk Class		Acres	Percent
Non-Burnable		67,836	6.5%
Lowest Risk		917,311	88.5%
Low Risk		46,182	4.5%
Moderate Risk		4,151	0.4%
High Risk		851	0.1%
Highest Risk		0	0.0%
	Total	1,036,330	100.0%





## **Wildfire Threat**

### **Description**

Wildfire Threat is the likelihood of an acre burning. Threat is derived by combining a number of landscape characteristics including surface fuels and canopy fuels, resultant fire behavior, historical fire occurrence, percentile weather derived from historical weather observations, and terrain conditions. These inputs are combined using analysis techniques based on established fire science.

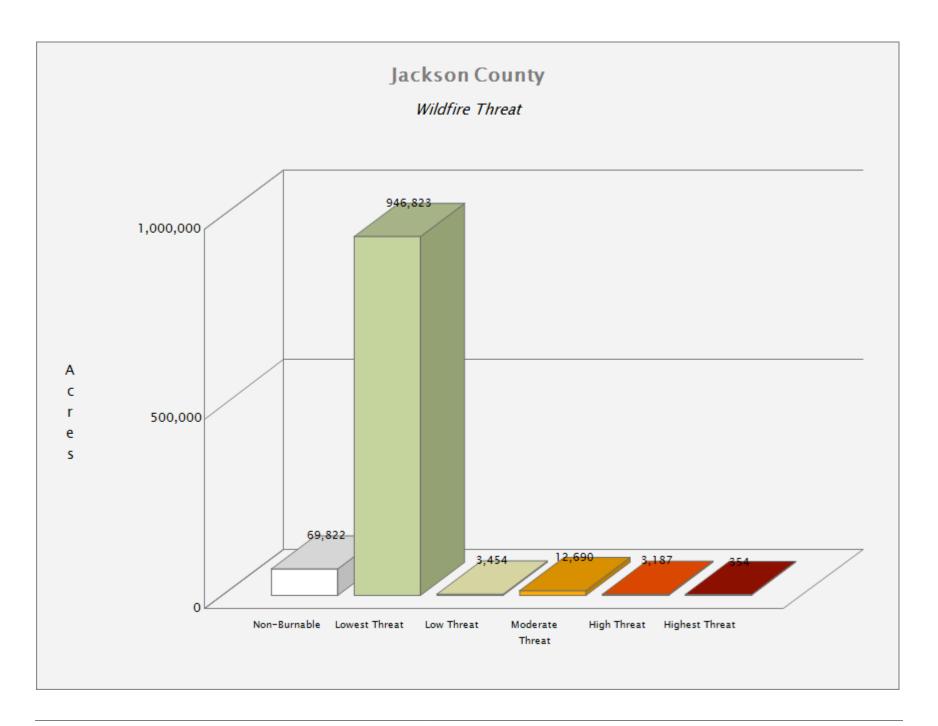
The measure of wildfire threat used in the Colorado WRA is called Fire Threat Index (FTI). FTI combines the probability of an acre igniting (Fire Occurrence) and the expected final fire size based on rate of spread in four weather percentile categories. Since all areas in Colorado have FTI calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high threat area in East Colorado is equivalent to a high threat area in West Colorado.

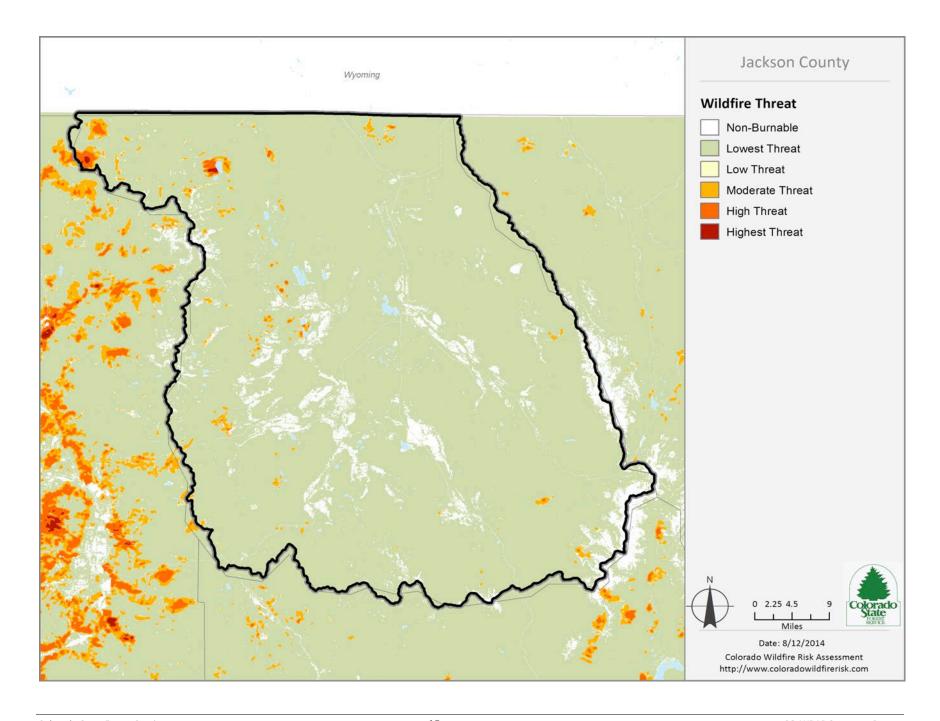
To aid in the use of Wildfire Threat for planning activities, the output values are categorized into five (5) classes. These are given general descriptions from Lowest to Highest Threat.

The threat map is derived at a 30 meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local protection mitigation or prevention planning.

A more detailed description of the risk assessment algorithms is provided in the Colorado WRA Final Report, which can be downloaded from <a href="https://www.coloradoWildfireRisk.com">www.coloradoWildfireRisk.com</a>.

Wildfire Threat Class	Acres	Percent
Non-Burnable	69,822	6.7%
Lowest Threat	946,823	91.4%
Low Threat	3,454	0.3%
Moderate Threat	12,690	1.2%
High Threat	3,187	0.3%
Highest Threat	354	0.0%
Т	otal 1,036,330	100.0%





## **Values Impacted Rating**

### **Description**

Represents those values or assets that would be adversely impacted by a wildfire. The Values Impacted Rating (VIR) is an overall Fire Effects rating that combines the risk ratings for Wildland Urban Interface (WUI), Forest Assets, Riparian Assets, and Drinking Water Importance Areas into a single measure of values-at-risk. The individual ratings for each value layer were derived using a Response Function approach.

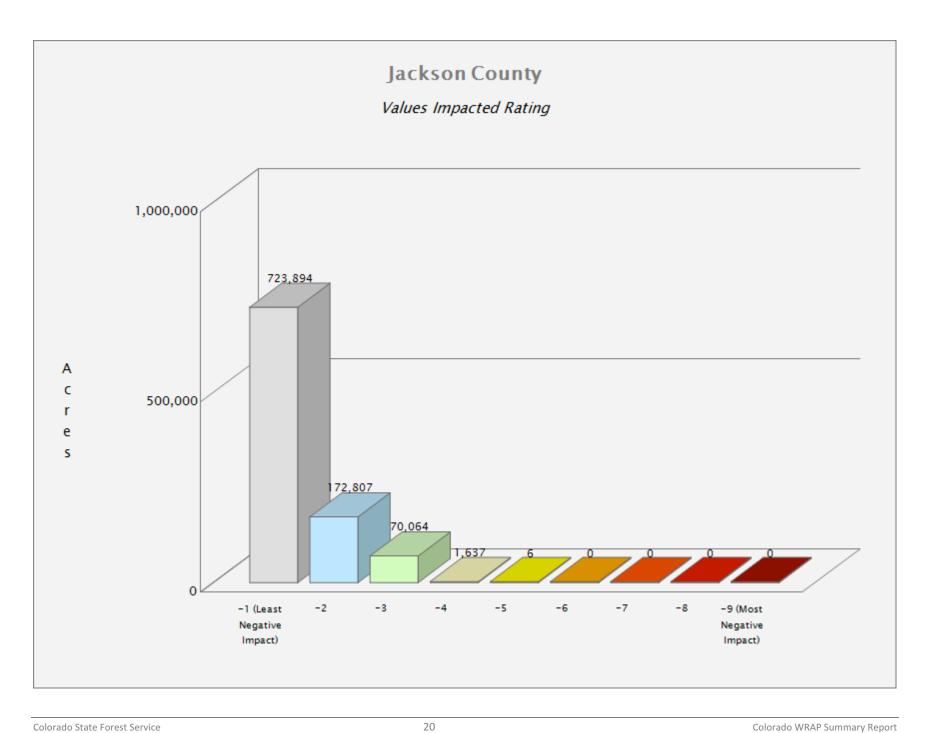
Response functions are a method of assigning a net change in the value to a resource or asset based on susceptibility to fire at different intensity levels. A resource or asset is any of the Fire Effects input layers, such as WUI, Forest Assets, etc. These net changes can be adverse (negative) or positive (beneficial).

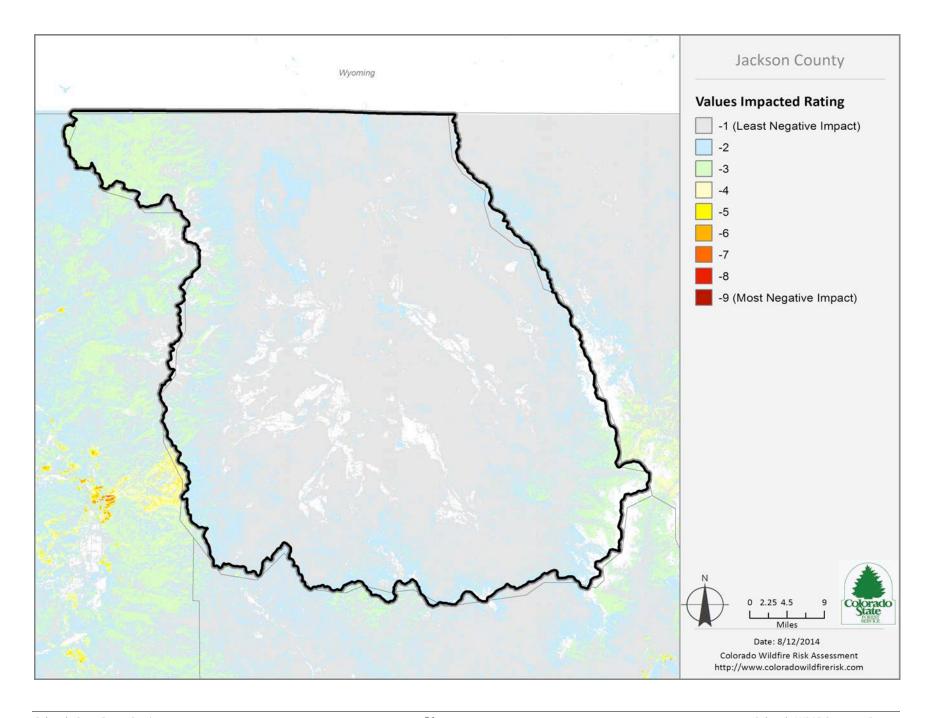
Calculating the VIR at a given location requires spatially defined estimates of the intensity of fire integrated with the identified resource value. This interaction is quantified through the use of response functions that estimate expected impacts to resources or assets at the specified fire intensity levels. The measure of fire intensity level used in the Colorado assessment is flame length for a location. Response Function outputs were derived for each input data set and then combined to derive the Values Impacted Rating.

Different weightings are used for each of the input layers with the highest priority placed on protection of people and structures (i.e. WUI). The weightings represent the value associated with those assets. Weightings were developed by a team of experts during the assessment to reflect priorities for fire protection planning in Colorado. Refer to the Colorado WRA Final Report for more information about the layer weightings.

Since all areas in Colorado have the VIR calculated consistently, it allows for comparison and ordination of areas across the entire state. The VIR data was derived at a 30-meter resolution.

VIR Class	Acres	Percent
-1 (Least Negative Impact)	723,894	74.8%
-2	172,807	17.8%
-3	70,064	7.2%
-4	1,637	0.2%
-5	6	0.0%
-6	0	0.0%
-7	0	0.0%
-8	0	0.0%
-9 (Most Negative Impact)	0	0.0%
Total	968,407	100.0%





## **Suppression Difficulty Rating**

#### **Description**

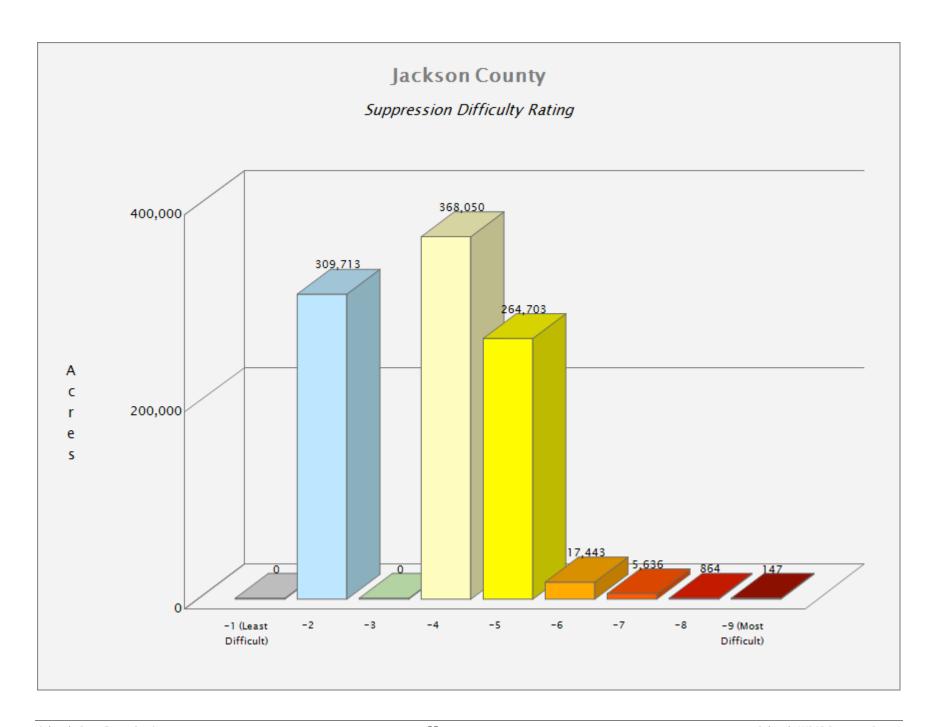
Reflects the difficulty or relative cost to suppress a fire given the terrain and vegetation conditions that may impact machine operability. This layer is an overall index that combines the slope steepness and the fuel type characterization to identify areas where it would be difficult or costly to suppress a fire due to the underlying terrain and vegetation conditions that would impact machine operability (in particular Type II dozer).

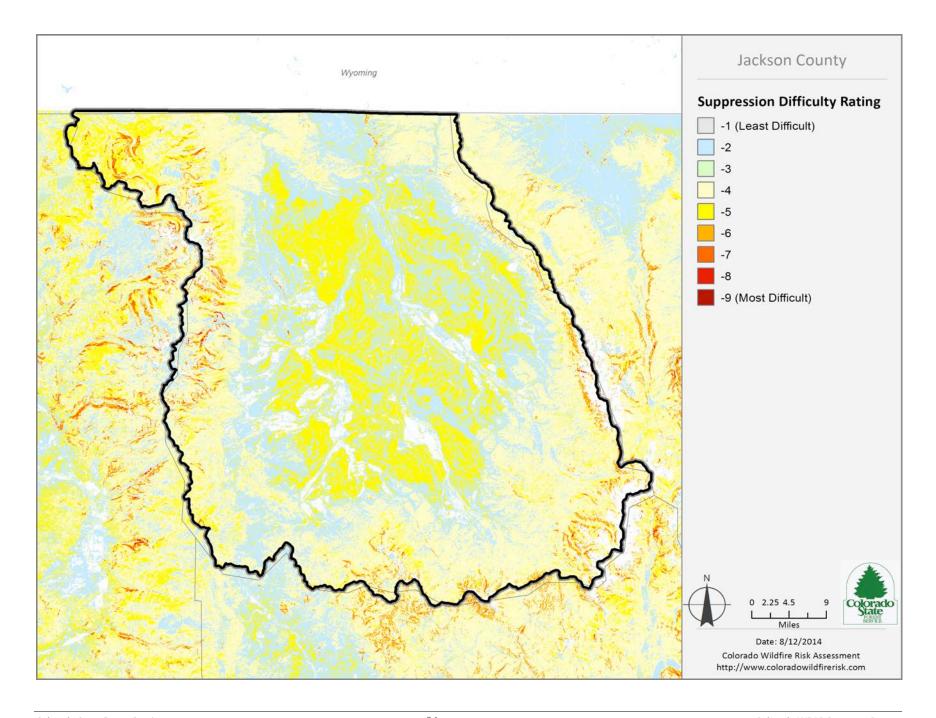
The rating was calculated based on the fireline production rates for hand crews and engines with modifications for slope, as documented in the NWCG Fireline Handbook 3, PMS 401-1.

The burnable fuel models in the Colorado WRA were grouped into three categories: slow (0-66 feet), medium (67-165 feet) and fast (greater than 165 feet).

Fireline production capability on five slope classes was used as the basic reference to obtain the suppression difficulty score. To remain constant with the Value Impacted Rating output values, a response function (-1 to -9) is assigned to each combination of fuel model group (slow, medium and fast) and slope category.

SDR Class		Acres	Percent
-1 (Least Difficult)		0	0.0%
-2		309,713	32.0%
-3		0	0.0%
-4		368,050	38.1%
-5		264,703	27.4%
-6		17,443	1.8%
-7		5,636	0.6%
-8		864	0.1%
-9 (Most Difficult)		147	0.0%
	Total	966,556	100.0%





### **Fire Occurrence**

### **Description**

Fire Occurrence is an ignition density that represents the likelihood of a wildfire starting based on historical ignition patterns. Occurrence is derived by modeling historic wildfire ignition locations to create an average ignition rate map. The ignition rate is measured in the number of fires per year per 1000 acres.

