DOUGLASS RANCH

PINE COLORADO

FIREWISE® COMMUNITY

ASSESSMENT

Reviewed by
Conifer Wildland Division
of the
Elk Creek Fire Protection District

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1. Executive Summary

This Douglass Ranch 2023 Community Assessment updates the neighborhood's 2016 assessment. In the seven years since the original assessment considerable progress has been made by residents in individual lot mitigation. By unofficial survey close to 50% of the residents have done at least some amount of mitigation.

Community-wide Firewise work projects have mitigated the roadside in 2017 and made use of the Elk Creek Fire Department chipping crew several times for neighborhood chipping. Several homeowner lots serve as examples of commendable mitigation. Just over half of the homes in the neighborhood have had an Elk Creek Wildfire Assessment Audit.

The Douglass Ranch Open Space received a shaded fuel break along its ridge top by the Elk Creek and Inter-Canyon Wildland Division crews in 2023. And the neighborhood has begun to save funds for mitigation projects.

As far back as 2016 an ECFPD proposed plan for Douglass Ranch to combine efforts with a Glen Elk fuel break would provide a fuel break for both communities. Grant opportunities increase for a combined neighborhood fuel break. Grant opportunities also increase for a neighborhood that is engaged in its own wildfire mitigation.

Douglass Ranch forests still contain the evidence of a wildfire many years ago which should remind us that we still have more to do to protect our community from the next wildfire. Douglass Ranch is in one of the highest wildfire risk areas in Colorado. Defensible space needs improvement, homes need further hardening and heavily forested areas need thinning.

Additional 'work to be done' is discussed in Section 11 "Next Steps".

2. Introduction

The Firewise Communities/USA® program is designed to provide an effective management approach for preserving wildland living aesthetics. The program can be tailored for adoption by any community and/or neighborhood association that is committed to ensuring its citizens maximum protection from wildland fire. This community assessment is intended as a resource to be used by the Douglass Ranch residents for creating and updating a wildfire safety action plan. The plan developed from the information in this assessment should be implemented in a collaborative manner and updated and modified as needed.

The national Firewise USA® recognition program provides a collaborative framework to help neighbors in a geographic area get organized, find direction, and take action to increase the

ignition resistance of their homes and community and to reduce wildfire risks at the local level. Any community that meets a set of voluntary criteria on an annual basis and retains an "In Good Standing Status" may identify itself as being a Firewise® Site.

The Firewise USA program is administered by NFPA® and is co-sponsored by the USDA Forest Service and the National Association of State Foresters.

In 2016 the Elk Creek Fire Protection District (ECFPD) was instrumental in kick starting the community's Firewise effort by offering a community assessment of the homes in the neighborhood. Over the ensuing years several residents worked on the neighborhood's Firewise Committee to advance wildfire and mitigation education for the residents and to encourage neighborhood projects such as roadside mitigation and a fuel break to the southwest of the neighborhood. A number of residents have stepped up to the task of mitigating their property per recommendations from ECFPD's Wildfire Mitigation Specialists.

The assessment focused on flammable forest and vegetation, general fire-resistant landscaping characteristics, home construction materials, access, and existence of defensible space in a residential setting. Photographs were taken to include in the report.

Figure 2.1 Douglass Ranch Entrance

3. Neighborhood Description

3.1. Community

Douglass Ranch is a planned community in Jefferson County located just south of Highway 285 in Pine, Colorado. The Douglass Ranch Property Owners Association (POA) was incorporated in 1989. The community can be accessed by the US Highway 285 Frontage Road near Elk Creek Elementary School.

The community consists of 42 properties on 269 acres. All properties are single family homes on 3 to 5 acre lots. An event center is accessed through the community but is not incorporated as part of the community. An undeveloped community shared area ("open space") covers about 31.5 acres on the southwest side. The community has all paved roads with one access road into and out of the community. Roads are accessible year-round.

3.2. Topography

The topography of the community is rolling hills at elevations varying from 8000' to 8400'. The community sits on the West flank of the Elk Creek Valley. The land drains into Elk Creek with seasonal creeks and drainages.

Homes sit on all aspects, with the predominant aspects being Southeast and South. Most homes are situated mid-slope or on ridge tops to take advantage of views of the Elk Creek Valley and Staunton State Park.

3.3. Vegetation

The community is a mix of ponderosa pine savannah, mixed conifer forests and open meadows. The ponderosa pine savannah type predominates, with about 60% of the community being that ecotype. Within the mixed conifer forest the common species include ponderosa pine (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*). There are some stands of quaking aspen (*Populus tremuloides*).

Grasses predominate the ground cover throughout, however several species of junipers are scattered through. There are also various shrubs, mostly scattered.

Savannah is characterized by grass, with 30 trees or fewer per acre. Woodlands are generally the same species, but more extensive tree cover. As the number of trees increases, ground cover types

change. Denser Ponderosa Pine forest and mixed conifer forest have more needles, fallen limbs and other heavier ground fuels. These heavier ground fuels tend to hold fire longer and make fire harder to contain.

Some of the forest and savannah in the community is overgrown. Where ponderosa pine woodland in a natural state would likely have up to 70 trees per acre, the forests of Douglass Ranch vary up to 200 trees per acre. Much of that overgrowth is very young, with reproduction pines of 5 to 20 years very common. Historically, low intensity fire would remove many of the smaller trees. With fire now excluded from the environment, more trees have the chance to survive. In addition to increasing the fire risk, this also stresses the remaining trees. Each tree must compete for a smaller share of water and nutrients resulting in a less than healthy forest.

