BLACKHAWK RANCH

Community Wildfire Protection Plan 2025

Prepared by the Blackhawk Ranch POA Emergency Management Committee

APPROVED CWPP

The Colorado State Forest Service has reviewed this Community Wildfire Protection Plan, approves its content, and certifies that it meets or exceeds minimum standards. The signatories below approve/adopt this plan.

Gabriel Ahoma, Supervisory Forester
La Veta Field Office, Colorado State Forest Service

10/09/2025
Date

Robert Gilbert, Acting Emergency Manager
Huerfano County Department of Emergency Management

11/14/2025
Date

Ross Hallihan, Mitigation & Planning Specialist
Huerfano County Department of Emergency Management

11-14-2025
Date

Roy Britt, Interim Chief
Huerfano County Fire Protection District

7-16-2025
Date

Ron Jameson, Chief
La Veta Fire Protection District

7-16-2025
Date

Jim Angelillo, President
Blackhawk Ranch POA Board of Directors

7-16-2025
Date

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1 INTRODUCTION

1.1 PURPOSE

The Blackhawk Ranch (BHR) Community Wildfire Protection Plan (CWPP) was developed to help our community and relevant stakeholders assess local hazards and identify strategic investments to mitigate risk and promote preparedness. Assessments and discussions during the planning process assist local fire protection districts with fire operations in the event of wildfire and help the residents prioritize fire mitigation actions. When approved, the plans in the CWPP will also assist with funding gaps for fuel mitigation projects since many grants require an approved CWPP to be in place.

Through collaboration with a diverse set of stakeholders such as responding Fire Protection Districts, Regional State Forestry Staff, and County Emergency Management Staff, we hope to create an actionable plan that serves as a call to action by the residents of Blackhawk Ranch. We also seek to inform and guide both Blackhawk residents and collaborating agencies to a better understanding of the unique challenges that Blackhawk Ranch presents with regard to wildfire preparedness. The interactions with our stakeholders and their feedback has been pivotal in the development of this CWPP.

1.2 OBJECTIVES

1. Produce an actionable CWPP that informs and guides BHR residents, as well as the Property Owners Association (POA), to adopt fact-based planning that enables the execution of prioritized projects and investments to reduce fire hazards, harden homes, and increase evacuation safety.
2. Reduce wildland fire risk and impact by:
    - Reducing fuel loads across the ranch through both community and individual mitigation projects.
    - Improving ingress and egress of emergency vehicles by widening roads and turnarounds, and reducing road grades as money becomes available.
    - Improving firefighter's ability to locate emergency sites through the use of "gate guides" with radios, temporary road markers (large washers with flagging tied to them), on-scene provision of latitude and longitude information.
3. Set the stage for POA and resident planning and submission of both community and individual property owner fire mitigation grants as available and applicable.
4. Collaborate with local agencies to produce strategic and tactical maps and evacuation pre-plans to increase community preparedness and focus on the safety of firefighters and residents.

1.3 CWPP COLLABORATION

The BHR Emergency Management Committee (EMC) was the lead administrator in the development of the 2025 CWPP update. The BHR CWPP Core Team was established in February 2024. The role of the team was to ensure the CWPP was in alignment with the values, goals, and objectives of the community. The plan was written in collaboration with state agencies, Huerfano County and Las Animas County government representatives, local Fire Protection Districts, BHR property owners, and area community members. Meetings and consultations between the Core Team, community members, area agencies and interested parties were conducted via in-person, email, phone, and/or virtually.

The initial planning meeting was launched March 15, 2024 with the BHR Core Team and Paul Branson, Colorado State Forest Service (CSFS) representative. The virtual Zoom meeting was scheduled to review the original 2009 CWPP, discuss objectives, determine minimum CSFS CWPP requirements, identify external stakeholders, and develop a timeline. Paul Branson also suggested we update all maps and include elements that were omitted from the initial CWPP such as railroad safety, abandoned coal mines, noxious weeds, and insect invasion. This gave the team focus to begin the project. A subsequent Zoom meeting was scheduled April 10, 2024 to educate the Core Team on the Colorado Wildfire Risk Assessment (CO-WRA) mapping tools located on the Colorado Forest Atlas website.

On July 12, 2024, CWPP Core Team associates met with local community members, along with Shelley Albright, Bighorn Sheep Ranch POA board member, to survey and discuss a potential joint emergency evacuation route. The group discussed signage and the need for reciprocating property owner land use agreements. In the following weeks, a dual-ranch map was developed that displayed potential evacuation routes through both ranches. Further discussions and improvements are needed before this is a viable emergency evacuation for the community.

Ross Hallihan, Huerfano County Department of Emergency Management, met with the Core Team and BHR community members on August 24, 2024. He educated the group on home hardening, home ignition zone, defensive space, and invasive insects found on BHR. He was available to answer questions and provided literature to everyone present. The Core Team determined that Ross Hallihan’s presentation was valuable material for the CWPP.

An in-person Core Team meeting was held with community members on October 4, 2024. Discussions included EMC communication strategies, personal mitigation plans and cost-share grants, evacuation checklists, and BHR EMC first responder roles. The team considered how these ideologies would align with the CWPP goals and objectives.

The Core Team exchanged emails on February 25, 2025 to discuss any final revisions before submitting the CWPP to the BHR board members for review. The BHR POA Board of Directors (BOD) approved the 2025 CWPP on March 5, 2025.

An in-person Core Team meeting was held with community members on March 26, 2025 following the CWPP submission to signatories for approval. Discussions centered around additional details and considerations requested by CSFS and the Huerfano County Department of Emergency Management. The team's focus was expanding on home hardening strategies, defensive space, emergency notifications, evacuation routes, and phased implementation approaches for the Action Plan.

The following state and local agencies were consulted for the preparation of BHR 2025 CWPP:

U.S. Forest Service
Dennis Page, Fire Management Officer

Colorado State Forest Service
Paul Branson, Wildfire Resilience Coordinator - La Veta Field Office

Huerfano County Fire Protection District
Larry Archuleta, Interim Fire Chief

La Veta Fire Protection District
Ron Jameson, Fire Chief

Las Animas Board of County Commissioners
Luis Lopez, County Commissioner
Tony Hass, County Commissioner

Huerfano County Department of Emergency Management
Robert Gilbert, Huerfano County Acting Emergency Manager
Brittney Ciarlo, Huerfano County Emergency Manager (resigned)
Ross Hallihan, Huerfano County Mitigation and Planning Specialist

1.4 ACCOMPLISHMENTS

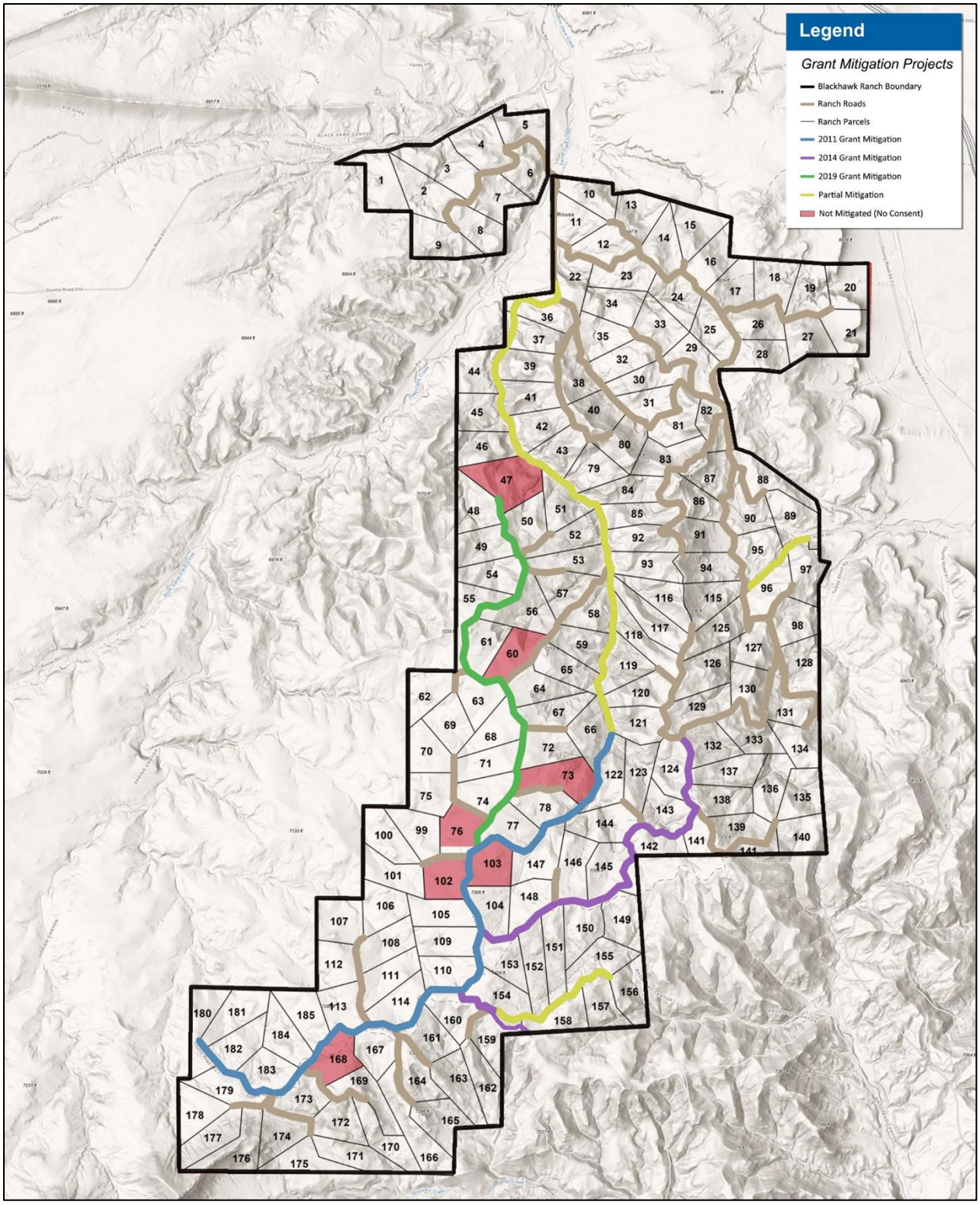

Figure 1. 2009 CWPP Mitigation Accomplishments

Table 1. 2009 CWPP Project List Accomplishments

Completed	2009 Action Plan Project	Description
✓	Implement universal street addressing system	No universal street addressing system has been established between Huerfano and Las Animas counties. Blackhawk addresses were added to online WAZE maps in 2023. Many ranch owners have posted POA approved reflective lot numbers at driveway entrances.
✓	Defensible space around all structures	A Colorado State Forest Service representative was invited to speak at a Blackhawk Ranch Firewise event. The primary topic was Home Ignition Zone and priorities for defensible space. Individual site assessments have also been scheduled by property owners. Home Ignition Zone literature is posted on the ranch website. Raising awareness will be an ongoing project.
	Laminated triage maps	Not completed - In progress. Maps will be updated to indicate property owners who have successfully established defensible space around their home or structure. Individual mitigation efforts along roads will also be noted.
✓	Develop reliable water supply for wildfire operations	One 3,000 gallon water tank, dedicated to fighting wildland fires on the ranch, was installed at the intersection of Fourmile Canyon and Rugby Mines Road. Plans are to install additional tanks at strategic points throughout the ranch.
✓	Install 26 "No Outlet" signs on dead-end roads	Reflective "No Outlet" signs were installed on all dead-end roads in 2019.
✓	Buy Waterous Floto Pump to access pond water	Although the specific brand Waterous Floto Pump was not purchased, several landowners have purchased submersible water pumps that will achieve the same results for considerably less money.

Completed	2009 Action Plan Project	Description
✓	Negotiate/document rights-to-use evacuation routes	Documented agreements were obtained from Blackhawk Ranch and Bighorn Ranch property owners to use properties as egress in an emergency evacuation. Other ranch evacuation routes do not encroach on private property and do not require approval.
	Develop an evacuation plan	Project is partially complete. Evacuation routes have been designated and mitigated. The evacuation route map is updated and posted on the Blackhawk Ranch website. Ranch-wide notification methods are being researched.
	Evacuation simulation	Although an evacuation simulation was never scheduled, the current Emergency Management Committee is in the planning phase of a ranch-wide evacuation simulation in 2025.
	Prioritize/construct turnarounds on dead-end roads	Roads and turnarounds are being reassessed for 2025 CWPP update.
	Shaded Fuel Break West End Spur - Fourmile Canyon - Brodmore Drive	Project is partially complete. Ongoing maintenance is required.
✓	Shaded Fuelbreak Fourmile Canyon - Rugby Mines	Project is complete.
✓	Shaded Fuelbreak Wapiti	Project is complete with the exception of a few parcels. Some landowners have refused to permit mitigation on their property.
	Shaded Fuel Break South Mountain - North Mountain	Not completed. Original project plan is inaccurate. Map indicates North Mountain and South Mountain are connected by a continuous road, but they are not.
	Shaded Fuelbreak - 50 ft each side of road Fourmile Canyon Evacuation Route	Project is partially complete.

Completed	2009 Action Plan Project	Description
✓	Shaded Fuelbreak - 50 ft each side of road Howards Draw Evacuation Route	Project is complete with the exception of some areas not meeting the 50-foot clearance on either side of the road. Those areas are inaccessible due to the terrain.
✓	Shaded Fuelbreak - 50 ft each side of road Lost Spur Evacuation Route	Project is complete with the exception of a few areas that need maintenance to meet the 50-foot clearance on either side of the road.
	Shaded Fuelbreak Timber Drive	Project is partially complete. One landowner has cleared a portion along their property. Volunteers cleared trees and brush at Fourmile Canyon and Timber Drive in 2013.
	Fuel Break Maintenance	Maintenance on all projects is ongoing.

2 EXISTING CONDITIONS & COMMUNITY RISK ASSESSMENT

2.1 FIRE POLICY AND PROGRAMS

The 2025 BHR CWPP is written as an update to the 2009 plan currently on file with the CSFS. Updated federal, state and local policies were considered and integrated into the 2025 revision.

2.1.1 Healthy Forests Restoration Act

The Healthy Forests Restoration Act (HFRA) of 2003 was signed into law by the Bush administration with the goal of reducing hazardous fuels and restoring forests to healthy conditions. This legislation encourages communities in the Wildland Urban Interface (WUI) to develop a CWPP to meet those objectives. The BHR CWPP was developed and written as authorized and defined in Section 101 of Title 1 of the federal HFRA.

2.1.2 Colorado State Forest Service

As directed by Colorado Senate Bill 09-001, the CSFS developed minimum standards for CWPP components. CWPP documents identify wildfire risks within an established area and include strategies to reduce those risks. The BHR CWPP meets or exceeds the minimum requirements as established by the CSFS.

Referencing CSFS Minimum Standards for Developing CWPPs, the plan participants should include a core group with representatives from the local government, the local fire authority, and the CSFS. Additional contributors such as community members, interested stakeholders, and other relevant agencies are encouraged to participate for diverse collaboration.

The WUI planning area must be identified along with a wildfire risk analysis of the area. The risk analysis must include fuel hazards, fire history, risk of wildfire occurrence, and community values to be protected. Structural ignitability must be addressed along with recommendations to reduce this threat.

The CWPP must contain an implementation plan that identifies fuel treatment projects and the preferred method of treatment for each project. Additionally, the document must address the priority of each project along with the agency or group listed as the implementation leader.

2.1.3 POA Governing Documents

The 2024 BHR POA Policies and Procedures Manual specifically addresses emergency preparedness. Each policy as outlined in Section 700 Emergency Management was reviewed and considered in the development of the 2025 CWPP.

Section 700 Emergency Management

1. *Subsection 7.1 Emergencies*
    a) *Paragraph 7.1.1 Board Responsibilities*
    b) *Paragraph 7.1.2 Property Owner Responsibilities*

2. *Subsection 7.2 Security, Road Safety Emergency and Fire Restrictions*
    a) *Paragraph 7.2.2 Road Safety*
    b) *Paragraph 7.2.3 Fire Mitigation / Community Wildfire Protection Plan / Individual Conservation Plan*
    c) *Paragraph 7.2.4 Fire Restrictions*

3. *Subsection 7.3 Emergency Evacuation*
    a) *Paragraph 7.3.1 Evacuation Preparations*
    b) *Paragraph 7.3.2 Evacuation Routes*
    c) *Paragraph 7.3.3 Emergency Warnings*

2.2 COMMUNITY DESCRIPTION

Blackhawk Ranch, located on the High Plains of Colorado, boasts a complex geologic and sociological history. The ranch occupies the southern Front Range of the Rocky Mountains directly east of the Spanish Peaks. Although the peaks are as tall as other Rocky Mountain summits, they were formed at different times and comprised of very different rocks. They were not created by movement of the earth's crust but by ancient volcanic activity 24 million years ago. About fourteen to eighteen million years ago, sedimentary rocks around the peaks were pushed up from below, eroded, and swept into the Arkansas River. That left the two peaks, reaching elevations of 13,628' and 12,701' above the plains. Blackhawk property owners vie for the best view of the imposing peaks.

Ancient people inhabited this area about 12,000 years ago, or as many tribes believe, they were created here. The Apache, Cheyenne, Comanche, and Kiowa were native inhabitants of the region, but the Utes have lived in the BHR area longer than any other tribe, many dating their ancestors back 10,000 years. Scientists date their ancient ancestors in the region from 5,000 B.C.

The hunting lands of the six bands of Utes ranged through New Mexico, Arizona, Utah, Wyoming, and Colorado, but the Kapota band traditionally wintered in the BHR area where they would gather food and hunt. The Utes were one of the first Native tribes to acquire horses. After the introduction of the horse by 1720, their hunting area expanded as did the quantity and quality of their food, clothing, and weapons. No other tribes except the Utes were known to live in this region after that.

By 1830, Utes were at the height of their teepee culture when prospectors discovered gold in Colorado in 1858. Thousands of Euro-Americans invaded the area, occupying Native American camping sites, slaughtering the wild game, and seizing their other resources. In retaliation, the Utes began aggressive raiding and fighting, causing problems for travelers and settlers. In 1868, the Kit Carson Treaty was signed, allotting the Utes 1,500,000 acres for their "absolute and undisturbed use and occupation." The rest of the Utes traditional land would be open for settlement. However, the Utes in Huerfano County did not resettle until May of 1881 when Denver & Rio Grande trains escorted them to their new Utah reservation.

Although the government forcibly removed the Utes from the BHR area, remnants of their civilization remain. Throughout the ranch, property owners have discovered numerous Ute mortar holes, used for grinding pinon nuts and grains. They are usually from 6"-10" in diameter, 4"-6" deep, and often appear in clusters of two to six on large stone outcroppings.

Culturally modified "prayer trees" can be found in several locations, although the authenticity of such trees has been disputed. Some believe that Native people bent the branches of saplings parallel to the ground and tied them down with a yucca rope or leather thong. The Native people would circle the tree and pray, believing the tree would live and hold their prayers for 800 years.

Even before the Utes had been forcibly removed from the BHR area, immigrants from the New Mexico Territory migrated to Huerfano County. By 1865 the population totaled 371. Sheepherders also roamed the area.

The nearby town of Walsenburg north of Blackhawk is named after Henrich Anton Frederick "Fred" Walsen, who managed the first general store and owned 24,000 sheep and 250 head of cattle. Longhorn cattle and sheep drives passed by BHR regularly and by 1900, white settlement and ranches took over much of the available land. Large herds of sheep once grazed on what would become BHR land. Early settlers realized that the area was rich with coal and in 1876 Fred Walsen established the first coal mine. With the arrival of railroads, Walsenburg's coal economy boomed and mines began opening throughout the county.

Three major mines operated in BHR. Black Diamond Mines operated from 1901-1922 and produced 438,700 tons of coal in seams 3' thick. The deepest shafts were 200'. Rugby Mines produced over 1,275,000 tons of coal with seams of 3'- 4' at a depth of about 250' during 1898-1924, 1935-1936, and 1945-1954. The New Rouse mine began operations in 1899 and closed in 1920 after producing 2,095,239 tons of coal. What is now Lot 102, once called Sawmill Flat, served as a milling site. Operators "harvested" most of the larger trees on BHR for use in bracing the mine shafts and rotting stumps throughout the ranch attest to their clear-cutting procedures.

Throughout the eastern section of the ranch, mine tailings and foundations of old schools, houses, and buildings of the mining towns remain at these locations. The foundations near the entrance to the ranch were once the town of New Rouse, controlled by the Colorado Fuel and Iron Company owned by J.D. Rockefeller and Jay Gould. When the mines closed, the buildings were moved and most mines subsided and/or imploded; however, several mine openings remain, their entrances now secured by grates to allow for the ingress and egress of resident bats.

Another major landmark south of BHR is the site of the 1914 Ludlow Massacre, where the Colorado National Guard fired upon a tent encampment of 1,200 striking United Mine Workers and their families employed by the Rockefeller-owned Colorado Fuel and Iron Company. Nine children and nine adults were murdered.

In the 1920s, the main road running through the central valley in BHR, Fourmile Canyon Road, was reputed to be a famous liquor bootlegging route. The route originated in Aguilar, a small town south of Blackhawk where Al Capone, Mafia gangsters, and Black Hand members purportedly sought refuge from the law. Bootleggers thrived until the end of Prohibition, finding customers among the miners and ranchers in the area.

The Great Depression of the 1930s dried up the area economy, and ranchers returned to raising sheep and cattle on property that would become BHR. Huerfano County never recovered and the population of Walsenburg dropped from 6,000 in 1945 to 3,111 in 2022.

During the 1990s, various land developers purchased farm and ranch land along the west side of I-25, creating rural POAs and dividing them into small acreages of at least 35.01 acres. That guaranteed that each owner would be able to drill a private water well.

Blackhawk Ranch Filing No. One was recorded April 9, 1996 in Huerfano County for Lots 1-9 along Bradens Point Road. The ranch is located in southern Colorado approximately nine miles south of Walsenburg, CO. The community is situated directly upon the Huerfano and Las Animas county line, which is established along the dividing ridge between the waters of the Santa Clara Creek and Apishapa River.

The ranch encompasses 6,706 acres with approximately 4,488 acres in Huerfano County and 2,218 acres in Las Animas County. Elevation on the ranch ranges from 6,460’ at the north main entrance to 7,425’ at the southern section of the ranch. Interstate 25 provides primary access to the ranch.

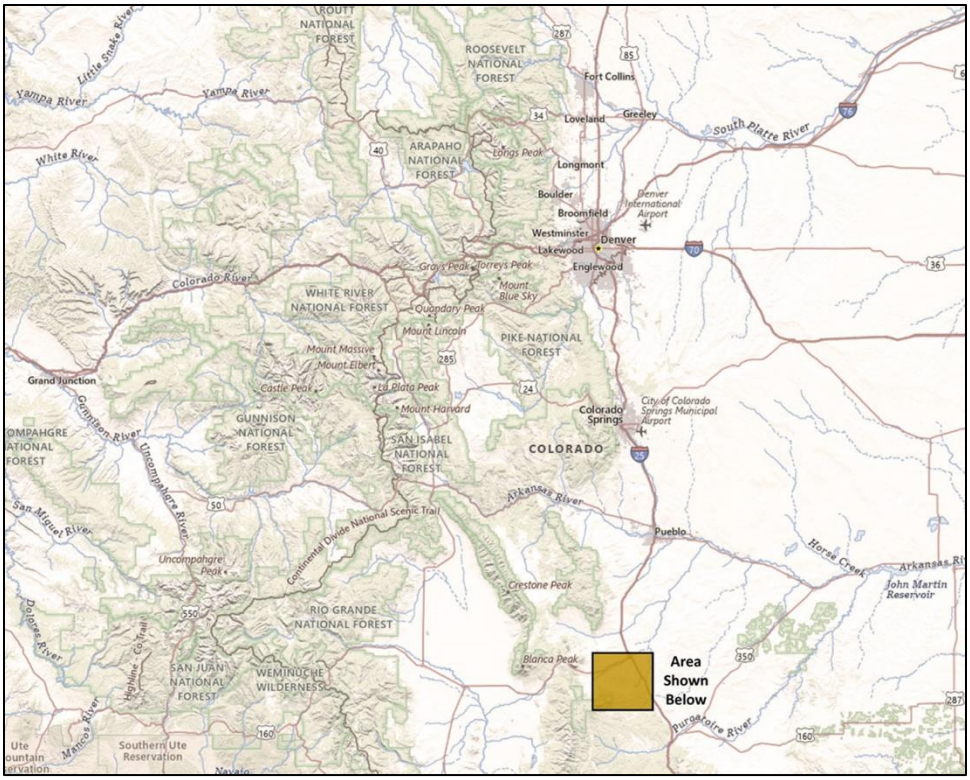

Figure 2. Colorado State Map

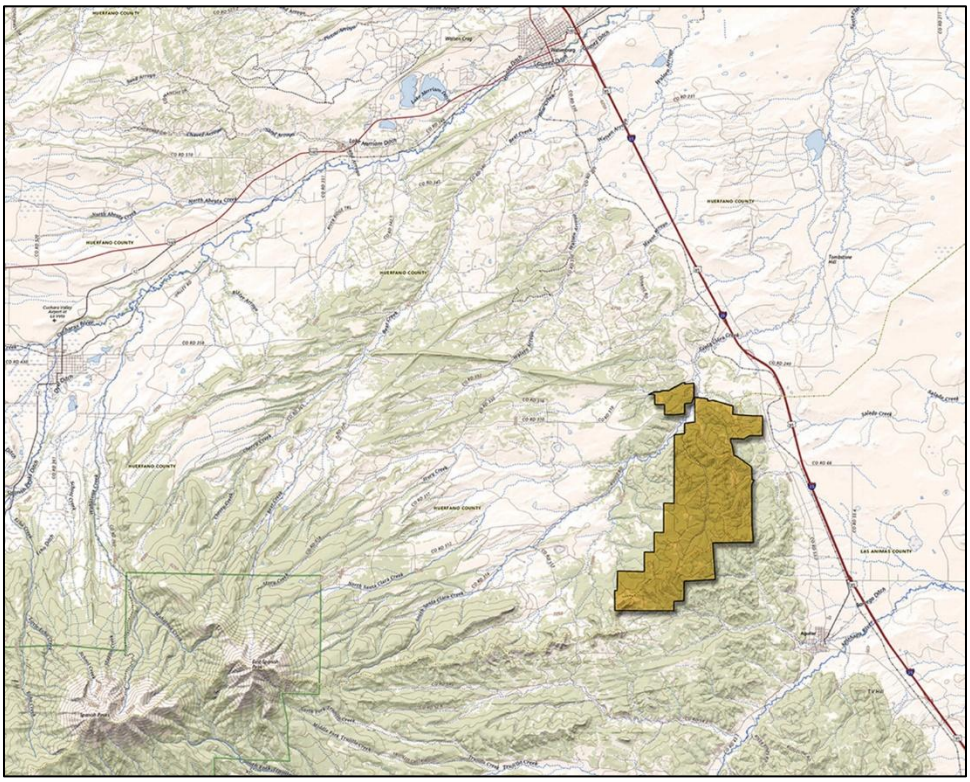

Figure 3. Blackhawk Ranch Location - Southern Colorado

The community is divided into 185 parcels, owned by 161 property owners. Fifty four parcels have homes, of which 30 families reside year-round.

