



WOLF CREEK RANCH

Wildfire Risk Assessment
Completed February 25, 2019



FIREWISE USA™
Residents reducing wildfire risks

The Firewise USA™ Program teaches people how to adapt to living with wildfire in the wildland urban interface (WUI) and encourages neighbors to work together and take action now to prevent damage and losses. This program can be tailored for adoption by any community and/or neighborhood association that is committed to reducing risks from wildland fire. The following wildfire risk assessment is intended to be used by Wolf Creek Ranch (a Firewise USA™ community since 2012) residents to develop an action plan that describes priorities and actions for risk reduction. The action plan developed from the information in this assessment should be implemented in a collaborative manner, and should be updated and modified every 3 years.

This assessment was conducted by Wildland Urban Interface Specialist Kelsey Davis of the Texas A&M Forest Service on January 11, 2019.

DEFINITION OF THE HOME IGNITION ZONE

Wolf Creek Ranch is located in a wildfire environment. Wildfires will happen—the only variables are when and where they will occur. This assessment addresses the wildfire-related characteristics of Wolf Creek Ranch. It examines the area's exposure to wildfire as it relates to ignition potential. This assessment does not focus on specific homes, but examines the community as a whole.

A house burns because of its interrelationship with its immediate surroundings. To avoid home ignition, a homeowner must eliminate the wildfire's potential rela-

tionship with the house. This is accomplished by interrupting the natural path fire takes in the home ignition zone (HIZ). This zone determines the potential for home ignitions during a wildland fire; it includes a house and its immediate surroundings up to 100 to 200 feet from the home. Flammable items must be modified or removed from the area immediately around the structure to prevent flames from contacting it. Reducing the volume of live vegetation and ladder fuels will affect the intensity of the wildfire as it enters the home ignition zone.

Included in this assessment are observations of homes and their surroundings made while visiting this site. The field 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.

Wildfire behavior will be dominated by the residential characteristics of this area—both the structures and the surrounding property. 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 with reap great rewards in wildfire safety.

CHARACTERISTICS OF A SEVERE CASE WILDLAND FIRE THAT THREATENS THE AREA

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

- Fine vegetative fuels ignite more easily and spread faster with higher intensities than coarser fuels. In general, 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 live and dead 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 the fuel moisture content. Lower fuel moistures produce higher spread rates and fire intensities.
- Wind speed significantly influences the rate of 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 features 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.

Embers are a characteristic of a wildfire that are not often considered by homeowners. Embers are small burning pieces of vegetation or wood that are carried by the wind ahead of a wildfire. An ember shower from a wildfire can create spot fires, which ignite vegetation/debris on the roof, debris in gutters, patio furniture, rattan doormats, and garden beds. Ember showers can lead to structure loss even if the wildfire is not within the boundaries of the neighborhood. Wildfire researchers know that *embers are the leading cause of home loss in a wildfire* due to post-fire assessments.

SITE DESCRIPTION

Wolf Creek Ranch is located in the Edwards Plateau and Cross Timbers ecoregions, in Burnet County, TX at the intersection of Ranch Rd 2341 and Wolf Creek Ranch Rd. Buchanan Lake is located about ¼ mile south of the community. The area receives an average of 30” of precipitation annually. Peak rainfall occurs in May and October. Slopes range from 8–60%. Historically, natural fires occurred in the area, except where fine fuel loads were sparse or terrain prevented burning, resulting in a mosaic of vegetation communities. Fire frequency is low in this vegetation type, but crown fires can occur during droughts. Peak fire seasons occur in the area from January through April, with cured grasses and wind events, and in summer, when fuel drying occurs.



An example of the topography and oak/juniper plant communities in Wolf Creek Ranch.

The community consists of 30 homes on about 1380 acres. Lot sizes vary, from a few acres to over 20 acres. There are 3 gated entrances to the neighborhood, located off of Ranch Rd 2341. Outside of yards, surrounding wildland vegetation includes live oak, Ashe juniper, Texas persimmon, mesquite, pricklypear, tasajillo, and remnant native grasses and forbs.

ASSESSMENT PROCESS

During the field assessment, observations were made about the general fire-resistant characteristics of home ignition zones in the neighborhood. Common landscaping practices, plant species, construction materials, road widths, and topography were all taken into consideration. Photos were taken to provide examples of certain characteristics.

IMPORTANT CONSIDERATIONS

The Firewise USA™ program acknowledges that there are many reasons and values that lead a person to live in the WUI and that there may be a desire for certain flammable components to exist on their property. It is important for residents to understand the implications of the choices they are making. These choices directly relate to the ignitability of their home ignition zones during a wildfire.

There are 2 factors that dominate the potential for home ignition during a wildfire:

1. The ember resistance of a home's roof.
2. The ability to keep large flames at least 30 feet away from the home.

A home's surrounding landscape from 30 feet to about 100–200 feet from the home is also important to consider when mitigating wildfire risk and should be addressed after first addressing the home itself and the 30-foot zone beyond it. The next section will describe the risks observed in these zones and some recommended practices.

OBSERVATIONS AND RECOMMENDATIONS

0 feet to 30 feet from home:

Homes were generally fire-resistant (constructed of stone or other fire-resistant siding with fire-resistant roofs). If present, wooden attachments (fences, decks, pergolas, stairs) should be replaced with fire-resistant materials or modified by providing a barrier between

the home and these wooden attachments (such as metal flashing). Vents, chimneys, undersides of decks, and other openings should be screened with 1/8" metal screens to prevent embers from entering homes. Gutters and roofs should be kept free of debris so that embers cannot cause roof ignition.



Many homes in Wolf Creek Ranch were constructed with fire-resistant siding and roofing materials.