Figure 3.3-1 Ponderosa Pine Savannah and Meadow characteristic of the Area

The relatively recent increase in pine beetle and tussock moth infestation in the neighborhood is beginning to take a toll on trees. Infected tree removal has occurred on a number of lots. Dense forest fosters infestation (Mountain Pine Beetle, 2023, Douglas-Fir Tussock Moth, 2021).

The ecotype is trending from savannah to mixed forest as the number of trees in the community increases. With that change from grassland to forest, there is an increasing risk of high intensity fire.

Figure 3.3-2 Dense Forest typical of the Severe Wildfire Hazard Areas

Fire in savannah or grasslands tends to be low intensity ground fire. While grass fires can spread quickly, they are also controllable by firefighters. When fires occur in dense mixed conifer forests, they can be intense and fast moving. Flames from the nearby Lower North Fork Fire exceeded 200 feet in length, and the fire moved at a rate greater than six miles per hour.

Ponderosa pine savannah/forests typically have a "fire return interval" of 5 to 50 years. That regular return of fire allows the forest to self-clean smaller trees, brush, downed needles and logs. As mature ponderosa pines are highly fire resistant, the mature trees would thrive from the reduced competition and nutrients returned to the soil. When that cycle is interrupted, the accumulation of fuel in the forest changes the typical fire from a low intensity surface fire to a high intensity stand replacing fire.

The community bears remarkable similarity to the Black Forest fire near Colorado Springs, which was the site of Colorado's worst wildfire disaster in 2013. Over 400 homes were lost in a 14,000-acre wildfire. Both Black Forest and Douglass Ranch have areas of overgrown ponderosa pine forests in rolling hills. Both are at similar altitudes. Both have had decades of fire suppression, leading to excessive fuel loading. Both have completed pocket mitigation.

The mixed conifer forest typical of higher elevations, moister locations and North facing slopes has a fire return interval that is much longer. Fewer fires typically occurred, but the fires were more likely to be stand-replacing events. These high intensity fires tend to cause catastrophic damage to neighborhoods.

Aspens have a relatively high fuel-moisture content and are highly fire resistant and should be encouraged [Shinneman, 2015]. In many cases the old aspen clones have been overgrown by the

Douglas-fir stands and are becoming overgrown and decadent. (See Next Steps chapter for recommended action.)

3.4. Weather

The Front Range Foothills are classified as "semi-arid". The area has experienced a drought over at least the past three years, and historical evidence indicates the area goes through cycles of wetter and drier periods. The area is prone to very low humidities, and it is not unusual to see relative humidity drop to less than 5%. Winds are frequent.

Severe fire weather is characterized by strong winds and very low humidities. This area is subject to those conditions periodically. During the Lower North Fork fire, winds were gusting over 70 mph and relative humidity was 3%.

During extreme wind events, winds tend to come from the West and Southwest.

3.5. Construction and Defensible Space

Most of the homes in Douglass Ranch are newer, wood frame single family residences. While combustible roofs are rare, wood decks, steps, fences, outbuildings and wood walls are all common. Many of the homes are stucco sided or have rock wainscoting. Homes with less flammable roofs and siding are better able to withstand fire than wood siding and roofs.

Even those homes that have non-flammable siding and roofs are at risk from wildfire. Flammable decks tend to collect embers and cause fire to spread to the home. Windows are also a concern, as few homes in the region have tempered glass windows which are more resistant to heat.

Hardening your home increases your home's resistance to heat, flames and embers that accompany most wildfires. Hardening implies attention to the construction of your roof, vents, windows, decks and gutters. Often the material used in each of these parts of the home is important. Sometimes it is as simple as installing screens on vents and gutters to keep embers and debris away. When home hardening is implemented in conjunction with defensible space and fire-resistant landscaping your home's chances of emerging from a wildfire are greatly improved.

Some homes in the community are decently mitigated, but the majority do not have the recommended separation from flammable vegetation. Defensible space recommendations (CSFS_HIZGuide, 2021, Defensible Space) include the following:

Immediate Zone (aka: Zone 1):

0 to 5' from all structures: This zone is designed to prevent flames from coming in direct contact with the structure. Use nonflammable, hard surface materials in this zone,

such as rock, gravel, sand, cement, bare earth or stone/concrete pavers.

Intermediate Zone (aka: Zone 2):

5 to 30' from the home (on level ground; more on sloped ground): This zone is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to your home or any structures. All trees should be limbed up 10' from the ground (or a third of the total height of the tree, whichever is less). All trees should be thinned to keep at least 10' space between crowns. Remove junipers and shrubs beneath larger trees.

Extended Zone (aka: Zone 3):

30 to 100 ft from the home: Watch for ladder fuels and low branches to reduce the chance of a surface fire climbing into the trees. Tree crown spacing of 6-10 feet is suggested. Consider creating openings or meadows between small clumps of trees so fire must transition to the ground to keep moving.

Figure 3.5-1 The Defensible Space Zones

There are many sources of recommendations for defensible zones around your home. Between the various recommendations a reader may note some slightly different zone sizes. The Rotary Defensible Space recommendations are supported by the ECFPD. In printed form the recommendations are in a brochure format and thus are concise, easy to read and straight-forward to implement. However implementing any set of defensible zones is better than doing nothing at all.

Defensible space has been found to be so important that it is the law in California.