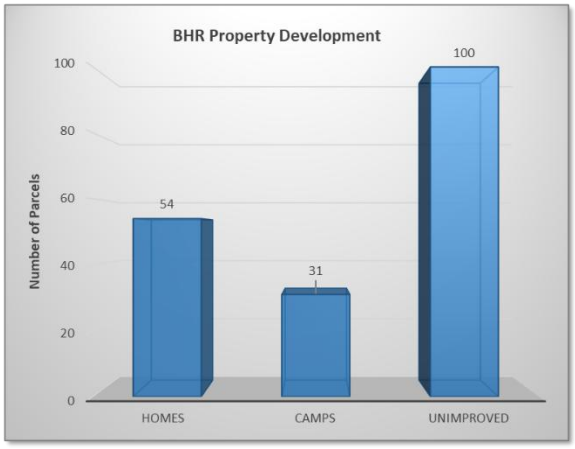

Figure 4. Blackhawk Ranch Ownership

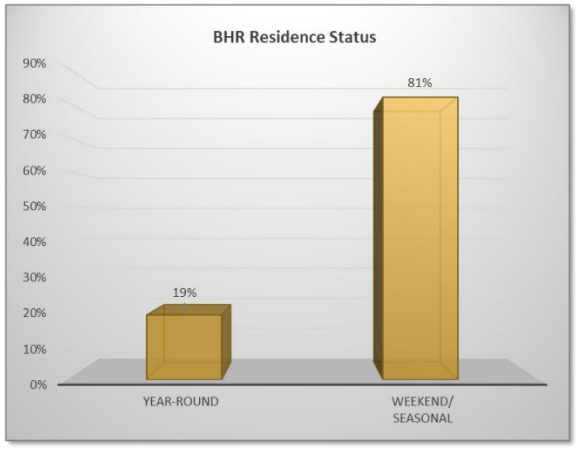

Figure 5. Blackhawk Ranch Residence Status

There is an active POA guiding many of the activities on BHR. The POA meets regularly to address and vote on current ranch issues. Committees are established for Emergency Management, Roads, Communications, Noxious Weeds, and Compliance.

Previous fires in the area have created a vegetative tapestry of pinyon, juniper, and ponderosa pine in the overstory with a rich shrub understory composed of Gambel oak, New Mexican locust, mountain mahogany, skunk-bush and chokecherry. This vegetative blanket lays on a highly dissected series of ridges, draws and canyons. Slopes range from 10% to 35% with an average approximating 30%.

Large wildfires in the area are not unusual. Fires throughout the years have triggered community awareness of the hazards of living in the WUI. Mitigation efforts are evident throughout the ranch. Initial attack for all wildland and structure fires on BHR is provided by the Huerfano County Fire Protection District (HCFPD) located in Walsenburg, CO.

2.3 WILDLAND URBAN INTERFACE BOUNDARY

The WUI is defined as the area where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. The HFRA Section 101(16) defines the WUI as:

> *(A) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or*

(B) in the case of any area for which a community wildfire protection plan is not in effect ---

(i) an area extending ½-mile from the boundary of an at-risk community;

(ii) an area within 1 ½ miles of the boundary of an at-risk community, including any land that ---

(I) has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community;

(II) has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or

(III) is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and

(iii) an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community.

The HFRA permits each community to establish a localized WUI definition and boundary. Community-established WUI boundaries can help meet local management needs, can include both public and private land, and can help improve access to funding sources. For the focus of this CWPP, the planning team defined the WUI as all areas within BHR boundaries and include adjacent areas extending one-half mile from BHR borders. This will take into account changing fuel conditions and terrain for mitigation strategies. Figure 6 is an illustration of the WUI boundary. The one-half mile extending border is not drawn to scale.

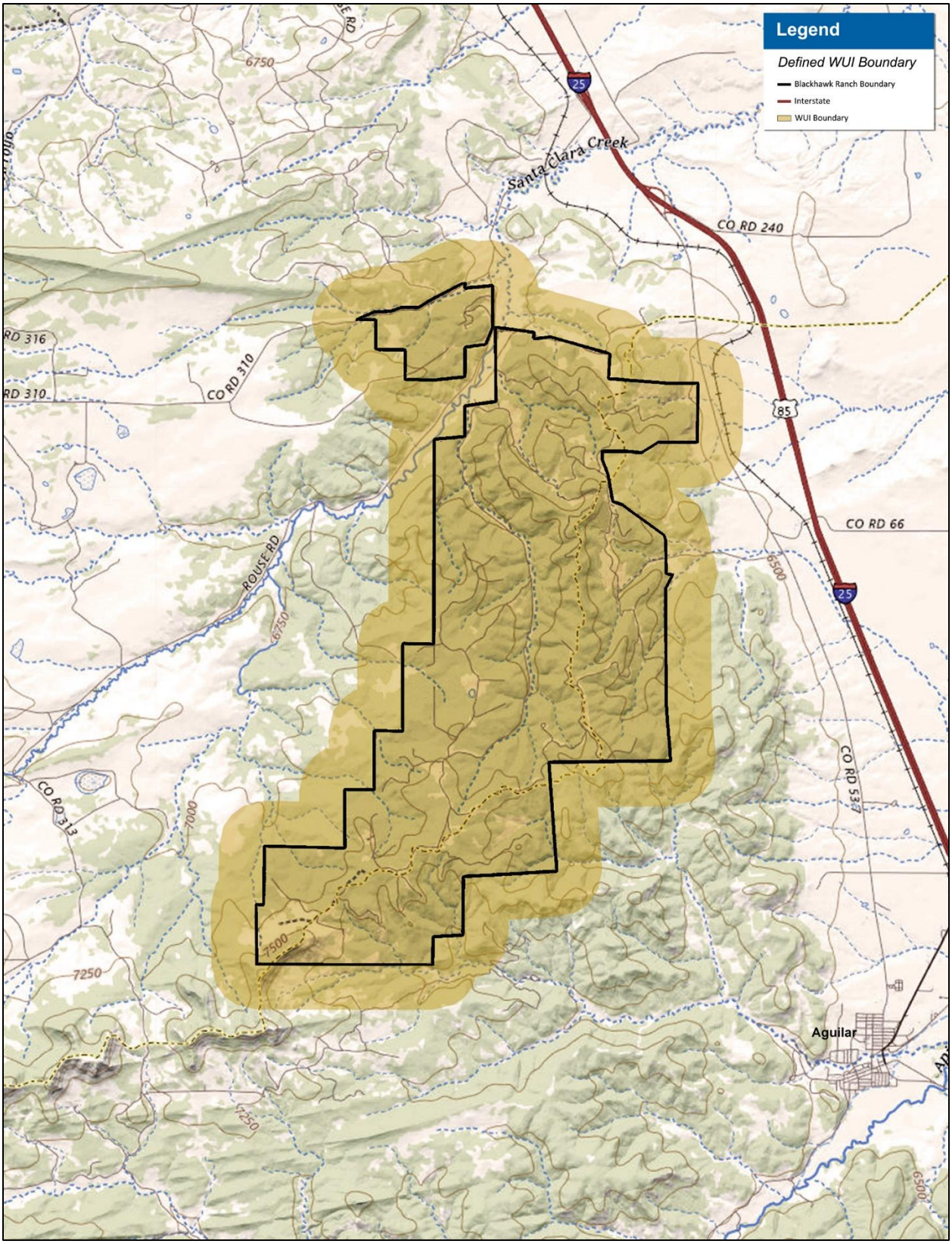

Figure 6. WUI Defined Boundary for Blackhawk Ranch

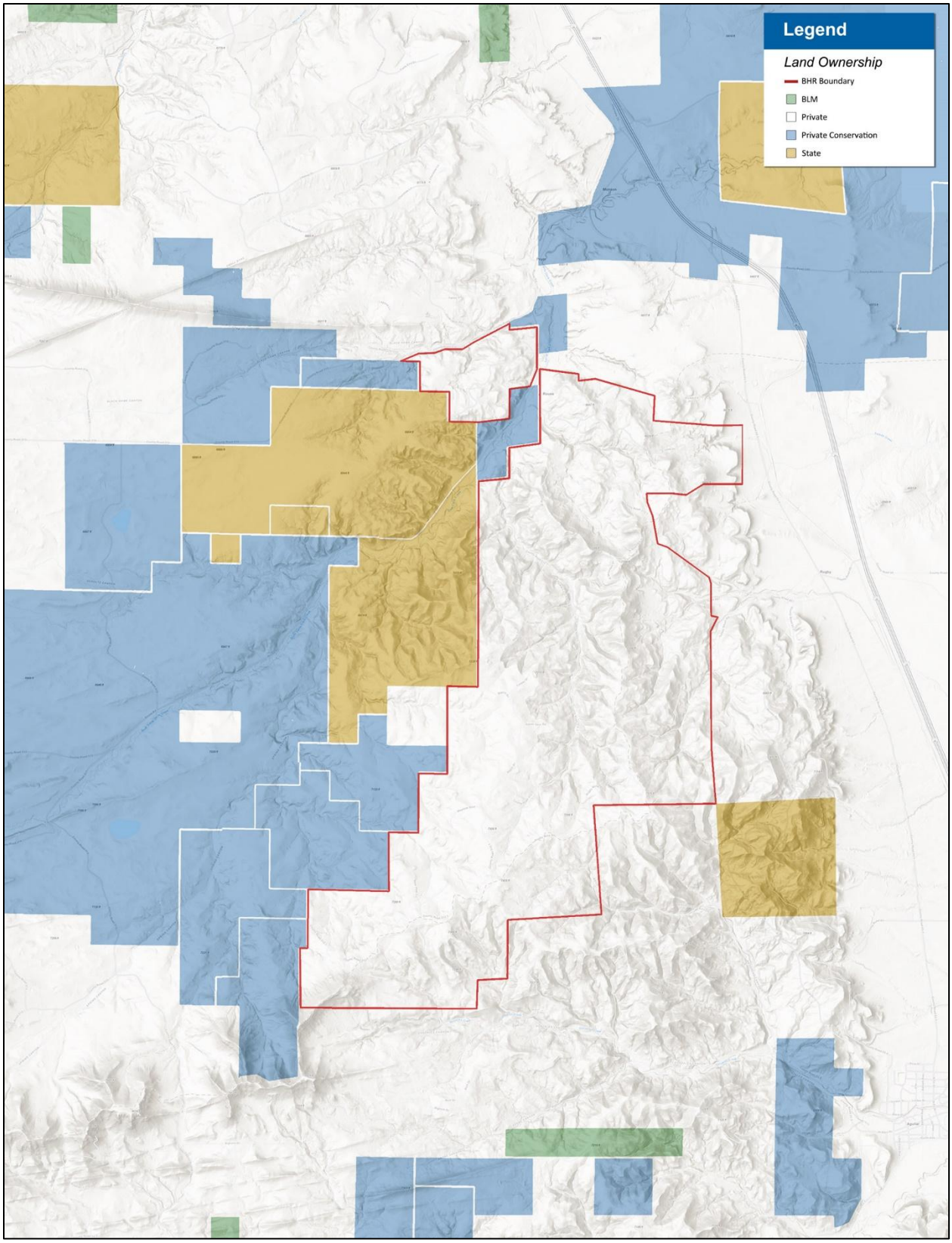

Figure 7. Land Ownership Adjacent to Blackhawk Ranch

2.4 HISTORY OF FIRE OCCURRENCES

Fires originating in or near the community are the most immediate concern, but fires starting well beyond the boundaries of the planning area can also have profound effects upon BHR. Long-range spotting and rapid ROS are standard characteristics for fires in the vicinity.

Long-range spotting occurs when wind-blown embers, also known as firebrands, are lofted by a convection column and transported over long distances. Fuel breaks may have little impact on spotting, which can minimize the efforts of fire crews containing the wildfire. Spot fires that ignite on the unburned side of a fireline can merge together and significantly increase the wildfire size and ROS.

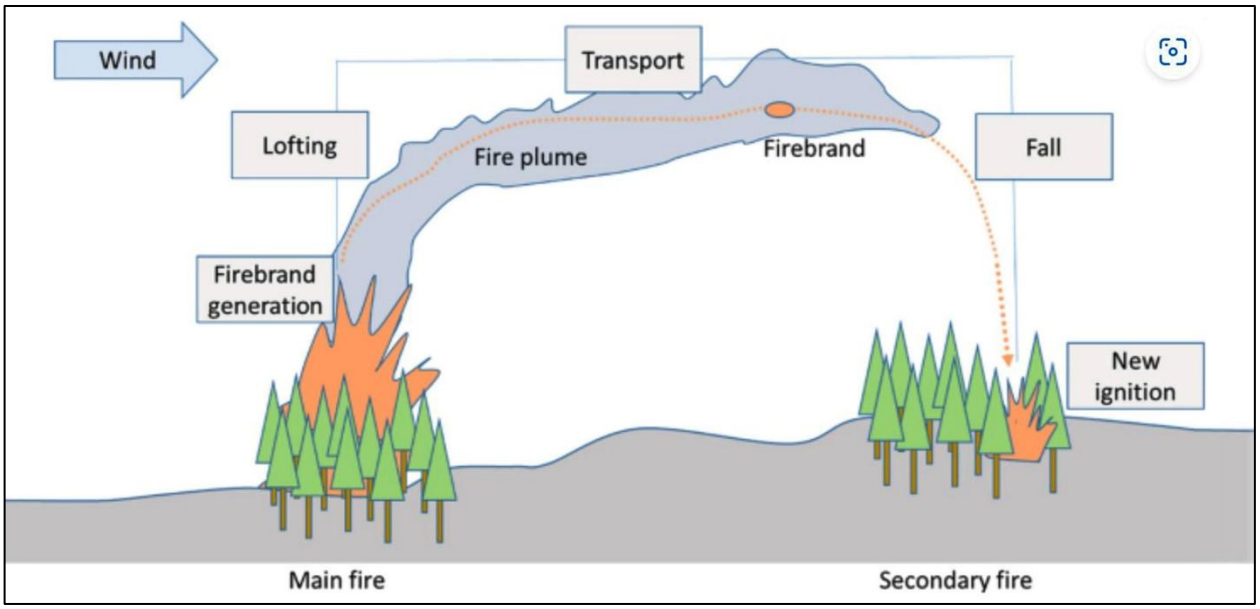

Figure 8. Long-Range Spotting

Dry fuels and low relative humidity are common in the area, as are periods of high winds. When dry and windy conditions coincide, the stage is set for large troublesome wildfires. Many contemporary fires are caused by lightning, but the risk of human-caused fires will increase as more homes are built on the ranch.

2.4.1 Area Wildfires

Since 2006, six fires have occurred in the BHR surrounding areas. In only one, the East Peak Fire, was an evacuation order given to BHR. The two largest fires, Spring Creek Fire and Mato Vega fire, were over 40 miles away across La Veta Pass.

Two large fires occurred west of BHR. One was human caused and the other was started by lightning. In 2006, the Mauricio Canyon Fire, one of the closest to BHR, burned 3,825 acres and

destroyed 15 structures, five of them homes. The fire threatened 215 homes, including the town of Aguilar. The fire was fueled by ponderosa pine, Gambel oak, grass and juniper, all identical fuel types found throughout BHR. Although a ranch foreman had a permit to burn slash piles, he did not closely monitor them. Dry conditions and 75 mph winds caused the smoldering piles to burn out of control. Local, state and federal agencies battled the blaze. The U.S. Forest Service estimated the firefighting costs to be more than $400,000. Ironically, this fire began in January during the winter and a snowfall helped quench the fire.

East Peak Fire

Lightning started the other large fire on June 13, 2013, which was the East Peak Fire. The fire destroyed 13,572 acres of heavy timber, causing the U.S. Forest Service to issue an evacuation notice for 300 properties in the area, including BHR. Two Colorado Army National Guard helicopters, UH-60 Black Hawks, assisted civil authorities in fighting the East Peak fire near Walsenburg in Huerfano County. The helicopters were each equipped with a specialized bucket capable of dropping as much as 500 gallons of water at a time. Fortunately, winds from the southeast guided the fire away from BHR and Walsenburg. The fire was contained on July 9 and consumed 28 structures, including 13 Scout cabins and four outbuildings.

Spring Creek Fire

The largest fire in the area was the Spring Creek Fire in June 2018 near La Veta Pass. Although there was a burn ban issued at the time, the fire was ignited by an illegal campfire. The Spring Creek fire displayed extreme fire behavior with crowning, long-range spotting, and wind-driven runs. The intense fire grew to 41,000 acres in just four days with zero percent containment. By the time it was fully contained on September 10, the blaze had encompassed 109,045 acres, destroying 141 structures and costing more than $32 million to fight. The Spring Creek Fire became the third largest fire in Colorado history.

Mato Vega Fire

Twelve years earlier, the Mato Vega Fire burned in that same area in Costilla County on the west side of Huerfano County and La Veta Pass. It occurred in June of 2006 and burned 13,820 acres causing the evacuation of 280 homes in the Forbes Trincera Ranch. Among the 566 firefighters were members of the Chief Mountain Hot Shots from the Blackfeet Nation in Browning, Montana. This fire, which burned in timber, grass, and debris left over from logging, cost $1.46 million to fight and closed Highway 160, the major east-west route through southern Colorado for four days. Surprisingly, no structures were lost.

Trujillo Creek Fire

In April 2023, the Trujillo Creek Fire in Las Animas County burned 118 acres near Aguilar. Eighty firefighters responded, including a crew from Fort Carson and a Hot Shot team from Denver that specializes in steep, rough terrain. The fire started in an unoccupied cabin and quickly

spread up a canyon wall to another unoccupied cabin, destroying both structures. Twelve people were evacuated. The cause was human related.

Titan Fire

The latest fire in the vicinity of BHR was the Titan Fire in June 2023. The fire developed north of Boncarbo and northwest of Trinidad in mountainous terrain at 7,500'. A mandatory evacuation for 26 homeowners was issued while firefighting aircraft provided aerial support to 220 firefighters on the ground. Ground crews and bulldozers built a line that kept the fire in check on its northwest flank. Rain showers aided firefighters in their suppression efforts. The fire was contained to 930 acres with no structures lost. The cause has yet to be determined.

The months of May through September have typically been considered fire season in Colorado. Today Colorado is experiencing wildfires every month of the year. The January 2006 Mauricio Canyon fire is a clear indication that wildfire season is year-round in Colorado.

Table 2. Area Wildfires 2006-2023

Fire	Date	County	Cause	Fuel Type	Acres Burned	Structures Lost
Mauricio Canyon	Jan 2006	Huerfano Las Animas	Human	Ponderosa pine, juniper, oak brush, grass	3,825	15
Mato Vega	Jun 2006	Huerfano Costilla	Lightning	Pinyon, juniper grass	13,820	0
East Peak	Jun 2013	Huerfano	Lightning	Heavy timber	13,572	28
Spring Creek	Jun 2018	Huerfano Costilla	Human	Ponderosa pine, mixed conifer, spruce fir	108,045	141
Trujillo Creek	Apr 2023	Las Animas	Human	N/A	118	2
Titan	Jun 2023	Las Animas	Undetermined	Ponderosa pine, pinyon,	930	0

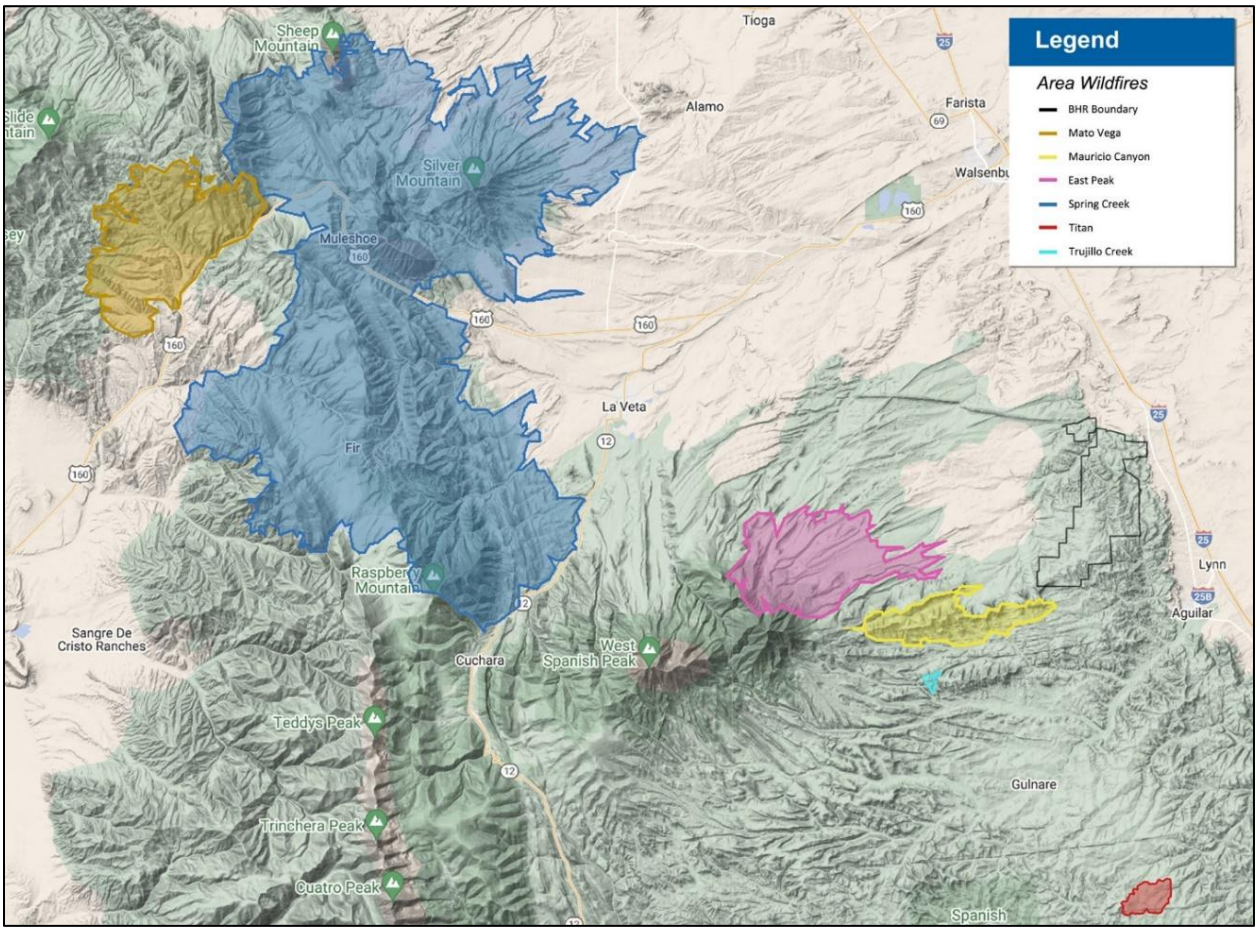

Figure 9. Area Wildfire Perimeters

2.4.2 Blackhawk Ranch Wildfires

In the last 14 years since 2011, BHR has experienced ten fires within its borders with eight encompassing less than one acre. Of these fires, three had undetermined causes, five were ignited by lightning and one was caused by human negligence.

In every instance of the very small fires, rapid and early notification by a property owner alerted 911, BHR EMC members, and neighbors. Emergency Management Committee members responded and contained the fire while waiting for the arrival of the Huerfano and Las Animas County fire departments, who took over the scene and fully contained the fire zones. None were in the crowns of the trees, and most resulted in only several square yards of damage. The July 2013 fire on lot 73 was presumably ignited by an unknown cause along Fourmile Canyon Road and swept uphill to the west along a steep gully. Although EMC members and neighbors attempted to limit the spread within fire lines, it wasn't until the area fire department crews and water tenders arrived that it was able to be contained. One residence was threatened, but the surface fire was limited to the forest floor and no damage occurred.

The largest fire that BHR experienced consumed 40 acres and was caused by lightning. In the case of this fire, a neighbor called 911 but neglected to contact Blackhawk EMC members. As a result, the fire grew out of control and spread to the crowns of the trees before the area fire departments, who were about 45-60 minutes away, arrived on the scene. With plenty of surface, ladder, and crown fuels, the fire escalated quickly. All ranch property owners within one mile of the fire were evacuated.

In all of these fires except one, EMC members met the fire department at the gate and escorted the trucks to the fire zone. After each of these fires were contained, BHR EMC members monitored the burn areas for several days to certify that no smoldering hotspots remained.

The BHR EMC recognizes that all ignitions, regardless of size, should be reported to Pueblo Interagency Fire Dispatch Center. Colorado fire data is collected and disseminated throughout federal, state, and local agencies. The statistics offer valuable insight as to the causes and number of fires in Colorado, time of year most fires occur, and total acres burned. The data collection also provides government agencies with essential information to develop fire prevention campaigns and strategic wildfire plans.

Blackhawk Ranch EMC members continue to develop and engage wildfire prevention plans, while also promoting positive collaboration with first responder agencies. Due to the EMCs aggressive wildfire campaign and awareness within the community, past BHR wildfire damage has been minimal. The EMC continues to assess and tackle wildfire threats to BHR. Objectives are detailed in section 4 Community Preparedness & Strategies.