Historic fire report data was used to create the ignition points for all Colorado fires. Data was obtained from the West Wide Risk Assessment project. The compiled fire occurrence database was cleaned to remove duplicate records and to correct inaccurate locations. The database was then modeled to create a density map reflecting historical fire ignition rates.

The measure of fire occurrence used in the Colorado WRA is called Fire Occurrence. Since all areas in Colorado have ignition density calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high occurrence area in East Colorado is equivalent to a high occurrence area in West Colorado.

Fire Occurrence is a key input into the calculation of the Wildfire Threat output. In particular, with most Colorado fires being human caused, there is a repeatable spatial pattern of fire ignitions over time. This pattern identifies areas where wildfires are most likely to ignite and prevention efforts can be planned accordingly.

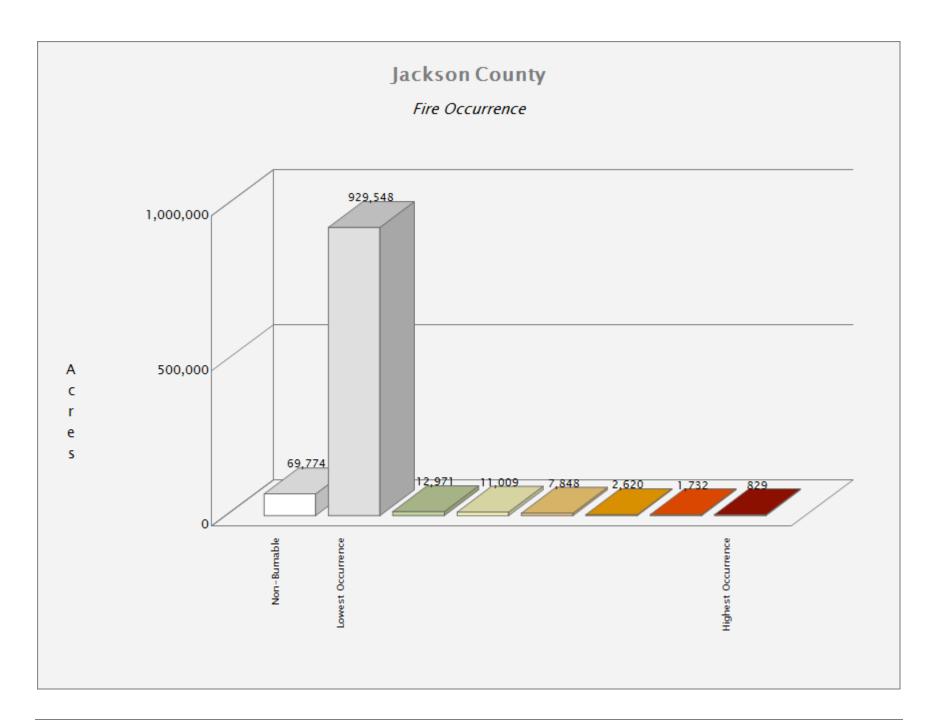
To aid in the use of wildfire ignition density for planning activities, the output values are categorized into seven (7) classes reflecting average annual ignition rates. These are given general descriptions from Low to Very High. Seven classes are used to present finer detail for mapping purposes so that transitional areas can be easily identified.

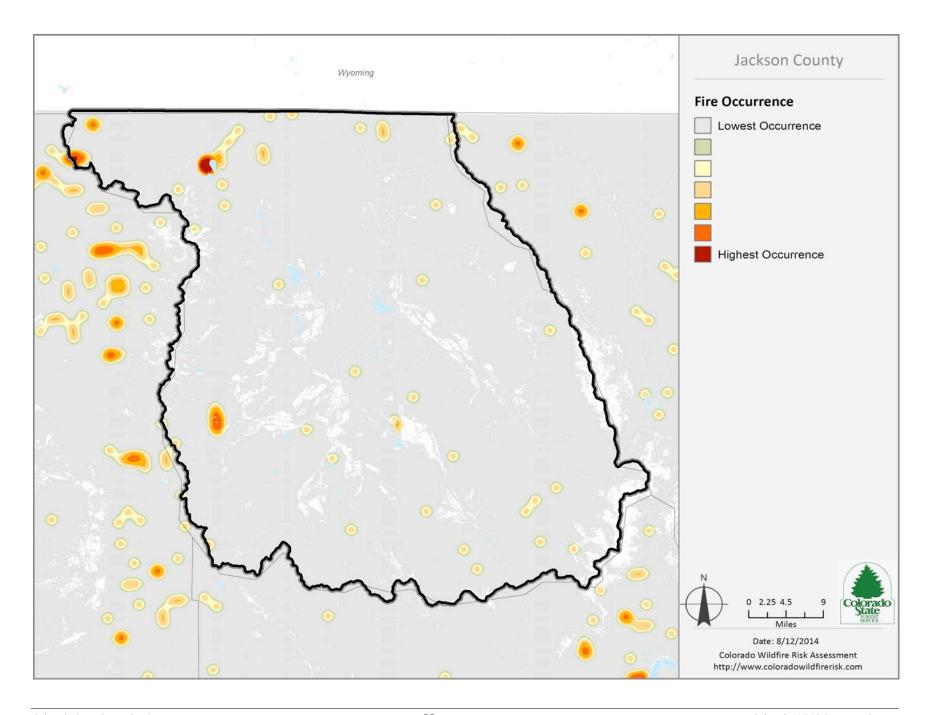
The class breaks are determined by analyzing the Fire Occurrence output values for the entire state and determining cumulative percent of acres (i.e. Class 7 has the top 3.5% of acres with the highest occurrence rate). Refer to the Colorado WRA Final Report for a more detailed description of the mapping classes and the methods used to derive these.

The Fire Occurrence map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not sufficient for site specific analysis, it is appropriate for regional, county or local protection mitigation or prevention planning.

A more detailed description of the risk assessment algorithms is provided in the Colorado WRA Final Report, which can be downloaded from <a href="https://www.ColoradoWildfireRisk.com">www.ColoradoWildfireRisk.com</a>.

Fire Occurrence Class	Acres	Percent
Non-Burnable	69,774	6.7%
1 (Lowest Occurrence)	929,548	89.7%
2	12,971	1.3%
3	11,009	1.1%
4	7,848	0.8%
5	2,620	0.3%
6	1,732	0.2%
7 (Highest Occurrence)	829	0.1%
Total	1,036,330	100.0%





## **Fire History Statistics**

### **Description**

Fire history statistics provide insight as to the number of fires, acres burned and cause of fires in Colorado. These statistics are useful for prevention and mitigation planning. They can be used to quantify the level of fire business, determine the time of year most fires typically occur and develop a fire prevention campaign aimed at reducing a specific fire cause.

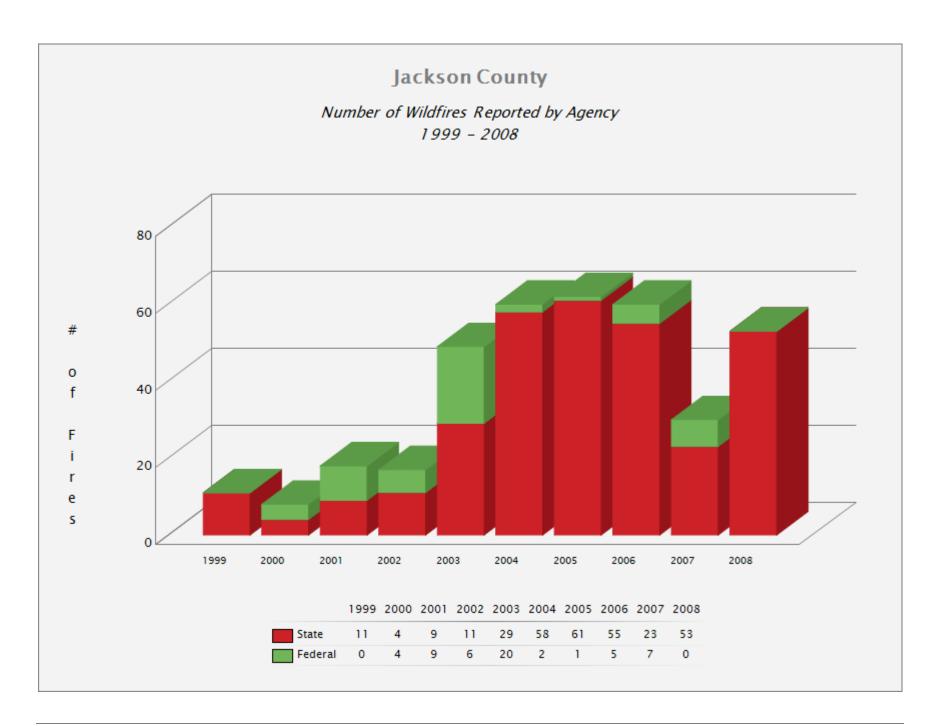
Ten years of historic fire report data was used to create the fire occurrence summary charts. Wildfire Ignition data was compiled from federal and local sources for the years 1999 through 2008. Federal wildfire ignitions were spatially referenced by latitude and longitude coordinates, and state and local wildfire ignitions were spatially referenced by zip code. All ignitions references were updated to remove duplicate records and correct inaccurate locations.

Federal wildfire ignitions are symbolized in CO-WRAP by the cause of fire. Fire reports were gathered from the following federal data sources:

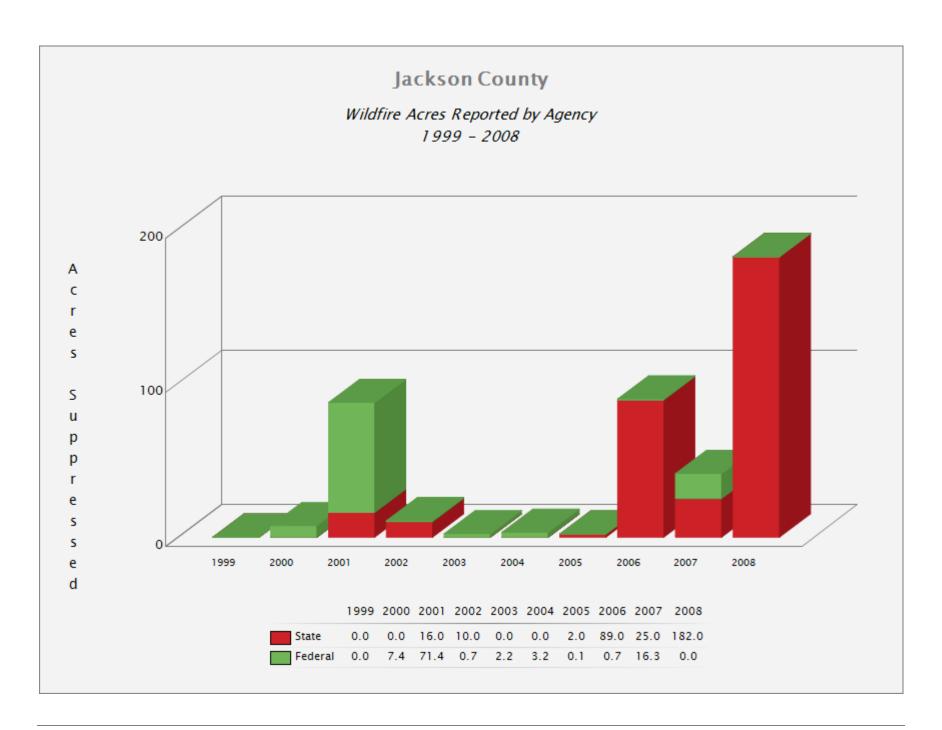
- US Forest Service
- US Fish and Wildlife Service
- Bureau of Land Management
- Bureau of Indian Affairs
- National Park Service

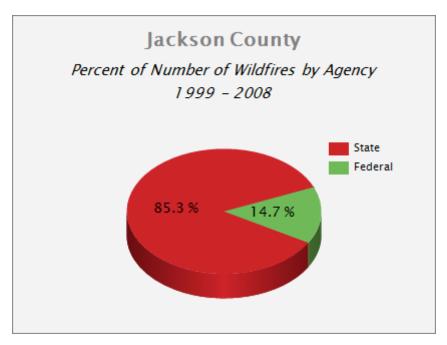
State wildfire ignitions were gathered from fire department reports submitted by:

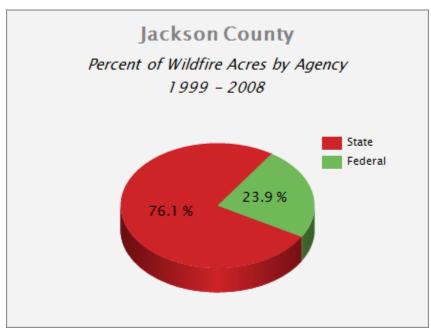
- Volunteer Fire Departments
- Combination Fire Departments (paid and volunteer)
- Paid Fire Departments
- Fire Protection Districts
- Counties

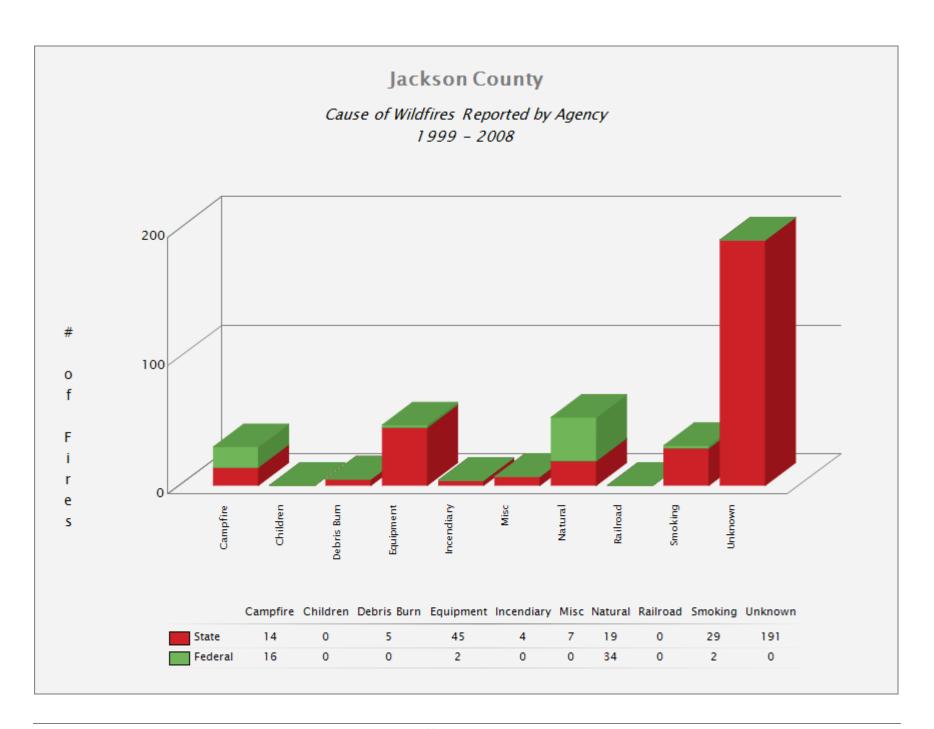


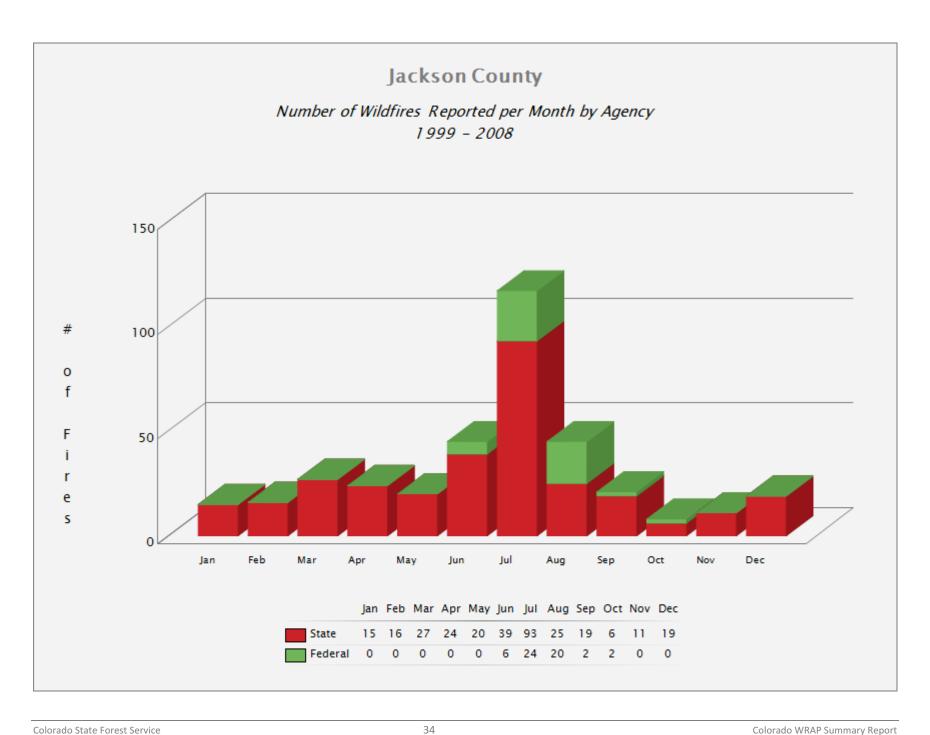
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## **Fire Behavior**

### **Description**

Fire behavior is the manner in which a fire reacts to the following environmental influences:

- 1. Fuels
- 2. Weather
- 3. Topography

Fire behavior characteristics are attributes of wildland fire that pertain to its spread, intensity, and growth. Fire behavior

characteristics utilized in the Colorado WRA include fire type, rate of spread, flame length and fireline intensity (fire intensity scale). These metrics are used to determine the potential fire behavior under different weather scenarios. Areas that exhibit moderate to high fire behavior potential can be identified for mitigation treatments, especially if these areas are in close proximity to homes, business, or other assets.