3.6. Fire Protection

The community is served by the Elk Creek Fire Protection District, a combination fire department serving portions of Park and Jefferson County. There is one staffed fire station located 3.5 miles from the community. The fire department estimates that they can effectively suppress a wildland fire up to 5 acres, not involving houses, during normal conditions. During extreme wind events, stopping any fire in the area would be difficult. Within one hour sufficient resources are available to manage a 10 to 20 acre fire in similar conditions. **It is essential for homeowners to implement Defensible Space Zone best practices before the fire starts in order to protect their property.** The term Home Ignition Zone is referred to as Defensible Space in The Rotary literature.

The community does not have hydrants but does have a 10,000 gallon water cistern and a pond for water supply. Roads are generally accessible, and there is good compliance with address marking.

There is only one way in and one way of the community. Recent evacuations in other communities nearby have been characterized by congestion and difficulty in accessing the fire by incoming fire resources.

3.7. Neighborhood Survivability Summary

Douglass Ranch has many homes located mid-slope and on ridge tops and a couple of topographic features that can make fire behavior hard to predict.

Vegetation is mainly ponderosa pine, mixed conifer, juniper bushes and mixed deciduous shrubs.

Steep drainages have extremely heavy fuel loads.

There are only two water sources available in the neighborhood, but the roads are accessible to engines. Turn around space at dead end roads is not compliant with the 2018 International Fire Code.

Home construction is newer and stronger than many other homes outside the HOA. Defensible space is still not adequate. (Ember, 2021)

Coniferous trees have a large amount of sap in their branches. Sap burns very quickly and supports fast-moving wildfires. These types of trees also tend to grow much closer together than deciduous trees. Being more tightly packed makes it easier for fire to burn effortlessly through an area of coniferous forest by simply moving from treetop to treetop. (Alberta, 2012)

Junipers are one of the most fire prone species and are sometimes referred to as a “gasoline bush” by firefighters. Junipers should be removed within 100′ of structures and within 15′ of roadways

and driveways. ("Juniper", 2022) In a wildfire junipers on lot borders can threaten neighboring homes.

In the event of a significant fire in the community, the probability of losing multiple structures is high. Evacuation of the community would be a priority.

Twenty-three percent of the Douglass Ranch roads are adjacent to areas with predicted flame lengths greater than 8 feet under severe fire weather conditions. Drivers stopped or trapped on these roadways may experience life threatening radiant heat from fires of this intensity. (Ember, 2021)

The 2021 Elk Creek / Inter-Canyon Community Wildfire Protection Plan (CWPP) (Ember, 2021) includes a map (see Figure 3.7.1) showing the relative risk that the Douglass Ranch subdivision faces from its neighbors. The risk rating is a combination of four risk categories: fire risk, fire suppression challenges, evacuation hazards and defensible space zone hazards. Relative risk rating categories are Extreme, High and Moderate.

Douglass Ranch has a High (red) relative risk rating. The subdivision borders areas to the southwest, south and southeast that have Extreme risk ratings. During wildfire season prevailing winds often come from the southwest or southeast. The higher risk ratings of the neighboring areas surrounding Douglass Ranch will not be helpful slowing the progress of a wildfire.

Extreme risk ratings indicate that fuel mitigation, home construction, roadways, and suppression opportunities are so inadequate that it may be too dangerous to send responders into that area during a wildfire event to attempt to fight the fire.

The survival of Douglass Ranch will depend on the mitigation effort put forth before a fire.

In the category of fire risk, the most notable concerns are:

- Continuous fuels, such as whole hillsides with dense mixed conifer and ponderosa pine stands that have not been thinned.
- Heavy ladder fuels such as shrubs and tall grass leading up to overstory trees or near homes.
- Steep slopes and terrain with ravines and chimneys that make fire behavior unpredictable.

In the category of fire suppression challenges the most notable concern is:

- Homes and streets do not have legible and reflective road and address signs.

In the category of evacuation hazards the most notable concerns are:

- Neighborhoods with only one way in and out limits evacuation times and options and can prevent responders from entering the unit while residents are evacuating.

- Roads with significant roadside fuels can create hazardous conditions for drivers.
- Many homes and streets do not have legible and reflective road and address signs, which can make evacuation navigation difficult in thick smoke.

Finally, in the category of defensible space hazards the most notable concerns are:

- Homes located along steep slopes and on ridgetops.
- Homes that have older construction that is combustible, such as wood siding.
- Wooden fences within 5 feet of the home.
- Firewood and combustible furniture on or under decks.
- Lack of defensible space, especially in conjunction with steep slopes below the home.

Under 60th percentile (average) weather conditions, 62% of Douglass Ranch is susceptible to active or passive crown fires. Average flame lengths are estimated at 11 feet and can reach a maximum of 85 feet. Twenty-nine percent of homes have high to extreme exposure to embers and radiant heat.