Table 3. Blackhawk Ranch Fire History 2011-2024

Date		Lot #	County	Cause	Acres Burned
Aug	2011	106	Huerfano	Undetermined	<1
Jul	2011	69	Huerfano	Lightning	<1
Jul	2013	73	Huerfano	Undetermined	13
Jun	2014	182, 183, 184 173	Huerfano Las Animas	Lightning	40
Sep	2014	161	Las Animas	Undetermined	<1
Jun	2016	153	Huerfano	Lightning	<1
Aug	2019	166	Las Animas	Lightning	<1
May	2020	77	Huerfano	Lightning	<1
May	2024	129	Las Animas	Human	<1
Oct	2024	49	Huerfano	Undetermined	<1

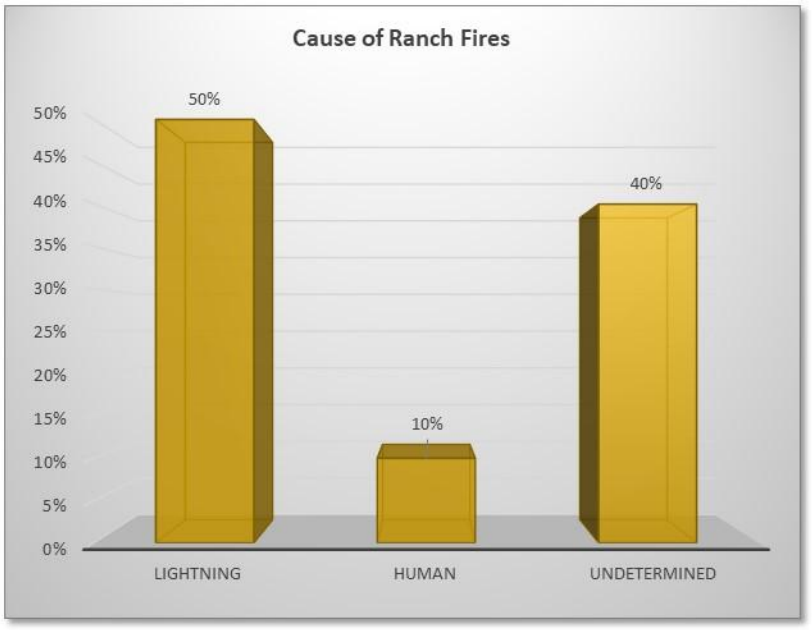

Figure 10. Cause of Blackhawk Ranch Fires

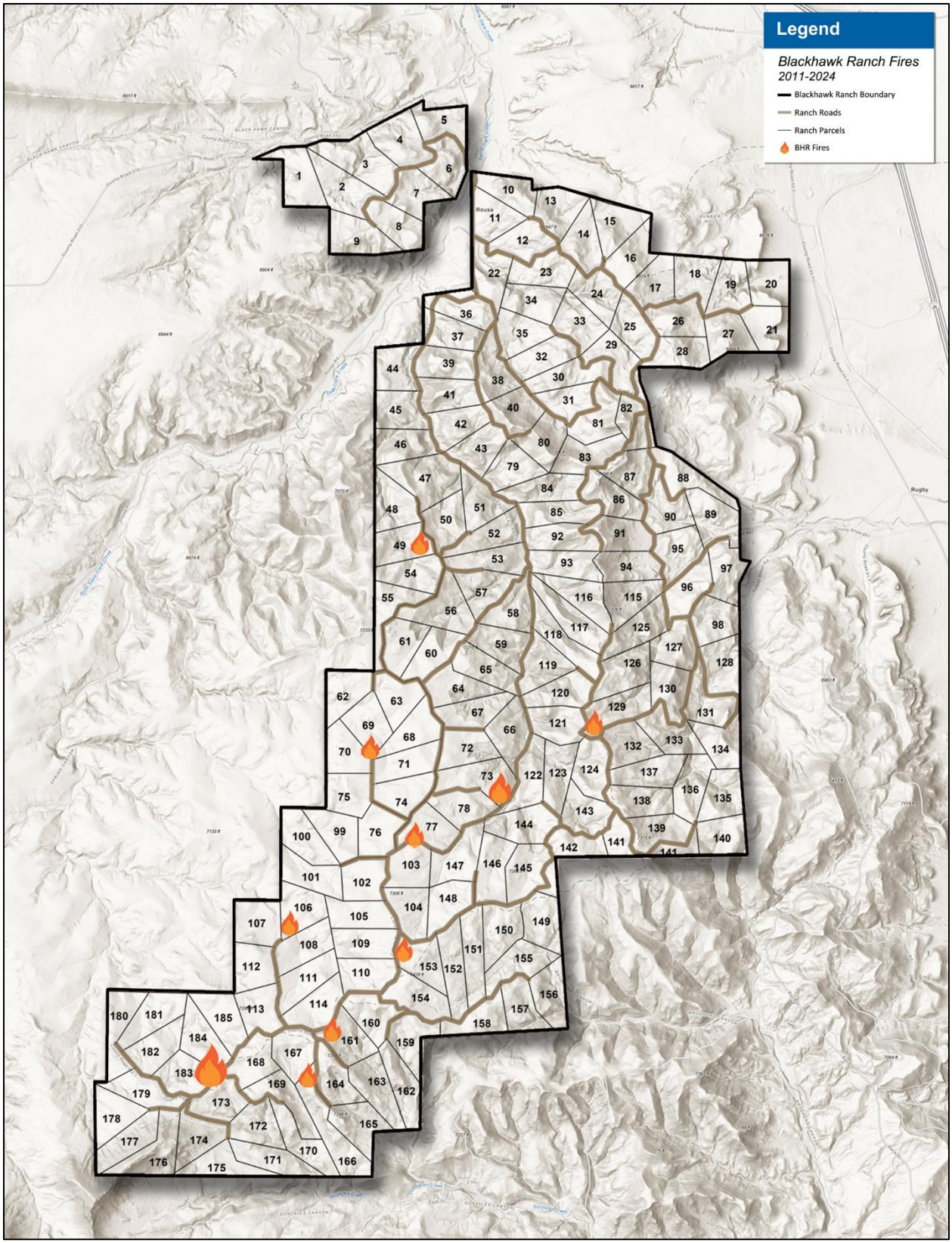

Figure 11. Blackhawk Ranch Fires Map 2011-2024

3 WILDFIRE RISK ASSESSMENT

The overall wildfire risk to the BHR community is rated as high. This section will discuss factors that contributed to the overall rating. Following is a brief overview on how data was collected for all components in section 3.3 Fuel Characteristics.

The CO-WRA, developed in 2012, is a wildfire analysis updated every five years by the CSFS. The CO-WRA serves to provide communities with accurate wildfire assessments to support mitigation planning. The CO-WRA project assesses potential fire behavior in Colorado using both static and dynamic fire simulation approaches. Static variables are those that remain constant over a fire season, such as topography, elevation, and soil composition. Dynamic refers to variables that change throughout a fire season, such as weather and fuel moisture content (FMC).

Weather data from gridMET software was used to analyze potential weather scenarios for assessing fire behavior and characteristic Rate of Spread (ROS). To account for weather variations in fire behavior, data was created from historical weather observations to represent low, moderate, high, and extreme weather days. The fire behavior data in the Wildfire Risk Assessment is a composite output that combines the averages for all four weather percentiles. Fire Intensity Scale predictions are based on the most extreme fire weather conditions.

A static fire simulation approach was used to model potential maximum fire behavior in terms of flame length, ROS, and fireline intensity.

Blackhawk Ranch fire behavior maps were extracted from the Colorado Wildfire Risk Assessment Portal (CO-WRAP), published on the Colorado Forest Atlas website. The CO-WRAP is a web-mapping tool that provides access to statewide data associated with CO-WRA.

3.1 VALUES AT RISK

The CWPP risk assessment must include community values to be protected in the immediate vicinity and surrounding zone. Values at risk are the basic needs and/or assets that are fundamentally important to the BHR community. These values must be taken into consideration for BHR wildfire planning strategies.

3.1.1 Public Safety and Property

Blackhawk Ranch is a WUI community located in Huerfano and Las Animas counties and is rated high-risk for a wildfire to occur. There are 54 homes on the ranch, of which 30 are occupied year-round. Other property owners frequently visit the ranch on weekends or camp throughout warmer seasons. Potential loss of life is the most significant risk factor, followed by property

damage or destruction. Protecting human life and reducing property loss are the chief considerations for BHR wildfire preparedness.

3.1.2 Natural Resources

Blackhawk Ranch lies within the Arkansas Basin, Colorado's largest river basin. Tributaries between BHR and the Arkansas River include Santa Clara Creek, Cucharas River, Huerfano River, and Apishapa River. A high intensity wildfire on BHR would contaminate local water resources with ash, chemicals, microorganisms, and other sediments. Aftereffects may include increased susceptibility of runoff and erosion to area watersheds. Post-fire rainstorms may cause sediment and turbidity issues along ephemeral streams. Poor water quality would have adverse effects to humans, wildlife and grazing livestock.

In addition to water resources, wildfires also endanger vegetation and wildlife. Wildfires reduce nutrients in the soil and introduce the risk for disease and pest infestation. Invasive weeds tend to thrive and outcompete native grasses and plants. With the loss of vegetation, soil would no longer be stabilized by plant roots. Flooding and debris flow are likely to occur. The time period for forest recovery depends on the intensity of the fire that passes through.

Habitat for many wildlife will be destroyed along with the landscape. Water and food contamination, as well as loss of shelter, will cause wildlife displacement for animals that survive. Wildlife will be forced to search for sustenance elsewhere until forest vegetation recovers. Destruction and contamination may impact the community for months or even years following a wildfire.

3.1.3 Roadways

Although roadways are not likely to be damaged in a wildfire, evacuation routes may be compromised by smoke or flames. Nearby Interstate 25 is a major highway that offers north/south passage to nearby towns and cities. It is also the main thoroughfare for responding firefighters. County roads may be closed or otherwise impeded by wildfire. Fire impact to roadways must be considered when planning for wildfires.

3.1.4 Scenery

Property owners place a high value on the views observed throughout BHR. The prominent Spanish Peaks and Sangre de Cristo mountain range are within view of many properties. Other areas on the ranch are secluded in the forest. The natural WUI forest setting and abundant wildlife are important amenities to the BHR community.

3.2 TYPES OF FIRES

The three basic types of wildfires are ground fires, surface fires and crown fires. Each has its own unique fire behavior and all fire types may occur simultaneously during a wildfire. Any change in fuel, weather, or topography can cause rapid change in fire behavior.

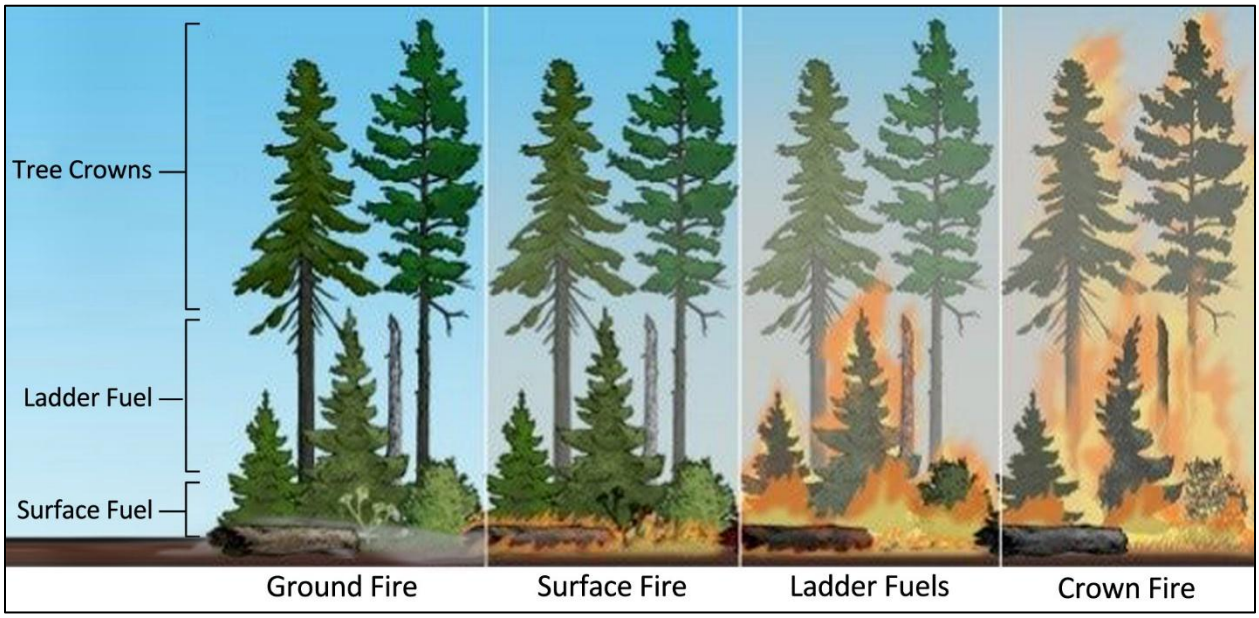

Figure 12. Wildfire Types

3.2.1 Ground Fires

Ground or subsurface fires burn primarily below ground in the duff layer, made up of decomposing matter such as leaves, bark, needles, and twigs. Ground fires tend to smolder rather than produce flames and may remain undetected for hours, weeks, or months. Ground fires spread slowly beneath the surface making them difficult to observe from above. Because they occur below the surface of the ground, they are difficult to suppress and are more challenging to contain than surface fires. Ground fires typically require excavation to extinguish. Under the right conditions, a fire may burn through the surface of the ground and transform into a surface fire.

3.2.2 Surface Fires

Surface fires are the most common wildfire and generally the easiest fire to extinguish. This fire type burns on the surface of the ground and is fueled primarily by low-lying vegetation such as leaves, downed branches, logs, shrubs, and small trees. Surface fires range from low to high intensity depending on the conditions. Live or dead fuels that connect the forest floor to the

tree canopy are referred to as ladder fuels. Ladder fuels provide vertical fuel continuity that allow a fire to extend from the surface level into the tree canopy, which result in crown fires.

3.2.3 Crown Fires

Crown fires are usually ignited by a surface fire and are the most dangerous type of wildfire. Crown fires involve fuels burning at both the surface level and the crown layer farther up the tree. The ladder effect allows ground or surface fires to extend into the canopy. This results in a fire that will burn at extreme temperatures and moves rapidly from one tree crown to another.

Crown fires may be passive or active. Passive crown fires, also referred to as torching, consist of a fire burning individual trees or small groups of trees. Fire intensity is insufficient to ignite other trees and can be sustained only for short periods of time. Active crown fires occur when the fire presents a solid wall of flame from the surface through the canopy fuel layers. The height of crown fires in combination with wind may cause additional hazards such as long-range spotting.

3.3 FUEL CHARACTERISTICS

The degree of flammability for any fuel depends on fuel type, arrangement, moisture level, and quantity (fuel loading). Fuel types and characteristics can influence flame length, fire intensity, and wildfire ROS. Fuel data is entered into fire modeling software that calculates fire risk and fire behavior for specific conditions.

Wildland fuels are categorized into fuel types based on the primary fuel that carries the fire. The basic fuel types are grass, brush, timber, and slash. The behavior of fire often depends on which fuel types are present. Dry grasses, dead leaves, and needles are light fuels that are easy to ignite and act as kindling for heavier fuels. Logs and trees are dense fuel types that burn slower and are more difficult to extinguish.

Both horizontal and vertical arrangement of fuels influence fire behavior. Horizontal continuity refers to fuels across the ground such as grasses, fallen leaves, stumps, and shrubs. The vertical arrangement of fuels, known as ladder fuels, connect vegetation from the forest floor to the tree canopy. Ladder fuels may allow a fire to climb from the surface to the treetops and develop into a dangerous crown fire. Dense continuous fuels may result in a fire that can easily spread, while interruptions of fuel loads may reduce fire intensity and prevent a fire from advancing.

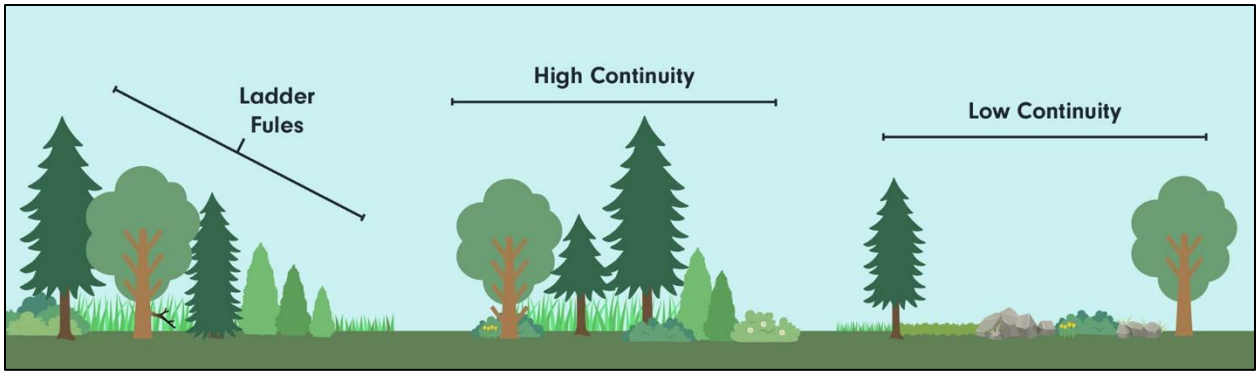

Figure 13. Ladder Fuels and Fuel Continuity

Fuel Moisture Content (FMC) is the amount of water in a fuel and influences whether ignition will take place or not. Moisture content is separated into live fuels (living vegetation) and dead fuels (woody slash, dead grasses, fallen leaves, needles). Vegetation with high FMC is resistant to ignite, while low FMC fuels burn more easily, with higher intensity and greater ROS. Moisture content in dead fuels is classified by fuel size and timelag.

Table 4. Fuel Timelag Categories

Fuel Category	Diameter (inches)	Description
1-hour	< 0.25	Needles, twigs, moss, lichens, small shrubs, grasses
10-hour	0.25 - 1	Small branches, shrubs
100-hour	1 - 3	Medium branches
1,000-hour	3 - 8	Large branches, small logs/trees

Timelag is the period of time at which a given dead fuel gains or loses moisture due to changes in its environment. Dead fuels are divided into four timelag categories based on diameter: 1-hour, 10-hour, 100-hour, and 1,000-hour. The FMC in fine dead fuels such as grasses can change rapidly, while moisture content in large fuels change at a much slower rate. Even after a rainstorm occurs, the hot sun can quickly dry up grass. Therefore, dead grasses are classified as 1-hour fuels, which is approximately the length of time it takes for the fuel to respond to changing weather conditions.

The amount of wildland fuel present in a specific area is known as fuel loading and is quantified in tons per acre. Data such as fuel type, size, density, and moisture content is collected to measure fuel loading. An area with dense, dry vegetation will have a higher fuel loading than an area with sparse, moist vegetation. Fuel loading predictions allow fire managers to make informed decisions about firefighting tactics and resource allocation, as well as predict future fire behavior.

3.4 FIRE BEHAVIOR

Fire behavior is the manner in which a fire reacts to the interaction of fuel, weather, and topography. Understanding how these elements work together and influence fire behavior is critical to wildfire management. The study of fire behavior is used by managers in fire prediction, planning, and training.

Over the past few decades, wildfires have yielded longer fire seasons and more extreme fires and fire behavior in the WUI. There are a number of sophisticated tools available to assist firefighters with fire behavior prediction. Satellites, drones, software applications, and Artificial Intelligence (AI) are all approaches being utilized to better understand wildfire behavior. Greater familiarity with the physics of fire behavior will allow fire managers to develop proactive strategies to wildfire management.

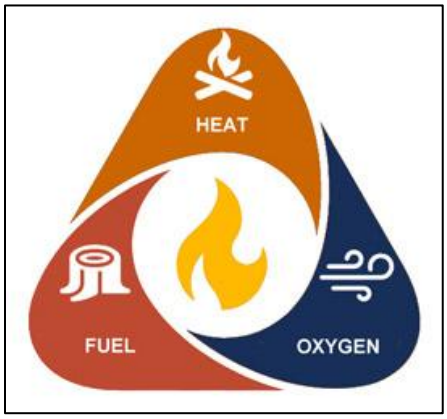

Figure 14. Fire Triangle

Fuel, heat, and oxygen are three basic fire fundamentals that must be present for a wildfire to burn. These three elements are often referred to as the fire triangle. Each side of the triangle represents one of three components needed for a fire to burn. When these three elements are present and interact, a chemical reaction occurs that produces fire. If even one of the components is removed, the fire triangle collapses and the fire will be extinguished.

Fuel refers to any combustible material than can burn, whether dead or alive. Fuel may be removed from the path of a fire by constructing firelines or setting backburns. Fuels may also be managed by proactive mitigation efforts.

A fire must have heat, or an ignition source, to start. This may include natural causes such as lightning or human caused factors such as unattended campfires, discarded cigarettes, fireworks, etc. Once ignited, a fire will continue to produce heat. Heat may be removed from a fire by applying water, dirt, or retardant to cool down.

A fire requires at least 16% oxygen to burn. Oxygen supports the chemical processes that occur during fire. A fire may be suffocated with dirt or water to deprive the fire of oxygen.

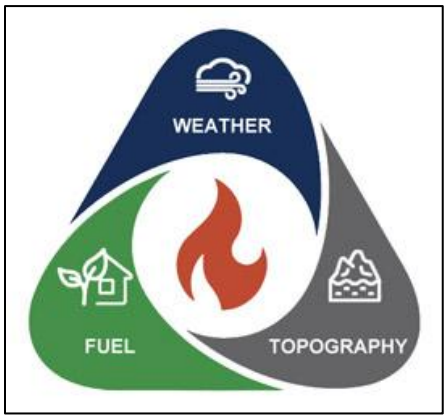

Figure 15. Fire Behavior Triangle

Just as there is a fire triangle made up of fuel, heat, and oxygen, there is a similar triangle termed the fire behavior triangle. The three legs of the fire behavior triangle are fuel, weather, and topography. This triangle explains how a fire behaves after ignition. A change in any one factor can affect fire behavior.

Fuel, weather and topography all influence a fire's intensity, size, and ROS. Neither topography nor weather can be altered to influence fire behavior. Only the amount and arrangement of fuels can be changed in advance of a wildfire to protect life and property. Fuel management techniques may include mechanical treatments, herbicides, prescribed burning or livestock grazing.

3.4.1 Fuel Models

Characteristics such as moisture level, chemical content, fuel load, and depth determine a fuel's degree of flammability and its influence on fire behavior. Understanding and predicting fire behavior is essential for effective fire management, resource planning and firefighter safety.

Fire predictions are made possible by entering specific data into fire behavior models, such as the Rothermel surface fire spread model. A fire spread model is a mathematical representation of fire behavior that predicts the direction and speed of travel. Predictions are based on fuel conditions, wind speed, and humidity. Fire behavior models also require inputs that describe the physical and chemical makeup of fuels, otherwise known as fuel models.

Fuel models are groups of vegetation similar in physical characteristics such as loading, size, and bulk density. Rothermel's original fire behavior fuel models was implemented in 1972 and contained 11 fuel models. The fuel models were grouped under four of the most common fire-carrying fuel types: grass, shrub, timber, and slash. In 1976, two additional fuel models were added and that dataset is now referred to as the original 13 fire behavior fuel models.

The original 13 fuel models were designed to predict fire behavior during the critical portion of fire season. They were static fuel models that lacked sensitivity to live fuels, did not account for crown fire modeling, and did not represent fire behavior outside of peak fire season. A restructured set of fuel models was needed to represent dynamic fuels and to improve the accuracy of fire behavior predictions throughout the entire year.

Scott & Burgan (2005) integrated the 13 original fire behavior fuel models and expanded the range to 40 fuel models distributed within seven groups. Scott & Burgan's dynamic fuel models

eliminated the assumption that the fuel bed was uniform during the dry season. Extending the range of fuel models improved fire behavior predictions outside the narrow scope of the original 13. Additional categories for fuels representing forest litter and litter/grass/shrub mixes allowed users to identify a more appropriate fuel model related to the vegetative cover in their planning area.

Citing lessons learned from the Cameron Peak, East Troublesome, and Marshall fires, advanced technical approaches were used for the 2022 CO-WRA assessment. Although the nationally recognized Scott & Burgan fuel models were the foundation for the 2022 CO-WRA, progressive technology resulted in an additional 22 fuel models and a better representation of the WUI. Two new timber categories (TUML1 (171) and TLML1 (191)) and two new road categories (RNL (941) and RNH (942)) were added to fuel models for BHR.

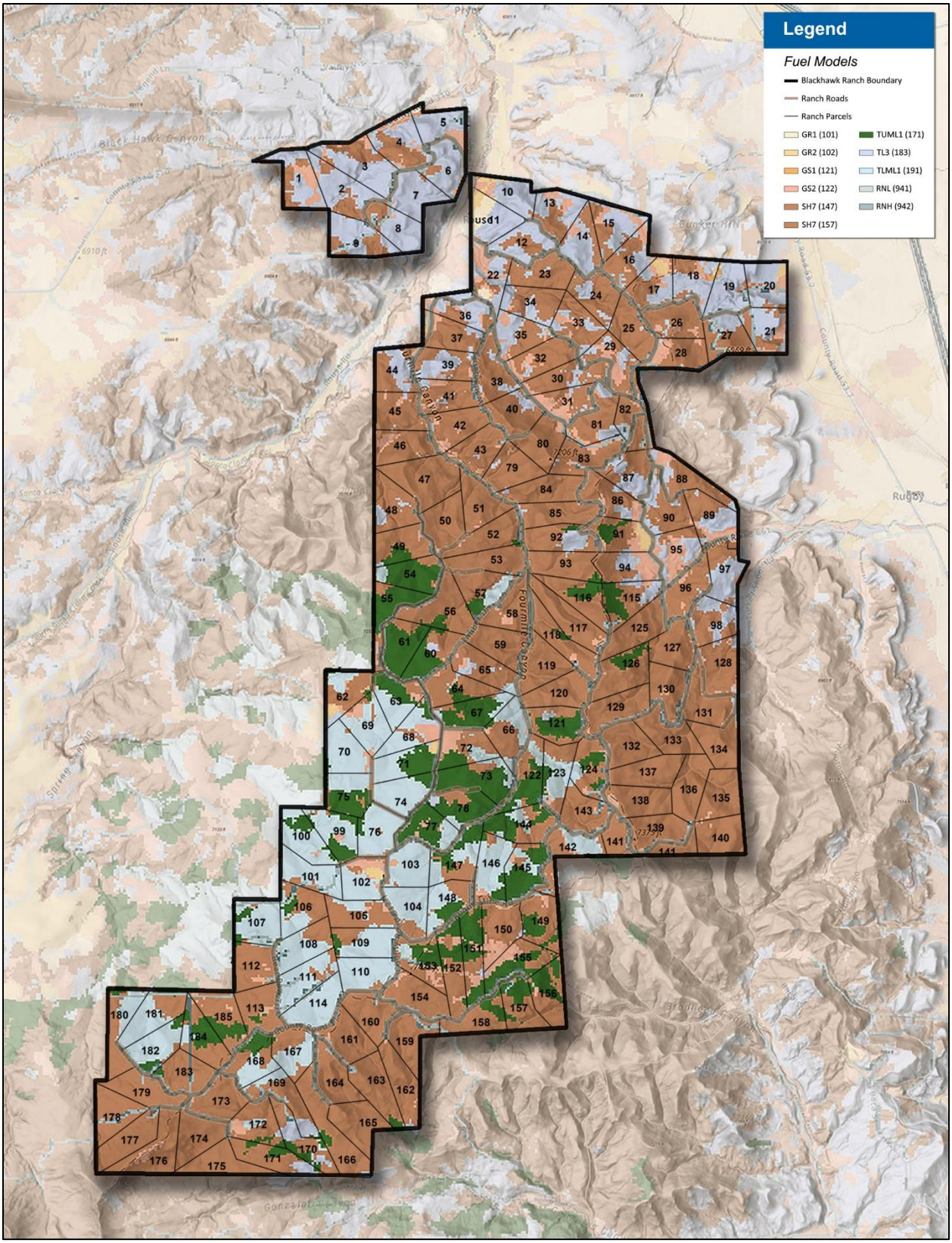

Figure 16. Blackhawk Ranch Fuel Models Map

Table 5. Fuel Models/Characteristics Identified on Blackhawk Ranch

Fuel Model	Description	Characteristics	Spread Rate	Flame Length	Ranch Acres
GR	**GRASS: Nearly pure grass and/or forb type**				
GR1	Short grass	The primary carrier of fire in GR1 is sparse grass though small amounts of fine dead fuel may be present. Grass is short, patchy and possibly heavily grazed.	Moderate	Low	14
GR2	Timber grass and understory	The primary carrier of fire in GR2 is grass though small amounts of fine dead fuel may be present. Load is greater than GR1 and fuelbed may be more continuous. Moderately coarse continuous grass, average depth about 1 foot.	High	Moderate	39
GS	**GRASS-SHRUB: Mixture of grass and shrub, up to about 50% shrub coverage**				
GS1	Low load dry climate grass-shrub	The primary carrier of fire in GS1 is grass and shrubs combined. Shrubs are about 1 foot high, grass load is low.	Moderate	Low	2
GS2	Moderate load dry climate grass-shrub	The primary carrier of fire in GS2 is grass and shrubs combined. Shrubs are 1-3 feet high, grass load is moderate.	High	Moderate	364
SH	**SHRUB: Shrubs cover at least 50% of the site, Grass is sparse to nonexistent**				
SH7	Very high load dry climate shrub	The primary carrier of fire in SH7 is woody shrubs and shrub litter. Very heavy shrub load, depth 4-6 feet.	High	Very High	3,639
TL	**TIMBER LITTER: Dead and down woody fuel (litter) beneath a forest canopy**				
TL3	Moderate load conifer litter	The primary carrier of fire in TL3 is moderate load conifer litter, light load of course fuels.	Very low	Low	776
TLML1	Timber Litter ML				774
TU	**TIMBER UNDERSTORY: Grass or shrubs mixed with litter from forest canopy**				
TUML1	Timber understory, Dynamic ML				613
RN	**MINOR ROAD**				
RNL		Minor roads surrounded by low-load fuels.			7
RNH		Minor roads surrounded by high-load fuels.			478

GR: Grass

GS: Grass-Shrub

SH: Shrub

TL: Timber Litter

TU: Timber Understory

RNH: Minor Road Surrounded by High-Load Fuels

Figure 17. Blackhawk Ranch Fuel Models

3.4.2 Weather Patterns

Weather is the most variable component in the fire behavior triangle. Wind, humidity, and temperature are significant weather conditions that have tremendous impact on fire behavior. Of these conditions, wind is the least predictable and the biggest driver of wildfires. Wind supplies oxygen, aids combustion and provides energy for the wildfire to continue burning.