Most homes had landscaped, well-maintained yards. Homes were commonly within 30 feet of natural vegetation, which increases a home's chance of ignition from direct flame contact or radiant heat if the natural vegetation ignited. Any homes that have dense stands of ornamental or natural vegetation within 30 feet of the structure should reduce the density of these stands and/or isolate these stands from surrounding natural vegetation. This will reduce the chance of an intense fire occurring near the home.

Some landscaping shrubs were planted close to walls, in front of windows, and under roof eaves. During a wildfire, burning plants or embers from these plants could potentially ignite homes. Plants should be removed or pruned so that they are not touching walls or windows (especially walls with combustible siding). Landscaping shrubs should either be removed from growing directly under home eaves or be "limbed up". "Limbing up" involves pruning branches close to the ground. This will help prevent a fire occurring on the ground surface from igniting the shrub. Ladder fuels should be removed to prevent ignition of taller trees and shrubs. Ladder fuels are fuels that can carry ground fires to taller vegetation; an example is a shrub growing under the canopy of a larger tree. Removing ladder fuels and "limbing up" break up the vertical continuity of fuels, which keep fires on the ground instead of in tree/shrub canopies. It is also important to break up the horizontal continuity of fuels. Landscaping beds lined with nonflammable

brick or stone, or bordered by pavement, can help prevent a fire that is occurring on the ground surface from igniting plants within beds. Covering the ground within 0 to several feet from the home with gravel instead of mulch or grass will also help prevent a surface fire from contacting the home. Both of these landscaping methods break up the horizontal continuity of fuels, which keeps a surface fire less intense.

30 feet to 100–200 feet from home:

After first addressing landscaping and construction concerns within 30 feet of the home (this zone is of primary importance), residents should address the landscape between 30 feet and up to 100–200 feet from the home. The goal in this zone is not to eliminate fire, but to decrease its intensity by keeping a fire on the ground surface and out of tree canopies. In many areas around homes, there are dense stands of woody plants. Some of the same principles mentioned earlier (limbing up, removing ladder fuels) can be used in this zone, to reduce the risk of high intensity crown fire. This work has already been done around some homes.

Other comments:

In addition to having 3 ways in and out of the community, roads were in good condition and roadsides were mowed. This would allow a safe evacuation for residents, if needed. Residents also have a phone tree notification system in place to notify neighbors during wildfires and emergencies.

Residents conduct ongoing projects to reduce fuels in common areas, along roads and fencelines, and on their own properties. Debris is placed in a community burn pile near Morgan Creek and is burned as needed by the Firewise committee during appropriate conditions.



Vegetation along roadsides in Wolf Creek Ranch was mowed and/or limbed up which reduces fuels and keeps roads accessible in case evacuation is needed.

Homeowners are reminded that street signs, addresses, road widths, and fire hydrants do not keep a house from igniting in the first place. Proper attention to their HIZ does. They should identify the things that will ignite their homes and address them.

SUCCESSFUL FIREWISE MODIFICATIONS

When adequately prepared, a house can likely withstand a wildfire without the direct intervention of firefighters. Further, a house and its surrounding community can be both fire-resistant and compatible with the area's ecosystem. The Firewise 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 and the community must focus attention on the HIZ and eliminate the fire's potential relationship with the house.

The goal of fire-resistant landscaping is to keep a surface fire low and less intense. Flammable plants and materials should be kept away from the side of the house. Both vertical and horizontal separation of fuels should be maintained.



Regular watering and mowing of yards, or alternately, xeric landscaping (pictured), can reduce fuels within 30 feet of the home.

Fire-resistant construction, combined with fire-resistant landscaping, give a home a better chance of surviving a wildfire. Some ways to “harden your home” from wildfire include:

- Using noncombustible roofing, siding, fencing, and decking materials
- Installing metal screens over vents and underneath decks

- Installing double-paned or tempered glass windows with metal frames
- Boxing in eaves with non-combustible material
- Installing metal gutters and gutter guards



Note the fire-resistant construction and landscaping practices that helped this house survive a wildfire in Florida.

NEXT STEPS

After reviewing the contents of this assessment and its recommendations, the Wolf Creek Ranch Firewise Board will create agreed-upon, area-specific solutions to the recommendations and update their action plan in cooperation with East Lake Buchanan Volunteer Fire Department.

To maintain national Firewise USA™ recognition status, it will integrate the following standards into its plan of action:

1. Enlist a wildland-urban interface specialist to complete a risk assessment every 5 years. The risk assessment is the board/committee's primary tool in determining the risk reduction priorities within the site.
2. Maintain a local Firewise board/committee comprised of residents and other applicable wildfire stakeholders. This group will collaborate on reviewing the site's risk reduction priorities, develop a multi-year action plan based on the risk assessment, and oversee the completion of the annual renewal requirements needed to retain an "in good standing" status.
3. Action plans need to be reviewed annually by the board/committee and updated at least every 3 years. Action plans are a prioritized list of risk reduction projects/investments for the participating site, along with suggested homeowner actions

and education activities that participants will strive to complete annually, or over a period of multiple years.

4. Each participating site is required to have a minimum of one wildfire risk reduction educational outreach event, or related activity annually.
5. At a minimum, each site is required to invest the equivalent of \$24.69 per dwelling unit in wildfire risk reduction actions annually (the rate is based on the 2018 annual National Hourly Volunteer Rate; which is updated every year in April when the new amount is published). Qualifying expenditures include contractor costs, rental equipment, volunteer activities, grants, etc. Residents completing select home modifications, along with any qualifying work performed at their home and in the adjacent home ignition zones can contribute related hours and/or costs towards meeting the sites collective investment amount.
6. Every year participating sites must submit an annual renewal application to maintain their "In Good Standing" status. The annual renewal application can be accessed through the Firewise USA™ online management portal (<http://portal.firewise.org/>).