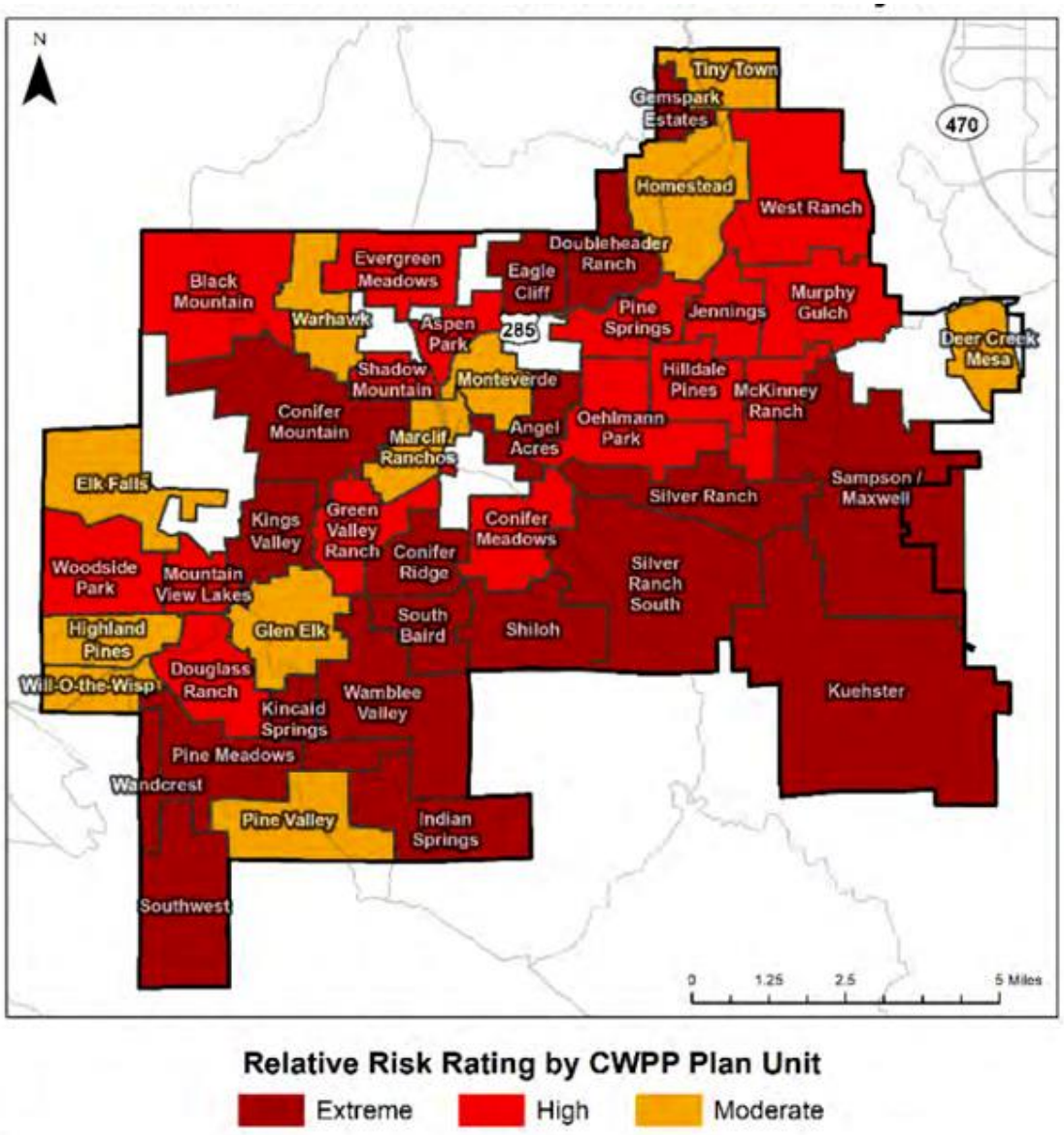

Figure 3.7-1 Overall Relative Risk within Elk Creek and Inter-Canyon FPDs

3.8. Important Considerations

The Firewise Communities/USA® program seeks to create a sustainable balance that will allow communities to live safely while maintaining environmental harmony in a WUI (Wildland Urban Interface) setting.

Homeowners already balance their decisions about fire protection measures against their desire for certain flammable components on their properties. It is important for them to understand the

implications of the choices they are making. These choices directly relate to the ignitability of their defensible space zones during a wildfire.

Because the community shares the forest, each member of the community bears some of the responsibility for maintaining the natural environment. By excluding fire, we create an unhealthy forest. Mitigation measures are designed to not only make homes safer to live in, but to reduce the likelihood of complete loss of the forest. Trees in a well thinned forest are far more likely to survive and thrive after a fire, while overcrowded forests are more likely to be completely burned.

4. Local Conditions

The Douglass Ranch community has conditions which should be addressed in the near term.

4.1. Roadside Vegetation

Trees near roadways, especially trees located on roadway fill slopes, present a risk of uphill fires reaching into the roadways. A line of evacuating cars waiting for the first car in the line may experience uncomfortable heat from nearby burning trees.

Clearing trees in the road right of way is recommended. Getting property owner buy in to create a shaded fuel break in these areas would add to the safety of evacuation and to fire crew safety.

The following pictures are examples only. Close examination of the neighborhood roadway would yield a list of potentially hazardous roadside trees.

Figure 4.1-1 Trees Overhanging the Road.

Figure 4.1-2 Trees in Road Right of Way Overhang the Road.

Figure 4.1-3 Heavy Forest on Uphill Slope to the Road.

4.2. East Side Dense Forest

As is evident in Figure 6.1, Douglass Ranch Severe Wildfire Hazard Areas, many lots on the east side of the neighborhood have some amount of heavy tree density near the neighborhood boundary.

Reducing the fuel load would serve to reduce embers emanating from burning trees thereby improving the odds of home survivability.

See Figure 3.3-2, Dense Forest typical of the Severe Wildfire Hazard Areas for a typical view of dense forest on the east side of the neighborhood.