#### **Fuels**

The Colorado WRA includes composition and characteristics for both surface fuels and canopy fuels. Assessing canopy fire potential and surface fire potential allows identification of areas where significant increases in fire behavior affects the potential of a fire to transition from a surface fire to a canopy fire.

Fuel datasets required to compute both surface and canopy fire potential include:

- Surface Fuels are typically categorized into one of four primary fuel types based on the primary carrier of the surface fire: 1) grass, 2) shrub/brush, 3) timber litter, and 4) slash. They are generally referred to as fire behavior fuel models and provide the input parameters needed to compute surface fire behavior.
- Canopy Cover is the horizontal percentage of the ground surface that is covered by tree crowns. It is used to compute wind-reduction factors and shading.
- Canopy Ceiling Height/Stand Height is the height above the ground of the highest canopy layer where the density of the crown mass within the layer is high enough to support vertical movement of a fire. A good estimate of canopy ceiling height is the average height of the dominant and co-dominant trees in a stand. It is used to compute wind reduction to mid-flame height, and spotting distances from torching trees (Fire Program Solutions, L.L.C, 2005).

- Canopy Base Height is the lowest height above the ground above which sufficient canopy fuel exists to vertically propagate fire (Scott & Reinhardt, 2001). Canopy base height is a property of a plot, stand or group of trees, not an individual tree. For fire modeling, canopy base height is an effective value that incorporates ladder fuels, such as tall shrubs and small trees. Canopy base height is used to determine whether a surface fire will transition to a canopy fire.
- Canopy Bulk Density is the mass of available canopy fuel per unit canopy volume (Scott & Reinhardt, 2001). Canopy bulk density is a bulk property of a stand, plot or group of trees, not an individual tree. Canopy bulk density is used to predict whether an active crown fire is possible.

### Weather

Environmental weather parameters needed to compute fire behavior characteristics include 1-hour, 10-hour and 100-hour timelag fuel moistures, herbaceous fuel moisture, woody fuel moisture and the 20-foot, 10-minute average wind speed. To collect this information, weather influence zones were established across the state. A weather influence zone is an area where, for analysis, the weather on any given day is considered uniform.

Within each weather influence zone, historical daily weather is gathered to compile a weather dataset from which four percentile weather categories are created. The percentile weather categories are intended to represent low, moderate, high and extreme fire

weather days. Fire behavior outputs are computed for each percentile weather category to determine fire potential under different weather scenarios.

The four percentile weather categories include:

- Low Weather Percentile (0 − 15%)
- Moderate Weather Percentile (16 90%)
- High Weather Percentile (91 97%)
- Extreme Weather Percentile (98 100%)

For a detailed description of the methodology, refer to the WWA Final Report at www.ColoradoWildfireRisk.com.

### **Topography**

Topography datasets required to compute fire behavior characteristics are elevation, slope and aspect.

#### FIRE BEHAVIOR CHARACTERISTICS

Fire behavior characteristics provided in this report include:

- Characteristic Rate of Spread
- · Characteristic Flame Length
- Fire Intensity Scale
- Fire Type Extreme Weather

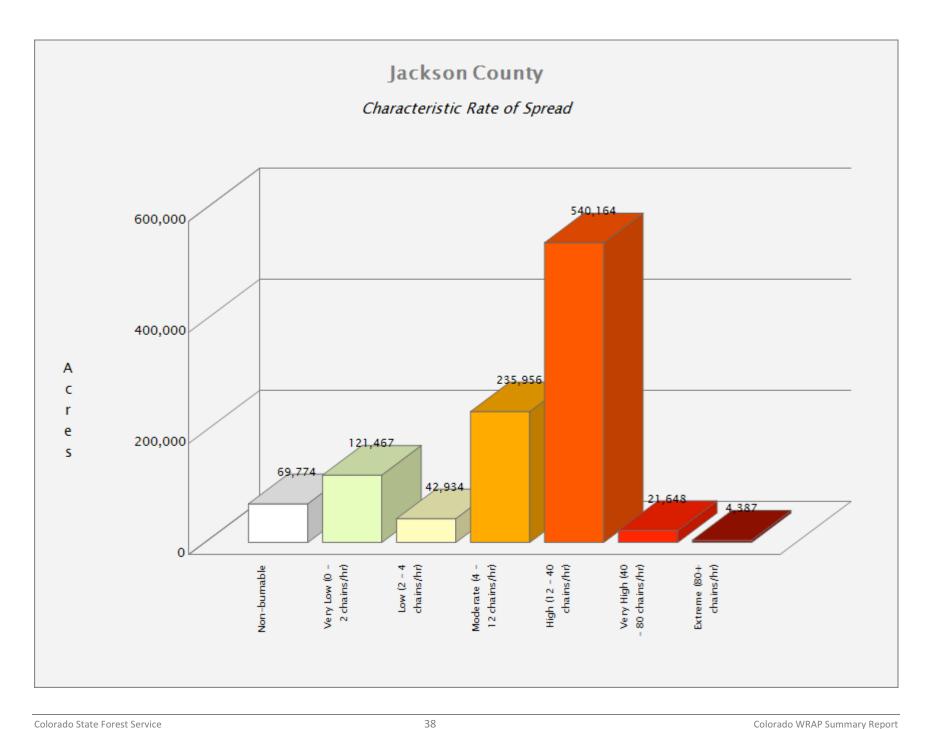
## **Characteristic Rate of Spread**

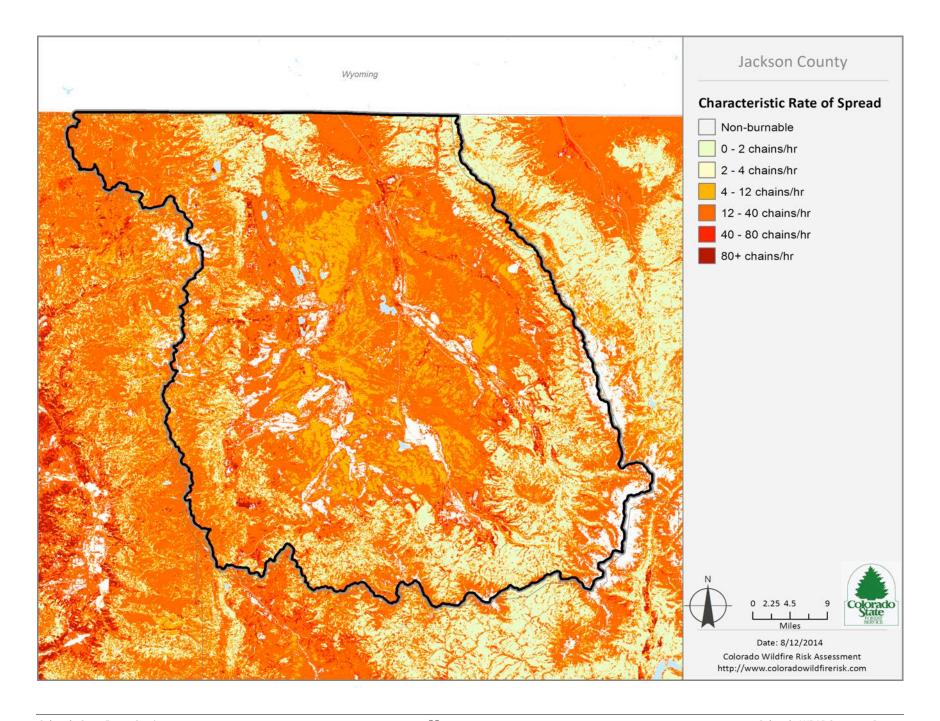
Characteristic Rate of Spread is the typical or representative rate of spread of a potential fire based on a weighted average of four percentile weather categories. Rate of spread is the speed with which a fire moves in a horizontal direction across the landscape, usually expressed in chains per hour (ch/hr) or feet per minute (ft/min). For purposes of the Colorado WRA, this measurement represents the maximum rate of spread of the fire front. Rate of Spread is used in the calculation of Wildfire Threat in the Colorado WRA.

Rate of spread is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Colorado. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 11 weather influence zones in Colorado.

This output represents the weighted average for all four weather percentiles. While not shown in this report, the individual percentile weather ROS outputs are available in the Colorado WRA data.

Rate of Spread	Acres	Percent
Non-Burnable	69,774	6.7%
Very Low (0 - 2 ch/hr)	121,467	11.7%
Low (2 - 4 ch/hr)	42,934	4.1%
Moderate (4 - 12 ch/hr)	235,956	22.8%
High (12 - 40 ch/hr)	540,164	52.1%
Very High (40 - 80 ch/hr)	21,648	2.1%
Extreme (80+ ch/hr)	4,387	0.4%
Total	1,036,330	100.0%





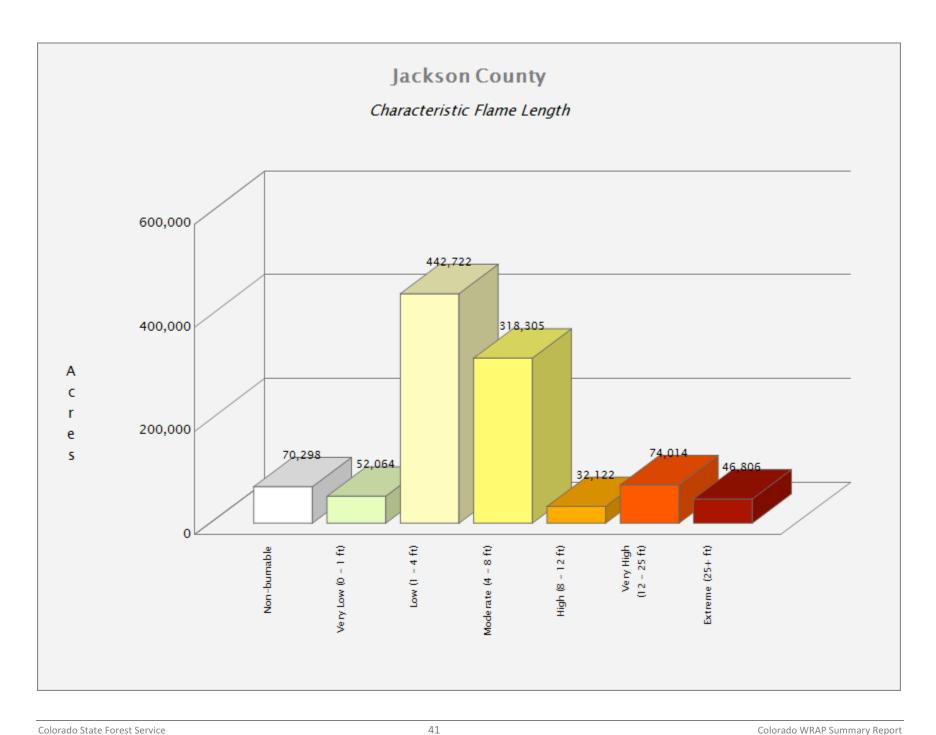
## **Characteristic Flame Length**

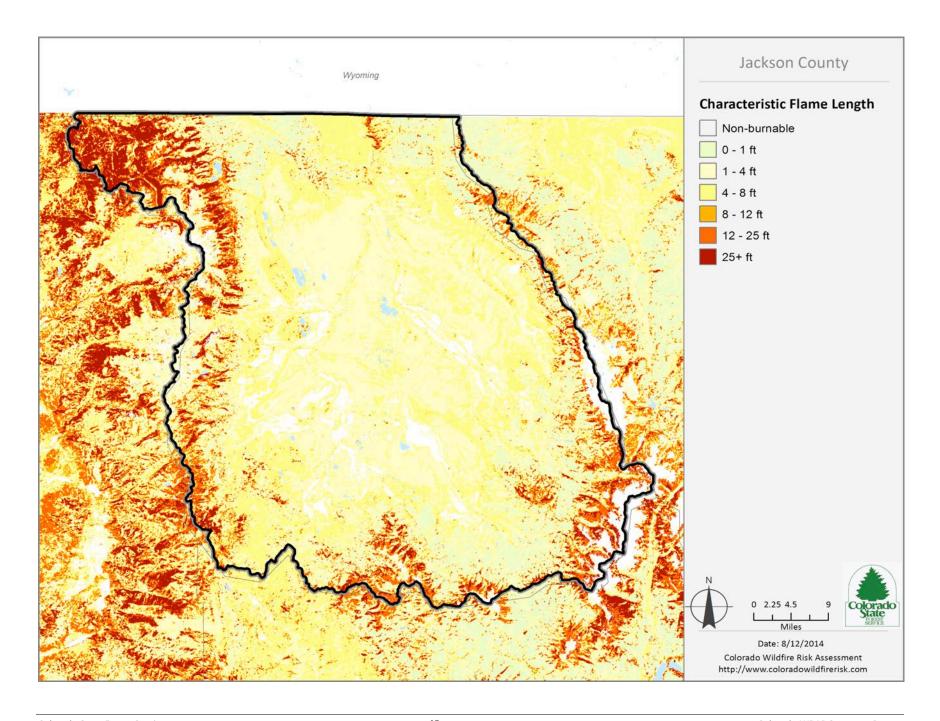
Characteristic Flame Length is the typical or representative flame length of a potential fire based on a weighted average of four percentile weather categories. Flame Length is defined as the distance between the flame tip and the midpoint of the flame depth at the base of the flame, which is generally the ground surface. It is an indicator of fire intensity and is often used to estimate how much heat the fire is generating. Flame length is typically measured in feet (ft). Flame length is the measure of fire intensity used to generate the Fire Effects outputs for the Colorado WRA.

Flame length is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently. To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Colorado. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 11 weather influence zones in Colorado.

This output represents the weighted average for all four weather percentiles. While not shown in this report, the individual percentile weather Flame Length outputs are available in the Colorado WRA data.

Flame Length	Acres	Percent
Non-Burnable	70,298	6.8%
Very Low (0 - 1 ft)	52,064	5.0%
Low (1 - 4 ft)	442,722	42.7%
Moderate (4 - 8 ft)	318,305	30.7%
High (8 - 12 ft)	32,122	3.1%
Very High (12 - 25 ft)	74,014	7.1%
Extreme (25+ ft)	46,806	4.5%
Total	1,036,330	100.0%





# **Fire Intensity Scale**

## **Description**

Fire Intensity Scale (FIS) specifically identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist. Similar to the Richter scale for earthquakes, FIS provides a standard scale to measure potential wildfire intensity. FIS consist of five (5) classes where the order of magnitude between classes is ten-fold. The minimum class, Class 1, represents very low wildfire intensities and the maximum class, Class 5, represents very high wildfire intensities.

### 1. Class 1, Lowest Intensity:

Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.

### 2. Class2, Low:

Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.

#### 3. Class 3, Moderate:

Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property.

### 4. Class 4, High:

Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property.

### 5. Class 5, Highest Intensity:

Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property.

Wildfire Threat and Fire Intensity Scale are designed to complement each other. Unlike Wildfire Threat, the Fire Intensity Scale does not incorporate historical occurrence information. It only evaluates the potential fire behavior for an area, regardless if any fires have occurred there in the past. This additional information allows mitigation planners to quickly identify areas where dangerous fire behavior potential exists in relationship to nearby homes or other valued assets.

Since all areas in Colorado have fire intensity scale calculated consistently, it allows for comparison and ordination of areas across the entire state. For example, a high fire intensity area in Eastern Colorado is equivalent to a high fire intensity area in Western Colorado.

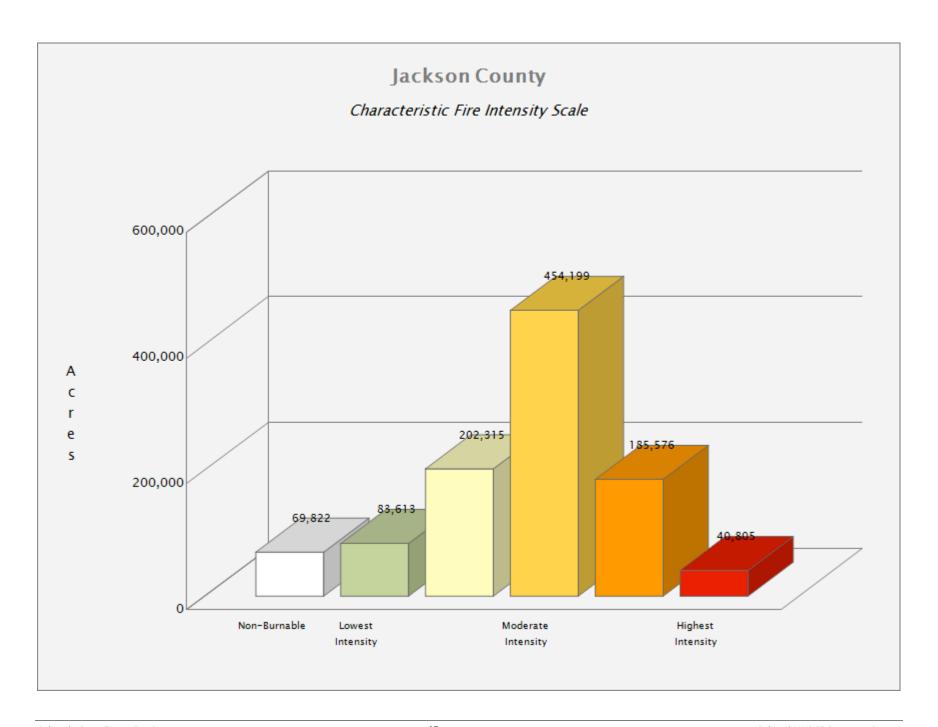
Fire intensity scale is a fire behavior output, which is influenced by three environmental factors - fuels, weather, and topography. Weather is by far the most dynamic variable as it changes frequently.