Wind increases fire spread by pushing the flames toward new fuel sources. As the wind blows, it flattens the flames and pre-heats the fuels ahead of it. Long-range spotting may occur as the wind lofts embers to new fuels, causing significant ROS (refer to Figure 8. Long-Range Spotting).

Unpredictable wind shifts can occur that alter fire movement, intensity and ROS. Wind may accelerate and become more turbulent as it funnels through canyons, ridges and valleys. The direction of air flow may change course as it blows around hills. Incoming weather disturbances may change wind speed and direction.

Humidity levels can either dampen or dry out potential fuel. Dead forest fuels and the air are constantly exchanging moisture. Fuels take moisture from the air when the humidity level is high. Conversely, low humidity removes moisture from the fuels. As humidity levels drop, fuels dry out and fire danger escalates. Typically relative humidity values of 15% or lower result in elevated fire danger.

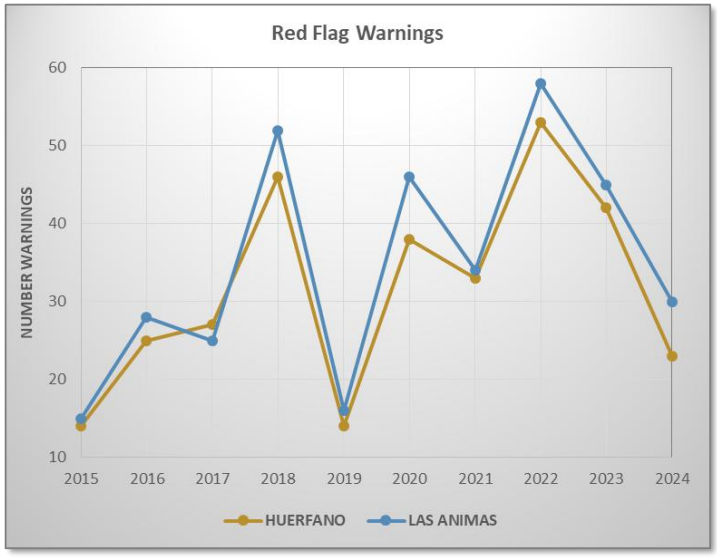

Figure 18. Red Flag Warnings 2015-2024

Certain weather and fuel combinations can create critical fire conditions. Extended periods of low relative humidity and high winds can quickly dry fuels and are ideal components for rapid wildfire spread. When these two events are occurring or are likely to occur, extreme wildfire danger is present and the National Weather Service may issue a red flag warning. The primary criteria for releasing a red flag warning are relative humidity of 15% or less, combined with sustained surface winds or frequent gusts of 25 mph or greater. Both conditions must occur simultaneously for at least 3 hours in a 12 hour period. Red flag weather patterns are not uncommon for BHR.

Hazardous wind or weather conditions can hamper fire suppression efforts by limiting firefighting strategies. Under extreme fire behavior, the intensity of the wildfire itself can create its own weather. A fire under these conditions is extremely dangerous, difficult to manage, and may burn out of control.

3.4.3 Topography

Topography is one of the three main components that influence a fire's ROS, intensity and size. Topography characteristics include elevation, slope and aspect, along with features such as canyons, ridges, mountains and lakes.

Blackhawk Ranch is approximately 10.5 square miles with elevation ranges from 6,460' to 7,425' throughout the ranch. Slopes on the ranch range from 10% to 35% percent with most hillsides ranging from 20% to 30%. The steepness of a slope contributes to fire behavior as fire typically moves faster uphill than downhill. Uphill fuels are in closer proximity to the advancing fire. As uphill fuels preheat and dry out, they become more prone to ignite. Steeper slopes result in fires with longer flame lengths and a rapid ROS.

Aspect, the direction a slope faces, has consequential effects on fire behavior. Aspect determines what impact the sun has on a particular slope. Soil moisture, fuel condition and temperature all vary widely depending on the slope's aspect. The sun typically has longer daily exposure on south and southwest facing slopes, which results in lower humidity and higher temperatures. South and southwest facing slopes present a more significant fire hazard than the others. North facing slopes have more shade and moisture, are slower to heat up and generally have the least fire activity.

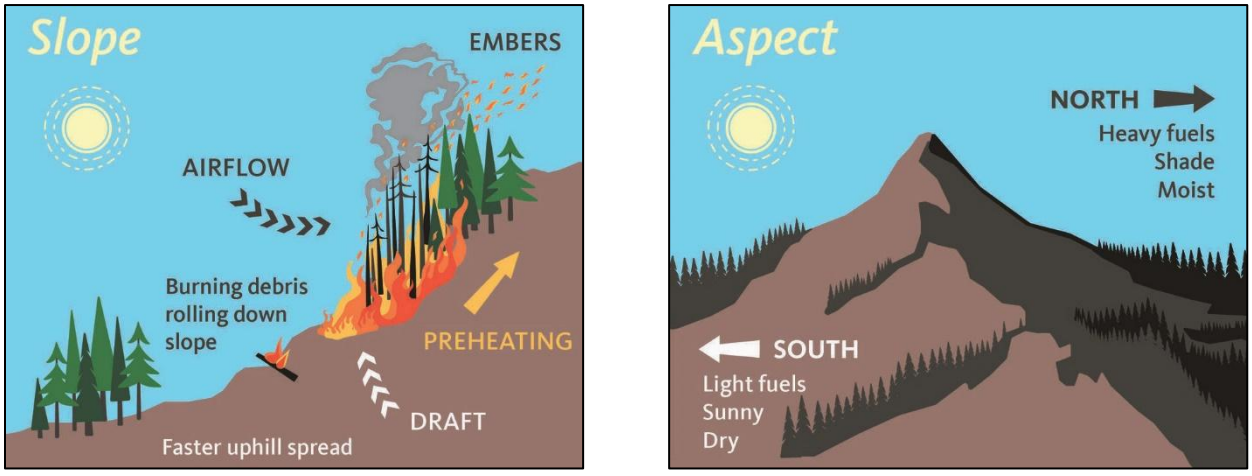

Figure 19. Slope and Aspect Impact on Fire Behavior

Although landscape characteristics can adversely affect fire behavior, firefighters can also use land features to their advantage. Roads, streams, lakes or rocky slopes may be used as natural firebreaks to suppress wildfire progression. A rocky slope may provide a wide gap and lack of fuel for a fire. Shaded fuel breaks may be used as anchor points for firebreaks to attack and suppress a wildfire.

The 2022 CO-WRA Terrain Difficulty Index evaluates the difficulty of fire suppression based on landscape characteristics. The report uses updated metrics to enhance the definition of areas where access to fires and suppression from ground resources is difficult. The map on the following page indicates the BHR Terrain Difficulty Index as computed by CO-WRA.

Table 6. Terrain Difficulty Index

Category	Accessibility	Difficulty of Extinction
Very Low	No accessibility limitations to the firefighting resources	Quick deployment of wildfire suppression ground resources
Low	High density of tracks and paths	Terrain conditions allow the deployment of wildfire suppression ground resources
Intermediate	Roads and tracks are slightly more difficult to access	Terrain is mildly difficult with increasing slopes
High	Low density of roads or tracks in the area	Difficult terrain access with limitations to ground travel
Extreme	Very low density of roads or tracks to support strategies	Highly complex terrain conditions including high-slope areas limit use of heavy equipment

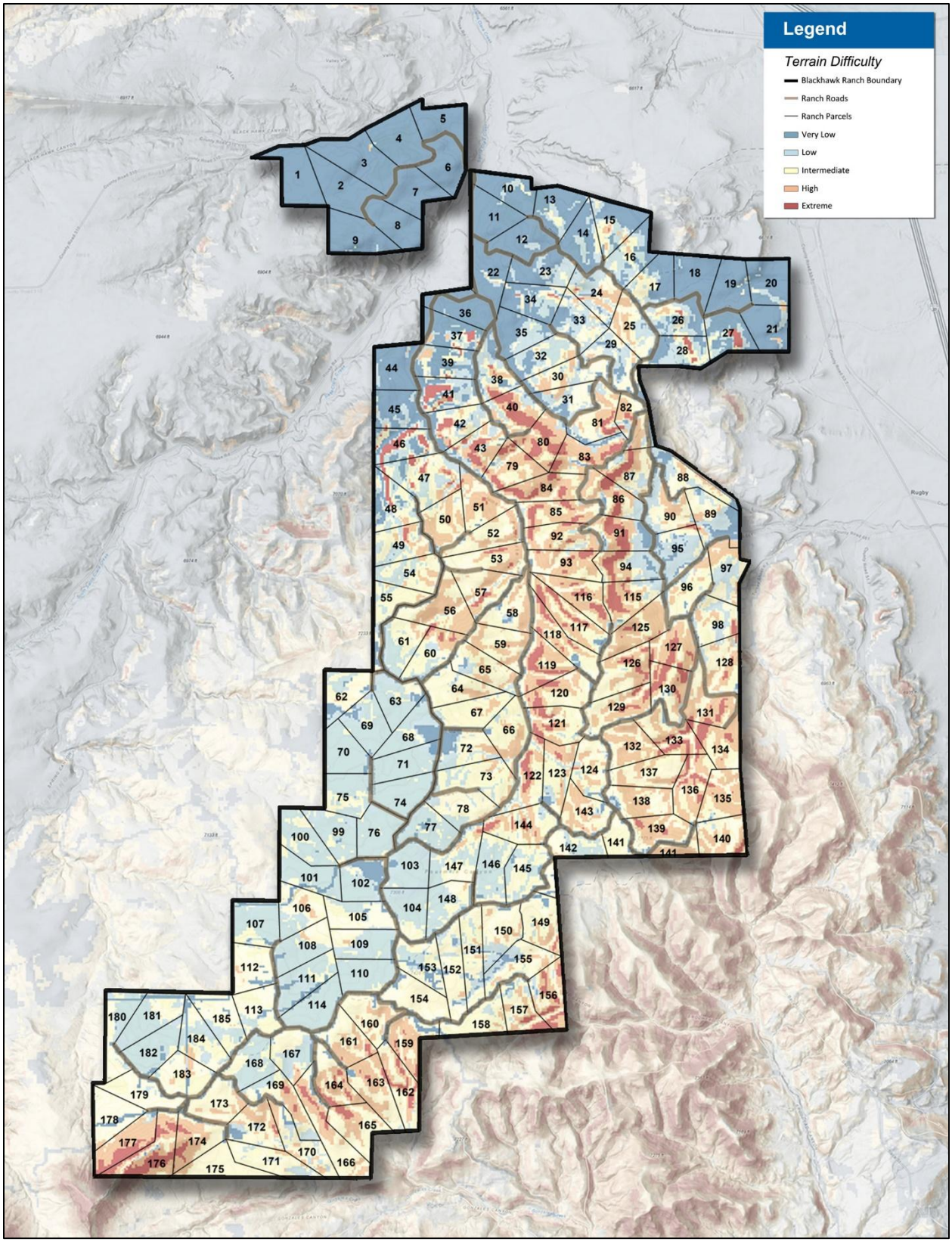

Figure 20. Blackhawk Ranch Terrain Difficulty Map

3.4.4 Characteristic Flame Length

Flame Length is an indicator of fire intensity and is often used to estimate the extent of heat a fire is generating. Flame height is measured vertically, while flame length is measured on an incline when flames are tilted due to effects of wind and slope. Under no-wind conditions on flat ground, flame length and flame height are the same; however, when wind is present, flame height is lower than flame length. Large flame lengths can occur with steep slopes, low fuel moistures, and high winds. As the wind bends flames closer to the surface, fuels are preheated and the ROS is accelerated.

Flame length constantly fluctuates in response to fuel and topography variations and changes in wind speed and direction. Since weather changes frequently, it is the most dynamic variable. In the event of a wildfire, data indicates that nearly 50% of BHR could experience 8'-12' flame lengths where control efforts may be ineffective.

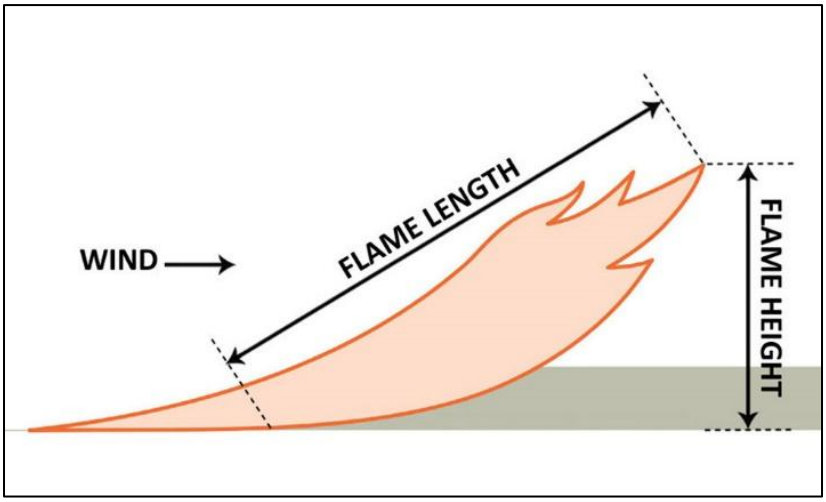

Figure 21. Flame Descriptors

Table 7. Flame Length and Effects on Fire Control

Flame Length	Effects on Control
0-4 ft	Fires can generally be attacked at the head or flanks by persons using hand tools. Handline should hold the fire.
4-8 ft	Fires are too intense for direct attack on the head by persons using hand tools.
8-11 ft	Fires may present serious control problems; torching out, crowning and spotting. Control efforts at the head will probably be ineffective.
> 11 ft	Crowning, spotting and major fire runs are probable. Control efforts at the head of the fire are ineffective.

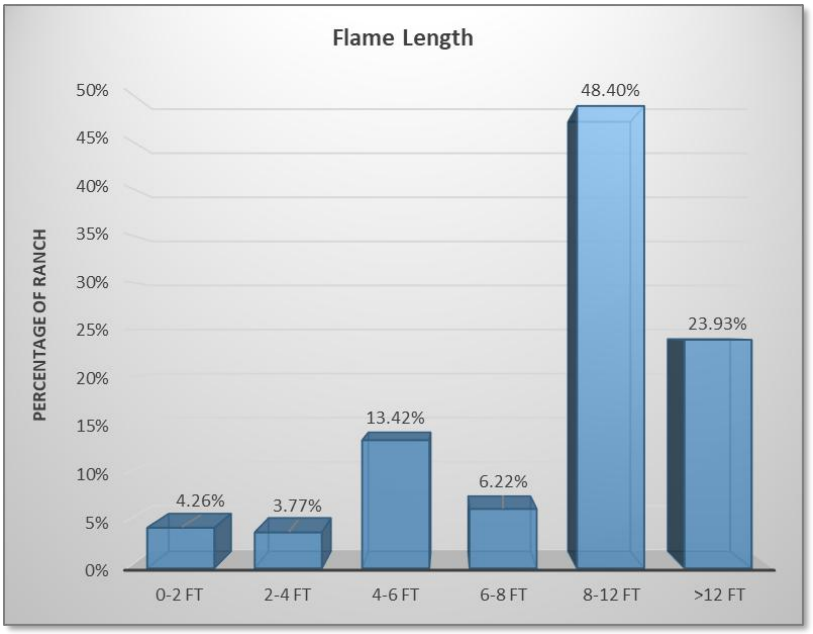

Figure 22. Flame Length Data for Blackhawk Ranch

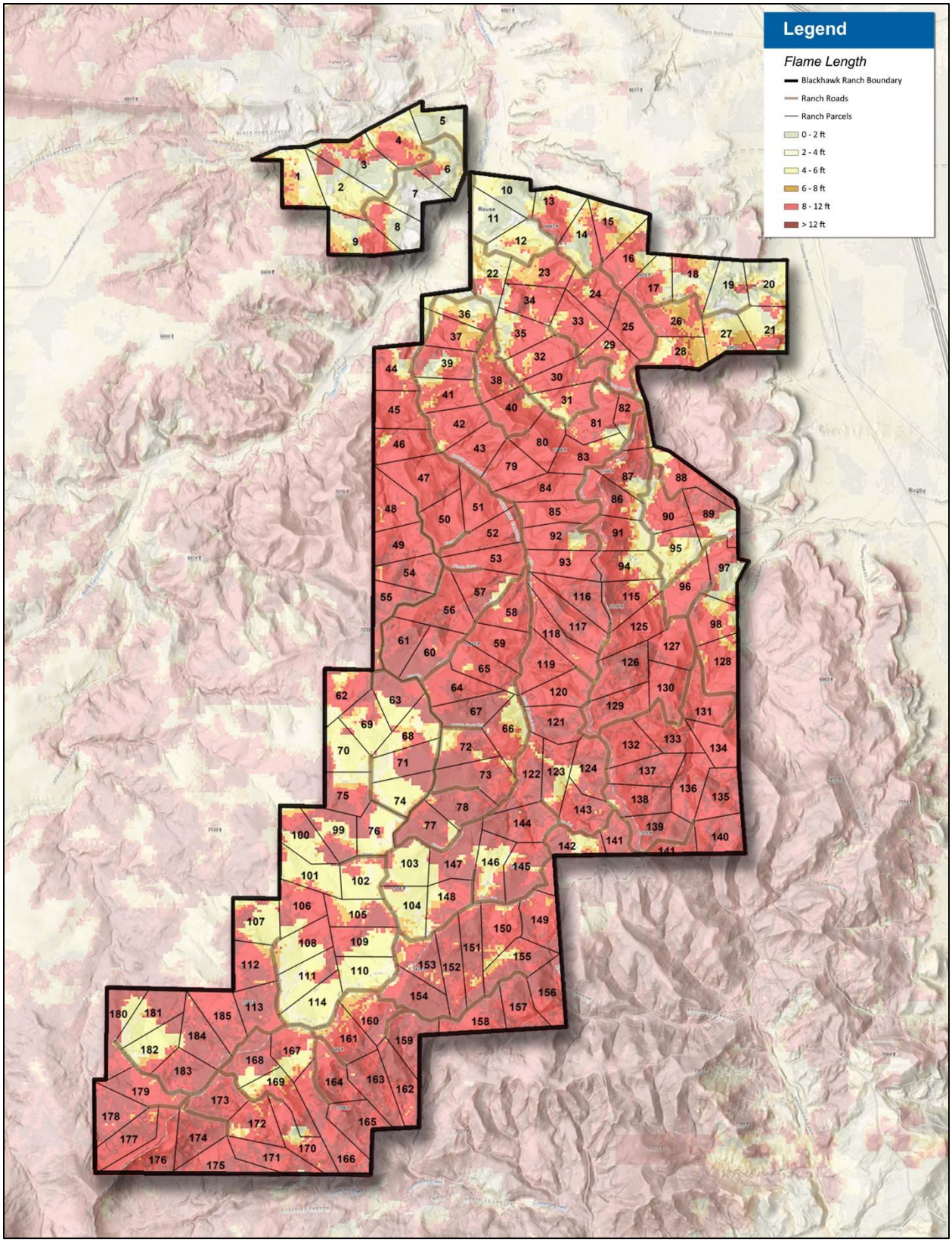

Figure 23. Blackhawk Ranch Predicted Flame Length Map

3.4.5 Rate of Spread

Rate of spread is a complex metric that is most heavily influenced by a combination of fuels, weather, and topography. Rate of spread is the speed with which the fire is moving away from the site of origin and is measured in chains per hour. A chain represents a unit of measurement where 1 chain = 66 feet. For reference, 60 chains per hour = 0.75 miles per hour or 66 feet per minute.

Surface fuel types and characteristics greatly influence a fire's behavior and ROS. Lighter fuels such as grass and shrubs tend to burn and spread faster, while large fuels such as downed logs and dense ponderosa pine burn slower and with more intensity.

Changes in slope also affect the overall ROS, as fire travels significantly faster uphill. At a 30% slope, ROS doubles compared to the spread rate on level ground. Although a number of hillsides on BHR are over 30%, the steepest slopes are primarily along one major ridgeline that runs through the ranch. The ridgeline from West Ridge Drive to North Mountain Drive and along South Mountain Drive features some slopes over 35%.

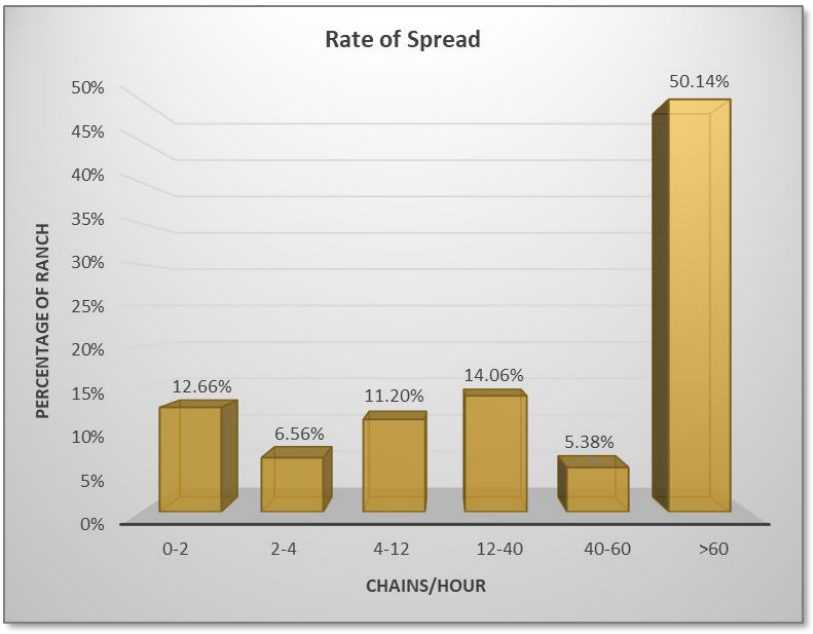

Figure 24. Wildfire Rate of Spread

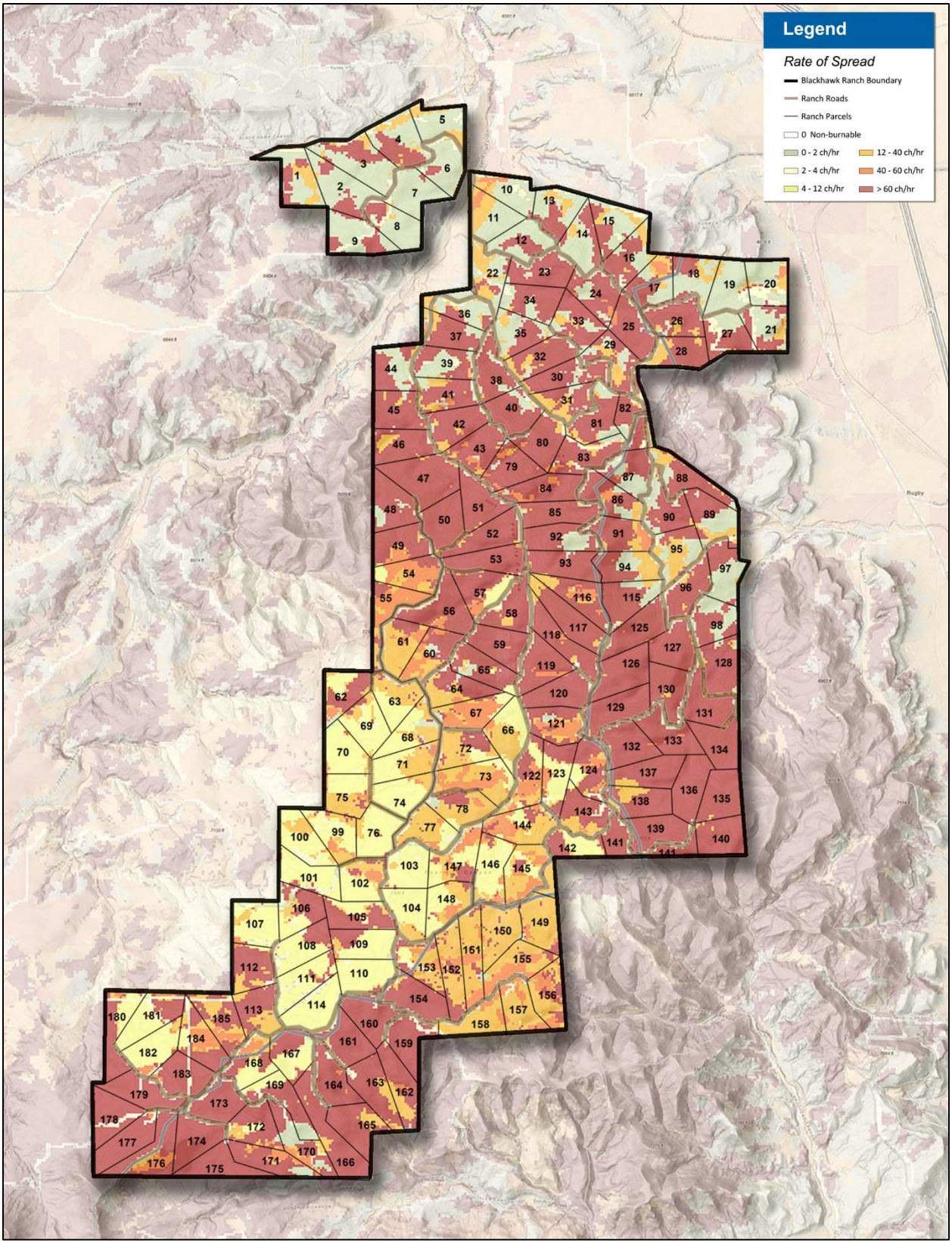

Figure 25. Blackhawk Ranch Wildfire Rate of Spread Map

3.4.6 Fire Intensity

Fire intensity is a measure of the energy or heat released from a wildfire. Calculating fire intensity is crucial to evaluate how likely a fire is to spread and how challenging it will be to control. The fire intensity scale provides a standard gauge to measure potential wildfire intensity, taking into account flame length and ROS. Environmental factors that influence fire intensity include fuel characteristics, weather conditions and topography. Based on CO-WRA data, there are no Class 5 fires predicted for Colorado.