Google Earth is a useful tool to view forestation in the neighborhood.

4.3. West Side Dense Forest

Figure 6.1, Douglass Ranch Severe Wildfire Hazard Areas, shows many lots on the west side of the neighborhood have some amount of heavy tree density near the neighborhood's Open Space boundary.

Reducing the fuel load in this area would again help to reduce the impact of embers. Winds from a westerly direction are more prevalent in the spring and would help to carry the embers farther into the neighborhood. Open Space mitigation near these lots would improve home survivability in the whole neighborhood. The task is not without challenges as the terrain is rugged and there are no roads into the Open Space.

Figure 4.3-1 Example of Open Space Dense Forest on the border of a Douglass Ranch west side lot.

5. Definition of the Defensible Space Zones

The Douglass Ranch subdivision is located in a wildfire environment. Wildfires will happen--exclusion is not a choice. Lightning and humans are the most common causes of fires in the area – both of which are not within our direct control.

Human-caused fires result from campfires left unattended, the burning of debris, equipment use and malfunctions, negligently discarded cigarettes, and intentional acts of arson. (Wildfire Causes and Evaluations). Near to the Douglass Ranch neighborhood we know that:

- The 1996 Buffalo Creek Fire was caused by a smoldering campfire.
- The 2000 Hi Meadow Fire was caused by a cigarette.
- The 2002 Hayman Fire was caused by the burning of debris.

The variables in a fire scenario are when the fire will occur, and where. This assessment addresses the wildfire-related characteristics of Douglass Ranch. It examines the area's exposure to wildfire as it relates to ignition potential. The assessment does not focus on specific homes but examines the whole community.

A house burns because of its interrelationship with everything in its surrounding defensible space zone----the house and its immediate surroundings. To avoid a home ignition, a homeowner must eliminate the wildfire's potential relationship with his/her house. This can be accomplished by interrupting the natural path a fire takes. Changing a fire's path by clearing a defensible space zone is an easy-to-accomplish task that can result in avoiding home loss. To accomplish this, flammable items such as dead vegetation must be removed from the area immediately around the structure to prevent flames from contacting it. Also, reducing the volume of live vegetation will affect the intensity of the wildfire as it enters the home defensible space zone.

This assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the defensible space zones. Taking action within defensible space zones is a key factor in reducing the risk of destruction during a wildfire. Defensible space principally determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings within 100 to 150 feet.

The result of the assessment is that wildfire behavior will be dominated by the residential characteristics of this area. The good news is that by addressing community vulnerabilities, residents will be able to substantially reduce their exposure to loss. Relatively small investments of time and effort will reap great rewards in wildfire safety.

6. Wildfire Environment

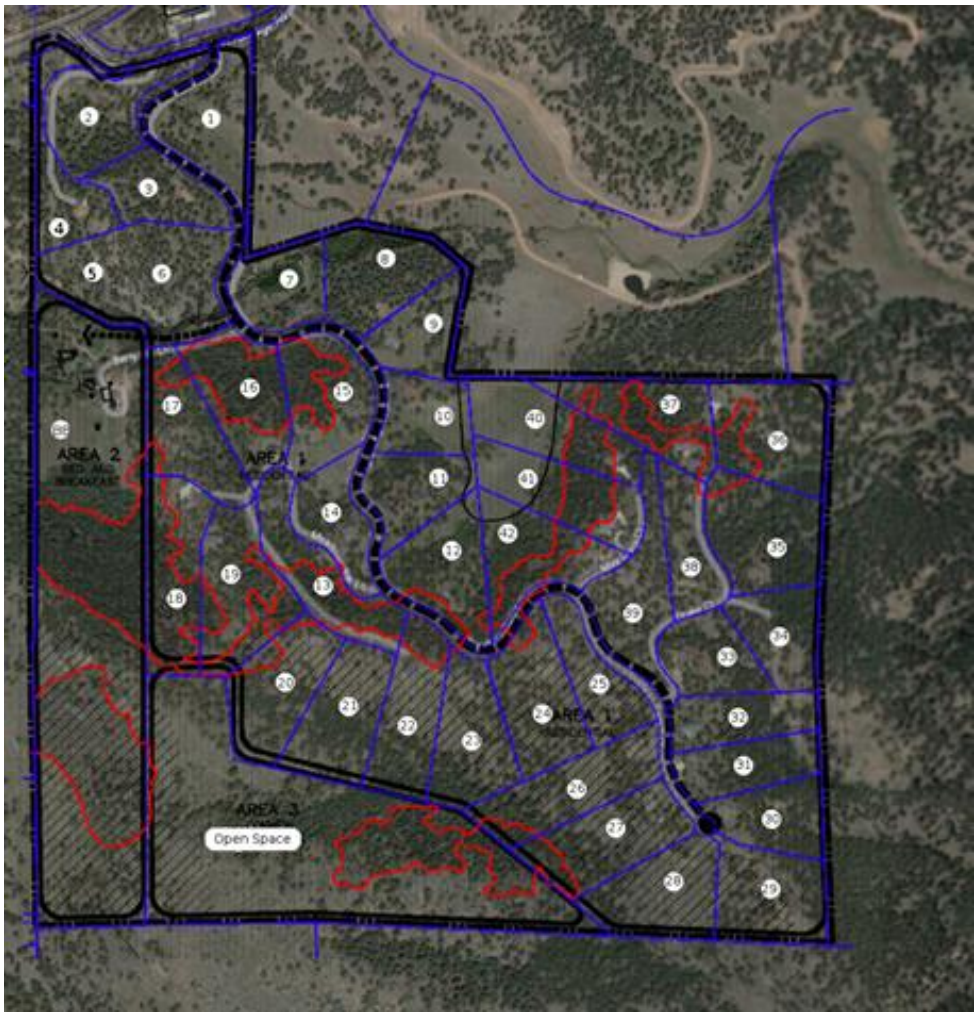

Figure 6.1 Douglass Ranch Severe Wildfire Hazard Areas

In Figure 6.1 the Douglass Ranch ODP (Official Development Plan), Google Earth and Jeffco's Aspin images are overlaid to highlight areas at risk.