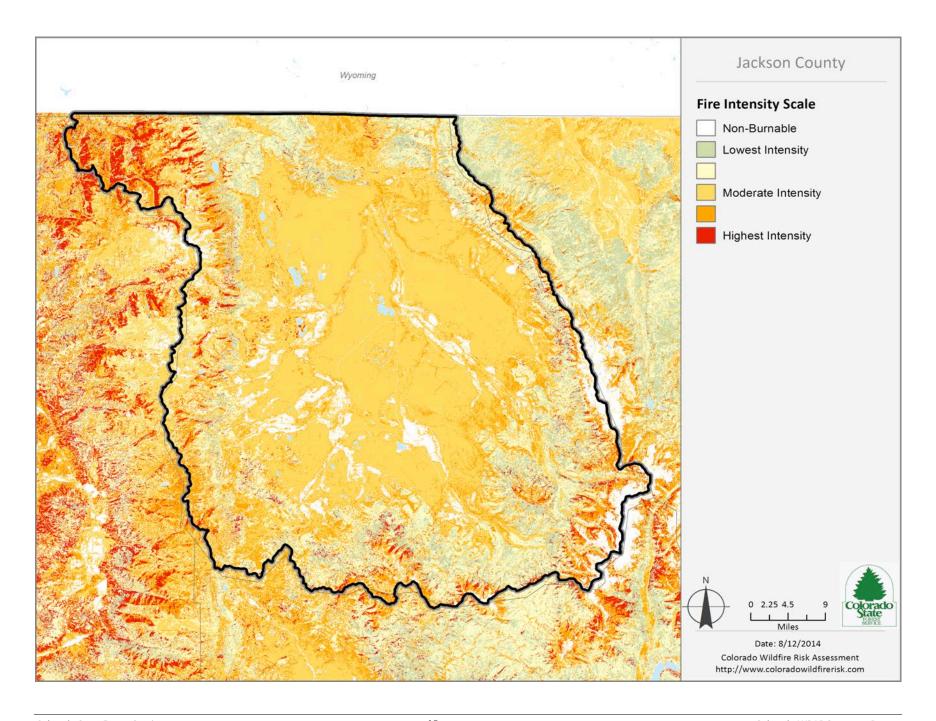
To account for this variability, four percentile weather categories were created from historical weather observations to represent low, moderate, high, and extreme weather days for each weather influence zone in Colorado. A weather influence zone is an area where, for analysis purposes, the weather on any given day is considered uniform. There are 11weather influence zones in

Colorado. The FIS represents the weighted average for all four weather percentiles.

The fire intensity scale map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local planning efforts.

FIS Class	Acres	Percent
Non-Burnable	69,822	6.7%
1 (Lowest Intensity)	83,613	8.1%
2 (Low)	202,315	19.5%
3 (Moderate)	454,199	43.8%
4 (High)	185,576	17.9%
5 (Highest Intensity)	40,805	3.9%
Total	1,036,330	100.0%





# Fire Type – Extreme Weather

Fire Type – Extreme represents the potential fire type under the extreme percentile weather category. The extreme percentile weather category represents the average weather based on the top three percent fire weather days in the analysis period. It is not intended to represent a worst case scenario weather event. Accordingly, the potential fire type is based on fuel conditions, extreme percentile weather, and topography.

Canopy fires are very dangerous, destructive and difficult to control due to their increased fire intensity. From a planning perspective, it is important to identify where these conditions are likely to occur on the landscape so that special preparedness measure can be taken if necessary. Typically canopy fires occur in extreme weather conditions. The Fire Type – Extreme layer shows the footprint of where these areas are most likely to occur. However, it is important to note that canopy fires are not restricted to these areas. Under the right conditions, it can occur in other canopied areas.

There are two primary fire types – surface fire and canopy fire. Canopy fire can be further subdivided into passive canopy fire and active canopy fire. A short description of each of these is provided below.

#### **Surface Fire**

A fire that spreads through surface fuel without consuming any overlying canopy fuel. Surface fuels include grass, timber litter, shrub/brush, slash and other dead or live vegetation within about 6 feet of the ground.





### **Passive Canopy Fire**

A type of crown fire in which the crowns of individual trees or small groups of trees burn, but solid flaming in the canopy cannot be maintained except for short periods (Scott & Reinhardt, 2001).





### **Active Canopy Fire**

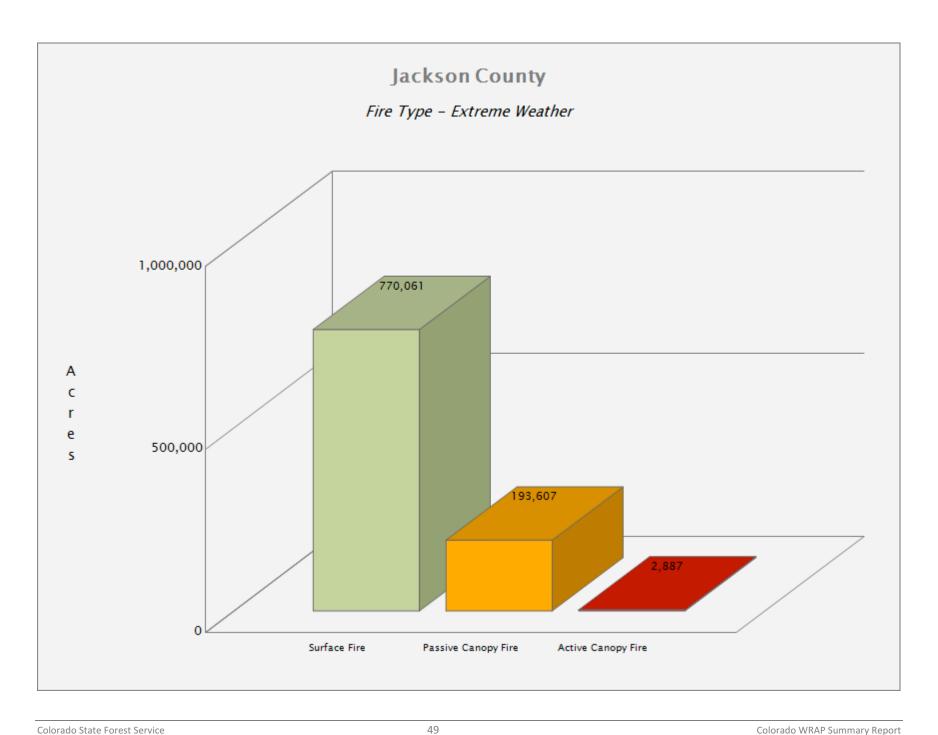
A crown fire in which the entire fuel complex (canopy) is involved in flame, but the crowning phase remains dependent on heat released from surface fuel for continued spread (Scott & Reinhardt, 2001).

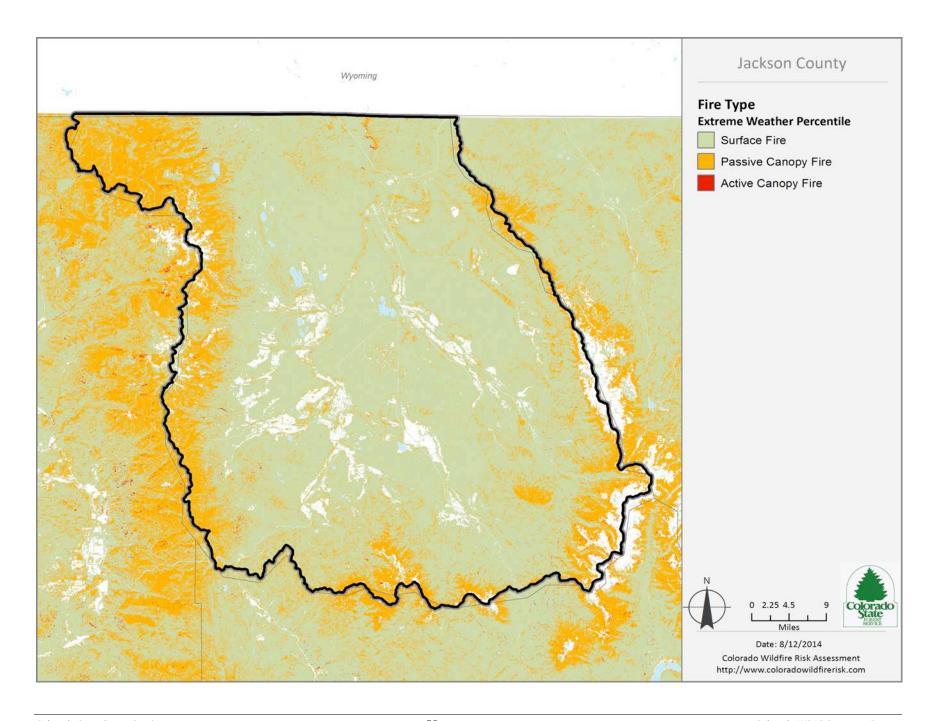




The Fire Type - Extreme Weather map is derived at a 30-meter resolution. This scale of data was chosen to be consistent with the accuracy of the primary surface fuels dataset used in the assessment. While not appropriate for site specific analysis, it is appropriate for regional, county or local planning efforts.

Fire Type – Extreme Weather	Acres	Percent
Surface Fire	770,061	79.7%
Passive Canopy Fire	193,607	20.0%
Active Canopy Fire	2,887	0.3%
Total	966,556	100.0%





# **Surface Fuels**

## **Description**

Surface fuels, or fire behavior fuel models as they are technically referred to, contain the parameters required by the Rothermel (1972) surface fire spread model to compute surface fire behavior characteristics, including rate of spread, flame length, fireline intensity and other fire behavior metrics. As the name might suggest, surface fuels account only for surface fire potential.



Unmanaged forest with dead and downed trees and branches



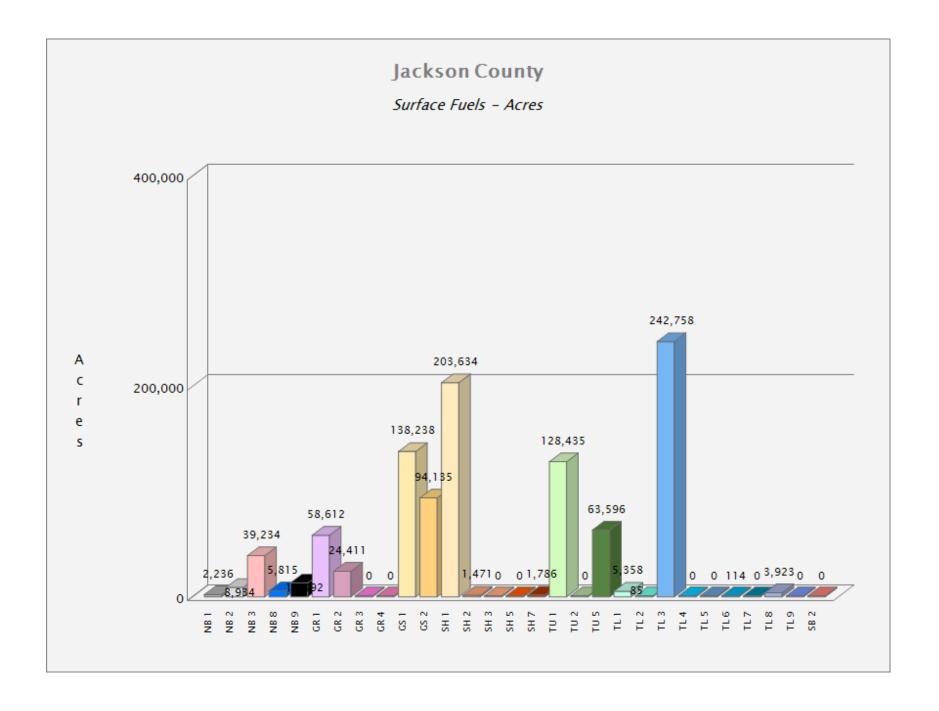
Slash on the ground indicates that forest management treatments have occurred in this area

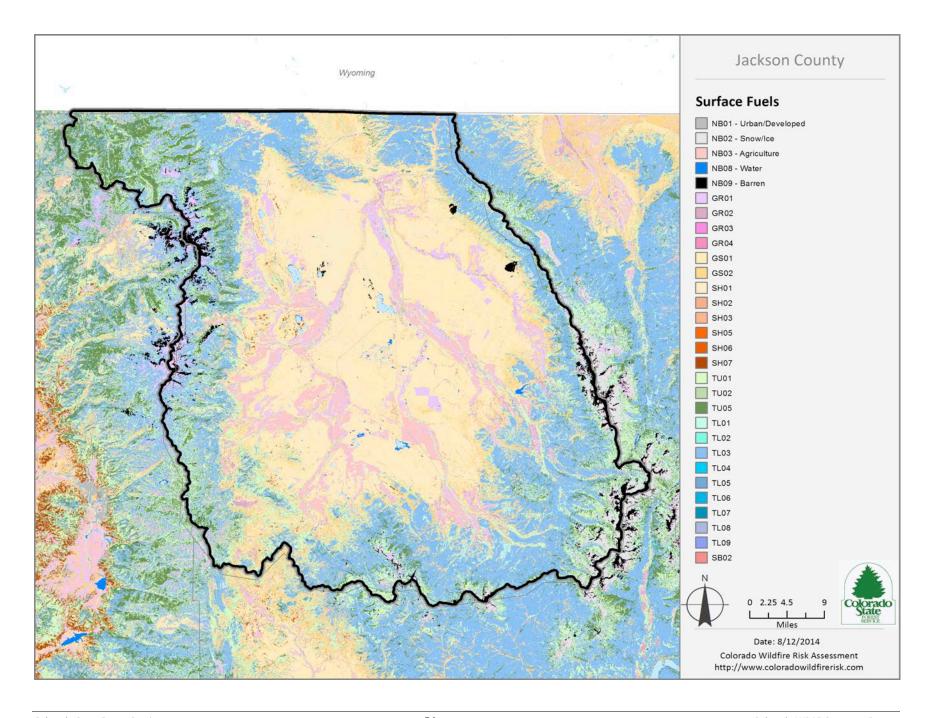
Canopy fire potential is computed through a separate but linked process. The Colorado WRA accounts for both surface and canopy fire potential in the fire behavior outputs. However, only surface fuels are shown in this report.

Surface fuels typically are categorized into one of four primary fuel types based on the primary carrier of the surface fire: 1) grass, 2) shrub/brush, 3) timber litter, and 4) slash. Two standard fire behavior fuel model sets have been published. The Fire Behavior Prediction System 1982 Fuel Model Set (Anderson, 1982) contains 13 fuel models, and the Fire Behavior Prediction System 2005 Fuel Model Set (Scott & Burgan, 2005) contains 40 fuel models. The Colorado WRA uses fuel models from the 2005 Fuel Model Set.

The LANDFIRE Program Refresh 2008 version of data products was used to compile the Surface Fuels data for the West Wide Risk Assessment and the Colorado Wildfire Risk Assessment. This reflects data through 2008. Some modifications were completed to reflect recent disturbances, such as large wildfires and pine beetle infestations, prevalent in central Colorado over recent years. These updates reflect changes in the landscape that represent conditions through 2010. Information on the process used to compile the Colorado fuels dataset can be found in the West Wide Assessment Final Report cited on the Reference Page.

Surface Fuels	Description	FBPS Fuel Model Set	Acres	Percent
GR 1	Short, Sparse Dry Climate Grass (Dynamic)	2005	58,612	5.7%
GR 2	Low Load, Dry Climate Grass (Dynamic)	2005	24,411	2.4%
GR 3	Low Load, Very Coarse, Humid Climate Grass (Dynamic)	2005	0	0.0%
GR 4	Moderate Load, Dry Climate Grass (Dynamic)	2005	0	0.0%
GS 1	Low Load, Dry Climate Grass-Shrub (Dynamic)	2005	138,238	13.3%
GS 2	Moderate Load, Dry Climate Grass-Shrub (Dynamic)	2005	94,135	9.1%
SH 1	Moderate Load, Humid Climate Grass-Shrub (Dynamic)	2005	203,634	19.7%
SH 2	Moderate Load, Dry Climate Shrub	2005	1,471	0.1%
SH 3	Moderate Load, Humid Climate Timber-Shrub	2005	0	0.0%
SH 5	High Load, Humid Climate Grass-Shrub	2005	0	0.0%
SH 7	Very High Load, Dry Climate Shrub	2005	1,786	0.2%
TU 1	Light Load, Dry Climate Timber-Grass-Shrub	2005	128,435	12.4%
TU 2	Moderate Load, Humid Climate Timber-Shrub	2005	0	0.0%
TU 5	High Load, Conifer Litter	2005	63,596	6.1%
TL 1	Low Load, Compact Conifer Litter	2005	5,358	0.5%
TL 2	Low Load, Broadleaf Litter	2005	85	0.0%
TL 3	Moderate Load, Conifer Litter	2005	242,758	23.4%
TL 4	Small Downed Logs	2005	0	0.0%
TL 5	High Load, Conifer Litter	2005	0	0.0%
TL 6	Moderate Load, Broadleaf Litter	2005	114	0.0%
TL 7	Large Downed Logs, Heavy Load Forest Litter	2005	0	0.0%
TL 8	Long-needle Litter	2005	3,923	0.4%
TL 9	Very High Load, Broadleaf Litter	2005	0	0.0%
SB 2	Moderate Load, Activity Fuel	2005	0	0.0%
NB 1	Urban/Developed	2005	2,236	0.2%
NB 2	Snow/Ice	2005	8,934	0.9%
NB 3	Agricultural	2005	39,234	3.8%
NB 8	Open Water	2005	5,815	0.6%
NB 9	Bare Ground	2005	13,392	1.3%
	T	otal	1,036,166	100.0%





# **Vegetation**

## **Description**

The Vegetation map describes the general vegetation and landcover types across the state of Colorado. In the Colorado WRA, the Vegetation dataset is used to support the development of the Surface Fuels, Canopy Cover, Canopy Stand Height, Canopy Base Height, and Canopy Bulk Density datasets.