Table 8. Fire Intensity Scale

Fire Intensity	Description of Fire Behavior and Potential Effects
Class 1	Very small, discontinuous flames, usually less than 1 foot in length; very slow spread rate; no spotting. Fires suppressible by lay-firefighters without specialized tools. Very little potential for harm or damage. These fires are relatively rare due to their slow spread rate and easy control.
Class 2	Small flames, usually less than two feet long; small amount of very short-range spotting possible. Fires easily suppressed by trained hand crews with protective equipment and firefighting tools. This intensity class is very common, especially on fires not being actively suppressed. Little potential for harm or damage.
Class 3	Flames up to 8 feet in length; short-range spotting is possible. Hand crews will find these fires difficult to suppress without support from aircraft or engines, but dozers and plows are generally effective. Increasing potential to cause harm or damage. This intensity class is common.
Class 4	Large flames, up to 30 feet in length; short-range spotting common; medium-range spotting possible. Direct attack by hand crews and equipment is generally ineffective, indirect attack may be effective. Moderate potential for harm or damage. This intensity class is relatively common.
Class 5	Very large flames up to 150 feet in length; copious short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head. Great potential for harm or damage. This intensity class is relatively infrequent - NO CLASS 5 FIRES PREDICTED IN COLORADO

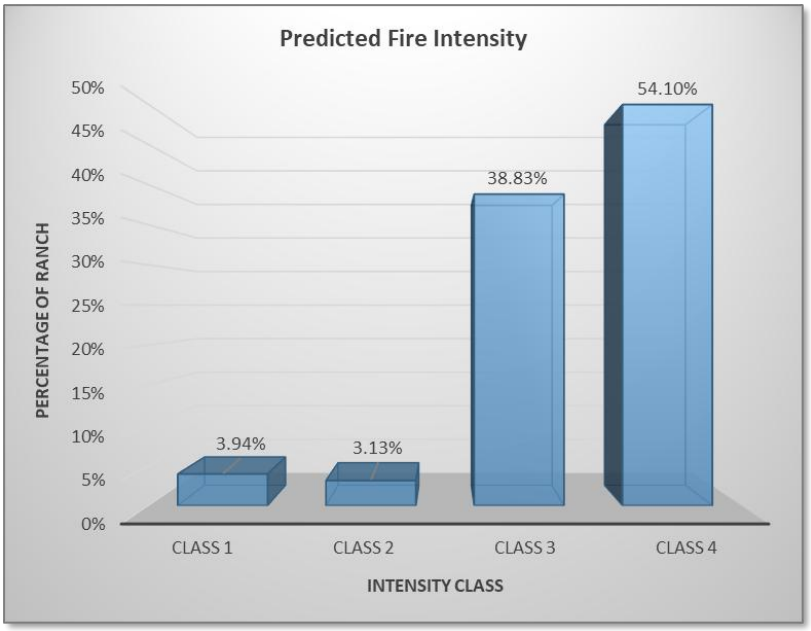

Figure 26. Predicted Fire Intensity for Blackhawk Ranch

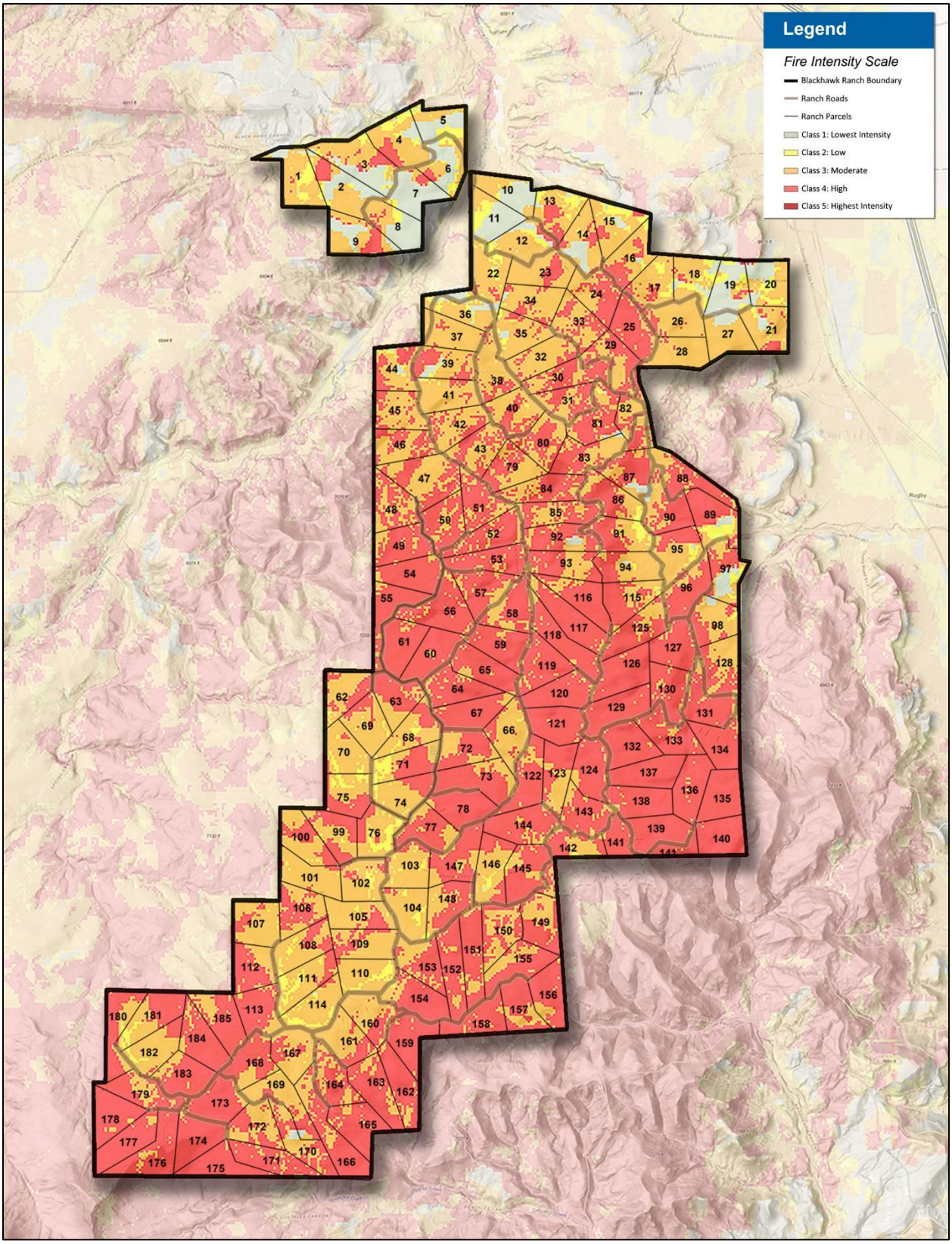

Figure 27. Blackhawk Ranch Fire Intensity Scale Map

3.5 FOREST HEALTH

Blackhawk Ranch is covered in dense stands of ponderosa pine, pinyon pine, and juniper, along with brush varieties of Gambel oak, New Mexico locust, mountain mahogany, and chokecherry. The last notable fire occurred in 1903 and charred remains are still visible throughout the ranch today. Forest health has declined since then as young trees have grown in dense concentrations and dead fuels have accumulated. Areas that were once open forest are now overgrown and not ecologically sustainable. Ladders of continuous fuels provide easy access for a wildfire to burn into the overstory and move rapidly under windy conditions.

All stands adjacent to structures with crown closures greater than 40% are problematic. Continuous surface and crown fuel arrangement, both horizontal and vertical, render this area susceptible to torching, crown fire, and ignition by wind born embers, even under moderate weather conditions. Without substantial intervention, the forests covering BHR will continue to lose vigor and be susceptible to wildfire, insects, and disease.

It is recommended that the BHR EMC continue with their aggressive mitigation efforts. Reducing fuel loads and creating additional shaded fuel breaks will not only improve forest health, but also provide added fire protection.

3.5.1 Insects

Trees stressed from overcrowding, along with years of drought, promote an environment that is ideal for insect invasions. There are no severe invasions noted throughout the ranch, although there are clear indications of Ips beetle and mountain pine beetle attacks on pinyon and ponderosa trees. The CSFS noted greater than average beetle invasions on its *2023 Report on the Health of Colorado's Forests* for southeast Colorado. The report lists both Huerfano and Las Animas as two counties highly impacted by the Ips beetle.

Beetles are typically attracted to trees with weakened defenses. In healthy forests, trees will "pitch" or secrete resin at the bore site to flush beetles out; however, highly stressed trees have difficulty defending themselves and may be unable to produce pitch tubes. Trees die when adult beetles create tunnels between the bark and wood of the trunk. When the beetles attack, needles on the tree change to red and brown as the tree dies. By the time a tree shows signs of dying, the beetles have already emerged and moved on to new trees. Once the needles have dropped off, the standing dead trees generally do not pose an increased risk of wildfire. As the trees die off and eventually fall to the ground, however, the downed fuel loads have the potential to increase fire severity.

The best way to ward off beetle attacks is to maintain a healthy forest by thinning and removing unhealthy trees. Without thinning intervention, trees will continue to be vulnerable to attacks from insects and disease. Reducing excessive downed trees and other fuels also

diminishes fire risk. Pinon Ips Bark Beetle Guide can be found on the Colorado State Forest Service website for additional information.

Figure 28. Evidence of Beetle Attack

3.5.2 Noxious Weeds

The BHR Noxious Weed Committee operates under Section 300, Subsection 3.2.2.3 Weed Committee of the BHR Policies and Procedures Manual. The committee administers an active campaign to eradicate non-native plants in compliance with the Colorado Noxious Weed Act. The Colorado noxious weed program is managed by the Colorado Department of Agriculture (CDA) in collaboration with the state's counties. Noxious weeds are non-native plants that aggressively invade and replace native vegetation.

Invasive plants may create an unusually dense layer of highly flammable vegetation that serves as fuel for wildfires. Flammable noxious weeds that take over a less fire-prone ecosystem may cause a wildfire to burn even hotter. Noxious weeds also cause landscapes to be less resilient to natural disasters and elevate wildfire threat to communities.

The CDA categorizes noxious weeds into three groups: List A, List B and List C. The CDA develops management plans for List A and List B weed species only. The five identified List B weed species found on BHR are Canada Thistle, Musk Thistle, Scotch Thistle, Houndstongue, and Russian Knapweed.

Although the management of noxious weeds is ultimately the responsibility of individual property owners, the BHR Noxious Weed Committee sprays biannually for invasive weeds along the roadside easement. Each spring and fall the committee mitigates with Milestone, an herbicide that controls a variety of noxious and invasive weeds. Due to Blackhawk's grazing lease and affluent wildlife, the ranch requires a formula that is non-toxic to animals. Milestone

is approved for use on rangelands, pastures, and wildlife habitats. The U.S. Environmental Protection Agency (EPA) lists Milestone as Category 4, the lowest toxicity rating.

Individual property owners are notified via mail if their parcel has visible noxious weeds located beyond the easement. The letter provides instructions on a number of weed mitigation efforts and includes informational website links. Additionally, for a nominal charge, property owners may rent backpack sprayers filled with herbicide from the Noxious Weed Committee.

The Noxious Weed Chairperson reports all findings and actions directly to the BHR Board of Directors (BOD). After long-term commitments to eradicate invasive weeds, the weeds appear to be limited and managed throughout the ranch. It is recommended that BHR continue with aggressive efforts to maintain control of noxious weeds on the ranch. The ranch should also continue with community outreach regarding individual responsibilities in noxious weed mitigation.

Canada Thistle *Musk Thistle* *Scotch Thistle* *Houndstongue* *Russian Knapweed*

Figure 29. Noxious Weeds Located on Blackhawk Ranch

3.6 HOME PROTECTION

The primary and ultimate responsibility for home wildfire protection lies with private homeowners. Any home located in the WUI is at an elevated risk from wildfire. A home's ability to survive a wildfire is determined by the structure's ignitability and the quality of the surrounding defensible space. Special attention must be given to removing fuels in the home ignition zone (HIZ), as well as preparing a defensible space around structures to improve the odds of surviving a wildfire.

A thorough assessment of the HIZ, which includes the home itself and the immediate surroundings, will determine its susceptibility to wildfire. Property owners are encouraged to contact their local CSFS representative for an assessment of their HIZ. This evaluation is beneficial to determine what actions are required of the homeowner to make their home and

property less susceptible to wildfire. Efforts to reduce risk in the HIZ may determine whether firefighters can safely engage a fire and attempt to defend the property. Responding fire agencies will not commit resources to protect a structure that lacks adequate defensible space. It is critical that homeowners regularly monitor and maintain the defensible space and home hardening practices within the HIZ. Since risk factors change over time, the HIZ and defensible space should be reassessed every 2-3 years as indicated in the Personal Wildfire Action Plan (refer to section 5.2 Action Plan). There are few structures or properties on Blackhawk Ranch that are considered defendable.

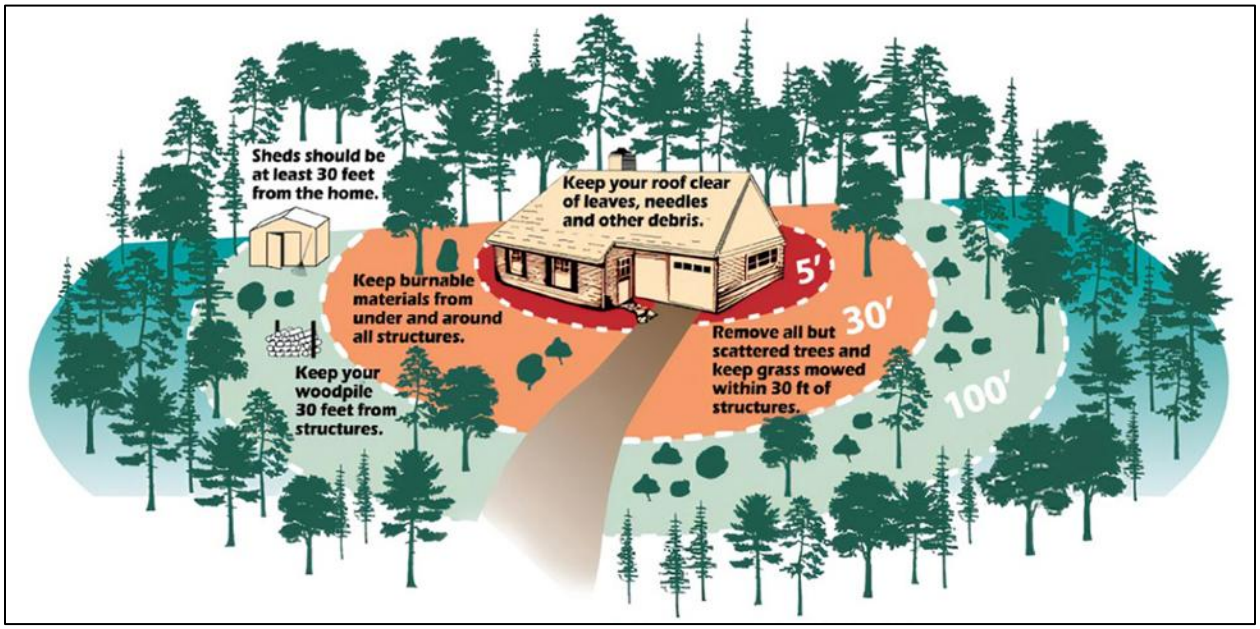

Figure 30. Home Ignition Zone

3.6.1 Structural Ignitability

Structural ignitability is the likelihood the materials in and on a home will ignite during a wildfire. Three primary methods of structural ignition can occur in a wildfire. Since homes in the WUI are at high risk, BHR landowners should prepare for all fire exposure types, rather than focusing on one.

Direct Contact or Conduction

Conduction is the spread of fire through direct contact between materials. The severity of conduction fires depends on the type of materials occupying the property. Not all materials are combustible in the same way or conduct fire in the same manner. High winds can push flames diagonally or even horizontally into direct contact with the home. Risk is greatly reduced by minimizing fuels within 5’ of a home.

Ember Ignition

Ember ignition occurs from firebrands, pieces of burning embers that are transported over long distances by the wind. Firebrands may be blown more than a mile away from the immediate fire source, starting new fires where they land. Firebrands are the most common source of home ignition during wildfires. Burning embers can cause structural ignition by landing on the structure itself, entering the structure through openings or vents, or landing on surrounding combustible materials.

Radiant Heat

Radiant heat is heat transfer from the surrounding area. Radiant heat from a wildfire may be hot enough to ignite a structure without direct contact from flames. Heat from the fire raises the temperature of combustible materials until that material reaches ignition temperature and burns. Even if the radiant heat is not sufficient to cause ignition, the heat exposure can preheat surfaces and make them more vulnerable to ignition from other heat or flame exposure.

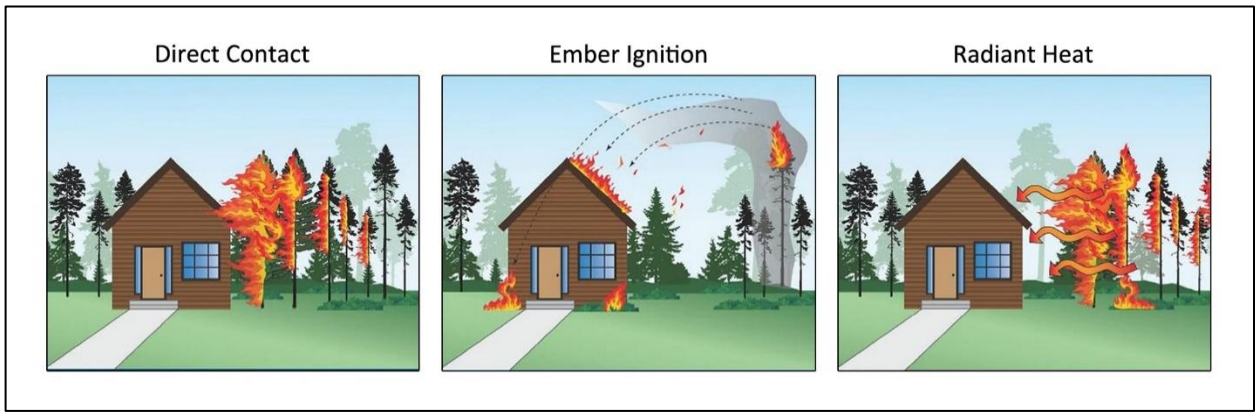

Figure 31. Methods of Home Ignition

3.6.2 Home Hardening

Research indicates a home's structural characteristics and condition of the surrounding site significantly influence its ignitability and chances for surviving a wildfire. Reducing the susceptibility of the home and the HIZ greatly increases the odds of a home surviving a wildfire. Homes with low ignitability can survive high intensity wildland fires, while highly ignitable homes can be destroyed during lower intensity fires.

Home hardening is a term that refers to reducing a home's wildfire risk by using fire-resistant building materials, taking steps to prevent embers from entering the home, and creating defensible space. Home hardening can be applied to new home construction or retrofitting existing homes. For homes that are already built without hardening, it is even more essential to

focus on creating quality defensible space. A 5’ non-combustible zone should be created and maintained around the home.

Following are home hardening guidelines:

1. Roofing
    - Use Class A fire-rated materials on the roof
    - Replace or repair any loose or missing roof tiles to prevent ember penetration
    - Remove plant debris such as pine needles, leaves, and branches from the roof

2. Vents and Chimneys
    - Cover all vents with 1/8” metal mesh
    - Install an approved spark arrestor on chimney
    - Protect eaves or cornices with baffles to block embers

3. Windows and Skylights
    - Install or upgrade to double-pane tempered glass windows
    - Replace plastic skylights with types constructed of double-pane glass
    - Repair or replace damaged or loose window screens and broken windows

4. Decks
    - Build decks with ignition-resistant, non-combustible materials
    - Remove flammable materials, such as firewood and debris, stored underneath the deck
    - Use metal flashing between the deck and house
    - If a wildfire threatens, place combustible patio furniture inside home or garage

5. Gutters
    - Routinely remove debris from gutters
    - Screen or enclose gutters to prevent any accumulation
    - Use metal gutters instead of plastic

6. Fencing
    - Use ignition-resistant materials such as composite boards or iron for fences attached to the home
    - At a minimum, ensure at least the 5’ of fence that attaches to the house is composed of an ignition-resistant material to reduce the likelihood of the fence carrying fire to the structure

7. Exterior Siding
    - Use ignition-resistant exterior coverings that are not susceptible to igniting or melting
    - Create 6” of vertical clearance between the ground and home siding
    - If combustible siding is used, it must have 1) ember mitigation; and 2) adequate defensible space
        - Ember mitigation includes at least 6” of ignition-resistant material, such as metal flashing at the base of walls where they meet grade, decks, or other horizontal surfaces. Also use along roof lines or other structural projections.
        - Adequate defensible space includes no less than 100’ of defensible space to mitigate the potential for combustible siding to ignite from radiant and convective heat sources.

Figure 32. Home Hardening Guidelines

3.6.3 Defensible Space

Defensible space is the immediate zone around a home or other structure that has been modified to reduce fire hazard. Creating an effective defensible space involves establishing three management zones with specific guidelines for each area. Fuels and vegetation in these zones are treated, cleared, or reduced to slow the spread of wildfire and lower the intensity of a fire as it passes through the developed area. A properly established defensible space will reduce the likelihood of a structure fire progressing from the building to surrounding vegetation. This buffer space also provides an area for firefighters to defend against an approaching wildfire and give the home a fighting chance.

Although the HIZ focuses on fuel treatments the first 100’ from a structure, this is merely the starting point. Property owners should extend clearances well beyond this area. For maximum benefit, fuel mitigation and effective defensible space must include as much property as possible. Most homes and properties in the community lack adequate defensible space, which increases vulnerability to wildfire. Defensible space is crucial in slowing fire spread and providing firefighters with a safe zone to protect structures. The absence of proper buffer zones leaves properties and human lives at high risk during wildfire events.

Effective defensible space is the landowner’s most reliable means of providing wildfire protection for their structures. This is especially true on BHR with the complex terrain and heavy fuels. During periods of high to extreme fire danger a wildfire will rapidly exceed the suppression capability of firefighters. Hand crews are effective when flame lengths are less than 4’. In extreme weather conditions, only 8% of BHR is expected to have a fire of this impact. The remaining 92% of BHR will experience flame lengths from 4’ to greater than 12’, where control efforts may be unsuccessful.

In many cases, considerable effort has been applied to developing defensible space around homes on the ranch; however, it is not uncommon to see overlooked details such as stacked firewood or above-ground propane tanks in the general vicinity of homes. While many landowners have reduced fire hazards within their home zone, they have neglected to establish defensible space around outbuildings located on the property. Defensive zones should be developed around each building on the property to include detached garages, barns, storage buildings or other structures.

Table 9. Defensible Space Guidelines

Defensive Zone Goals and Critical Steps	
ZONE 1	**NONCUMBUSTIBLE ZONE 0 - 5 ft from home** **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.**
-	Remove all flammable vegetation, including shrubs, slash, mulch, pine needles and dead leaves
-	Prune tree branches hanging over the roof and remove all fuels within 10 feet of the chimney
-	Regularly remove all pine needles and other debris from roof, deck, and gutters
-	Do not store firewood or other combustible materials inside this zone
-	Do not use space under decks for storage.
ZONE 2	**INTERMEDIATE ZONE 5 - 30 ft from home** **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.**
-	Avoid large accumulations of surface fuels such as logs, branches, slash, and mulch
-	Remove enough trees to create at least 10 feet of space between crowns
-	Remove ladder fuels (vegetation that can bring fire from the ground into taller fuels)
-	Prune tree branches 6-10 feet from the ground or 1/3 of the total height of the tree, whichever is less
-	Remove stressed, diseased, dead, or dying trees and shrubs
ZONE 3	**EXTENDED ZONE 30 - 100 ft from home** **This zone focuses on mitigation that keeps fire on the ground, but is also a space to improve forest health. Healthy forests include trees of multiple ages, sizes, and species. Adequate growing room is maintained.**
-	Watch for hazards associated with ladder fuels
-	Crown spacing of 6-10 feet is suggested
-	Create openings between small clumps of trees so fire must transition to the ground to keep moving.
-	Any approved method of slash treatment is acceptable in this zone (removal, piling top and scatter, mulching)

3.7 WATER SOURCE

Communities in the WUI are faced with water shortage challenges. Lacking fire hydrants in remote locations, other emergency water sources must be considered. Blackhawk Ranch should identify alternate water supplies in the surrounding community and within the ranch itself. Identifying water sources in advance will help firefighters maximize efficient use of available water.

3.7.1 Ponds

Water is a scarce resource in the state of Colorado and the laws of water ownership are complex. Rigid Colorado water laws even limit the amount of rainfall that can be legally collected. As part of those laws, many private ponds fall at the bottom of the water rights hierarchy. Using satellite imagery to locate man-made ponds and cross reference the data with recorded water rights, the state is evaluating over 10,000 illegal ponds in Colorado. As such,

state engineers have now clamped down on private ponds that restrict downstream access to those who own senior water rights. In the Arkansas River basin alone, over 500 property owners have been notified their ponds are illegal. The choices are to drain the ponds, substitute the ponds with an alternate state-approved water source or replace losses from evaporation.

Firefighters have come to rely on pond water as an emergency source to fight fires in Colorado's WUI. With the cease-and-desist letters that private pond owners are receiving from the state, firefighters can no longer depend on this water supply to quickly refill their water tanks.

Governor Jared Polis signed Senate Bill 22-114 Fire Suppression Ponds Water Rights into law in February 2022. This bill allows a county board of commissioners to identify ponds in areas where a major wildfire disaster could occur and perform a needs assessment on each pond. The county board may then petition the state engineer for fire suppression pond designation. Upon such designation, state engineers are prohibited from ordering the pond to be drained or backfilled. Each county is allowed 30 total surface acres of designated fire suppression ponds. The fire suppression designation expires after 15 years.

Water elimination is a concern to BHR and the surrounding WUI. Ponds are a viable source for firefighting efforts in remote areas. With pond water sources being threatened, it is critical for BHR to plan for and establish other dependable water supplies.

To date, Huerfano County has applied to the state of Colorado for 19 fire suppression pond designations. Las Animas County is still in the research phase and has not yet applied for any designations.

3.7.2 Water Tanks

Water tanks are one practical means of providing an emergency water supply for firefighters. In partnership with HCFPD, a dedicated firefighting water tank was installed at the intersection of Fourmile Canyon and Rugby Mines Road in 2021. Due to insufficient water supplies, it is incumbent upon BHR to install additional dedicated firefighting water tanks at strategic locations throughout the ranch. The added tanks would provide accessible water reserves for emergency firefighting.

Blackhawk Ranch should continue collaborating with HCFPD about water tank strategies and take the following into consideration:

- Place tanks in areas that allow easy access and turnaround space for fire engines
- Fit tanks with appropriate valve connections
- Address freeze protection concerns

- Create and maintain defensible space around water tank structures
- Clearly mark dedicated tanks at the site
- Add water tank locations to BHR emergency map and share with the local fire protection district

Section 4.9 Water Storage expands on the BHR current dedicated water source and future plans to install additional tanks.

3.8 ROAD CONDITIONS

There are nearly 34 miles of gravel and dirt roads throughout BHR. A portion of Las Animas CR 66.1 runs through the ranch on Howards Draw and continues onto Rugby Mines Road to North Mountain Drive for a total of 1.54 miles. Blackhawk Ranch contracts road maintenance and snow removal on all ranch roads. Las Animas county maintains CR 66.1 intermittently and therefore BHR typically contracts the upkeep. Main access roads receive the most attention and their upkeep is essential for emergency response.

Many roads on BHR run along ridges and provide marginal opportunities to make a stand against an aggressive fast moving fire. Their utility as fire control features can be improved substantially by thinning both sides of the roads. At several locations, roads have tight turns and fall short of the 20’ width recommendation set by the International Fire Code (IFC). Many private driveways also lack appropriate width, do not meet the 13’ 6” unobstructed vertical clearance, and require thinning. Over the past several years, BHR has mitigated and established shaded fuel breaks along the main arteries.