The 1988 ODP's Severe Wildfire Hazard Areas are outlined in red. Generally, the Severe Wildfire Hazard areas are on north slopes. The Google Earth images are circa 2021. North is at the top of the image.

Almost half of the lots in Douglass Ranch overlap Severe Wildfire Hazard Areas. **Mitigation should be a priority for these lots.**

6.1. Fuels Management

There has been some excellent fire hazard reduction work completed by property owners within Douglass Ranch, however it is not consistent throughout the community.

In addition to reduced fire hazard for the property, the benefits of this work include: (Reducing, 2010)

- Reduced fire hazards for neighboring properties – the condition of each lot can affect the fire hazard on adjacent lots.
- Better long-term health of residual trees and shrubs – remaining plants experience less stress from root and sunlight competition.
- Improved wildlife habitats.

The single factor of a fire that we can control is its fuel. We can't control the weather nor the topography of the land where a fire starts. **Removing or reducing fuels in strategic locations on your property can lower fire risk and help make your property more resistant to wildfire.**

The five principles of creating and maintaining fire-resistant forests are:

- Reducing surface fuels.
- Increasing the height to the base of tree crowns.
- Increasing spacing between tree crowns.
- Keeping larger trees of more fire-resistant species.
- Promoting more fire-resistant forests at the landscape level (i.e., your surrounding private and public neighbors) by reducing fuels both vertically and horizontally.

Following these five principles accomplishes three goals:

1. Reduces the intensity of a fire, making it easier for firefighters to suppress.
2. Increases the odds that the forest will survive a fire. Small trees, shrubs, and other under-story vegetation may be injured or killed, but larger trees in the stand will only be scorched, and soil damage also will be reduced.
3. Reduces the extent of restoration activities needed, such as replanting or erosion control measures.

Thinning trees and spacing the remaining trees affects the ability of a crown fire to travel through the forest. Widely spaced trees, with crowns spaced more than one dominant tree crown width apart, decreases the risk of crown fire. Crown spacing should be increased on steep slopes and in locations with high winds.

7. Regional Wildfire History

There have been several significant fires within a 10-mile radius of the community in the past 20-plus years. These include the Hi Meadow, Buffalo Creek, Lower North Fork, Schoonover, Lime Gulch and Bluebell fires. Collectively, nearly 100 homes and several lives were lost in those fires. The closest of these, the Hi Meadow fire, burned to within 1.5 miles of the community.

Jefferson County ranks number one in Colorado in terms of the number of homes in high and extreme wildfire risk areas, according to Verisk/ISO Stateline Report – with Evergreen and Conifer ranking among the highest risk areas. (Wildfire Risk, 2020)

Section 3.3 noted that Douglass Ranch has similarities to the Black Forest. Comments from some Black Forest residents may be appropriate (Black Forest Together, 2018), (GFMC, 2022):

- Pocket mitigation, where some but not a majority of homeowners complete mitigation, is not enough.
- Post fire cleanup is estimated to be between $2K to 10K per acre (vs approximately 3K per acre to mitigate before a wildfire).
- Fire entered homes through:
  - nylon attic vents, porch furniture, gutter fires and trees within 30 feet of houses
- Your neighbors' phone numbers should be in your phone.
- Insurance companies don't pay for everything. Examples: septic systems, wells, foundations, full repair of interior smoke damage in a house that did not burn down.
- Homes in the Black Forest region were often under-insured.
- Watch for contractors that take the money and run.
- Flooding can be expected.
- Cash out or rebuild? Cashing out (accepting actual cash value) can be a high loss.

The burn scar of the 2013 Black Forest Fire can still be seen in Google Earth images of the Black Forest communities.

In summary, the hard lesson learned is to mitigate now to avoid the anguish and financial problems of a total loss.

8. Description of Severe Case Wildland Fire Characteristics That Could Threaten the Area

Fire intensity and spread rate depend on the fuel type and condition (live/dead), the weather conditions prior and during ignition, and the topography. Generally, the following relationships hold between the fire behavior and the fuel, weather, and topography.

- Fine fuels ignite more easily and spread faster with higher intensities than coarser fuels. For a given fuel, the more there is and the more continuous it is, the faster the fire spreads and the higher the intensities. Fine fuels take a shorter time to burn out than coarser fuels.
- The weather conditions affect the moisture content of the dead and live vegetative fuels. Dead fine fuel moisture content is highly dependent on the relative humidity and the degree of sun exposure. The lower the relative humidity and the greater the sun exposure, the lower will be the fuel moisture content. Lower fuel moisture produces higher spread rates and fire intensities.
- Wind speed significantly influences the rate of fire spread and fire intensity. The higher the wind speed, the greater the spread rate and intensity.
- Topography influences fire behavior principally by the steepness of the slope. However, the configuration of the terrain such as narrow draws, saddles and so forth can influence fire spread and intensity. In general, the steeper the slope, the higher the uphill fire spread and intensity.