The LANDFIRE program Refresh version of data products (Existing Vegetation Type) was used to compile the Vegetation data for the West Wide Risk Assessment and the Colorado WRA. This reflects data current to 2008. Some modifications were completed to reflect recent disturbances such as large wildfires and pine beetle infestations prevalent in central Colorado over recent years. The LANDFIRE EVT data was classified to reflect general vegetation cover types for representation with CO-WRAP.



Oak shrublands are commonly found along dry foothills and lower mountain slopes, and are often situated above Piñyon-juniper.



Piñyon-juniper woodlands are common in southern and southwestern Colorado.



Douglas-fir understory in a ponderosa pine forest.



Grasslands occur both on Colorado's Eastern Plains and on the Western Slope.

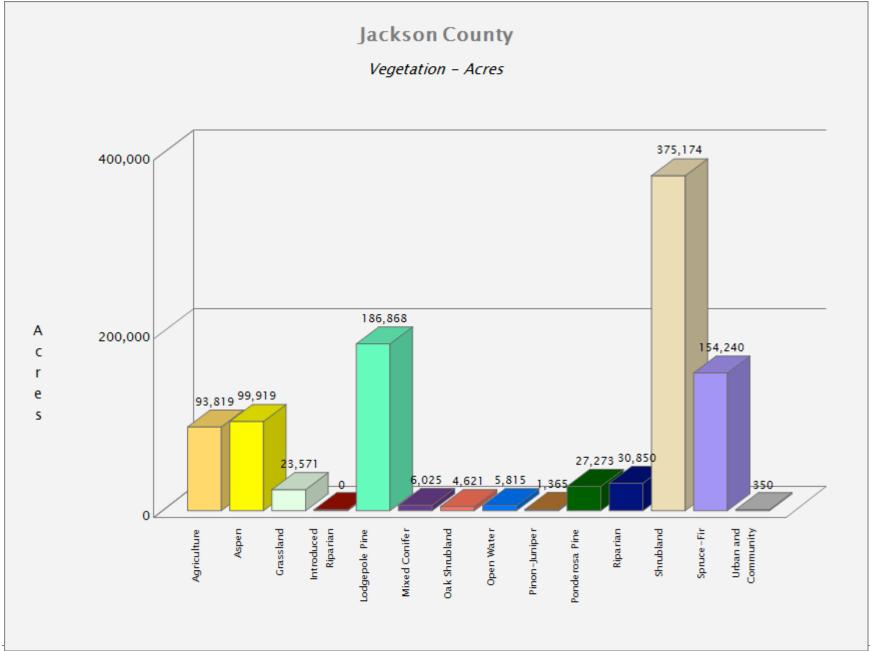


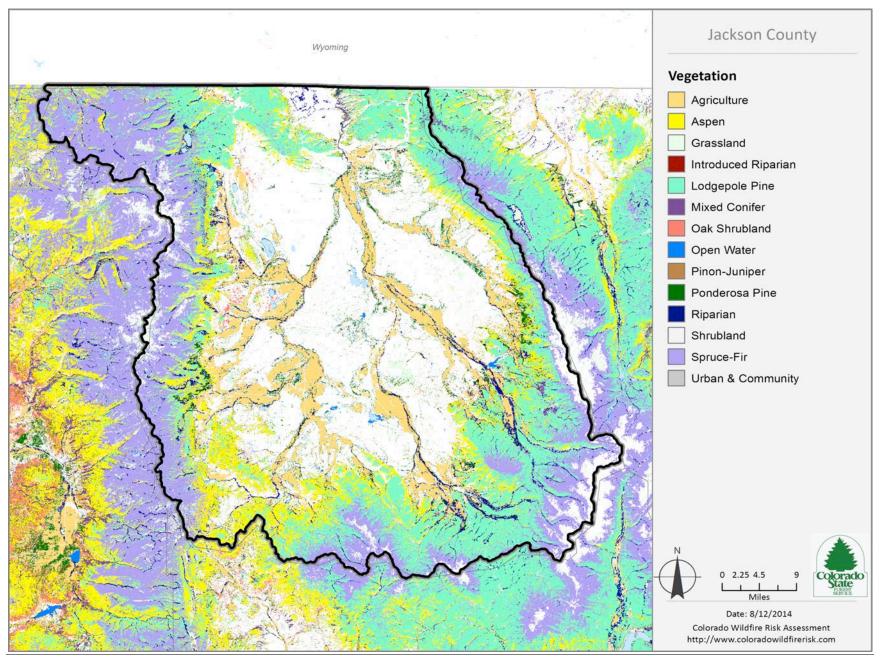
Wildland fire threat increases in lodgepole pine as the dense forests grow old.



Overly dense ponderosa pine, a dominant species of the montane zone.

Vegetation Class		Acres	Percent
Grassland		23,571	2.3%
Shrubland		375,174	37.2%
Aspen		99,919	9.9%
Lodgepole Pine		186,868	18.5%
Ponderosa Pine		27,273	2.7%
Spruce-Fir		154,240	15.3%
Mixed Conifer		6,025	0.6%
Oak Shrubland		4,621	0.5%
Pinyon-Juniper		1,365	0.1%
Riparian		30,850	3.1%
Introduced Riparian		0	0.0%
Agriculture		93,819	9.3%
Open Water		5,815	0.6%
Urban & Community		350	0.0%
	Total	1,009,889	100.0%





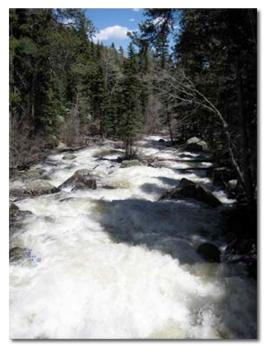
# **Drinking Water Importance Areas**

## **Description**

Drinking Water Importance Areas is the measure of quality and quantity of public surface drinking water categorized by watershed. This layer identifies an index of surface drinking water importance, reflecting a measure of water quality and quantity, characterized by Hydrologic Unit Code 12 (HUC 12) watersheds. The Hydrologic Unit system is a standardized watershed classification system developed by the USGS. Areas that are a source of drinking water are of critical importance and adverse effects from fire are a key concern.

The U.S. Forest Service Forests to Faucets (F2F) project is the primary source of the drinking water data set. This project used GIS modeling to develop an index of importance for supplying drinking water using HUC 12 watersheds as the spatial resolution. Watersheds are ranked from 1 to 100 reflecting relative level of importance, with 100 being the most important and 1 the least important.

Several criteria were used in the F2F project to derive the importance rating including water supply, flow analysis, and downstream drinking water demand. The final model of surface drinking water importance used in the F2F project combines the drinking water protection model, capturing the flow of water and water demand, with a model of mean annual water supply.



Virtually all of Colorado's drinking water comes from snowmelt carried at some point by a river.



The headwaters of the Animas River begin near Silverton, CO at elevations greater than 12,000 feet.

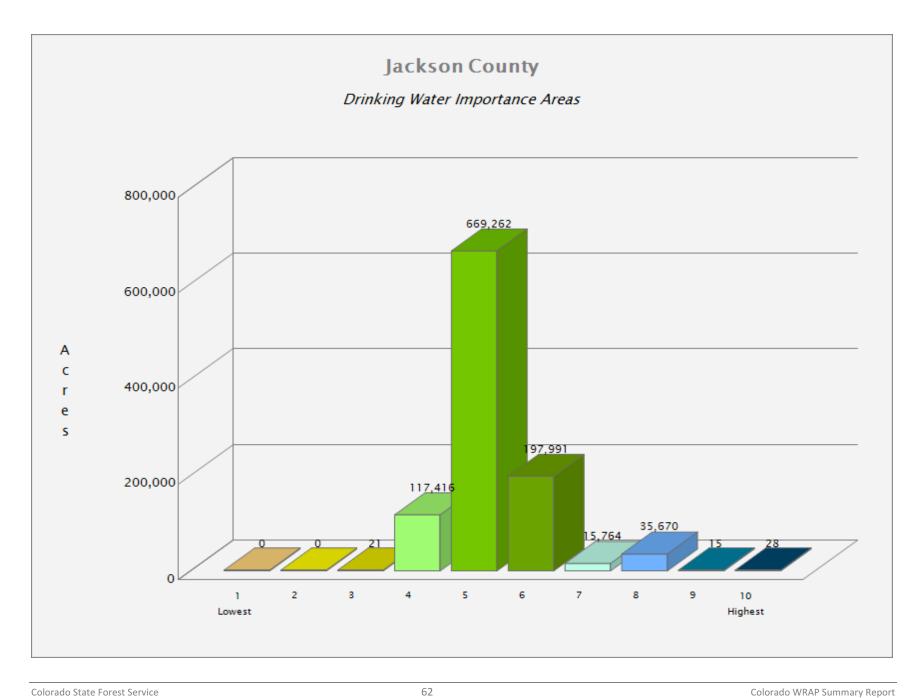
The values generated by the drinking water protection model are simply multiplied by the results of the model of mean annual water supply to create the final surface drinking water importance index.

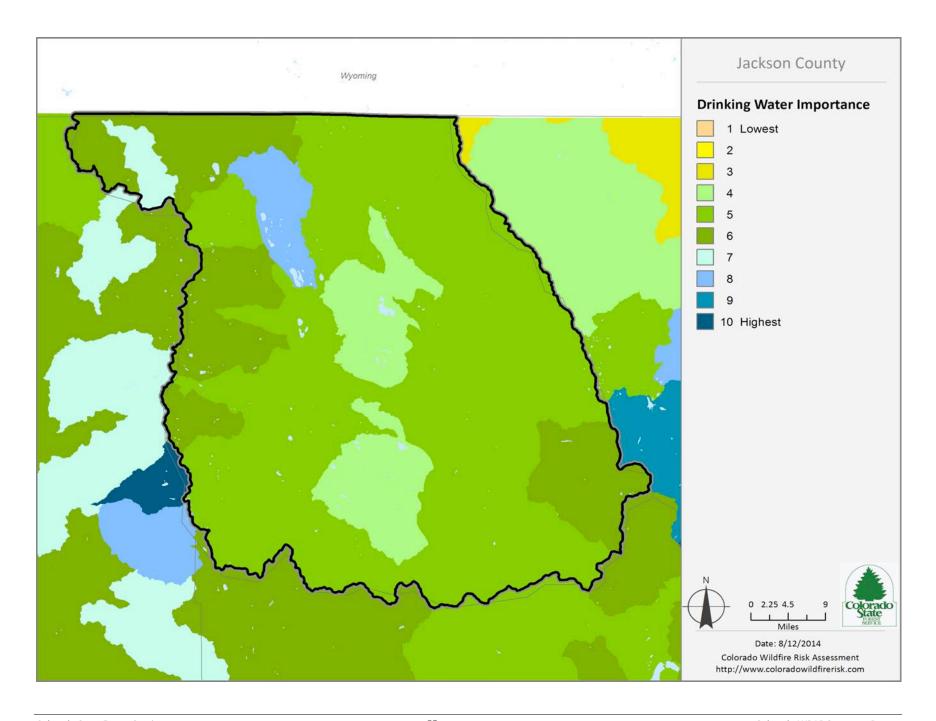
Water is critical to sustain life. Human water usage has further complicated nature's already complex aquatic system. Plants, including trees, are essential to the proper functioning of water movement within the environment. Forests receive precipitation, utilize it for their sustenance and growth, and influence its storage and/or passage to other parts of the environment.

Four major river systems – the Platte, Colorado, Arkansas and Rio Grande – originate in the Colorado mountains and fully drain into one-third of the landmass of the lower 48 states. Mountain snows supply 75 percent of the water to these river systems.

Approximately 40 percent of the water comes from the highest 20 percent of the land, most of which lies in national forests. National forests yield large portions of the total water in these river systems. The potential is great for forests to positively and negatively influence the transport of water over such immense distances.

Drinking Water Class	Acres	Percent
1 - Lowest	0	0.0%
2	0	0.0%
3	21	0.0%
4	117,416	11.3%
5	669,262	64.6%
6	197,991	19.1%
7	15,764	1.5%
8	35,670	3.4%
9	15	0.0%
10 - Highest	28	0.0%
Tota	al 1,036,166	100.0%





# **Drinking Water Risk Index**

## **Description**

Drinking Water Risk Index is a measure of the risk to DWIAs based on the potential negative impacts from wildfire.

In areas that experience low-severity burns, fire events can serve to eliminate competition, rejuvenate growth and improve watershed conditions. But in landscapes subjected to high, or even moderate-burn severity, the post-fire threats to public safety and natural resources can be extreme.

High-severity wildfires remove virtually all forest vegetation – from trees, shrubs and grasses down to discarded needles, decomposed roots and other elements of ground cover or duff that protect forest soils. A severe wildfire also can cause certain types of soil to become hydrophobic by forming a waxy, water-repellent layer that keeps water from penetrating the soil, dramatically amplifying the rate of runoff.

The loss of critical surface vegetation leaves forested slopes extremely vulnerable to large-scale soil erosion and flooding during subsequent storm events. In turn, these threats can impact the health, safety and integrity of communities and natural resources downstream. The likelihood that such a post-fire event will occur in Colorado is increased by the prevalence of highly erodible soils in several parts of the state, and weather patterns that frequently bring heavy rains on the heels of fire season.

In the aftermath of the 2002 fire season, the Colorado Department of Health estimated that 26 municipal water storage facilities were shut down due to fire and post-fire impacts.

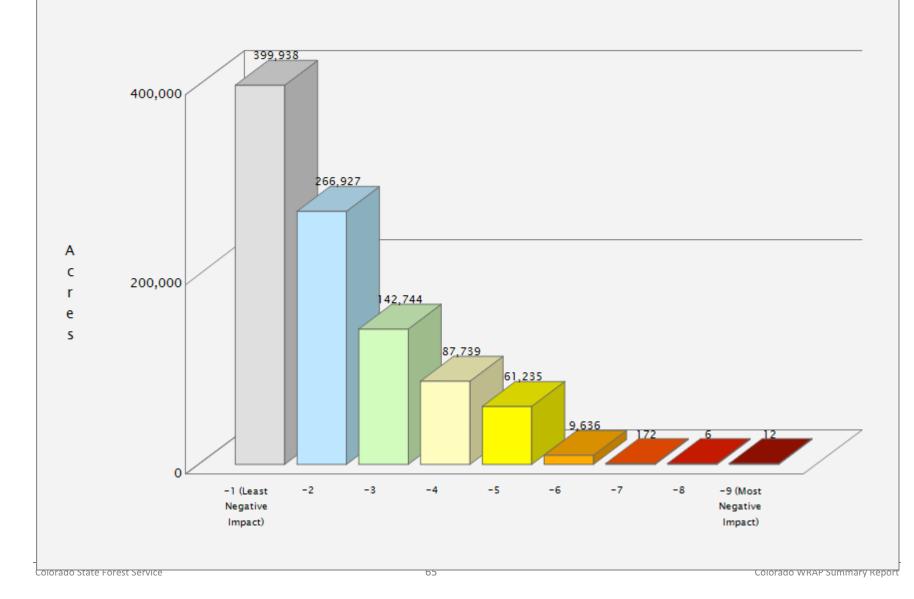
The potential for severe soil erosion is a consequence of wildfire because as a fire burns, it destroys plant material and the litter layer. Shrubs, forbs, grasses, trees and the litter layer disperse water during severe rainstorms. Plant roots stabilize the soil, and stems and leaves slow the water to give it time to percolate into the soil profile. Fire can destroy this soil protection.

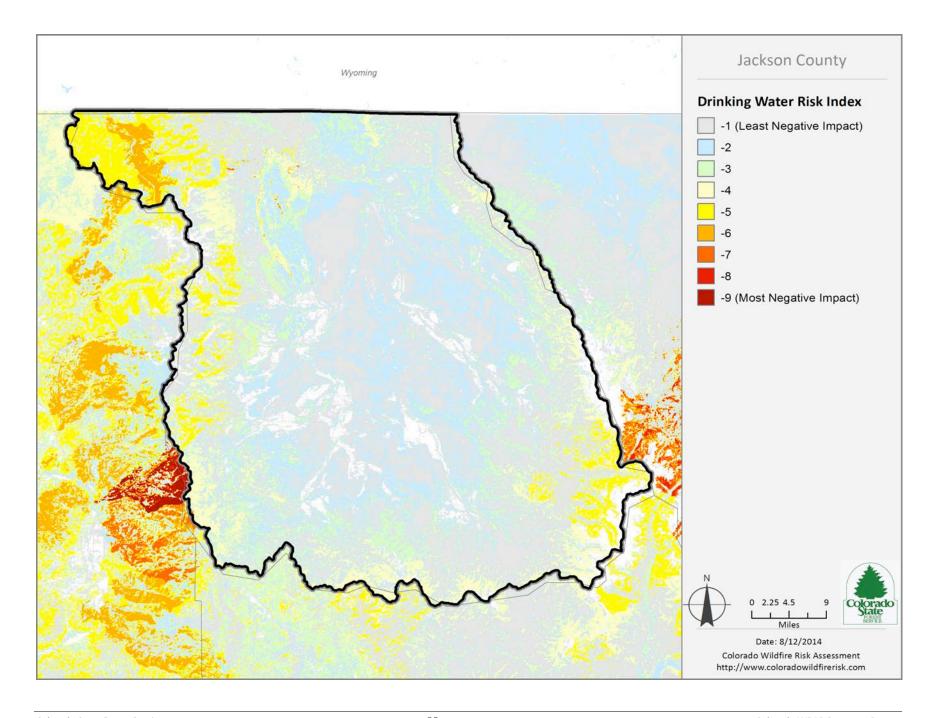
The range of values is from -1 to -9, with -1 representing the least negative impact and -9 representing the most negative impact.