Multiple roads have dense vegetation and combustible fuels in dangerous proximity. This condition significantly heightens the risk of fire spreading quickly along these routes, making evacuation treacherous. It also hampers the ability of emergency responders to access the area safely during wildfire events.

A number of side roads on the ranch have been overlooked for years and are not passable for fire apparatus. With overgrown vegetation, lack of maintenance and minimal turnaround space, it would be impossible for firefighters to access these roads. These areas would not serve as a safe location for firefighters to mount fire suppression activities, nor are they functional lookout locations.

The CSFS recommends that fuel treatment extends 150’ on either side of the roadway to improve visibility for emergency responders, reduce intensity of potential roadside ignitions, and maintain safe evacuation routes in a wildfire event. This standard produces effective fire breaks and permits safe ingress/egress during evacuation orders. BHR Policies and Procedures permits a 60’ road easement (30’ on either side of the road) for mitigation; however, that

distance is not nearly adequate for the fuel types and complex terrain found throughout the ranch. BHR POA Board and EMC members must be determined in their efforts to attain permission from property owners that allow mitigation beyond the limited easements.

The CSFS further emphasizes that fuelbreak widths should be 2.5 to 3 times the average tree height. For canopy spacing, it is recommended to have a minimum of 10’ spacing between tree crowns and 30’ spacing between clumps of trees. This is most critical in the ponderosa pine fuel type. Pinon juniper stands should have at least 10’ spacing between crowns and limbs pruned within 4’ of the ground and surface fuels.

3.8.1 Road Grades

The IFC recommends that road grades not exceed 10% for fire apparatus. There are areas on ranch roads that do exceed this grade. Additionally, many private driveways also have excessively steep slopes. Blackhawk Ranch contracted roadwork over the past two years to reduce major grades on main roads. Two road improvement projects resulted in significant slope reductions (refer to section 4.8 Road Infrastructure).

3.8.2 Ingress/Egress

Ingress and egress are crucial components to consider in a wildfire risk assessment. Ideally the road design would support two-way traffic, allowing firefighters full access to combat an emergency, while also supporting evacuation efforts. Traffic gridlock can impact firefighter response time while also impeding efforts for the community to vacate the premises. As previously noted, portions of BHR roads lack the adequate 20’ width recommendation. Road closures and direction of fire would have a direct impact on which evacuation route(s) would be accessible and used; therefore, it is essential that all roads are clear and have ample space for two-way traffic flow. The EMC should make an assessment to determine whether any evacuation routes are adversely affected by limited ingress/egress points.

3.8.3 Turnarounds

Out of the 36 roads on BHR, 32 roads are cul-de-sacs. A sufficient turnaround radius for emergency vehicles on dead-end roads is essential. Most ranch turnarounds are inadequate for large structure fire equipment. In most cases the turning radius is tight even for a full-size pickup truck. Plenty of clearance to turn vehicles around at dead-end roads is critical not only for fire suppression purposes, but also for preventing individuals and fire apparatus from becoming trapped.

Over the years, erosion and vegetation encroachment have resulted in declining conditions. Several dead-ends do have potential to be widened, but some appear to have insufficient space to be restructured. Some dead-end roads may utilize private driveways as an acceptable turnaround.

Figure 33. Overgrown Vegetation Limiting Ingress/Egress

3.9 EVACUATION ROUTES

Blackhawk Ranch is intersected at its northwest corner by CR 312, in effect creating two sections of the ranch. There are nine parcels on the north side and 176 parcels on the south side. The two sections each have their own distinct evacuation routes. The north side of BHR has only one viable evacuation route through Braden's Point Road. The south side has two designated routes. The safest means of egress on the south side will be based upon fire location and direction, road closures, and accessibility.

An Emergency Evacuation Map is posted on the BHR website. The map includes driving instructions to safe locations upon exiting the ranch. In the event that Interstate 25 may be compromised in an emergency, use of an alternate route may be required. Once conditions allow, property owners will be given an all-clear to return to the ranch via BHR broadcast texting notification (refer to 4.2.2 Broadcast Media).

3.9.1 Bradens Point Evacuation

The single egress point on the north section of BHR is Bradens Point Road. There are no secondary roads on this section of the ranch. Bradens Point Road is approximately 1.15 miles long and in good condition. The entry gate is not locked and always remains open. There are no "Emergency Evacuation Route" indicators as there is only a single outlet point. Bradens Point Road converges with CR 312, which is about 2.5 miles from Interstate 25. Interstate 25 north and south directions are accessible on this route.

Parcel 1 is unique in that it has no access to Bradens Point Road and is navigable to CR 310 only via a private drive. Parcel 5 has erected a fenced boundary along Bradens Point Road and its private drive leads to CR 312. The other seven parcels must use Bradens Point Road as their only means of egress. Because there are a lack of egress options, property owners should consider early evacuation in an emergency if possible.

3.9.2 Fourmile Canyon Evacuation

Fourmile Canyon evacuation is the preferred egress route for the south side property owners. The main gate is not locked and always remains open, which allows for a rapid evacuation. The ranch roads are clearly marked with reflective road signs to include “No Outlet” signs at cul-de-sacs. Main arterials are regularly maintained and in reasonably good condition, although several road locations have tight turns and lack the 20’ width recommendation set by the IFC.

This evacuation route has direct access to Huerfano CR 312 which merges onto CR 310 (Rouse Road). It is approximately 2.5 miles from the BHR main gate to Interstate 25. Interstate 25 north and south directions are both accessible on this route.

In the event of an emergency, county roads may have increased traffic as other communities in the WUI will be evacuating at the same time. Stalled or abandoned vehicles and large animal trailers are of concern at limited ingress/egress points. This affects not only evacuation efforts, but also firefighter emergency response.

3.9.3 Howards Draw Evacuation

The east evacuation route is clearly marked and exits through Howards Draw (CR 66.1), past the neighboring Rugby Rock Ranch. This is a regularly traveled road that is familiar to BHR property owners. Howards Draw is fairly level with one notable steep grade point on the road. The evacuation road is narrow, eroded, and has inadequate ingress/egress. If a vehicle becomes incapacitated on this route, it would create gridlock as there is insufficient space to turn around.

At the junction of CR 66.1 and CR 53.7, there are options to travel either north or south to access Interstate 25. Alternately, CR 53.7 may be traveled four miles south directly into the nearby town of Aguilar.

Figure 34. Howards Draw Evacuation Signage

Figure 35. Howards Draw Limited Ingress/Egress

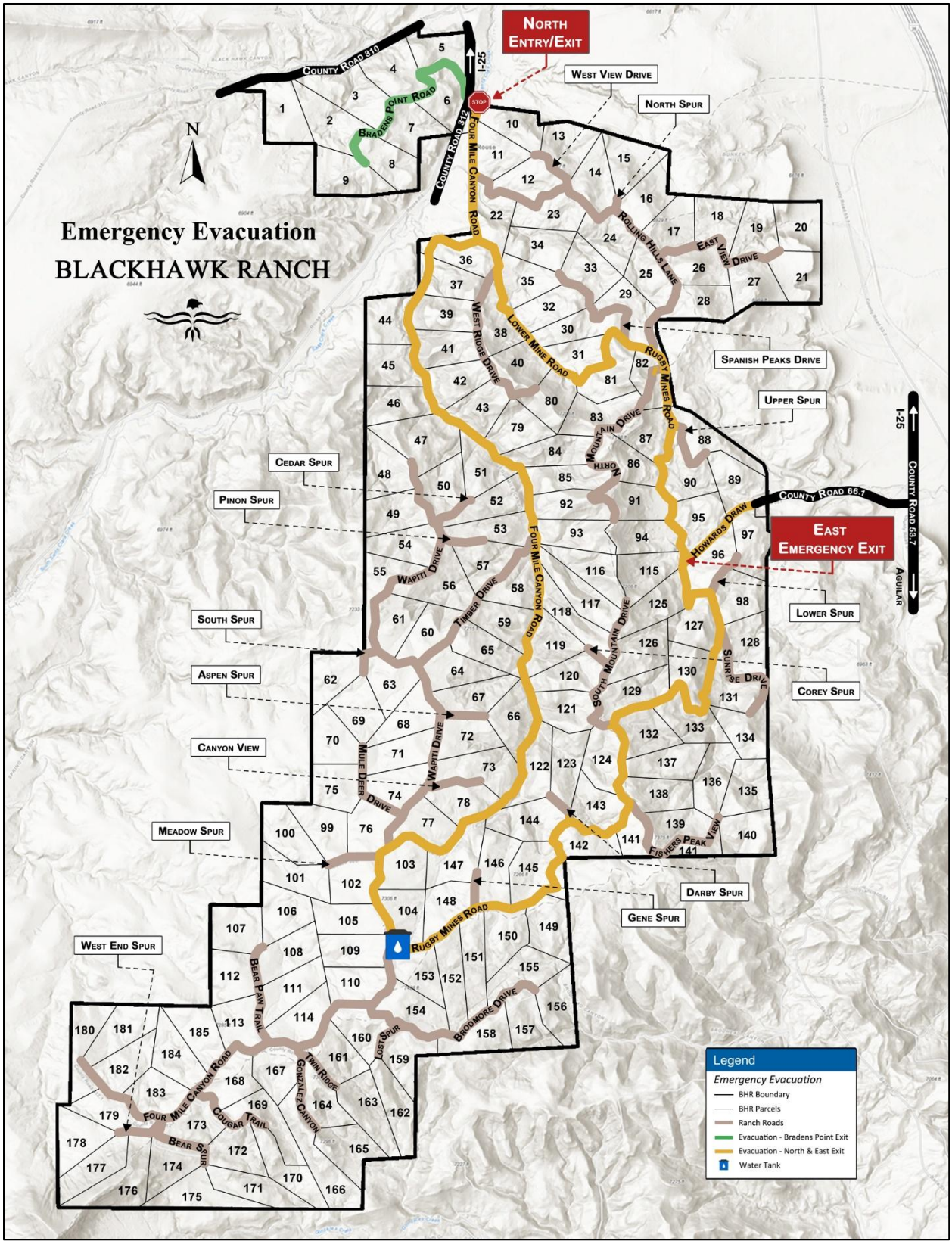

Figure 36. Blackhawk Ranch Evacuation Routes

3.10 RAILROADS

The Colorado Department of Transportation (CDOT) has recorded over 2,452 miles of railroad track throughout the state, representing about 1.8% of the nation's freight system. The eastern border of BHR runs parallel with the rail line operated by Burlington Northern and Santa Fe (BNSF) Railroad in the Spanish Peaks subdivision. The northeastern ranch border sits less than one-quarter mile from the railway, while the southeast border measures 4.75 miles away. Burlington Northern and Santa Fe is not only one of the largest transporters of intermodal freight, but also hauls bulk cargo including coal. Six BNSF trains pass by BHR daily.

A recent local BNSF incident occurred October 15, 2023 in Pueblo Colorado, when a coal train derailed 31 railcars on a railroad bridge over Interstate 25. Six cars dropped to the Interstate below, along with part of the span of the bridge. A nine-mile stretch of Interstate 25 was shut down for four days, causing major disruption to a key north-south corridor in Colorado.

Although BNSF inspected the main track hours before the accident, NTSB determined a broken rail was responsible for the derailment. A thermite weld that was completed several months prior to the derailment had failed under the weight of the train. For unknown reasons, the welder likely did not follow BNSF procedures and neglected to use a compromise kit to ensure there were no gaps at the weld site. As a result of this accident, BNSF reinforced training and implemented mandatory audits by welding supervisors.

In response to railroad safety, Colorado Governor Jared Polis signed the Railroad Safety Requirements Bill into law in May 2024. HB24-1030 requires rail companies to improve safety training, incident data collection, and emergency response protocols. The bill mandates rail companies must offer training *to "each fire department having jurisdiction along tracks upon which the railroad operates in the state"*. HB24-1030 also directs train crew to disengage train and equipment at a crossing if an emergency vehicle gives warning of approach, limits the amount of time a train can obstruct a public crossing, and initiates state oversight of wayside detector systems that monitor rail and train safety.

Although no fire occurred with the BNSF accident in Pueblo, CO, fires are not uncommon with train derailments. Sparking train wheels, overheated engines, and mechanical problems are frequent causes of brush fires. Equipment failure, lack of safety training, and human error can cause catastrophic events. Consequences may range from fires to explosions to toxic plumes or harmful impact to local watersheds. Any one of these scenarios could potentially close down Interstate 25, the main evacuation route for BHR. Even with modern equipment and enhanced safety protocols in place, railway accidents and incidental fire remain a tangible threat to the BHR community.

3.11 ABANDONED COAL MINES

Blackhawk Ranch is situated on the northeastern edge of the Raton Mesa coal region which extends from southern Colorado into northern New Mexico. The Colorado segment of this coal region contains approximately 376 mines and encompasses over 1,100 square miles in portions of Huerfano and Las Animas counties. All Colorado coal mines in the Raton Mesa have ceased operation. Blackhawk Ranch has dozens of abandoned mines within its boundaries and surrounding area. The abandoned mines present an unusual fire risk for the community.

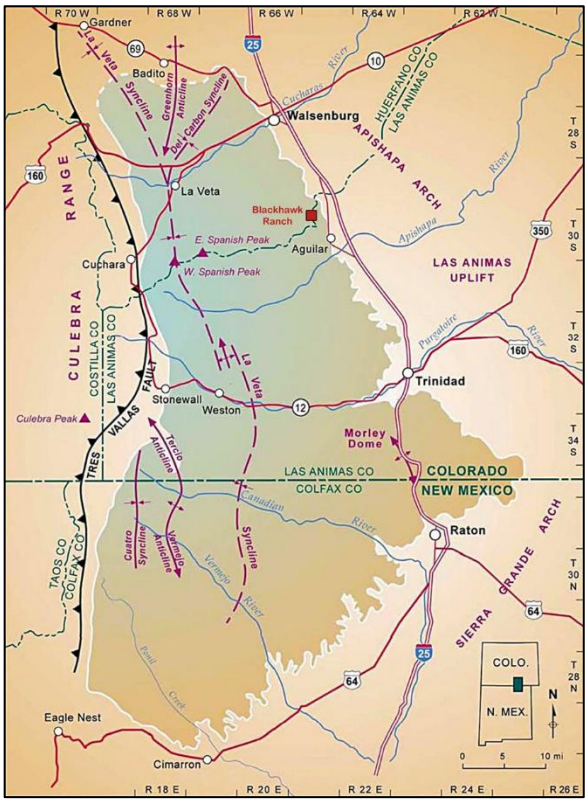

Figure 37. Raton Mesa Coal Region

The Colorado Department of Natural Resources - Division of Reclamation Mining and Safety (DRMS) completes an inventory of Colorado coal mine fires every five years. The latest report from 2018 recorded over 1,736 abandoned coal mines in the state of Colorado and 38 active underground coal fires. Two of those coal fires, West Sopris Coal Refuse Pile and the Morley Waste Dump, are located in Las Animas County. Although the Las Animas County coal mine fires are rated as low and very low risk of wildfire, abandoned coal mines throughout the state cannot be ignored as a fire threat.

When surface coal becomes exposed by erosion, certain minerals in the coal can oxidize and a chemical reaction produces heat. A temperature as low as 104° F can cause low-grade soft coal to combust spontaneously. Soft coal can also be ignited by lightning strikes or ground fires. Coal seam fires may burn for decades or centuries and may smolder for years without showing signs on the surface.

Figure 38. Coal Refuse on Blackhawk Ranch

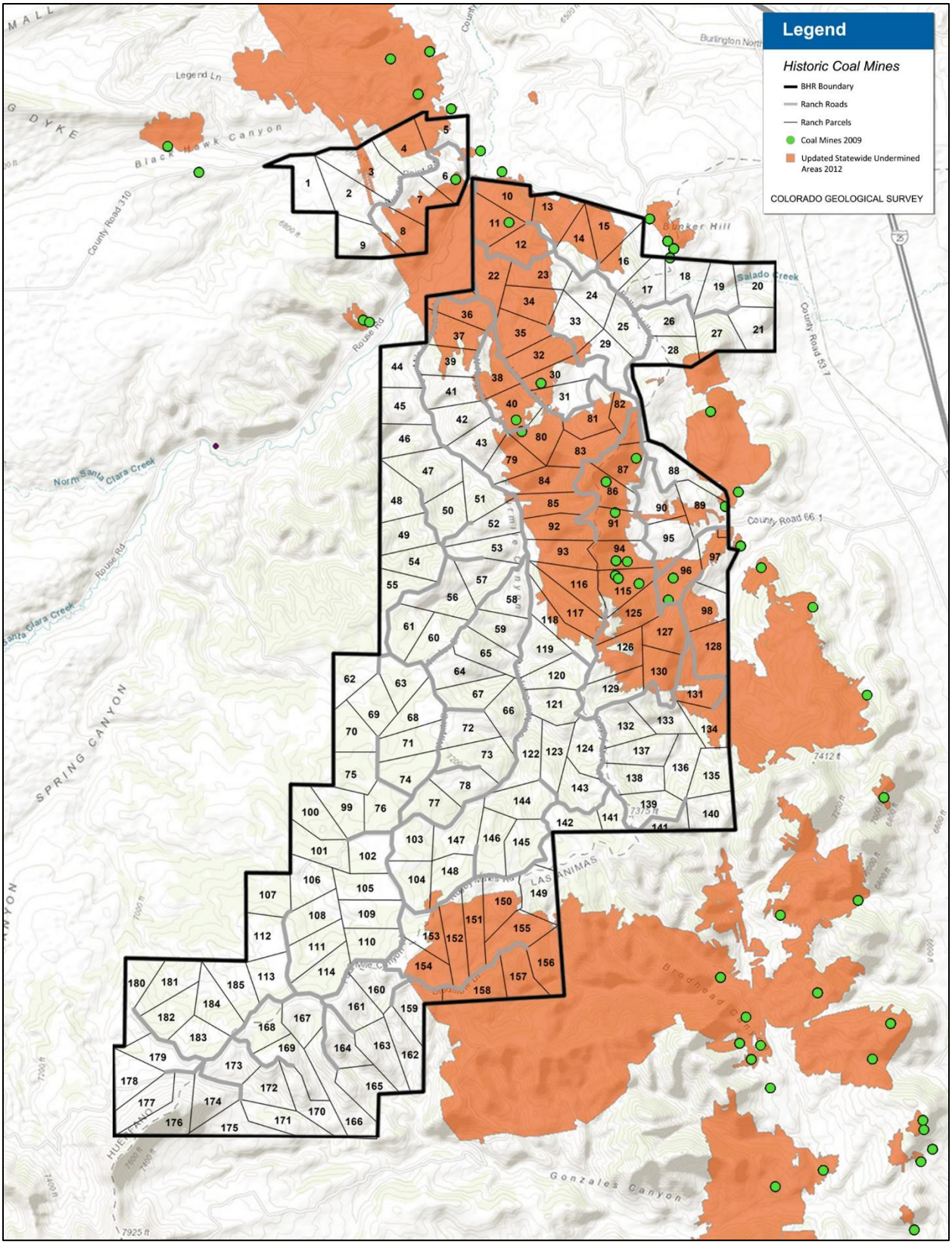

Figure 39. Map of Historic Coal Mines in Blackhawk Ranch Area

4 COMMUNITY PREPAREDNESS & STRATEGIES

4.1 EMERGENCY MANAGEMENT COMMITTEE

The Mauricio Canyon fire burned to within one-half mile of the BHR southern border in January 2006. In response to the fire, the BHR POA BOD formed the Emergency Management Focus Group. The purpose of the committee was to review fire safety on BHR and develop an Emergency Management Plan. By September 2006, the focus group recognized the need for a permanent organized group and established the Emergency Management Committee.

The EMC is supported by the BHR POA BOD and complies with the local governing Policies and Procedures as outlined in Section 700 Emergency Management:

> *The Board, through the Emergency Management Committee, shall encourage emergency preparedness among the Property Owners of the POA and facilitate the needs of emergency service personnel where possible.*

To reinforce its commitment to ranch safety, the EMC adopted the following Mission Statement:

> *The Emergency Management Committee (EMC) is a standing, volunteer group of Blackhawk Ranch (BHR) owners dedicated to the development and implementation of both proactive and reactive actions designed to mitigate emergency situations within the boundaries of BHR. The EMC is composed of three working groups: Fire Mitigation, Emergencies, and Outreach.*

Although the EMC assumes all facets of ranch safety, wildfire preparedness is a priority for the group. The committee has directed their focus towards wildfire grant procurement, community and agency outreach, communications development, emergency response strategies, firefighting infrastructure, and hands-on labor. Further details on these specifics are noted throughout the CWPP. The EMC will continue its aggressive wildfire preparedness campaign to accomplish the action plan outlined in the BHR 2025 CWPP.

4.2 COMMUNICATION

The BHR EMC recognizes that a practical communications strategy is essential in an emergency event. It is a top priority for the EMC to develop a process for on-scene tactical communications between EMC responders, as well as broadcasting essential safety information to property owners. Establishing an effective communications plan will ensure critical information is being transmitted and received accurately in a crisis situation. The EMC is developing this plan in

collaboration with the Communications Chairperson, as well as collecting input from BHR community members.

The EMC and Communications committees identified three communication types that are priorities for BHR:

1. Emergency Tactical Communications
   Two-way communication for EMC emergency responders
2. Broadcast Media
   One-way communication from sender (EMC) to receiver (property owners)
3. Interactive Communication
   Two-way communication to include feedback from receiver (property owners) to sender (EMC)

The BHR committees continue to research a variety of communication tools to meet all requirements.

4.2.1 Emergency Tactical Communication

Data, internet and cellular phone services are limited on the ranch due to its remote location and rugged terrain. The EMC researched radio communications as an alternative solution and identified dual band (VHF and UHF) radios as a productive communications tool. Two-way radio use has proven to be particularly effective for EMC responders in a crisis situation. Radio interactions may include the call to rally, searching assigned quadrants, dispatching a ranch guide for county fire responders, and relaying critical information throughout an emergency event.

Frequency bands with the best reception on BHR are found within the HAM radio frequency range, which requires an amateur radio license regulated by the Federal Communications Commission (FCC). To obtain an amateur operator license, individuals must pass an exam administered by a team of Volunteer Examiner Coordinators (VEC).

In May 2022, the EMC held a meeting with interested property owners and two representatives from a local Amateur Radio Emergency Service (ARES). Don Mangin, ARES member, offered to mentor the group and arrange exam dates. Seven BHR community members now hold current amateur radio licenses of varied operating privileges (Technician: 4, General: 1, Amateur Extra: 2). The EMC designated four HAM radio frequencies as emergency channels. Two EMC members erected long-range base stations on their ranch property to improve radio communications.

The base stations monitor emergency channels and radio checks are conducted regularly. In the event of an emergency, unlicensed individuals may transmit on a HAM radio frequency to summon help. BHR community members are encouraged to purchase and carry hand-held radios in the event of a life threatening situation. Members of the EMC have volunteered to program radios to the appropriate frequencies for the local community.

4.2.2 Broadcast Media

In the event of an emergency, mass notification alerts are issued by Huerfano and Las Animas counties via their specific alert systems (refer to section 4.10 Emergency Notification Systems). The BHR research committees have established a need for a local emergency notification system managed by the BHR POA BOD and the EMC. The goal is to ensure public safety by disseminating time-sensitive alerts to all property owners in an emergency situation. Wildfire notifications may include status of evacuation routes, impassable roads, or direction of fire. Broadcasts may also include post-crisis updates such as restored infrastructure, ranch safety, and community recovery.

4.2.3 Interpersonal Communication

While one-way communication allows mass dissemination of information, two-way communication is a means for the EMC to engage with property owners in a crisis. Bidirectional communication can be used to evaluate community needs, conduct wellness checks, collect feedback, and improve community safety. BHR continues to pursue all options to develop and implement a well-rounded communications plan.

4.3 HOME IGNITION ZONE

Homes located in the WUI are vulnerable to wildfire risks. Due to the remote location of BHR, the response time for HCFPD firefighters to reach the community is approximately 45 minutes. During a major wildfire event, response times may be even further delayed. Homeowners must assume responsibility to increase their homes survivability rate in the event firefighters are unable to respond.

For the most effective protection, homeowners should apply home hardening strategies and construct effective defensible space in each zone (refer to section 3.6 Home Protection). Properly established defensible space will give the home a fighting chance to survive an approaching wildfire. Property owners are encouraged to contact their local CSFS forester to schedule an HIZ assessment and develop a plan.

Successful mitigation in the HIZ proved to be effective during a lightning-caused ranch fire that occurred in May 2020. The homeowner had taken practical steps to prepare defensible space

on the property. Fuel continuity had been reduced by removing ladder fuels, pruning trees, and creating space between tree crowns. The EMC responded to the crisis and successfully suppressed the low-level fire until firefighters arrived. Due to the homeowner's efforts to reduce fire hazards, the home was defendable and the fire was contained to less than one acre.

Figure 40. Home Ignition Zone Mitigation

Emergency Management Committee members are fully engaged in wildfire preparedness, education opportunities, and outreach programs for property owners:

- Two EMC volunteers attended a two-day HIZ workshop presented by Fire Adapted Colorado. They are currently certified to assess and develop HIZ plans and pass that knowledge along to the community. The BHR community may contact the EMC to schedule an assessment.
- The EMC assisted five BHR property owners with securing grants through the Huerfano County Wildfire Mitigation Cost-Share Program. The grant offset project costs to create defensible space in the HIZ.
- The EMC organized a Home Ignition Zone Tutorial and Demonstration presented by Paul Branson, Huerfano County Mitigation Specialist. This was a practical, hands-on tutorial for community members demonstrated at a BHR home.

4.4 EMERGENCY RESPONSE AGENCIES

Three fire protection districts are located within the BHR community. The initial attack for all wildland and structure fires on the ranch is provided by HCFPD. The average time for HCFPD to respond to BHR emergencies is 45 minutes. Additional equipment and manpower from nearby departments that have mutual aid agreements with HCFPD are at least 60 minutes out.

4.4.1 Huerfano County Fire Protection District

Huerfano County Fire Protection District is an all-volunteer fire department that includes two fire stations. Station 1 is the responding agency for BHR and is located at 310 Main Street, Walsenburg, CO. The fire department covers 820 square miles in Huerfano County and is dispatched by Huerfano Emergency Dispatch located in Walsenburg, CO.

HCFPD fire equipment:

- Interface Engine 51, 6x6, 400 Gal, Type 2
- Interface Engine, 6x6, 400 Gal, Type 2 (on order)
- Engine 55, 6x6, 800 Gal, Type 3
- Tender 71, 6x6, 2000 Gal
- Tender 73, 6x6, 900 Gal
- Brush 63, Fast Attack, Type 6, 4x4, 400 Gal
- Brush 64, Fast Attack, Type 6, 4x4, 400 Gal
- Ladder 81, 130 ft Ladder, 300 Gal
- Multi-mission Incident Command vehicle w/radios (Ford Expedition 4x4)
- Fire Chief's Pickup
- ATV's (3) for rough country access

4.4.2 La Veta Fire Protection Department

La Veta Fire Protection District (LVFPD) is an all-volunteer fire department that includes two fire stations. Station 1 is the responding agency for BHR and is located at 100 Birch Street, La Veta, CO. The station houses a minimum of one ambulance, brush truck, engine, squad and tender. The fire department covers 210 square miles in Huerfano County and is dispatched by Huerfano Emergency Dispatch located in Walsenburg, CO.