The Douglass Ranch Subdivision sits in an area without natural fuel breaks immediately to the South and West. Highway 126 from Pine Junction to Pine Grove is the last fire break between the Pike National Forest and the neighborhood. Once across Highway 126, fires will be difficult to contain. A “worse case” scenario would be a fire into the lower Elk Creek Valley. The topography would tend to funnel the fire North through the valley and could cause the loss of hundreds of homes. Due to this funneling, it is likely that firefighters could not safely fight the fire as it moved through the canyon. Mitigation such as fuel breaks can lower this risk, help keep fire on the ground instead of crowning in tops of trees, and give firefighters some chance to access the area.

9. Observations and Recommendations

During the assessment visits the following observations and recommendations were noted:

- Conforming defensible space is recommended for all homes. While many homes have a good start and are doing a great job maintaining, further education and/or assistance is needed for some homeowners. Defensible space guidelines are discussed in Section 3.5 Construction and Defensible Space.
- Thinning of all forest areas even outside of the immediate defensible space.

- Thinning vegetation along the roadways that would be used as escape routes by homeowners and firefighters providing structure protection during an incident. See Section 3.7 Neighborhood Survivability Summary.
- Alternate emergency routes need to be researched and developed including possible routes through the GlenElk subdivision.
- Development of shaded fuel breaks in and around the community can provide natural barriers to fire spread.
- Reduction in the flammability of homes can be increased by replacement of wood decks, flammable siding and other vulnerable aspects with less flammable alternatives.

10. Successful Firewise Modifications

When adequately prepared, a house can likely withstand a wildfire without the intervention of the fire service. Further, a house and its surrounding community can be both Firewise and compatible with the area's ecosystem. The Firewise Communities/USA® program is designed to enable communities to achieve a high level of protection against WUI fire loss even as a sustainable ecosystem balance is maintained.

A homeowner/community must focus attention on the home defensible space zone and eliminate the fire's potential relationship with the house. This can be accomplished by disconnecting the house from high and/or low-intensity fire that could occur around it. The following photographs were taken in Douglass Ranch and are examples of good Firewise practices. It should be noted that a considerable number of homeowners have made good progress at mitigating their property.

In 2018 a northern piece of the Open Space was mitigated by the Colorado State Forest Service and ECFD. Figures 10.1 and 10.2 show before and after mitigation. Note that daylight can been seen through the mitigated forest.

Douglass Ranch Open Space Mitigation: Before and After

Figure 10-1 Open Space-Before Mitigation

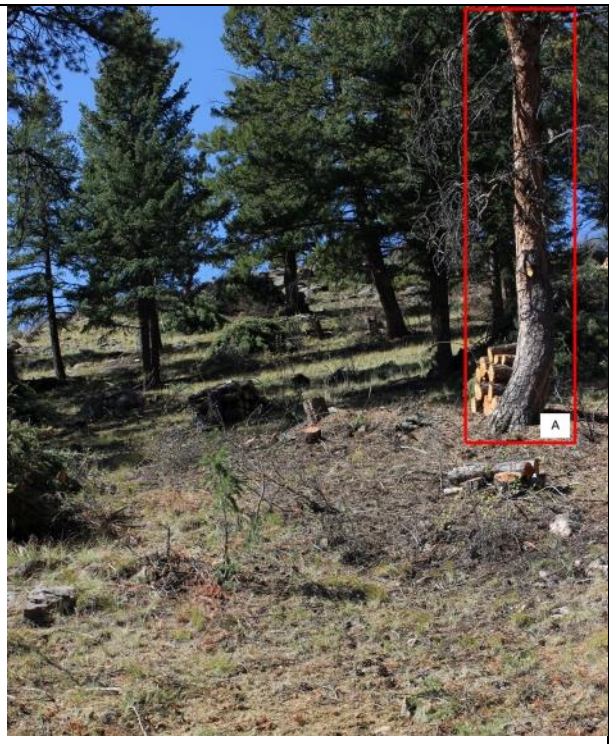

Figure 10-2 Open Space-After Mitigation

Douglass Ranch Open Space Mitigation

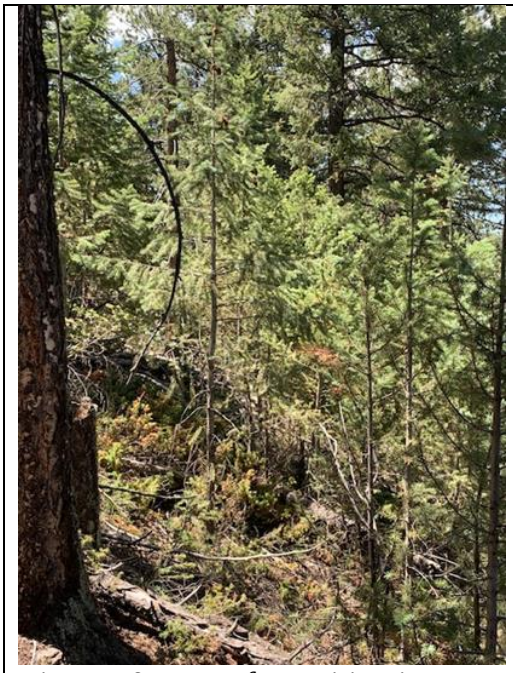

Figure 10-3 Before Mitigation

Figure 10-4 Pile Burn

Figure 10-5 Day of Burn Remnants. Note required snow conditions for the pile burn

Figure 10-6 Pile Burn Remnants

Douglass Ranch residents are reminded to be conscious of keeping high-intensity fire more than 100 feet from their homes. It is important to prevent fire contact and firebrand contact with their homes. The assessment team recommends the establishment of a 'fire free zone', allowing no fire to burn within ten feet of a house by removing fuels located there. Remember that, while wildfire cannot be eliminated from a property, it can be reduced in intensity.

