DOUGLASS RANCH
PINE COLORADO

FIREWISE COMMUNITY ASSESSMENT

Prepared by

Bill McLaughlin
Fire Chief
Elk Creek Fire Protection District

October 13, 2016

1) INTRODUCTION

The Firewise Communities/USA program is designed to provide an effective management approach for preserving property, lives and the natural environment by creating fire adapted communities. 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. The following community assessment is intended as a resource to be used by the Douglass Ranch's residents for creating 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.

2) SITE DESCRIPTION

Community

Douglass Ranch is a community in Jefferson County just south of Highway 285 in Pine, Colorado. The community can be accessed by the US Highway 285 Frontage Road near Elk Creek Elementary School.

The community consists of 46 properties. All properties are single family homes except for a bed and breakfast that is accessed through the community. The community has all paved roads, and one access point into and out of the community. Roads are accessible year round.

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 community 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 situation mid-slope or on ridge tops to take advantage of views of the Elk Creek Valley and Staunton Rocks.

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 are 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.

Ponderosa Pine savannah and meadow characteristic of the area.

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 the 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 has to compete for a smaller share of water and nutrients.

Largely, the trees in the community are healthy. Unlike surrounding areas, there is less overgrowth, and less evidence of insects and disease. The ecotype, however 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.

An area of overgrown Ponderosa Pine forest in the community.

This risk of high intensity fire is greatest in the draws or drainages that are overgrown with fir and pine.

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 neighborhood near Colorado Springs, which was the site of Colorado's worst wildfire disaster. Over 400 homes were lost in a 15,000 acre. 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.

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 are highly fire resistant and should be encouraged.

Fire Protection

The community is served by Elk Creek Fire Department, 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.

The community does not have hydrants, but does have a 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.

Weather

The Front Range Foothills are classified as "semi-arid". The area has experienced a drought over 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 70mph and relative humidity was 3%.

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

Recent Fires

There have been several significant fires within a 10 mile radius of the community in the past 20 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 closet of these, the Hi Meadow fire, burned to within 1.5 miles of the community.

Construction and Defensible Space

The majority 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.

Some homes in the community are decently mitigated, but the majority do not have the recommended separation from flammable vegetation. Defensible space recommendations inclue:

Zone 1 (out to 30’ from all structures): Remove all conifers except single, well-spaced, mature “specimen trees”. Remove all junipers and flammable shrubs. Keep grass cut to 6” or less.

Zone 2: (30’ to 100’; on steep slopes up to 300’) All conifers should be limbed up 10’ from the ground. All conifers should be thinned to keep 20’ spacing between any branches on one tree (or small group of trees) and the next tree. Remove junipers and shrubs beneath larger conifers.

Zone 3: (all property) In Ponderosa Pine savannah and woodland, thin trees to keep 20’ spacing between any branches on one tree (or small group of trees) and the next tree. Thin to maintain various age trees, with not more than 50 trees per acre.

Rock and stucco, cement board and other non flammable exterior finishes greatly reduce ignitibility of the home.

Conclusion

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

3) 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 Wildland Urban Interface (WUI) setting.

Homeowners here already balance their decisions about fire protection measures against their desire to live in a wooded setting. It is important for them to understand the implications of the choices they are making. These choices directly relate to the ignitability of their homes during a wildfire as well as survival of the very forest they choose to live in.

Because the community shares the forest, each member of the community bears some of the responsibility for maintaining a natural environment. By excluding fire, we create an unhealthy forest. Mitigation measures are designed to not only make homes safer t 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) DEFINITION OF THE HOME IGNITION ZONE

The Douglass Ranch subdivision is located in a wildfire environment. Wildfires will happen – total exclusion is not a choice. The majority of fires in the area are caused by lightning, which we cannot control.

The second most common cause of fire in the area is electrical accidents. Wind blown trees into power lines causes several wildfires around the are each year.

Maintaining clearance around power lines will reduce threat of fire.

The variables in a fire scenario are when the fire will occur, and where. This assessment addresses the wildfire-related characteristics of the Douglass Ranch neighborhood. 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 community as a whole.

A house burns because of its interrelationship with everything in its surrounding home ignition 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 home ignition 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 ignition zone.

Included in this assessment are observations made while visiting the Douglass Ranch Subdivision. The assessment addresses the ease with which home ignitions can occur under severe wildfire conditions and how these ignitions might be avoided within the home ignition zones of affected residents. The Douglass Ranch Subdivision residents can reduce their risk of destruction during a wildfire by taking actions within their home ignition zones. This zone 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.

5) DESCRIPTION OF THE 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 moistures produce 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.

6) RECOMMENDATIONS

During our assessment visits we made the following observations and recommendations:

- 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. The guidelines for defensible space include a minimum of 30 feet free from flammable vegetation and 100 to 200 feet of thinning and reduction of ladder fuels such as shrubs and small trees.

- 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.

- Alternate emergency routes need to be researched and developed including possible routes through the proposed Emmaus Retreat Center.

- Development of shaded fuel breaks around and in the community to provide natural barriers to fire spread.

- Reduction in the flammability of homes by replacement of wood decks, flammable siding and other vulnerable aspects with less flammable alternatives.

7) 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 ignition 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.

9) NEXT STEPS

The Douglass Ranch Community should pursue Firewise Community Status. These steps have been completed to date:

- Elk Creek Fire Protection District's Chief Bill McLaughlin, a Firewise Community Liaison, has completed this assessment for the community.

The next steps are:

- Presentation of the assessment to the community along with education on the Firewise Communities/USA program.

- A decision by the community to pursue Firewise Community Status, and to build a safer living environment.

- Form a Firewise Board to develop an action plan to make the community safer.