LVFPD fire equipment:

- 6 x 6 Tactical Tender
- E12 Structure Engine
- E13 Type 1 Structure Engine

- E14 Ladder Truck & Heavy Rescue
- E31 Type 3 Urban/Wildland Interface Engine
- Type 6 Brush Truck (4)
- 3000 Gal Water Tender 11
- UTV's for Search & Rescue, Wildland Firefighting
- Ambulance (3)
- Light Rescue Vehicle for Auto Accidents

4.4.3 Spanish Peaks and Bon Carbo Fire Protection District

The Spanish Peaks & Bon Carbo Fire Protection District is an all-volunteer fire department with two stations. The Spanish Peaks Station is located at 121 West Main Street, Aguilar. The fire department covers 500 square miles in Las Animas County and is dispatched by the City of Trinidad Dispatch Center.

Spanish Peaks and Bon Carbo Fire Protection District fire equipment:

- Engine 1, Type 1
- Tender 1
- Brush 1, Type 6
- Brush 12, Type 6

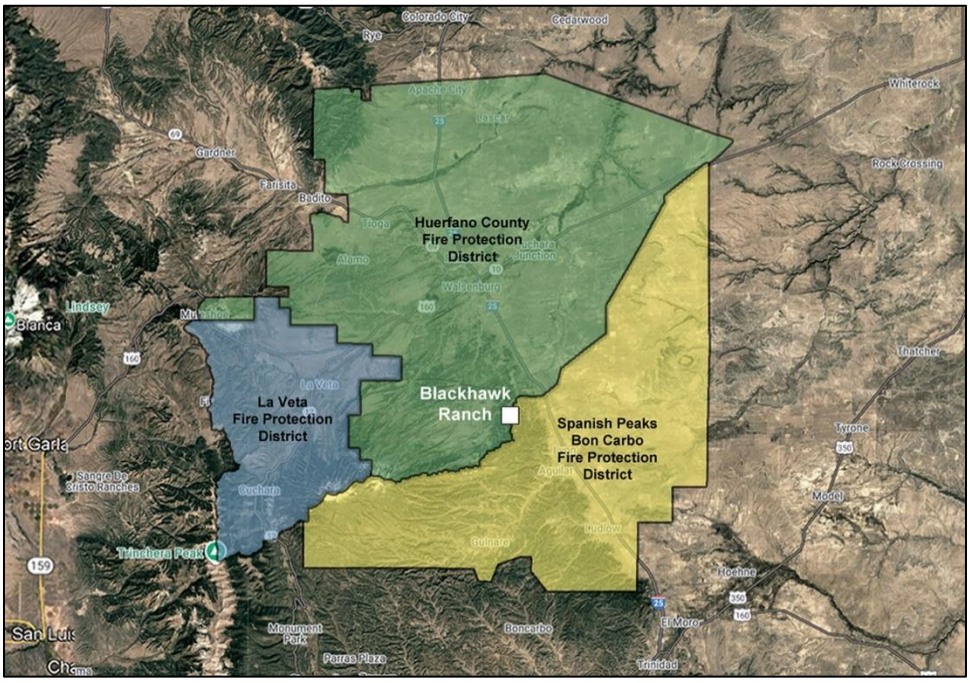

Figure 41. Fire Protection Districts

4.5 GRAZING

Severe nationwide wildfires have highlighted the benefits of cattle grazing to reduce ladder fuels and fire risk in the WUI. Research suggests livestock grazing helps limit fuel height and manage vegetation that may become fuel for wildfires. In turn, this can alter fire behavior with reduced flame lengths and rate of fire spread. A less intense fire allows firefighters to attack the blaze at ground level without the use of heavy equipment.

Blackhawk Ranch currently maintains an active cattle grazing lease with a local rancher. Cattle typically range the property from May through October each year. The grazing lease is a cost effective way to prevent grasses and other fine fuels from accumulating in the open areas of the ranch. Without the cattle to keep fine fuels under control, a significant effort would be required to periodically mow the grasses and fuels throughout the growing season. Many areas on the ranch have steep slopes and rocky terrain which are not conducive for mowing, which makes cattle grazing the most logical approach. Blackhawk Ranch is encouraged to continue its partnership with the local rancher and retain their cattle grazing lease to assist with fuel management.

4.6 FUEL HAZARD REDUCTION

The fuelbreak proposals identified in the 2009 CWPP were the highest priority action items for the BHR EMC. Fuelbreaks alter the behavior of fire and act as barriers to stop or slow the spread of fire. Fuelbreaks are most effective along strategic ridgelines as they interrupt the continuity of hazardous fuels and improve defensive positions for firefighters. Many roads on BHR run along ridges and provide firefighting opportunities to protect homes and the surrounding community. Although Fourmile Canyon Road is located in a draw, it is the main evacuation route for the ranch community. Continuous fuelbreaks are essential along Fourmile Canyon Road to allow safe passage in an emergency event.

Blackhawk Ranch was awarded five significant grants from 2011 through 2019 for mitigation efforts. Most of the award money was applied specifically toward establishing fuelbreaks along areas recommended by CSFS district foresters; however, it also presented the BHR EMC an opportunity to purchase a wood chipper for ranch fire mitigation. Thousands of contractor hours and volunteer hours have been recorded over the years in response to hazardous fuel reduction activities on the ranch.

Wildfire preparedness efforts are ongoing as the mitigated areas will encourage grasses, trees and ladder fuels to replenish. A follow-up mitigation plan and funding opportunities are critical to the success of the fuelbreaks. The EMC will continue to monitor the mitigated areas and remove or treat fuels as necessary.

4.6.1 2011 Colorado Fuels Mitigation Grant Program

Blackhawk Ranch was awarded two grants totaling $40,000 for the Colorado Fuels Mitigation Grant Program in November 2011. The project scope was to construct a shaded fuel break along Fourmile Canyon Road to fulfill one of the objectives outlined in the 2009 CWPP Action Plan. As the primary evacuation route for many on the ranch, the Fourmile Canyon project was critical to improve the safety of community members in the event of a fire threat.

The proposal included 26 properties that encompassed approximately 50 acres along a 2.7 mile stretch of road. ForestWise was contracted to use a combination of hand crews and hydro-ax forestry equipment to thin the forest 70’ on either side of the road. Understory of juniper, Gambel oak, and small ponderosa pine were mitigated, as well as diseased or dead mature trees. Mitigation started on the southern cul-de-sac of Fourmile Canyon Road and extended northeast until the acreage requirement for the grant was satisfied. The project was launched in the spring of 2012 and completed by summer of that same year.

4.6.2 2014 Colorado Wildfire Risk Reduction Grant Program

In 2014, BHR was awarded two grants totaling $69,400 for the Colorado Wildfire Risk Reduction Grant Program. The first grant, approved for $20,000, was applied toward the purchase of a ranch-owned wood chipper. The chipper would be used for organized community mitigation days to reduce hazardous fuels on the ranch. Additionally, the chipper would be made available to ranch property owners to mitigate individual properties.

The second grant for $49,400 was approved for mitigation on Rugby Mines Road (2.2 miles), Brodmore Drive (1.0 miles), and continuing efforts along Fourmile Canyon Road. The Board of Commissioners for both Huerfano and Las Animas counties submitted letters of support for the fuels reduction project. The project would reduce fuel density and establish a shaded fuel break along designated evacuation routes. It would also limit the impact of a catastrophic wildfire and benefit the health of the forest.

ForestWise was again contracted to mitigate the area based on the recommendations cited in the 2009 CWPP. A team of hand crews and forest machinery were used to remove hazardous fuels from the project areas. The wood chipper purchased with the first Colorado Wildfire Risk Reduction Grant was instrumental in the mitigation effort.

4.6.3 2019 CSFS Forest Restoration and Wildfire Risk Mitigation Grant

In March 2020, BHR was awarded $49,000 for the 2019 Forest Restoration and Wildfire Risk Mitigation (FRWRM) Grant. The objective of this project was to significantly reduce potential fire behavior, afford a staging area for fire and emergency personnel, and provide an escape route for property owners along Wapiti Drive. This effort would also provide improved access

and defensive positions for firefighting equipment and support vehicles. Reduction of this heavily forested area was one of the top priorities listed in the 2009 CWPP.

The proposal covered 35 acres across 22 properties, encompassing 3.1 miles of roadway. The mitigation was a combined effort of hand crews and mastication equipment that extended 50' on either side of the road. Team members for the project included no less than 47 BHR volunteers, Team Rubicon volunteers, and CHD Construction. Mitigation crews created an open canopy forest by eliminating ladder fuels and unhealthy trees. Understory of pinon, juniper, and Gambel oak was removed. Remaining slash was chipped by BHR volunteers using the wood chipper purchased with 2014 grant money. To control regrowth, 54 gallons of Garlon 4 Ultra herbicide was sprayed in sections of the newly mitigated area.

The project was completed in June 2023. Over the three-year lifespan of the grant, BHR and Team Rubicon volunteers contributed over 2,200 hours of service throughout 40 different work projects of in-kind labor, totaling over $73,469 in value. Five full cords of firewood were donated to Huerfano County Low-income Energy Assistance Program (LEAP).

Upon conclusion of three significant mitigation projects, much of BHR property is protected by a continuous north/south shaded fuelbreak.

4.6.4 Community Wildfire Mitigation Workdays

Blackhawk Ranch's wildfire preparedness achievements are mostly attributed to volunteer efforts. Except for mitigation work funded through grants, most other wildfire defense activities are accomplished by property owner volunteers. In addition to grant projects, the EMC regularly organizes Community Wildfire Mitigation Workdays to complete other fuels reduction projects on the ranch. Volunteer workday projects include eliminating blind corners on roadways, maintenance on previously mitigated areas, installing reflective road signs, clearing evacuation routes, and establishing improved accessibility for first responders. Thousands of volunteer man-hours have been logged for activities completed during community workdays.

Blackhawk Ranch was certified as a Firewise community in 2016. To retain the Firewise designation, communities are required to annually contribute the equivalent of one volunteer hour for each dwelling unit on the site. The community workdays are an integral part of the Blackhawk Ranch Firewise commitment and all volunteer hours count toward the ongoing certification. The Firewise partnership, along with volunteer efforts, reinforce wildfire readiness and safety on the ranch.

4.6.5 Individual Property Mitigation

Many property owners complement the mitigation projects of the BHR EMC by participating in wildfire prevention programs sponsored by county, state, and federal agencies. Property owners also work independently to decrease fuel hazards on their own properties. The EMC works closely with individuals to ensure their fuels reduction projects align with the 2009 CWPP and the CSFS mitigation strategies.

In past years, property owners partnered with the Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture (USDA). Individuals were required to schedule a site visit with a certified state forester and develop a conservation plan. Once those plans were established, property owners applied for an Environmental Quality Incentives Program (EQIP) grant to defray the cost of mitigation work.

Community members participated in the Wildfire Mitigation Cost-Share Program in partnership with the Spanish Peaks Alliance for Wildfire Prevention and Firewise USA. Applicants were required to schedule a site visit with Huerfano County's Wildfire Preparedness Program to develop a Property Treatment plan. This program awarded 50% of project costs up to $1,000.00 per property for establishing defensible space in the HIZ.

Whether community members engage in fuel reduction programs with outside agencies or choose to work independently, the EMC offers support by seeking cost-share opportunities, promoting the BHR Wood Chipper Rental Program (refer to section 4.12.4 Wood Chipper Rental Program), providing HIZ assessments, and organizing community wildfire practical training sessions.

4.7 STATE TAX INCENTIVES FOR WILDFIRE MITIGATION MEASURES

Colorado landowners may claim an income tax deduction for wildfire mitigation efforts during tax years 2020-2025. This tax deduction allows landowners to get credit for 50% of out-of-pocket expenses for wildfire mitigation, up to $2,500. Mitigation must have occurred in the year in which the tax credit is being filed. The deduction is for out-of-pocket expenses incurred for wildfire mitigation on property within a WUI area in Colorado.

Mitigation efforts include creating defensible space around structures, thinning forests and vegetation to reduce structure risk from wildfires, and establishing fuel breaks. Qualifying expenses also include hiring third-party contractors to perform mitigation or out-of-pocket expenses for chainsaw or tools used expressly for wildfire mitigation purposes. Rental charges for mitigation equipment may also be eligible for the tax deduction.

4.8 ROAD INFRASTRUCTURE

To preserve the quality and functionality of ranch roads, regular road inspections are crucial. Early detection and maintenance of road issues helps prevent more costly repairs. Comprehensive road assessments are conducted yearly to include identifying road areas less than 20’ wide and areas with less than 13’ 6” height clearance. Routine inspections are conducted regularly with more frequent assessments based on severe weather conditions, increased traffic volume, community concerns, etc.

4.8.1 Accessibility

Adequate road conditions are essential for safe evacuation and firefighter response. The EMC and Road Committee members regularly collaborate and conduct on-site evaluations of ranch roads. Road assessments in 2022 indicated two significant road projects were necessary to reduce excessive road grades along evacuation routes. The steep grades potentially limited firefighter access and were deemed unsafe. The first project along Fourmile Canyon Road reduced the slope from 18% to 11%. Substantial mitigation was also conducted along the area.

The second project, at the intersection of South Mountain Drive and Rugby Mines Road, was a particularly steep slope where many accidents occurred. Throughout the project, the top road section was lowered 9’ and the bottom section raised nearly 10’. Upon completion of the project, the slope was reduced from 23% to 13%. The road is now accessible year-round.

One additional area of concern was CR 66.1, the BHR east evacuation route. A portion of this county road (Howards Draw) passes through BHR boundaries. This road segment is nearly one-half mile long and falls under the jurisdiction of Las Animas County. Blackhawk Ranch POA BOD members met with the Las Animas County Road and Bridge Administrator to discuss neglected road conditions. Beginning in the spring of 2025, the county has agreed to replace a narrow cattle guard with a 20’ wide guard, expand limited ingress/egress to 20’ wide, replace culverts, construct a 4% crown to prevent erosion, and eliminate a steep slope. The improvements will ensure Howards Draw is a reliable evacuation route that permits adequate passage.

The Road Committee, in collaboration with the EMC, has initiated a Tree Removal Allowing Safe Evacuation (TRASE) program. Trees in the utility easement that encroach onto the road or otherwise cause safety issues are flagged by committee members. During community mitigation days, volunteers cut the trees down into firewood and chip the remaining slash. This program improves BHR fire resilience and provides safer road conditions for the BHR community and first responders.

Further road assessments will evaluate turnaround conditions, as well as ingress/egress restrictions throughout the entire ranch. The EMC, Road Committee, and POA BOD will develop

a road plan that is in alignment with EMCs commitment to wildfire preparedness and public safety.

4.8.2 Signage

In any crisis situation, rapid response time is critical. Clear signage for roads and addresses are essential for firefighters to navigate through communities they may not be familiar with. All roads should be clearly marked with highly visible, reflective road signs. To avoid confusion or entrapment in an emergency situation, signs should also indicate dead-end roads. As an additional safety measure, reflective markers should be placed where driveways and main roads intersect. Response times may be faster if first responders can differentiate between a driveway and a road. This may reduce navigation errors and save valuable time.

The original street signs on BHR were hand-painted, non-reflective signs made of combustible materials. Over time, the eroded signs were difficult to read. After a review of emergency preparedness, the BHR POA BOD recognized the need to update signage on the ranch. In 2019, all BHR original road signs were replaced with durable metal signs. The updated signs display the standard reflective green background with contrasting white letters for easy visibility. All cul-de-sacs are clearly marked with “no outlet” indicators. The new metal signs can withstand weathering with no deteriorating effects. Emergency Evacuation Route signs were also installed at Howards Draw.

As indicated on the 2025 CWPP action items, a reflective sign will be installed at the dedicated firefighting water tank. This action item will also extend to future installed water tanks.

BEFORE: Wooden, Non-Reflectiv

AFTER: Metal, Reflective

Emergency Evacuation Signage

Figure 42. Blackhawk Ranch Updated Road Signs

4.9 WATER STORAGE

Communities located in the WUI often lack adequate water access and wildfire defense becomes more difficult for firefighters. Faced with water challenges, firefighters may need to rely on mutual aid fire departments to truck water in from a distance. There are several seasonal ponds on the ranch that are adjacent to roads; however, the ponds are shallow, often dry, and cannot be relied upon for emergency wildfire response. With its limited water supply, it is incumbent upon BHR to coordinate with local fire agencies to establish additional water sources on the ranch.

4.9.1 Dedicated Firefighting Water Tanks

The EMC, in partnership with HCFPD, installed a dedicated firefighting water tank at the intersection of Fourmile Canyon Road and Rugby Mines Road in 2021. The site was mutually selected by the EMC and the local fire agency. The location provides easy access with ample turnaround space for firefighters to refill their engine tanks. The 3,000-gallon water tank was fitted with an HCFPD approved valve and filled by the local fire department. The supplemental water supply will allow firefighters access to on-site water, saving precious time to refill the fire engines.

The EMC is committed to installing additional water tanks in collaboration with the local fire department. Site selection and preparation, tank installation, hardware specifications, and water delivery will be performed under the guidance of HCFPD. The goal is to expand firefighting infrastructure on BHR while reinforcing partnerships with local firefighting organizations.

Figure 43. Dedicated Firefighting Water Tank - Fourmile Canyon and Rugby Mines Road

4.9.2 Portable Water Supply

The EMC is researching portable water tanks as an additional water supply for BHR fire control efforts. This is critical for EMC responders to suppress low-level fires until Huerfano County firefighters arrive on scene. Water mobility proved to be effective during the May 2024 ranch fire. The homeowner had a 350-gallon filled water tank stored atop a flatbed trailer and was able to transport the water supply to the fire. The fire was doused with water until HCFPD arrived 45 minutes later. In the post-fire briefing, EMC members acknowledged that the capability to mobilize hundreds of gallons of water is essential in future callouts.

One EMC member constructed a mobile water supply prototype with the following specifications: 1.5 ton capacity flatbed trailer, 275-gallon water tank, 212cc gasoline engine water pump, 20-foot 2” intake hose, and 100-foot 1.5” fire hose with nozzle. A test was performed at 1/3 throttle and exceeded expectations. At 13.75 gallons per minute, horizontal spray distance ranged 22’-24’ and vertical spray distance reached 20’-22’.

The portable water supply is inexpensive and easy to reproduce for use across the ranch. The mobile design allows for quick deployment of supplemental water and easy transport in areas with limited access. The EMC goal is to have one complete pumper/IBC Tank trailer and one simple IBC Tank trailer available in each of the four ranch quadrants

Figure 44. Portable Water Tank Prototype

4.9.3 Cisterns

A number of property owners have installed cisterns to collect rainwater exclusively for fire protection. Due to strict water rights in Colorado, there are laws in place for how rainwater may be collected, as well as the amount that may be stored. Under certain conditions, rural Colorado residents may legally collect rainwater as outlined in Senate Bill 09-080. The EMC encourages BHR homeowners to contact the Colorado Division of Water Resources for specifics

on Rainwater Collection on Properties with Residential Wells. Homeowners must also apply for the appropriate permit.

In the event of a fire on BHR, firefighters may turn to private cisterns for water supply. In addition to complying with Colorado law, homeowners should coordinate with the HCFPD for tank position, location, and hardware requirements. Providing a firefighting water storage tank in compliance with the local fire department's design will create a valuable emergency water resource for firefighters.

4.10 EMERGENCY NOTIFICATION SYSTEMS

The Huerfano and Las Animas county line passes directly through the boundaries of BHR. Forty-one individual parcels on the ranch are situated within both counties. This creates a unique dilemma for ranch property owners who register for county emergency notifications. There is no single emergency alert service that covers the entire ranch as each county has its own independent system. Typically property owners register with the county in which their property resides. Those who sign up for Huerfano County will not receive Las Animas notifications. Likewise, those who register with Las Animas County will not receive Huerfano alerts.

In May 2024, some Blackhawk community members received a CodeRED pre-evacuation notice from Huerfano County due to a small fire on the ranch. Although the fire occurred in Las Animas County, HCFPD was the responding agency. Since Huerfano sent out the pre-evacuation notice, those who were signed up for Las Animas County did not receive a warning.

To prevent any further communications oversight, the EMC is encouraging property owners to register for emergency notifications in both counties. This will ensure the BHR community is receiving all essential notifications pertinent to the ranch. Registration information is available to property owners via the BHR website.

4.10.1 Huerfano County

Huerfano County uses CodeRED, a free emergency notification service used to alert community members about emergencies or urgent notifications in their area. CodeRED service has provided time sensitive notifications for over 25 years. The system is capable of contacting millions of individuals in minutes with vital alerts. Notifications may include evacuation notices, weather warnings, fire restrictions, etc. The emergency alert will also include detailed instructions about what actions are required for community members to remain safe. Notifications are sent out via email, text, voice, or CodeRED mobile app.

The most efficient way for Huerfano County community members to register for CodeRED is to call the non-emergency dispatch number at (719) 738-1044. A dispatcher will assist with the

registration process to ensure all necessary information is collected and properly charted for Blackhawk Ranch property owners.

4.10.2 Las Animas County

Las Animas County replaced its emergency alert service from CodeRED to Rave Alert in September 2024. Rave is a mass alert system that delivers emergency notifications to area community members. The system is capable of delivering thousands of mass notifications per second. Rave alert notifies community members of emergencies or urgent notifications based on their registered geographical location. Notifications are sent out via email, text, or voice.

4.10.3 Blackhawk Ranch Local Alert

As part of its commitment to public safety, communications development, and emergency response strategies, the EMC is establishing an Emergency Response Plan. This plan will include local-level notification alerts for the BHR community. The EMC alert system is currently in the trial phase. Refer to section 4.2.2 Broadcast Media for additional details.

4.11 PERSONAL WILDFIRE ACTION PLAN

Reducing fuel loads across the ranch through both community and individual mitigation projects is one of the objectives outlined in the CWPP. A personal wildfire action plan is in direct alignment with BHR CWPP initiatives to mitigate risk and promote wildfire preparedness. Diverse community involvement is a critical component to a successful plan. Even before a threat occurs, homeowners are encouraged to prepare for wildfire by establishing a safety zone around their home. Homeowners can reduce home ignition susceptibility by applying home hardening strategies and establishing defensible space that extends 100’ from the home. Defensible space is a buffer zone between the home and surrounding wildland area that slows the rate and intensity of a wildfire. Ignition-resistant homes depend on well-established defensive zones around the home. Refer to section 3.6 Home Protection for home hardening and defensible space guidelines.

The EMC recommends property owners become acquainted with the Ready, Set, Go! program, managed by the International Association of Fire Chiefs (IAFC). The program was developed for communities in high-risk WUI areas and provides strategies to protect families and homes against wildfire threat. Ready, Set, Go! is a three-step approach that teaches individuals to get READY before a fire occurs, get SET to depart from the home, and GO to a safe location. The Ready, Set, Go! guide is published on the BHR website. Additional information can be found on the International Fire Chiefs Association website.

Advance planning recommendations for property owners:

1. Prepare property
   - Defensible space
   - Home hardening strategies
2. Emergency Alert Notifications
   - Register for both Huerfano and Las Animas county alerts
3. Develop a Wildfire Action Plan
   - Meeting point
   - Escape routes – emergency evacuation map below
   - Communication plan – how to send and receive information with family
   - Animal arrangements
4. Pack an emergency Go Bag
   - Bolt cutters – to cut any locked gates
   - Medication
   - Important documents
   - Cash or credit cards
   - First aid kit
   - Flashlight and battery powered radio
   - Extra batteries
   - Change of clothing
   - Pet supplies

4.12 OUTREACH & EDUCATIONAL PROGRAMS

4.12.1 National Fire Protection Association – Firewise USA

Blackhawk Ranch has been continuously certified as a Firewise USA community in good standing since 2016. An association administered by the National Fire Protection Association (NFPA) and co-sponsored by the USDA Forest Service, Firewise provides guidance and direction for thousands of recognized communities across America to reduce their risk of wildfires.

To become a member of Firewise, the EMC worked with representatives to meet the requirements. Blackhawk EMC members obtained a wildfire risk assessment from the CSFS, created an action plan to implement the assessment, and took the required actions to address the assessment goals.

1. The committee met with property owners and neighboring Bighorn Sheep Ranch subdivision to discuss a potential shared emergency evacuation route between the ranches. They marked Howards Draw with emergency evacuation signage. They also encouraged property owners to mark their lot numbers for emergency personnel.

2. The EMC members began clearing trees growing close to Fourmile Canyon Road, the main artery on BHR, to allow clearance for large emergency vehicles and to provide community members with a safer exit route.
3. The EMC met with area fire and emergency personnel and provided them with detailed maps of the ranch.

Another Firewise requirement was that BHR invest a minimum of $2.00 per capita in local Firewise actions. This was met by the grants that BHR had received as well as community mitigation workdays, Firewise “events” held on the first Saturday of every month from April through October. One grant funded $20,000 towards the purchase of a 9" Vermeer chipper that could be used on community mitigation days and by individual parcel owners for their personal mitigation. Other grant money went for clearing trees and brush away from the roads on Brodmore Drive, Rugby Mines Road, and Fourmile Canyon Road. When the BHR EMC applied for and received the Firewise designation in 2016, property owners had already logged three mitigation days that contributed $2,399.28 in volunteer labor and $180 in equipment rental.

The following year, the EMC was notified that the $500 grant that they had applied for from the NFPA and State Farm for a 2017 Wildfire Community Preparedness Day project was accepted. Blackhawk Ranch utilized $350 of the grant to rent a second larger chipper from Trinidad to supplement the POA chipper to mitigate a half-mile section of Fourmile Canyon Road. The road rises to the top of a ridge near the entrance and winds down and around into the valley. Cutting trees back from the road made oncoming traffic more visible, allowed more room for large emergency vehicles, and provided once shaded areas with more sunlight, permitting snow to melt in the winter rather than turn into hazardous ice.

Every spring from 2018 through 2024, BHR applied for and received a $500 grant for a Spring Firewise Mitigation Day. Throughout the summer, volunteers focused on trouble spots across the ranch, as well as assisted Team Rubicon volunteer sawyers in chipping approximately 30 acres of slash generated in the three-year mitigation project on Wapiti Drive.

In addition to traditional mitigation efforts, BHR took other creative approaches to achieving their Firewise designation. In 2019, the Ranch added new reflective road signs across the ranch. Blackhawk volunteers erected all of them, contributing many Firewise hours to ensure that fire protection personnel could quickly find a trouble spot. In 2021, BHR EMC installed and filled a 3,000 gallon dedicated firefighting water tank to further fire prevention and response efforts. In 2021, property owners gathered as a Firewise Community to kick off their summer community mitigation days with Paul Branson, Wildfire Resilience Coordinator, who spoke on the importance of the Firewise Certification. He then joined property owners as a “Guest Sawyer,” working alongside community volunteers. Also that year, Blackhawk proudly erected their official Firewise sign at the entrance to the ranch, attesting to their national certification. Blackhawk Ranch was one of the first ranches in the area to receive this recognition.

To further the goals of Firewise, BHR has undertaken a four-pronged strategy to better prepare the community for wildland fire prevention and containment:

1. Hands-on cutting and thinning of trees and brush along major roadways
2. Land owner education and mitigation training
3. Grant writing and execution for POA-Based Wildland Fire Mitigation Projects funded by either County, State or Federal Agencies
4. Expansion of firefighting infrastructure to increase firefighting and suppression capacity on the Ranch

As a result of BHRs hands-on mitigation participation, their yearly accounting and reporting efforts, and their creative approaches to fire preparedness, the community has been able to renew their Firewise Certification every year since they became a Firewise Community in 2016. Blackhawk Ranch is proud of their 8th anniversary with Firewise in 2024.