Class	Acres	Percent
-1 (Least Negative Impact)	399,938	41.3%
-2	266,927	27.6%
-3	142,744	14.7%
-4	87,739	9.1%
-5	61,235	6.3%
-6	9,636	1.0%
-7	172	0.0%
-8	6	0.0%
-9 (Most Negative Impact)	12	0.0%
Total	968,407	100.0%



# Drinking Water Risk Index





# **Riparian Assets**

## **Description**

Riparian Assets are forested riparian areas characterized by functions of water quantity and quality, and ecology. This layer identifies riparian areas that are important as a suite of ecosystem services, including both terrestrial and aquatic habitat, water quality, water quantity, and other ecological functions. Riparian areas are considered an especially important element of the landscape in the west. Accordingly, riparian assets are distinguished from other forest assets so they can be evaluated separately.

The process for defining these riparian areas involved identifying the riparian footprint and then assigning a rating based upon two important riparian functions – water quantity and quality, and ecological significance. A scientific model was developed by the West Wide Risk Assessment technical team with in-kind support

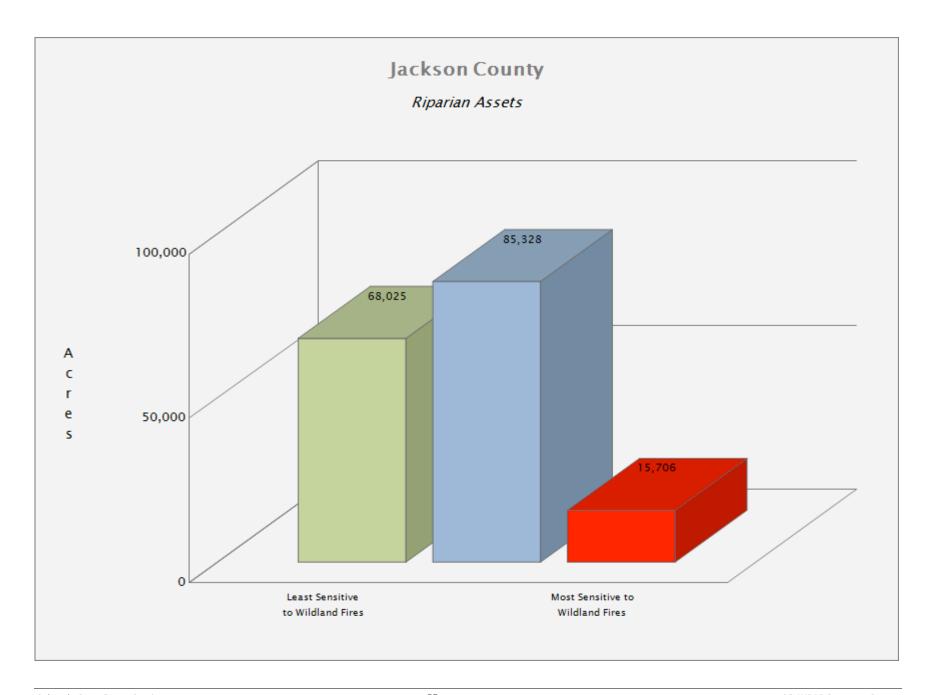


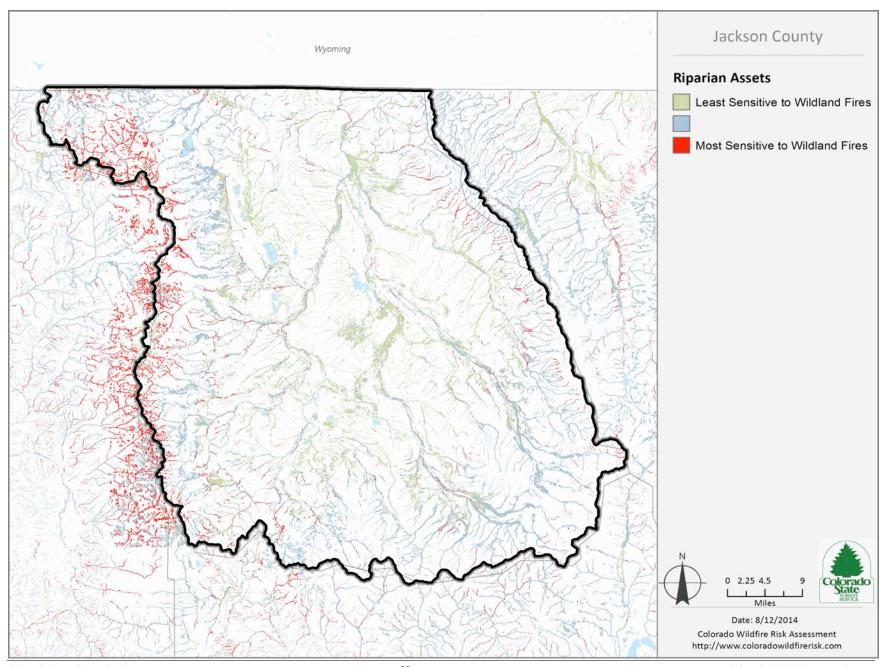
from CAL FIRE state representatives. Several input datasets were used in the model including the National Hydrography Dataset and the National Wetland Inventory.

The National Hydrography Data Set (NHD) was used to represent hydrology. A subset of streams and water bodies, which represents perennial, intermittent, and wetlands, was created. The NHD water bodies data set was used to determine the location of lakes, ponds, swamps, and marshes (wetlands).

To model water quality and quantity, erosion potential (K-factor) and annual average precipitation was used as key variables. The Riparian Assets data is an index of class values that range from 1 to 3 representing increasing importance of the riparian area as well as sensitivity to fire-related impacts on the suite of ecosystem services.

Riparian Assets Class	Acres	Percent
Least Sensitive to Wildland Fires	68,025	40.2%
	85,328	50.5%
Most Sensitive to Wildland Fires	15,706	9.3%
Total	169,059	100.0%





# **Riparian Assets Risk Index**

# **Description**

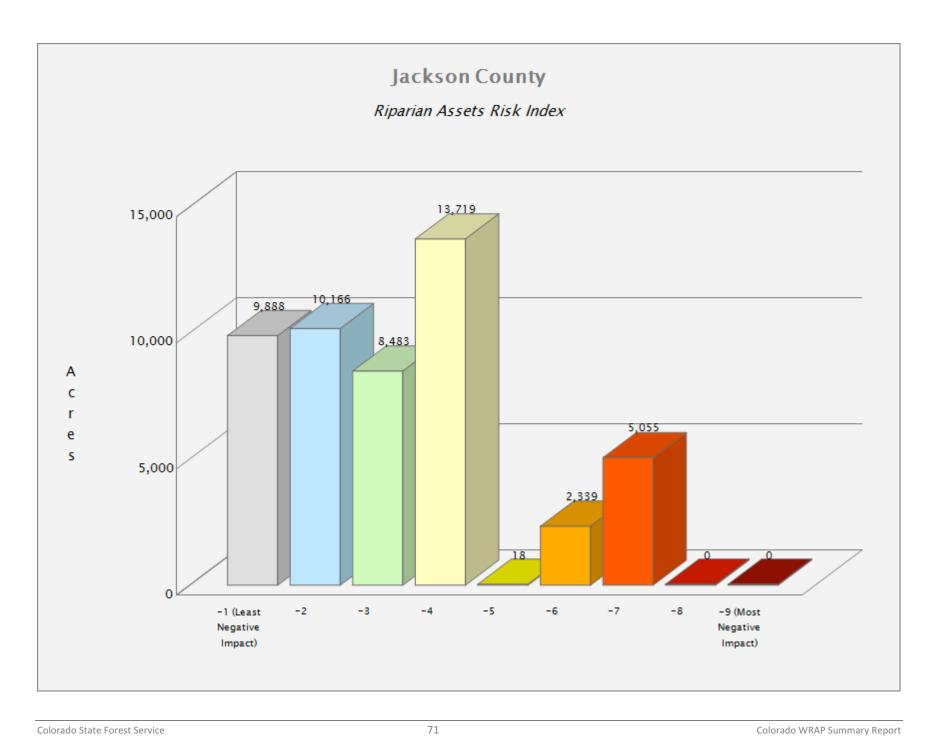
Riparian Assets Risk Index is a measure of the risk to riparian areas based on the potential negative impacts from wildfire. This layer identifies those riparian areas with the greatest potential for adverse effects from wildfire.

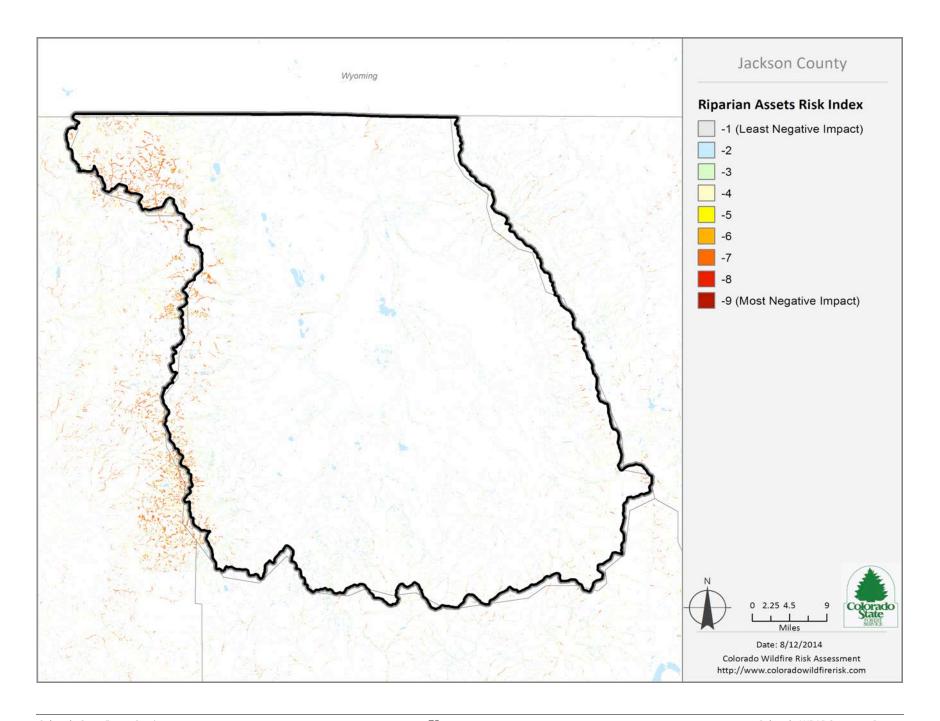
The range of values is from -1 to -9, with -1 representing the least negative impact and -9 representing the most negative impact.

The risk index has been calculated by combining the Riparian Assets data with a measure of fire intensity using a Response Function approach. Those areas with the highest negative impact (-9) represent areas with high potential fire intensity and high importance for ecosystem services. Those areas with the lowest negative impact (-1) represent those areas with low potential fire intensity and a low importance for ecosystem services.

This risk output is intended to supplement the Drinking Water Risk Index by identifying wildfire risk within the more detailed riparian areas.

Riparian Assets Risk Class	Acres	Percent
-1 (Least Negative Impact)	9,888	19.9%
-2	10,166	20.5%
-3	8,483	17.1%
-4	13,719	27.6%
-5	18	0.0%
-6	2,339	4.7%
-7	5,055	10.2%
-8	0	0.0%
-9 (Most Negative Impact)	0	0.0%
Total	49,669	100.0%





#### **Forest Assets**

#### **Description**

Forest Assets are forested areas categorized by height, cover, and susceptibility/response to fire. This layer identifies forested land categorized by height, cover and susceptibility or response to fire. Using these characteristics allows for the prioritization of landscapes reflecting forest assets that would be most adversely affected by fire. The rating of importance or value of the forest assets is relative to each state's interpretation of those characteristics considered most important for their landscapes.

Canopy cover from LANDFIRE was re-classified into two categories, open or sparse and closed. Areas classified as open or sparse have a canopy cover less than 60%. Areas classified as closed have a canopy cover greater than 60%.

Canopy height from LANDFIRE was re-classified into two categories, 0-10 meters and greater than 10 meters.

Response to fire was developed from the LANDFIRE existing vegetation type (EVT) dataset. There are over 1,000 existing vegetation types in the project area. Using a crosswalk defined by project ecologists, a classification of susceptibility and response to fire was defined and documented by fire ecologists into the three fire response classes.

These three classes are sensitive, resilient and adaptive.

- Sensitive = These are tree species that are intolerant or sensitive to damage from fire with low intensity.
- Resilient = These are tree species that have characteristics
  that help the tree resist damage from fire and whose adult
  stages can survive low intensity fires.
- Adaptive = These are tree species adapted with the ability to regenerate following fire by sprouting or serotinous cones

Forest Assets Class	Acres	Percent
Adaptive	152,749	32.6%
Resilient	32,320	6.9%
Sensitive	283,342	60.5%
To	tal 468,411	100.0%

#### **Forest Assets Risk Index**

#### **Description**

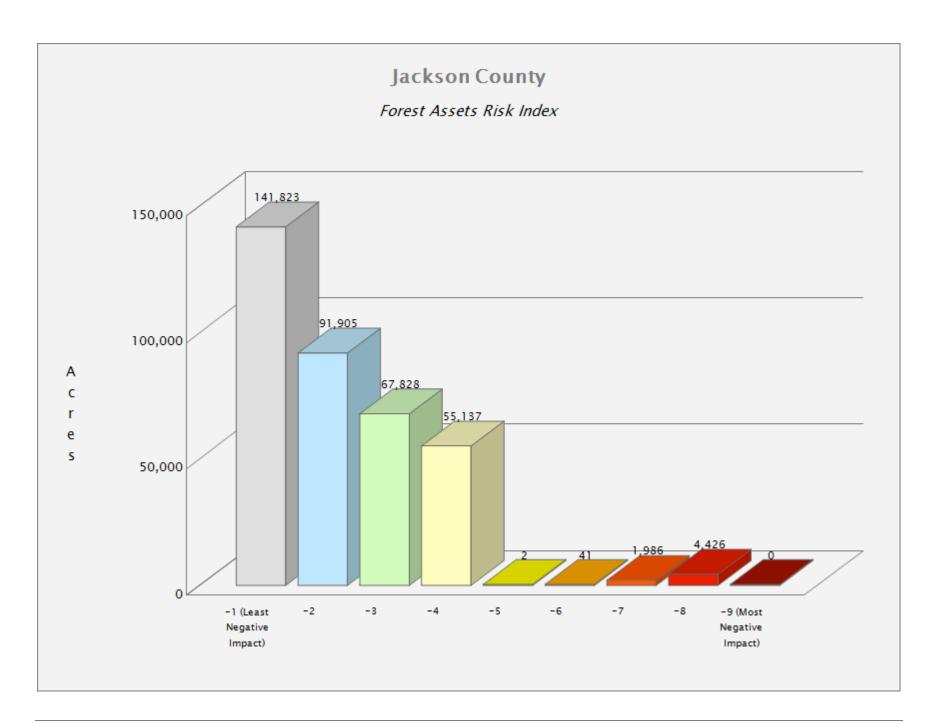
Forest Assets Risk Index is a measure of the risk to forested areas based on the potential negative impacts from wildfire. This layer identifies those forested areas with the greatest potential for adverse effects from wildfire.

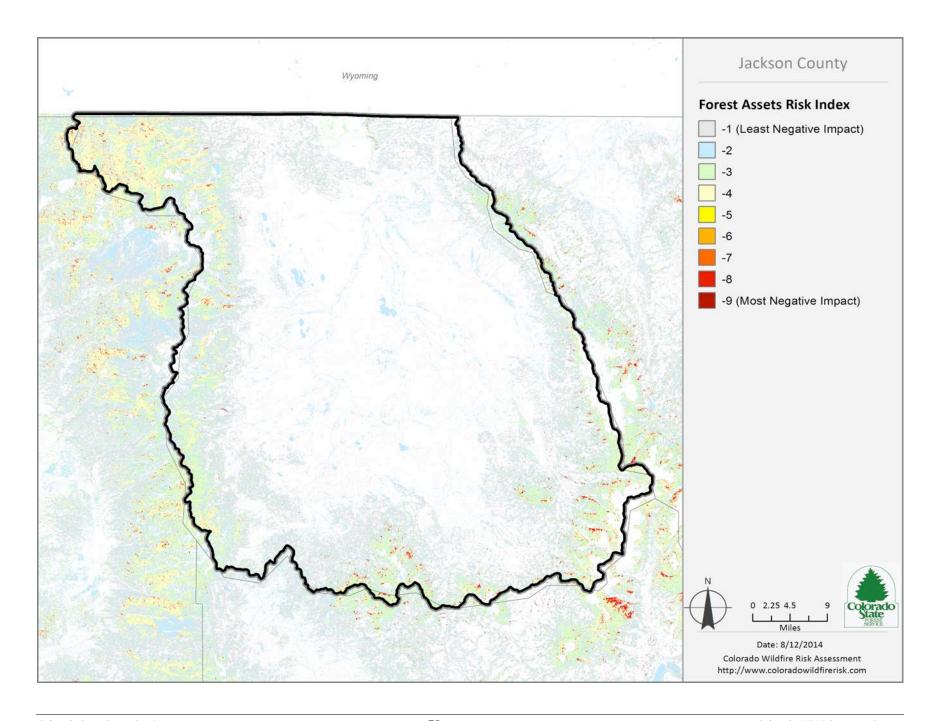
The range of values is from -1 to -9, with -1 representing the least negative impact and -9 representing the most negative impact.