11. Next Steps

The Douglass Ranch Community should maintain its Firewise Community status.

Recommended projects and efforts include:

- Seek financial support for community wide mitigation efforts such as grants and tax incentives.
- Investigate alternative emergency evacuation routes.
- Continue work on a shaded fuel break around the neighborhood. Douglass Ranch is commended for its commitment to implementing a shaded fuel break in its Open Space land. This fuel break is a good first step to a fuel break that surrounds the neighborhood.
- Continue to work on conforming home defensible space.
- Continue to hold at least one yearly Douglass Ranch Firewise Community Event (such as a chipping day, or slash collection and hauling).
- Improve and maintain mitigation in community road rights-of-way.
- Where possible in Severe Wildfire Hazard Areas (as identified in the Douglass Ranch Official Development Plan (ODP)) develop a 1/10th to ¼ acre clear cut patches around decadent aspen stands to release and restore these old and overgrown stands. This will help reduce fire risk and re-establish more diversity, habitat and color to the forest.

Figure 11.1 Example of remnant aspen stand overgrown by Douglas-fir.

12. Conclusion

Homeowners are reminded that street signs, address signs, road widths and fire hydrants do not keep a house from igniting. Each homeowner's proper attention to their own defensible space zones does. Homeowners should identify the things that will ignite their homes and address those. In many cases these are the little things that are easy to do but you must stay diligent.

Weather is, of course, of great concern during wildfire season. Talk with local firefighters and they'll tell you that our fire season is year-round. However, at such time as fire weather is severe, homeowners should remember not to leave flammable items outside. This includes rattan doormats, flammable patio furniture, firewood stacked next to the house, or other flammables.

12.1. Simple Steps for Getting Started

- START! Sometimes the task may seem overwhelming but doing something is better than doing nothing. Start close to the home and work outward, doing a little more each year.
- Clean pine needles and other debris from your gutters, roof top, and around the home's foundation.
- Trim branches that overhang your roof.

- Remove flammable vegetation at least 5 feet from your structures. Single, well pruned specimen trees can be left, sparingly, within the Intermediate Zone, if separated from the forest by 30 feet. (Fire-Resistant Landscaping)
- Each home should have a permanently posted, reflective address sign. Placed at the driveway entrance, these signs must be visible from both directions of travel.
- Keep grasses mowed to 6 inches or less within 30 feet of your structures.
- Stack firewood at least 30 feet from your structure and keep flammable vegetation at least 15 feet from the wood pile.
- Thin trees to have at LEAST 10 to 12 foot spacing between the crowns within the defensible space (typically 100 feet around your structure on flat land, further on the downhill side). An occasional clumping of 2 or 3 trees is acceptable and helps maintain a natural appearance.
- Remove shrubs from under trees and prune lower branches of any trees in your defensible space.
- Typically prune branches up to 10 feet off the ground or one third the height of the tree.
- Remove all slash from your property. Chipping, burning in season with a permit, or use slash removal sites.
- Clean under your decks. Do not cover so you can easily clean under the deck and firefighters can see under.
- Replace decking with less flammable alternatives when decking needs replacement.
- Remove dead trees from your property.
- Prepare an Emergency Go Bag
- Work with the Firewise Committee to:
  a. Educate and convince other neighbors to get involved.
  b. Assist those neighbors needing help.
  c. Pool resources to accomplish larger tasks.
  d. Help establish future Firewise goals for your community.

13. Additional Resources

13.1. Authoritative Documents

Since 2011 several experts have documented the wildfire threat in the Elk Creek Fire Protection District. The documents discussing Douglass Ranch are listed below:

Elk Creek Fire Community Wildfire Protection Plan Report, 2011

Douglass Ranch Firewise-Community-Assessment, 2016

FOREST MANAGEMENT PLAN Douglass Ranch, 2018

Elk Creek / Inter-Canyon Community Wildfire Protection Plan 2021

Wildfire Risk Reduction Task Force:
Working Together to Reduce the Risk of Wildfire in Jefferson County, (Wildfire Risk, 2020)

A consistent set of recommendations from the above documents is as follows:

- Widen road rights-of-way clearance. Trees in the right of way will not be helpful to residents or to ECFPD when a wildfire arrives. High risk roads are discussed in Section 3.7.
- Home defensible space needs mitigation work.
- Maintain and continue stand-level fuel treatment near homes.
- Create shaded fuel breaks on the southeast and southwest sides of the neighborhood.
- Create an emergency egress exit. Such exit could also serve GlenElk in the event they were trapped by wildfire.
- Get ready for evacuation. ECFPD can only do so much to fight a wildfire. Douglass Ranch has just one way out.

13.2. References

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CSFS_HIZGuide, 2021. The Home Ignition Zone Guide
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Ember, 2021. Elk Creek & Inter-Canyon Fire Protection Districts Community Wildfire Protection Plan, 2021 Update

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Western Aspen Alliance (WAA) Brief #3

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