- Invest a minimum of $2.00 per capita toward reductions in fire threat. This can be in the form of direct investment or "in-kind" volunteer hours; including the cleanup around homes currently being done.

- Submit the application for recognition as a Firewise Community.
- Seek financial support for community wide mitigation efforts such as grants and tax incentives.
- Investigate alternative emergency evacuation routes.
- Continue to work on conforming home defendable space.
- Continue to hold at least one yearly Douglass Ranch Firewise Community Event (such as a chipping day, or slash collection and hauling).

10) CONCLUSION

Homeowners are reminded that street signs, address signs, road widths and fire hydrants do not keep a house from igniting. Each home owner's proper attention to their own home ignition 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.

11) Simple steps for getting started:

- START! Sometimes the task may seem overwhelming but doing something it better than nothing. Start close to the home and work outward, doing a little more each year.
- Clean pine needles and other debris from you gutters and roof top.
- Trim branches that overhang your roof.
- Remove flammable vegetation at least 30 feet from your structures. Single, well pruned specimen trees can be left, if separated from the forest by 30 feet.
- 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.

If you have a common driveway each address should be displayed at the end of the driveway and individual addresses posted as the single driveway splits off.

- 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 and prune lower branches under trees in your defensible space. Typically prune branches up to 10 feet off the ground.
- Remove all slash from your property. Chipping, burning in season with a permit, or using slash removal sites.
- Move propane tanks at least 30 feet from your structures and keep vegetation at least 10 feet from your tank.
- 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.
- Work with the Firewise Committee to:

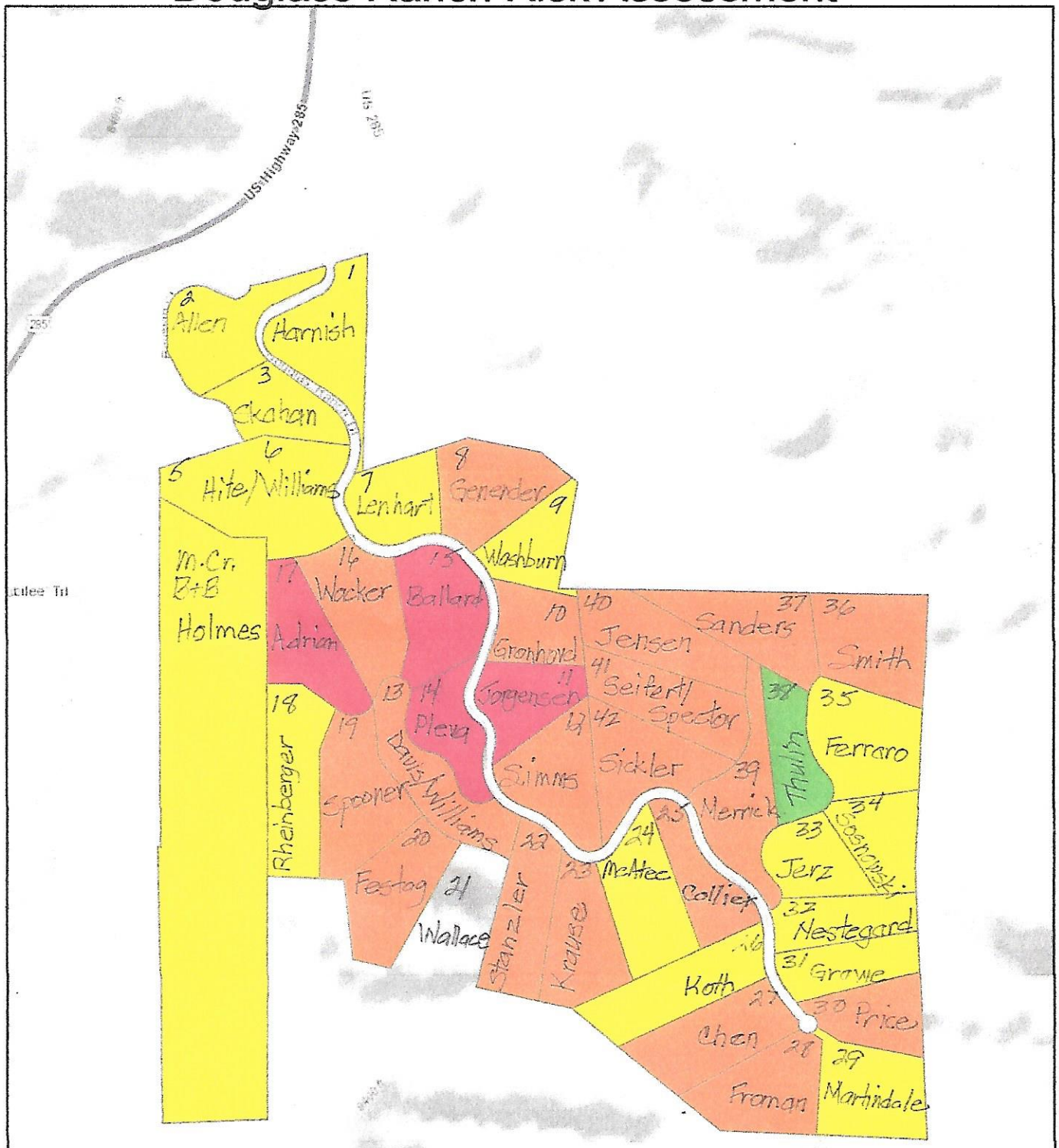
    a. Educate and convince other neighbors to get involved.

    b. Assist those neighbors needing help.

    c. Pool resources to accomplish larger tasks.

    d. Help establish future Firewise goals for your community

Douglass Ranch Risk Assessment



Legend

- Extreme
- Very High
- High
- Moderate
- Low

N
W E
S

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community