The risk index has been calculated by combining the Forest Assets data with a measure of fire intensity using a Response Function approach. Those areas with the highest negative impact (-9) represent areas with high potential fire intensity and low resilience or adaptability to fire. Those areas with the lowest negative impact (-1) represent those areas with low potential fire intensity and high resilience or adaptability to fire.

This risk output is intended to provide an overall forest index for potential impact from wildfire. This can be applied to consider aesthetic values, ecosystem services, or economic values of forested lands.

Forest Assets Risk Class	Acres	Percent
-1 (Least Negative Impact)	141,823	39.1%
-2	91,905	25.3%
-3	67,828	18.7%
-4	55,137	15.2%
-5	2	0.0%
-6	41	0.0%
-7	1,986	0.5%
-8	4,426	1.2%
-9 (Most Negative Impact)	0	0.0%
Total	363,147	100.0%





#### References

- Anderson, H. E. (1982). Aids to determining fuel models for estimating fire behavior. USDA For. Serv. Gen. Tech. Rep. INT-122.
- Colorado State Forest Service (2012). Colorado Wildfire Risk Assessment 2012 Final Report. A final report developed by CSFS and DTS (Fort Collins, CO) documenting the technical methods and specifications for the Colorado WRA project.
- National Wildfire Coordinating Group (NWCG). (2008). Glossary of Wildland Fire Terminology. Publication Management System document PMS-205.
- National Wildfire Coordinating Group (2004). Fireline Handbook. NWCG Handbook 3. PMS 410-1. NFES 0065. National Interagency Fire Center. Boise, Idaho 83705.
- Scott, J. H., & Burgan, R. E. (2005). Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model. Ft. Collins, CO, Rocky Mountain Research Station: USDA Forest Service, Gen. Tech. Rpt. RMRS-GTR-153.
- Scott, J. H., & Reinhardt, E. D. (2001). Assessing the Crown Fire Potential by Linking Models of Surface and Crown Fire Behavior. Ft. Collins, CO, Rocky Mountain Research Station: USDA Forest Service, Research Paper RMRS-RP-29.
- West Wide Risk Assessment, Western Forestry Leadership Coalition (2012). West Wide Risk Assessment Final Report. Salem, OR. A final report developed by the WWA Technical Team documenting the methods and specifications of the WWA project.



#### Appendix C: Other Information

- Senate Bill 09-001
- Comprehensive Master Plan, Jackson County
- Jackson County Wildland Fire & Fuels Management Plan, 2003
- References
- Community Meeting Notes 8/2015

NOTE: This bill has been prepared for the signature of the appropriate legislative officers and the Governor. To determine whether the Governor has signed the bill or taken other action on it, please consult the legislative status sheet, the legislative history, or the Session Laws.



#### SENATE BILL 09-001

BY SENATOR(S) Gibbs and Penry, Kopp, Bacon, Boyd, Carroll M., Foster, Groff, Harvey, Heath, Hodge, Kester, King K., Lundberg, Morse, Newell, Romer, Scheffel, Schwartz, Shaffer B., Tapia, Tochtrop, White, Williams;

also REPRESENTATIVE(S) Scanlan and King S., Baumgardner, Carroll T., Curry, Fischer, Frangas, Gerou, Kerr J., Labuda, Levy, Massey, Nikkel, Pace, Roberts, Stephens, Tipton, Todd.

CONCERNING THE ESTABLISHMENT OF COMMUNITY WILDFIRE PROTECTION PLANS BY COUNTY GOVERNMENTS.

Be it enacted by the General Assembly of the State of Colorado:

**SECTION 1.** Part 3 of article 31 of title 23, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SECTION to read:

- **23-31-312.** Community wildfire preparedness plans county governments guidelines and criteria legislative declaration definitions. (1) (a) THE GENERAL ASSEMBLY HEREBY FINDS, DETERMINES, AND DECLARES THAT:
- (I) COMMUNITY WILDFIRE PROTECTION PLANS, OR CWPPS, ARE AUTHORIZED AND DEFINED IN SECTION 101 OF TITLE I OF THE FEDERAL

Capital letters indicate new material added to existing statutes; dashes through words indicate deletions from existing statutes and such material not part of act.

"HEALTHY FORESTS RESTORATION ACT OF 2003", PUB.L. 108-148, REFERRED TO IN THIS SECTION AS "HFRA". TITLE I OF HFRA AUTHORIZES THE SECRETARIES OF AGRICULTURE AND THE INTERIOR TO EXPEDITE THE DEVELOPMENT AND IMPLEMENTATION OF HAZARDOUS FUEL REDUCTION PROJECTS ON FEDERAL LANDS MANAGED BY THE UNITED STATES FOREST SERVICE AND THE BUREAU OF LAND MANAGEMENT WHEN THESE AGENCIES MEET CERTAIN CONDITIONS. HFRA EMPHASIZES THE NEED FOR FEDERAL AGENCIES TO WORK COLLABORATIVELY WITH LOCAL COMMUNITIES IN DEVELOPING HAZARDOUS FUEL REDUCTION PROJECTS, PLACING PRIORITY ON TREATMENT AREAS IDENTIFIED BY THE LOCAL COMMUNITIES THEMSELVES IN A CWPP. THE WILD LAND-URBAN INTERFACE AREA IS ONE OF THE IDENTIFIED PROPERTY AREAS THAT QUALIFY UNDER HFRA FOR THE USE OF THIS EXPEDITED ENVIRONMENTAL REVIEW PROCESS.

- (II) THE DEVELOPMENT OF A CWPP CAN ASSIST A LOCAL COMMUNITY IN CLARIFYING AND REFINING ITS PRIORITIES FOR THE PROTECTION OF LIFE, PROPERTY, AND CRITICAL INFRASTRUCTURE IN ITS WILD LAND-URBAN INTERFACE AREA. THE CWPP BRINGS TOGETHER DIVERSE FEDERAL, STATE, AND LOCAL INTERESTS TO DISCUSS THEIR MUTUAL CONCERNS FOR PUBLIC SAFETY, COMMUNITY SUSTAINABILITY, AND NATURAL RESOURCES. THE CWPP PROCESS OFFERS A POSITIVE, SOLUTION-ORIENTED ENVIRONMENT IN WHICH TO ADDRESS CHALLENGES SUCH AS LOCAL FIRE-FIGHTING CAPABILITY, THE NEED FOR DEFENSIBLE SPACE AROUND HOMES AND HOUSING DEVELOPMENTS, THE EFFECT OF FIRE RATINGS AND COMBUSTIBILITY STANDARDS FOR BUILDING MATERIALS USED IN WILD LAND-URBAN INTERFACE AREAS, AND WHERE AND HOW TO PRIORITIZE LAND MANAGEMENT ON BOTH FEDERAL AND NONFEDERAL LANDS. CWPPS CAN BE AS SIMPLE OR COMPLEX AS A LOCAL COMMUNITY DESIRES.
- (III) THE ADOPTION OF A CWPP BRINGS MANY BENEFITS TO THE STATE AND ADOPTING LOCAL COMMUNITY, INCLUDING:
- (A) THE OPPORTUNITY TO ESTABLISH A LOCALLY APPROPRIATE DEFINITION AND BOUNDARY FOR THE WILD LAND-URBAN INTERFACE AREA;
- (B) THE ESTABLISHMENT OF RELATIONS WITH OTHER STATE AND LOCAL GOVERNMENT OFFICIALS, LOCAL FIRE CHIEFS, STATE AND NATIONAL FIRE ORGANIZATIONS, FEDERAL LAND MANAGEMENT AGENCIES, PRIVATE HOMEOWNERS, ELECTRIC, GAS, AND WATER UTILITY PROVIDERS IN THE SUBJECT AREA, AND COMMUNITY GROUPS, THEREBY ENSURING

COLLABORATION AMONG THESE GROUPS IN INITIATING A PLANNING DIALOGUE AND FACILITATING THE IMPLEMENTATION OF PRIORITY ACTIONS ACROSS OWNERSHIP BOUNDARIES;

- (C) SPECIALIZED NATURAL RESOURCE KNOWLEDGE AND TECHNICAL EXPERTISE RELATIVE TO THE PLANNING PROCESS, PARTICULARLY IN THE AREAS OF GLOBAL POSITIONING SYSTEMS AND MAPPING, VEGETATION MANAGEMENT, ASSESSMENT OF VALUES AND RISKS, AND FUNDING STRATEGIES; AND
- (D) STATEWIDE LEADERSHIP IN DEVELOPING AND MAINTAINING A LIST OR MAP OF COMMUNITIES AT RISK WITHIN THE STATE AND FACILITATING WORK AMONG FEDERAL AND LOCAL PARTNERS TO ESTABLISH PRIORITIES FOR ACTION.
- (IV) CWPPs give priority to projects that provide for the protection of at-risk communities or watersheds or that implement recommendations in the CWPP.
- (V) CWPPs assist local communities in influencing where and how federal agencies implement fuel reduction projects on federal lands, how additional federal funds may be distributed for projects on nonfederal lands, and in determining the types and methods of treatment that, if completed, would reduce the risk to the community.
- (VI) THE DEVELOPMENT OF CWPPS PROMOTES ECONOMIC OPPORTUNITIES IN RURAL COMMUNITIES.
- (b) BY ENACTING THIS SECTION, THE GENERAL ASSEMBLY INTENDS TO FACILITATE AND ENCOURAGE THE DEVELOPMENT OF CWPPS IN COUNTIES WITH FIRE HAZARD AREAS IN THEIR TERRITORIAL BOUNDARIES AND TO PROVIDE MORE STATEWIDE UNIFORMITY AND CONSISTENCY WITH RESPECT TO THE CONTENT OF CWPPS IN COUNTIES NEEDING PROTECTION AGAINST WILDFIRES.
- (2) AS USED IN THIS SECTION, UNLESS THE CONTEXT OTHERWISE REQUIRES:
  - (a) "CWPP" MEANS A COMMUNITY WILDFIRE PROTECTION PLAN AS

PAGE 3-SENATE BILL 09-001

AUTHORIZED AND DEFINED IN SECTION 101 OF TITLE I OF THE FEDERAL "HEALTHY FORESTS RESTORATION ACT OF 2003", Pub.L. 108-148.

- (b) "FIRE HAZARD AREA" MEANS AN AREA MAPPED BY THE COLORADO STATE FOREST SERVICE, IDENTIFIED IN SECTION 23-31-302, AS FACING A SUBSTANTIAL AND RECURRING RISK OF EXPOSURE TO SEVERE FIRE HAZARDS.
- (3) NOT LATER THAN NOVEMBER 15, 2009, THE STATE FORESTER, IN COLLABORATION WITH REPRESENTATIVES OF THE UNITED STATES FOREST SERVICE, THE COLORADO DEPARTMENT OF NATURAL RESOURCES, COUNTY GOVERNMENTS, MUNICIPAL GOVERNMENTS, LOCAL FIRE DEPARTMENTS OR FIRE PROTECTION DISTRICTS, ELECTRIC, GAS, AND WATER UTILITY PROVIDERS IN THE SUBJECT AREA, AND STATE AND LOCAL LAW ENFORCEMENT AGENCIES, SHALL ESTABLISH GUIDELINES AND CRITERIA FOR COUNTIES TO CONSIDER IN PREPARING THEIR OWN CWPPS TO ADDRESS WILDFIRES IN FIRE HAZARD AREAS WITHIN THE UNINCORPORATED PORTION OF THE COUNTY.
- (4) THE ADOPTION OF A CWPP BY A COUNTY GOVERNMENT SHALL BE GOVERNED BY THE REQUIREMENTS OF SECTION 30-15-401.7, C.R.S.
- (5) THE STATE FORESTER SHALL SEND TIMELY NOTICE OF THE GUIDELINES AND CRITERIA ESTABLISHED PURSUANT TO SUBSECTION (3) OF THIS SECTION TO THE DEPARTMENT OF LOCAL AFFAIRS AND TO STATEWIDE ORGANIZATIONS REPRESENTING COLORADO COUNTIES AND MUNICIPALITIES AND SHALL POST SUCH INFORMATION ON THE WEB SITE OF THE COLORADO STATE FOREST SERVICE.
- (6) NOTHING IN THIS SECTION SHALL BE CONSTRUED TO AFFECT THE PROVISIONS OF SECTION 23-31-309 OR THE WILDFIRE PREPAREDNESS PLAN DEVELOPED PURSUANT TO SUCH SECTION.
- **SECTION 2.** Part 4 of article 15 of title 30, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SECTION to read:
- **30-15-401.7. Determination of fire hazard area community wildfire preparedness plans adoption legislative declaration definitions.** (1) (a) THE GENERAL ASSEMBLY HEREBY FINDS, DETERMINES, AND DECLARES THAT:

- (I) COMMUNITY WILDFIRE PROTECTION PLANS, OR CWPPS, ARE AUTHORIZED AND DEFINED IN SECTION 101 OF TITLE I OF THE FEDERAL "HEALTHY FORESTS RESTORATION ACT OF 2003", PUB.L. 108-148, REFERRED TO IN THIS SECTION AS "HFRA". TITLE I OF HFRA AUTHORIZES THE SECRETARIES OF AGRICULTURE AND THE INTERIOR TO EXPEDITE THE DEVELOPMENT AND IMPLEMENTATION OF HAZARDOUS FUEL REDUCTION PROJECTS ON FEDERAL LANDS MANAGED BY THE UNITED STATES FOREST SERVICE AND THE BUREAU OF LAND MANAGEMENT WHEN THESE AGENCIES MEET CERTAIN CONDITIONS. HFRA EMPHASIZES THE NEED FOR FEDERAL AGENCIES TO WORK COLLABORATIVELY WITH LOCAL COMMUNITIES IN DEVELOPING HAZARDOUS FUEL REDUCTION PROJECTS, PLACING PRIORITY ON TREATMENT AREAS IDENTIFIED BY THE LOCAL COMMUNITIES THEMSELVES IN A CWPP. THE WILD LAND-URBAN INTERFACE AREA IS ONE OF THE IDENTIFIED PROPERTY AREAS THAT QUALIFY UNDER HFRA FOR THE USE OF THIS EXPEDITED ENVIRONMENTAL REVIEW PROCESS.
- (II) THE DEVELOPMENT OF A CWPP CAN ASSIST A LOCAL COMMUNITY IN CLARIFYING AND REFINING ITS PRIORITIES FOR THE PROTECTION OF LIFE, PROPERTY, AND CRITICAL INFRASTRUCTURE IN ITS WILD LAND-URBAN INTERFACE AREA. THE CWPP BRINGS TOGETHER DIVERSE FEDERAL, STATE, AND LOCAL INTERESTS TO DISCUSS THEIR MUTUAL CONCERNS FOR PUBLIC SAFETY, COMMUNITY SUSTAINABILITY, AND NATURAL RESOURCES. THE CWPP PROCESS OFFERS A POSITIVE, SOLUTION-ORIENTED ENVIRONMENT IN WHICH TO ADDRESS CHALLENGES SUCH AS LOCAL FIRE-FIGHTING CAPABILITY, THE NEED FOR DEFENSIBLE SPACE AROUND HOMES AND HOUSING DEVELOPMENTS, AND WHERE AND HOW TO PRIORITIZE LAND MANAGEMENT ON BOTH FEDERAL AND NONFEDERAL LANDS. CWPPS CAN BE AS SIMPLE OR COMPLEX AS A LOCAL COMMUNITY DESIRES.
- (III) THE ADOPTION OF A CWPP BRINGS MANY BENEFITS TO THE STATE AND ADOPTING LOCAL COMMUNITY, INCLUDING:
- (A) THE OPPORTUNITY TO ESTABLISH A LOCALLY APPROPRIATE DEFINITION AND BOUNDARY FOR THE WILD LAND-URBAN INTERFACE AREA;
- (B) THE OPPORTUNITY TO STUDY THE EFFECT OF FIRE RATINGS AND COMBUSTIBILITY STANDARDS FOR BUILDING MATERIALS USED IN WILD LAND-URBAN INTERFACE AREAS;
  - (C) THE ESTABLISHMENT OF RELATIONS WITH OTHER STATE AND

PAGE 5-SENATE BILL 09-001

LOCAL GOVERNMENT OFFICIALS, LOCAL FIRE CHIEFS, STATE AND NATIONAL FIRE ORGANIZATIONS, FEDERAL LAND MANAGEMENT AGENCIES, PRIVATE HOMEOWNERS, ELECTRIC, GAS, AND WATER UTILITY PROVIDERS IN THE SUBJECT AREA, AND COMMUNITY GROUPS, THEREBY ENSURING COLLABORATION AMONG THESE GROUPS IN INITIATING A PLANNING DIALOGUE AND FACILITATING THE IMPLEMENTATION OF PRIORITY ACTIONS ACROSS OWNERSHIP BOUNDARIES;

- (D) SPECIALIZED NATURAL RESOURCE KNOWLEDGE AND TECHNICAL EXPERTISE RELATIVE TO THE PLANNING PROCESS, PARTICULARLY IN THE AREAS OF GLOBAL POSITIONING SYSTEMS AND MAPPING, VEGETATION MANAGEMENT, ASSESSMENT OF VALUES AND RISKS, AND FUNDING STRATEGIES; AND
- (E) STATEWIDE LEADERSHIP IN DEVELOPING AND MAINTAINING A LIST OR MAP OF COMMUNITIES AT RISK WITHIN THE STATE AND FACILITATING WORK AMONG FEDERAL AND LOCAL PARTNERS TO ESTABLISH PRIORITIES FOR ACTION.
- (IV) CWPPS GIVE PRIORITY TO PROJECTS THAT PROVIDE FOR THE PROTECTION OF AT-RISK COMMUNITIES OR WATERSHEDS OR THAT IMPLEMENT RECOMMENDATIONS IN THE CWPP.
- (V) CWPPs assist local communities in influencing where and how federal agencies implement fuel reduction projects on federal lands, how additional federal funds may be distributed for projects on nonfederal lands, and in determining the types and methods of treatment that, if completed, would reduce the risk to the community.
- (VI) THE DEVELOPMENT OF CWPPS PROMOTES ECONOMIC OPPORTUNITIES IN RURAL COMMUNITIES.
- (b) BY ENACTING THIS SECTION, THE GENERAL ASSEMBLY INTENDS TO FACILITATE AND ENCOURAGE THE DEVELOPMENT OF CWPPS IN COUNTIES WITH FIRE HAZARD AREAS IN THEIR TERRITORIAL BOUNDARIES AND TO PROVIDE MORE STATEWIDE UNIFORMITY AND CONSISTENCY WITH RESPECT TO THE CONTENT OF CWPPS IN COUNTIES NEEDING PROTECTION AGAINST WILDFIRES.

- (2) AS USED IN THIS SECTION, UNLESS THE CONTEXT OTHERWISE REOUIRES:
- (a) "CWPP" MEANS A COMMUNITY WILDFIRE PROTECTION PLAN AS AUTHORIZED AND DEFINED IN SECTION 101 OF TITLE I OF THE FEDERAL "HEALTHY FORESTS RESTORATION ACT OF 2003", PUB.L. 108-148.
- (b) "FIRE HAZARD AREA" MEANS AN AREA MAPPED BY THE COLORADO STATE FOREST SERVICE, IDENTIFIED IN SECTION 23-31-302, C.R.S., AS FACING A SUBSTANTIAL AND RECURRING RISK OF EXPOSURE TO SEVERE FIRE HAZARDS.
- (3) (a) Not later than January 1, 2011, the board of county commissioners of each county, with the assistance of the state forester, shall determine whether there are fire hazard areas within the unincorporated portion of the county.
- (b) Not later than one hundred eighty days after determining there are fire hazard areas within the unincorporated portion of a county, the board of county commissioners, in collaboration with the representatives of the organizations or entities enumerated in section 23-31-312 (3), C.R.S., that established the guidelines and criteria, shall prepare a CWPP for the purpose of addressing wildfires in fire hazard areas within the unincorporated portion of the county. In preparing the CWPP, the board shall consider the guidelines and criteria established by the state forester and such representatives pursuant to section 23-31-312 (3), C.R.S.
- (c) Notwithstanding any other provision of this section, a county that has already prepared a CWPP or an equivalent plan as of the effective date of this section and, in connection with such preparation, considered the guidelines and criteria established by the state forester and designated representatives pursuant to section 23-31-312 (3), C.R.S., shall not be required to prepare a new CWPP to satisfy the requirements of this section.

**SECTION 3.** 23-31-309, Colorado Revised Statutes, is amended BY THE ADDITION OF A NEW SUBSECTION to read:

**23-31-309.** Wildfire emergency response fund - creation - wildfire preparedness fund - creation. (6) PROCEDURES GOVERNING THE DEVELOPMENT, ADOPTION, OR IMPLEMENTATION OF COMMUNITY WILDFIRE PROTECTION PLANS BY COUNTY GOVERNMENTS ARE SPECIFIED IN SECTION 30-15-401.7, C.R.S. NOTHING IN THIS SECTION SHALL BE CONSTRUED TO AFFECT THE PROVISIONS OF SECTION 30-15-401.7, C.R.S.

**SECTION 4.** 30-10-512, Colorado Revised Statutes, is amended to read:

**30-10-512.** Sheriff to act as fire warden. Subject to the Provisions of the Community wildfire protection plan prepared by the County in accordance with section 30-15-401.7, the sheriff of every county, in addition to other duties, shall act as fire warden of his or HER respective county in case of prairie or forest fires or wildfires.

**SECTION 5.** 30-10-513, Colorado Revised Statutes, is amended to read:

30-10-513. Sheriff in charge of forest or prairie fire or wildfire - expenses. Subject to the provisions of the community wildfire PROTECTION PLAN PREPARED BY THE COUNTY IN ACCORDANCE WITH SECTION 30-15-401.7, it is the duty of the sheriff, undersheriffs, and deputies, in case of any forest or prairie fire OR WILDFIRE OCCURRING IN THE UNINCORPORATED AREA OF THE COUNTY, to assume charge thereof or to assist other governmental authorities in such emergencies for controlling or extinguishing such fires, and, for assisting in so doing, they may call to their aid such person as they may deem necessary. The state forester may assume the duty with concurrence of the sheriff. The board of county commissioners of any county may allow the sheriff, undersheriffs, deputies, municipal or county fire departments, fire protection districts, fire authorities, and such other persons as may be called to assist in controlling or extinguishing such fires such compensation and other expenses necessarily incurred as it may deem just. The board of county commissioners of any county in this state may make such appropriation as it may deem proper for the purpose of controlling fires in its county. The board of county commissioners is authorized to levy a special tax subject to approval of the voters upon every dollar of valuation of assessment of the taxable property within the county for the purpose of creating a fund that shall be appropriated, after consultation with representatives of fire departments, fire protection districts, and fire authorities in the county, to prevent, control, or extinguish such fires anywhere in the county and to fix the rate of levy; except that the amount raised from the levy in any one year is limited to the amount raised by one mill or five hundred thousand dollars, whichever is less.

**SECTION 6.** 32-1-1002 (3) (a), Colorado Revised Statutes, is amended to read:

**32-1-1002.** Fire protection districts - additional powers and duties. (3) (a) The chief of the fire department in each fire protection district in the state of Colorado, by virtue of such office so held by him OR HER, shall have authority over the supervision of all fires within the district, except as otherwise provided by law, subject to the duties and obligations imposed by this subsection (3) AND SUBJECT TO THE PROVISIONS OF THE COMMUNITY WILDFIRE PROTECTION PLAN PREPARED BY THE COUNTY IN ACCORDANCE WITH SECTION 30-15-401.7, C.R.S., and shall be vested with such other express authority as is contained in this subsection (3), including commanding the fire department of such district.

**SECTION 7.** Act subject to petition - effective date. This act shall take effect at 12:01 a.m. on the day following the expiration of the ninety-day period after final adjournment of the general assembly that is allowed for submitting a referendum petition pursuant to article V, section 1 (3) of the state constitution, (August 4, 2009, if adjournment sine die is on May 6, 2009); except that, if a referendum petition is filed against this act or an item, section, or part of this act within such period, then the act, item,

	the people, shall take effect on the date of ote thereon by proclamation of the governor.
Peter C. Groff PRESIDENT OF THE SENATE	Terrance D. Carroll SPEAKER OF THE HOUSE OF REPRESENTATIVES
Karen Goldman SECRETARY OF THE SENATE	Marilyn Eddins CHIEF CLERK OF THE HOUSE OF REPRESENTATIVES
APPROVED	
Bill Ritter, J	Tr.

#### **References/Resources**

- Healthy Forest Restoration Act of 2003
- Preparing a Community Wildfire Protection Plan, A Handbook for Wildland-Urban Interface Communities, March 2004; Communities Committee, National Association of Counties, National Association of State Foresters, Society of American Foresters, Western Governors' Association
- Community Wildfire Protection Plans-Guidelines for Implementation, Colorado State Forest Service, August 2005
- Jackson County Fire Management Plan, 2003
- Jackson County Annual Operating Plan, 2010

### Jackson County CWPP Community Meeting Notes August 3, 2015

#### **Attendees:**

27 community members/landowners
Jackson County Administrator (Kent Crowder)
Jackson Sheriff (Gary Cure)
NP Fire (Jeff Benson)
USFS (Destiny Chapman, Adam Bromley, Sam Duerksen)
CSFS (John Twitchell, Bart Brown, Russ Gross)
CSU Extension (Deb Alpe)
BLM (Lyn Barclay)
CPW

**Meeting:** - 6:30 potluck; meeting 7pm to 8:30pm

#### **Discussion:**

Had general discussion recapping previous efforts to create individual CWPPs and current effort to combine into one blanket plan for purpose of complying with state legislation.

#### Other items discussed:

- Evacuation plans
- Rural addressing and good identification/standardization. Reconciling addressing issues. Jackson county working on it.
- One small bridge on JCR 21. Evaluate additional egress options
- Community members to register with Code Red for reverse 911 Sheriff and landowners.
- General questions and discussion on burning slash piles.
- Currently 14 FFs on North Park Fire Authority so response resources is limited

#### Tasks/Future:

• Will post draft CWPP on Steamboat District Page until end of August to allow for additional comments

#### For Immediate Release

#### **Contact for Reporters:**

John Twitchell, john.twitchell@colostate.edu, 970-879-0475

July 22, 2015

#### Public Participation Encouraged in Jackson County Wildfire Planning Meeting

**WALDEN, Colo.** – Jackson County residents who want the chance to provide input on the development of an updated county-wide Community Wildfire Protection Plan (CWPP) will have the opportunity at a public meeting in early August.

Forestry, emergency services and fire department officials will meet with area landowners at the Gould Community Center on August 3<sup>rd</sup>. The community of Gould will host a potluck at 6:30 pm and the meeting with agency officials will begin at 7pm to discuss the development of an updated county-wide CWPP. Citizens who attend the meeting will have the opportunity to help identify the values at risk in their communities, define the local wildland-urban interface boundary, prioritize goals for treating wildland fuels and establish wildfire preparedness objectives. The meeting will include representatives from the Colorado State Forest Service (CSFS); county emergency management representatives; local fire departments; and federal land management officials.

"This meeting will give people who live in our wildland-urban interface a chance to provide input to the plan. It's important that we listen to all the stakeholders by bringing together local communities and government agencies to address fire preparedness and fuels reduction in wildland-urban interface areas" said John Twitchell, district forester for the CSFS Steamboat Springs District, which serves Jackson, Routt and Moffat counties. The CSFS will provide input throughout the process and will ultimately be responsible for signing off on the final plan.

Having the updated plan in place will be valuable to landowners not only because of its protective benefits, but because many state and federal grants designated for forest treatments require communities to have a CWPP approved by the Colorado State Forest Service to compete for funds.

State legislation passed in 2010 required every Colorado County to identify fire hazard zones in unincorporated areas by the end of that year. Counties are now developing CWPPs that establish guidelines for fire mitigation in each hazard zone.

The Jackson County CWPP meeting will take place at 7 p.m. Monday August 3rd, at the Gould Community Center, 54587 Highway 14 - Walden CO 80480. For more information about the CWPP go to

<u>https://www.dropbox.com/sh/q4hhoxdhxykocwo/AAA1iYzfFtWEeSQOIQRXmLCRa?dl=0</u> or contact John Twitchell at 970-879-0475.

# SIGN-IN SHEET Jackson County Community Wildfire Protection Plan

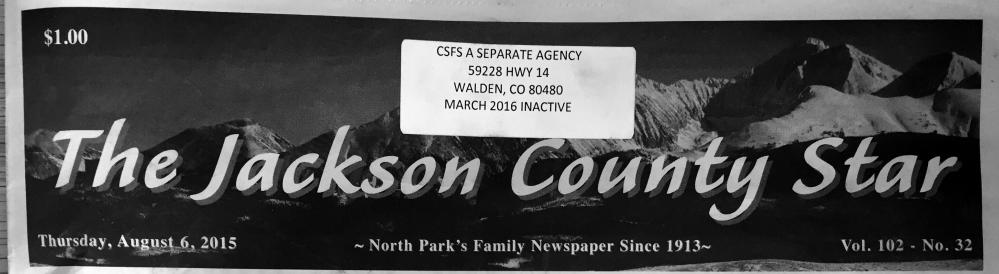
# Monday, August 3, 2015

Name & Affiliation (PLEASE PRINT)	Address	Phone/Fax/Email
MARK ROHRER	118 Aspen DR 80480	970-723-4287
John wenguy	4 Anderson Rd 80480	470-567-7414
Louis Moeller STATE FOREST STATE PARK	56750 My 14	(170) 723-8766
Gladys + Mel Geist	45 Aspen Dr@Gond	970-371-1089
Me/+ Chins	225 Sheetap on @ Soul P Walden Co	9110-723-3257 371-1094
Year Knowse	89 Willip - Hould	4785
Dosting Chapman		
Adam Browley US Forest Service		

# SIGN-IN SHEET Jackson County Community Wildfire Protection Plan

# Monday, August 3, 2015

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•		
# 303-986-6425 # 303-986-6425	12971 W. Oh: OAVE	5heila 1730 b Ryan
1	walden co	Miko - Doblio Alpe
723-4965	scue Authority	JON Myers Park Fire Rescue Authority
Phone/Fax/Email	Address	Name & Affiliation (PLEASE PRINT)



### Gould Community Hosts County Meeting

State legislation passed in 2010 required every Colorado County to identify fire hazard zones in unincorporated areas by the end of that year. Counties are now developing CWPPs that establish guidelines for fire mitigation in each hazard zone. That is the law. The good news is that Jackson County did this work before it was required.

August 3, about 50 people joined together in Gould to discuss their Community Wildfire Protection Plan (CWPP). Residents of the county and authorities representing the U.S. Forest Service (USFS) Colorado State Forest (CSF), Bureau of Land Management (BLM), Jackson County and the North Park Fire Department (NPFD) met together to discuss what the new law means.

"We don't need to do the work over, the work has already been done in Jackson County," said John Twitchell. Twitchell hosted the meeting and presented to the group. "It is the responsibility of the State Forest to do this for the state," said Twitchell.

The CWPP is the plan that communities that live near the forest have and implement



The Gould Community Center kept the rain off of about 50 people who attended a meeting about the Community Wildfire Protection Plan

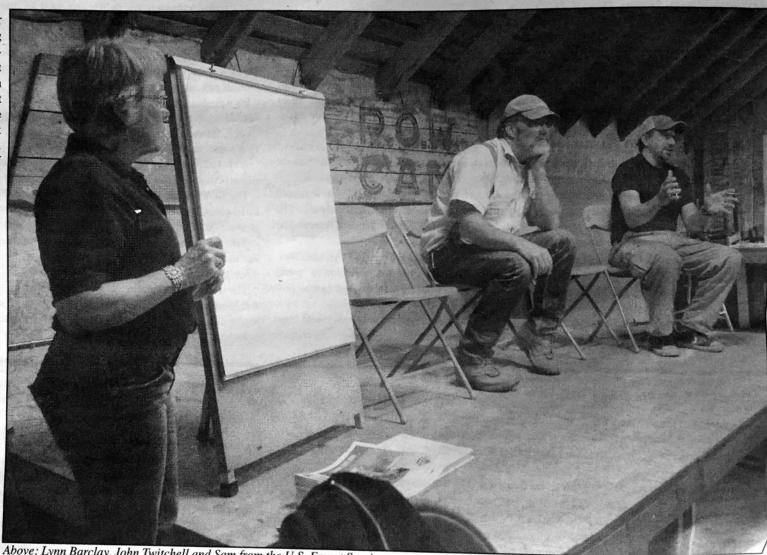
#### Gould from page one

to mitigate the chances of the danger wildfires. "Mitigation is a lot like wearing your seatbelt," said Lynn Barclay. Barclay is a member of the BLM's Northwest Colorado Fire Management Unit based in Craig. "It may not prevent a tragedy, but it is the best protection you can have against one." Barclay commented that wildfires can't be stopped or predicted. But steps to help reduce the chances of catastrophe in wildland urban interfaces (WUI) can help lessen the impact fires might have, similar to a seat belt. Barclay also distributed a pamphlet titled, Ready, Set, Go! The pamphlet informs residents about defensible areas, hardened homes, how wildland fires can work and strategies to take when a fire is imminent. The pamphlet is available online at www.wildlandfireRSG.org and has a checklist to help homeowners prepare their properties.

The mitigation is work that must be done annually. "This is a real good time of year to begin weed eating around your properties," said Twitchell. "With this really wet year, there is a lot of grass growth and with growth, there is fuel. New trees have really sprung up and the forest is growing."

Twitchell praised the Gould community for working hard to keep mitigation efforts alive. The Gould Community Center is a good example of the work, trees and landscaping to minimize the threat of 3. fire.

The original CWPP plans were put in place starting almost ten years ago. The six plans cover: Gould, 2006; Grizzly Creek, 2006; Rand, 2006; North End, 2007, Rainbow Lakes / Slow Rock, 2007; Wade-Tamlin / Spicer Peak, 2007; and Meadow Creak, 2010. The county-wide CWPP will incorporate these areas in accordance with Colorado Senate Bill 09-001.



are cut back from structures, metal roof Above: Lynn Barclay, John Twitchell and Sam from the U.S. Forest Service answer questions presented from the community meeting in Gould, Aug.

One very unique thing in Jackson County is that the entire county is covered by one fire authority, the North Park Fire Authority. Chief Jeff Benson was on hand to offer help. "We will revisit any property to help with mitigation," said Benson. "We are just a phone call away."

Property owners who are new to the area were advised to take up the free offer. "Jeff (Benson) does an excellent job

working with all the residents in Jackson County. He is an invaluable asset to have," said Barclay.

The draft of the plan will be finished this fall and the community will have 30 days to make comments. The plan is a living document and will continually be amended as property owners, land uses and changes happen in Jackson County.

### Appendix D: Annual Project Updates and Addendums

#### Appendix E: Existing CWPPs

- Gould Area CWPP
- Grizzly Creek CWPP
- Meadow Creek CWPP
- North End CWPP
- Rainbow Lakes/West Side Area CWPP
- Rand CWPP
- Wade-Tamlin/Spicer Peak Area CWPP