4.12.2 Team Rubicon

Team Rubicon is a veteran-led volunteer organization that serves worldwide communities in need during disasters and crises. Known as the Greyshirts, Team Rubicon's contributions also include mitigation efforts to curb the impact of wildfires. Rubicon relies solely on donations and all services are provided for free.

In April 21-24, 2022, BHR was privileged to have had a contingent of thirty Team Rubicon volunteers help the EMC with fire mitigation efforts. The goal was to create a firefighting line and an emergency escape corridor for property owners along Wapiti Drive on the western border of the ranch. The Rubicon veterans, along with volunteer Blackhawk property owners, removed deadfall and ladder fuels as well as thinned trees to create a 120' wide shaded fuel break that included both sides of a .35 mile very steep portion of Wapiti Drive. Volunteers thinned pinon, cedar, and ponderosa trees to a minimum of 10' between crowns and limbed up 10' to eliminate ladder fuels. Blackhawk property owners fielded two chipper teams that mitigated beside Team Rubicon for the three days, hauling slash to the chippers and broadcasting the chips into the trees to provide a mulch for the mitigated area.

Blackhawk volunteers also prepared, served, and cleaned up after evening meals for Team Rubicon at the Walsenburg Community Center. Team Rubicon volunteers provided 871.15 hours of labor and Blackhawk volunteers provided 271 hours of labor, resulting in a total of 1,142.15 hours of in-kind mitigation labor. These combined hours were applied to BHRs CSFS FRWRM grant. To help fulfill the grant, Blackhawk volunteers also participated in EMC Fire Mitigation Work Days to continue cutting trees as well as trimming and removing ladder fuels. Chris Dotter, grant contractor, mulched much of the slash and ground up small trees and

Gambel oak with his masticator. As part of the grant, BHR volunteers loaded and delivered the log equivalent of five full cords of firewood to the LEAP of Huerfano County.

In 2023, the final six months of the grant began with another collaboration between Team Rubicon, BHR volunteers, and Chris Dotter to complete the shaded fuel break on Wapiti Drive. Thirty-five Team Rubicon Greyshirts joined 24 BHR property owners for fire mitigation from April 28-30. Despite snowy weather that caused them to only be able to help on Saturday and Sunday, the all-veteran team assisted Blackhawk volunteers, who served as Team Rubicon's wood chipping support team by following them and chipping their slash as they progressed. An additional group of Blackhawk volunteers provided meals to Team Rubicon on Friday and Saturday evenings and Sunday lunch.

The BHR CSFS FRWRM matching grant officially ended on June 1, 2023. Although Team Rubicon helped BHR meet the financial and labor commitments to this grant, Blackhawk remained a little short on their acreage commitment. Because BHR was short several acres for the grant, property owners volunteered for three additional Firewise workdays, cutting and chipping trees on Wapiti Drive and delivering fifteen pickup loads of 16" rounds to the Huerfano County LEAP Firewood Program. Brad Brooks, Emergency Management Chairperson, completed the measurements of the mitigated area and wrote the final report to meet the deadline.

During the three-year lifetime of this grant, over 47 Blackhawk neighbors assisted Rubicon volunteers to complete this grant, despite a short hiatus due to the COVID pandemic. Team Rubicon and Blackhawk volunteers met or exceeded their commitments on Soft Match (volunteer labor), contributing 1,093 hours. Team Rubicon partners contributed 1,285 hours. In addition, BHR met their Hard Match (Cash) as well. Blackhawk Ranch received a final reimbursement from the CSFS matching grant that totaled $31,842.51 in January of 2024.

Figure 45. Team Rubicon and Blackhawk Ranch Shaded ect

4.12.3 Huerfano County Fire Protection District - Fire Training

As part of its education mission, the BHR EMC has engaged in multiple fire trainings with volunteers from HCFPD and former Colorado District Forester, C.K. Morey. Morey was employed with the CSFS for 38 years before his retirement in 2014. As a certified instructor, Morey's background includes teaching Wildland Fire Training to first-time students and firefighters who need a refresher course. Morey also extends his experience and knowledge to local communities who seek guidance concerning mitigation and wildfire suppression strategies.

Because of its remote location and steep, heavily forested topography, the EMC requires this type of training to expand its capabilities to detect, report, and contain wildland fires that arise within the borders of the ranch. The average time for HCFPD to respond to BHR emergencies is approximately 45 minutes and the response time for LVFPD is approximately one hour. Since it is likely that BHR EMC responders will be first on-scene for any fire, guest speaker Morey

Figure 46. Blackhawk Ranch EMC Fire Training

reviewed what actions EMC members can initiate within the first 45-60 minutes after spotting and reporting a fire. Topics included proper attire, safety gear, and firefighting tools to tackle initial fires. Instructors demonstrated the use of firefighting tools and proper techniques to build a fireline. The primary focus throughout the training was the personal safety of all responders and community members.

Following the training sessions, the policy of the EMC committee as first on-site responders is as follows:

1. Search assigned quadrants and locate the fire
2. Contact 911 with information about the location, size and type of fire, weather and wind conditions
3. Dispatch a BHR guide to the front gate to lead firefighters to the location. HAM radios will be used for communication between EMC responders and responding firefighters.
4. Depending upon the actual conditions, type, and extent of fire, EMC team members may begin efforts to contain the fire until the arrival of the fire department. Once firefighters are on scene, the EMC team will stand down, brief firefighters, and assist firefighters upon request or depart the area.

This training is invaluable to BHRs continuing commitment to become more organized, experienced and capable to spot, report, and contain wildfires that occur on the ranch. The EMC will regularly consult with the local fire agencies and assure their plans and training seamlessly align with responding fire protection district practices. In order to achieve their goals in fire response, the EMC will continue with collaborative wildfire suppression consults and fire training exercises.

4.12.4 Wood Chipper Rental Program

The 2009 CWPP included an ambitious goal to mitigate over 19 miles of shaded fuelbreaks along BHR evacuation routes. To accomplish the goal, the EMC organized volunteer Community Mitigation Days. Mitigation included thinning and limbing trees, removing deadfall and ladder fuels, and chipping slash. The EMC either borrowed a resident-owned chipper or rented a chipper from a local vendor on mitigation days. This was not a sustainable strategy so the EMC

applied for grant money through the 2014 Wildfire Risk Reduction Grant Program. The grant was approved in September 2014 and the EMC purchased a ranch-owned wood chipper.

The intent of the chipper purchase was to simplify fire mitigation capabilities for the EMC and individual landowners. To fulfill that commitment and also encourage individual mitigation efforts, the EMC launched a chipper rental program in 2015 for BHR property owners. For a nominal hourly rate, ranch owners may rent the chipper for personal wildfire mitigation. All fees collected are applied toward chipper maintenance.

The EMC promotes a “safety first” approach and requires the following training prior to chipper rental:

1. Watch the online Vermeer video training provided by the manufacturer
2. General hands-on review of operational components and best practices conducted by Chipper Manager or designee
3. Supervised practical experience operating the chipper during Community Mitigation Days – *four hours of operational experience is required*
4. Approval by Chipper Manager that individual has completed training
5. Sign liability waiver

By implementing this program, the BHR EMC has given landowners an opportunity to decrease the scale of wildfire risk on their property, who otherwise lack the resources to do so. The rental program is part of BHRs dedication to the HFRA which encourages WUI communities to reduce hazardous fuels and restore forests to healthy conditions. The chipper rental program continues to be a successful campaign today.

5 IMPLEMENTATION

The following 2025 CWPP Action Plan identifies tasks, responsible parties and partnerships, priority levels, and timelines for completing projects. Priority levels are designated High (H), Moderate (M), or Low (L). The Action Timelines, as defined below, incorporate phased implementation strategies over the CWPP lifespan. Many of the projects require volunteer community efforts to accomplish. Project start dates and durations may be adjusted based on available resources such as funding opportunities and manpower. The BHR POA and EMC Committee members will monitor the CWPP objectives to ensure all measures are being implemented and attained.

5.1 ACTION TIMELINE

IMMEDIATE ACTION

Action Timeline: 2025
Projects expected to begin immediately in 2025 – some projects are currently in progress
Projects may be routine and indefinite
Projects funded primarily with BHR finances, may require little funding assistance
Minimal planning with outside partners

SHORT TERM ACTION

Action Timeline: 2025-2028
Projects expected to begin within 3 years
Project lifespans are likely multi-year
Projects may require partial funding assistance
Greater level of planning with outside partners

MID TERM ACTION

Action Timeline: 2025-2030
Projects expected to begin within 5 years
Project lifespans are multi-year
Projects will require funding assistance through grants or multi-year BHR reserves to complete
May require multi-year planning and include greater participation with outside agencies

LONG TERM ACTION

Action Timeline: 2030-beyond
Projects expected to begin after 5 years
Project lifespans are multi-year
Project requires grants or other funding sources to complete
Extensive planning required within local community and outside agencies

5.2 ACTION PLAN

Table 10. 2025 CWPP Action Plan

2025 Action Plan Project	Priority (H, M, L)	Action Timeline	Tasks	Desired Outcome	Responsible Parties & Partnerships	Remarks
Roadways	M	2025	***Routine Road Maintenance*** • Class 6 road base material (2"-4" compressed) • Grading • Road Crown (4% or 1/2" per foot) • Install culverts (24" corrugated metal with minimum 4% grade) • Clean/repair culverts and ditches • Emergency repairs	• Safety of vehicle traffic	BHR POA BOD, BHR Road Committee, Contractor	Roadwork will be scheduled and prioritized based on routine maintenance, periodic maintenance, and emergency repairs.
	H	2025-2028	***Road Modifications - Evacuation Routes*** • Expand narrow roads to minimum 20' width • Eliminate blind curves	• Community and firefighter safety • Adequate ingress/egress for evacuation and firefighter response	Las Animas County, BHR POA BOD, BHR Road Committee, BHR EMC, Contractor	Primary roads targeted: Fourmile Canyon Road, Rugby Mines Road, Lower Mine Road, Howards Draw, Wapiti Drive, Timber Drive, Rolling Hills Drive, Bradens Point Road.
	M	2025-2030	***Road Modifications - Secondary Roads*** • Expand narrow roads to minimum 20' width • Eliminate blind curves	• Community and firefighter safety • Adequate ingress/egress	BHR POA BOD, BHR Road Committee, BHR EMC, Contractor	Secondary roads include all roads that are not considered a primary road.
	H	2025-2030	***Turnarounds*** • Expand turnarounds on cul-de-sacs to 120' clearance • Create "T" hammerhead turnarounds on cul-de-sacs with insufficient turn radius	• Emergency vehicle access • Aid in firefighter safety	BHR POA BOD, BHR Road Committee, BHR EMC, Contractor	Road Committee will assess 32 cul-de-sacs on BHR. Priority will be given to cul-de-sacs with homes or camps.
	M	2025-2028	***Road Grade*** • Reduce steep road slopes to 10% or less	• Emergency vehicle access • Aid in firefighter safety and response	BHR POA BOD, Las Animas County, BHR Road Committee, BHR EMC, Contractor	Roads targeted: Bear Paw, Howards Draw, Corey Spur, Fourmile Canyon Road (1/4 mile north of Wapiti).

2025 Action Plan Project	Priority (H, M, L)	Action Timeline	Tasks	Desired Outcome	Responsible Parties & Partnerships	Remarks
Mitigation	H	2025	***Routine Fuel Mitigation*** • Remove fuels under power lines • Remove fuels around water tanks • Trim branches covering road signs • Remove slash/debris • Recommend fuel treatment 150’ on either side of the road • Fuelbreak widths 2.5 to 3 times the average tree height • Minimum 10’ spacing between tree crowns • Minimum 30’ spacing between clumps of trees • Minimum 13' 6" height clearance along roadways	• Reduce hazardous fuels • Reduce wildfire severity • Adequate ingress/egress for evacuation and firefighter response	San Isabel Electric, BHR EMC, Property Owners	Comprehensive hazardous fuels assessments will be conducted yearly, with routine inspections based on guidelines set by BHR TRASE program. Goal on all roadside mitigation is to reduce/eliminate fuels 150' on either side of the roadways. Property owner permission is needed. Projects may require multi-year mitigation to reach appropriate clearance. Fuel treatment methods include manual treatments, mechanical treatments, herbicides, and grazing. Typically a combination of treatment types will be used for all mitigation.
	H	2025	***Fuel Mitigation Evacuation Routes - Figure 47*** • Tree thinning, spacing, limbing, trimming • Removal of ladder fuels • Remove slash/debris • Recommend fuel treatment 150’ on either side of the road • Fuelbreak widths 2.5 to 3 times the average tree height • Minimum 10’ spacing between tree crowns • Minimum 30’ spacing between clumps of trees • Minimum 13' 6" height clearance along roadways	• Reduce hazardous fuels • Reduce wildfire severity • Adequate ingress/egress for evacuation and firefighter response	BHR EMC, Property Owners	Primary roads targeted: Fourmile Canyon Road, Rugby Mines Road, Lower Mine Road, Howards Draw, Wapiti Drive, Timber Drive, Rolling Hills Drive, Bradens Point Road.

2025 Action Plan Project	Priority (H, M, L)	Action Timeline	Tasks	Desired Outcome	Responsible Parties & Partnerships	Remarks
	M	2025-2030	***Fuel Mitigation Secondary Roads*** • Tree thinning, spacing, limbing, trimming • Removal of ladder fuels • Remove slash/debris • Recommend fuel treatment 150’ on either side of the road • Fuelbreak widths 2.5 to 3 times the average tree height • Minimum 10’ spacing between tree crowns • Minimum 30’ spacing between clumps of trees • Minimum 13' 6" height clearance along roadways	• Reduce hazardous fuels • Reduce wildfire severity • Adequate ingress/egress for evacuation and firefighter response	BHR EMC, Property Owners	Secondary roads include all roads that are not considered a primary road.
	H	2025-2028	***Shaded Fuelbreaks on Ridgelines - Figure 47*** • Fuelbreaks along ridgelines, defensive areas • Remove ladder fuels • Remove slash/debris • Thin overstory to reduce tree canopy • Recommend fuel treatment 150’ on either side of the road • Fuelbreak widths 2.5 to 3 times the average tree height • Minimum 10’ spacing between tree crowns • Minimum 30’ spacing between clumps of trees • Minimum 13' 6" height clearance along roadways	• Reduce hazardous fuels • Reduce wildfire severity • Adequate ingress/egress for evacuation and firefighter response • Protect structures	BHR EMC, Property Owners	Roads targeted: Brodmore Drive, Rugby Mines Road, South Mountain Drive, North Mountain Drive, Timber Drive, Fishers Peak View.

2025 Action Plan Project	Priority (H, M, L)	Action Timeline	Tasks	Desired Outcome	Responsible Parties & Partnerships	Remarks
	H	2025-2030	***Retreatment - Figure 47*** • Remove new fuel growth • Extend distance of previously treated areas	• Reduce hazardous fuels • Reduce wildfire severity	BHR EMC, Property Owners	Roads targeted: Fourmile Canyon Road, Rugby Mines Road, Wapiti Drive.
	L	2025	***Noxious Weeds*** • Biannual spraying along roadside easement • Backpack sprayer and herbicide rental to property owners	• Fuel Management • Prevent landscape damage that elevates wildfire threat	Noxious Weed Committee, Property Owners	Ranch-wide noxious weed spraying will be conducted biannually (spring and autumn).
	L	2025	***Grazing*** • Renew grazing lease annually	• Fuel management	BHR POA BOD, Local Rancher	Current grazing lease is extended through 2028.
BHR Emergency Response Plan	H	2025	***Communication Plan*** • Develop Emergency Tactical Communications tool - Two-way communication for BHR EMC first responders • Develop Broadcast Media Communications tool - Local ranch alerts broadcast to BHR property owners • Develop Interpersonal Communications tool - Bidirectional communication to improve EMC and BHR property owner dialogue during a crisis	• Community safety • Transmit accurate and timely information • Facilitate response efforts	County OEM, BHR POA BOD, BHR EMC, BHR Communications Committee	The BHR Communication Plan is flexible and will be updated as technology evolves.
	M	2025	***BHR Evacuation Map/Instructions*** • Update BHR map with evacuation routes and instructions • Mark dedicated firefighting water tanks • Post map at ranch entrances • Distribute maps and emergency plan to community • Distribute maps to first responders	• Clear identification of roads, properties, and water supply • Expedite firefighter response	HCFPD, BHR POA BOD, BHR EMC	Map will be updated, posted, and distributed to first responders as needed.
	H	2025	***Evacuation Drill*** • Schedule ranch-wide evacuation drill	• Community Safety	County OEM, BHR POA BOD, BHR EMC, Property Owners	Evacuation drill will include signing up for notifications, developing a family evacuation plan, packing emergency bags, and location of emergency exits.

2025 Action Plan Project	Priority (H, M, L)	Action Timeline	Tasks	Desired Outcome	Responsible Parties & Partnerships	Remarks
Water Storage & Supply	H	2025-2028	***Dedicated Firefighting Water Tanks*** • Install additional water tanks • Install reflective marker at water tanks	• Provide on-site water supply for firefighters • Expand firefighting infrastructure	HCFPD, BHR EMC	BHR will collaborate with HCFPD for optimal water tank placement.
	H	2025-2028	***Portable Water Supply*** • Build additional portable water supply units	• Additional firefighting water supply • Early deployment of water before firefighters arrive	BHR EMC	Goal is to have one complete pumper/IBC Tank trailer and one simple IBC Tank trailer available in each of the four ranch quadrants.
	H	2025-2028	***Personal Cisterns*** • Encourage property owners to install HCFPD approved cisterns on personal property	• Additional firefighting water supply • Expand firefighting capabilities	HCFPD, BHR EMC, Property Owners	Refer property owners to the Colorado Division of Water Resources for more information.
Personal Wildfire Action Plan	H	2025	***Home Ignition Zone*** • Schedule HIZ Assessment • Reassess every 2-3 years	• Home survivability	CSFS, BHR EMC, Property Owners	An HIZ assessment of the home and immediate surroundings will determine susceptibility to wildfire.
	H	2025	***Defensible Space*** • Reduce fuels minimum 100' from home • Utilize BHR Chipper Rental Program • Reassess every 2-3 years as conditions change	• Home survivability • Reduce fire hazard • Provide buffer space for firefighters to defend against approaching wildfire • Slow rate and intensity of wildfire	BHR EMC, Property Owners	Responding fire agencies will not commit resources to protect a structure that lacks adequate defensible space. HIZ assessment will address defensible space deficiencies. Property owners may consider applying for individual grants to develop their defensible space. The EMC offers support by seeking cost-share opportunities, offering the BHR Wood Chipper Rental Program, and providing HIZ assessments.
	H	2025	***Home Hardening*** • See Section 3.6.2 for home hardening tips	• Home survivability	Property Owners	HIZ assessment will address home hardening recommendations.

2025 Action Plan Project	Priority (H, M, L)	Action Timeline	Tasks	Desired Outcome	Responsible Parties & Partnerships	Remarks
	H	2025	***Firefighter Access*** • Increase horizontal/vertical clearance along driveway - Remove low hanging branches and reduce vegetation • Recommend fuel treatment 30' on either side of the driveway • Minimum 13' 6" height clearance • Minimum 12' width for driveways less than 150' long • Minimum 20' width for driveways more than 150' long • Driveways more than 150' long should have a turnaround	• Easy access for firefighters • Adequate ingress/egress	Property Owners	HIZ assessment will address deficiencies that limit firefighter access to property.
	H	2025	***Address Identification*** • Post reflective, non-combustible address sign at driveway entrance • Campers - Install reflective, non-combustible lot number sign at driveway entrance	• Better visibility for firefighters • Expedite firefighter response to homes and camps	Property Owners	Homes and camps that are easily identifiable will avoid confusion for first responders and expedite response time
	H	2025	***Emergency Notifications*** • Sign up for county emergency notifications • Sign up for BHR emergency notifications	• Early warning notifications to property owners	Property Owners	Property owners should consider signing up for all county and ranch alerts to ensure early emergency notification.
	H	2025	***Develop Family Evacuation Plan*** • See Ready, Set, Go! guide posted on BHR website	• Family safety • Eliminate confusion in emergency	Property Owners	Ready, Set, Go! provides strategies to protect families and homes against wildfire threat.
Evacuation Routes	H	2025	***Safety*** • Add signage along BHR evacuation routes	• Community safety • Swift evacuation	BHR POA BOD, BHR Road Committee, BHR EMC	Evacuation routes will be clearly marked with reflective signage.
	H	2025	***Evaluate Additional Egress Routes*** • Coordinate with local agencies to identify supplemental evacuation routes	• Options to evacuate on West and South ranch borders • Community safety in emergency evacuation	CSFS, HCFPD, BHR POA BOD, BHR Road Committee, BHR EMC	BHR will coordinate with CSFS to locate and establish additional reliable evacuation routes.

2025 Action Plan Project	Priority (H, M, L)	Action Timeline	Tasks	Desired Outcome	Responsible Parties & Partnerships	Remarks
Outreach & Educational Programs	M	2025	***BHR Community*** • Organize community mitigation workdays • Promote BHR Chipper Rental Program • Provide information to property owners to implement HIZ treatments • Promote emergency notification sign-ups • Increase HAM operators throughout BHR • Assist homeowners to secure personal grants	• Community-building • Provide property owners with fundamentals to mitigate and create defensible space • Reduce hazardous fuels and wildfire risk	CSFS, HCFPD, BHR EMC, Property Owners	Community engagement opportunities on BHR serve to promote fire awareness and safety.
	M	2025	***Firewise*** • Update Firewise certification yearly	• Increase wildfire readiness • Community-building • Access to funding • Insurance discounts	NFPA Firewise, BHR EMC, Property Owners	EMC will review Firewise requirements yearly to ensure certification.
	M	2025-2028	***Huerfano County Fire Protection District*** • Fire training sessions	• Safety for EMC fire responders • Continued outreach with HCFPD	HCFPD, BHR EMC, Property Owners	Research other fire training opportunities through HCFPD or Huerfano County Emergency Management that are beneficial to BHR and property owners.
Grants & Funding Assistance	H	2025-2028	• Apply for wildfire mitigation grants through state, federal and private sources	• Offset costs for mitigation projects	BHR POA BOD, BHR EMC	Fire mitigation grants are available for the BHR community and individual property owners. An approved CWPP may open additional grant opportunities for BHR.
CWPP Monitoring	M	2025-2028	• Yearly review • Five-year comprehensive review and update • Establish CWPP recordkeeping procedures • Add processes to BOD Policy & Procedures	• Track completed goals • Assess upcoming action items • Improve recordkeeping	BHR POA BOD, BHR EMC	Regular monitoring will allow BHR to evaluate achievements and deficiencies in the plan. This will provide valuable insight for future plans.

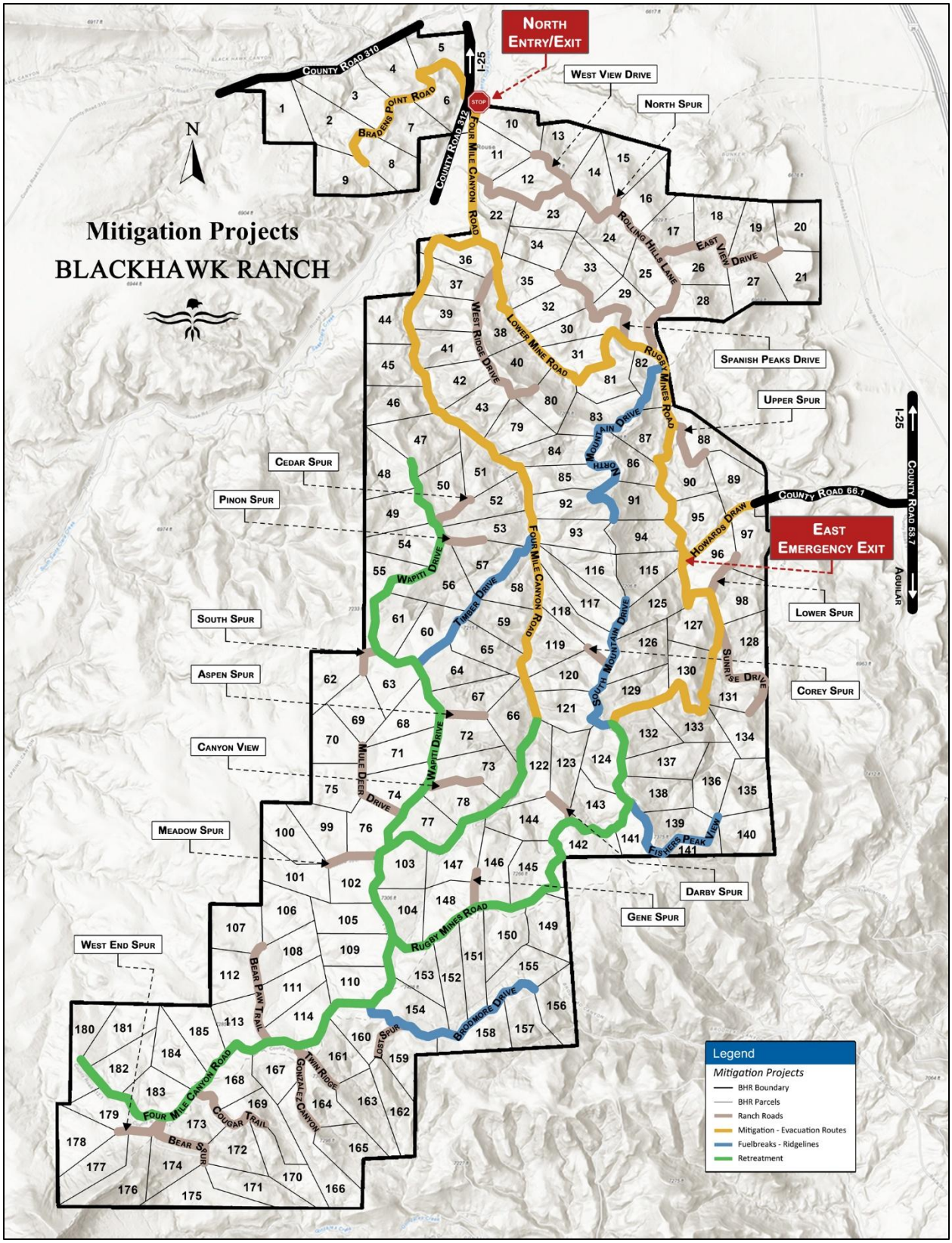

Figure 47. Action Plan Mitigation Map

5.2 MONITORING AND EVALUATION

Once a CWPP is adopted, regular monitoring is necessary to determine whether goals and objectives are being met. Although the HFRA does not impose specific CWPP monitoring requirements, an annual review is encouraged. This will determine which goals have been met and give the review team an opportunity to address upcoming challenges. A comprehensive review and formal update should be conducted every five years.

As resources, policies, and risk factors change, the CWPP must be updated to reflect those details. The team should consider applying an adaptive management strategy for monitoring and evaluating the CWPP. This will allow the team to validate the effectiveness of the plan and revise actions as needed.

The EMC is encouraged to collaborate with the POA BOD and establish clear procedures and timelines for monitoring the CWPP. The POA BOD should consider adding CWPP policies to Section 700 Emergency Management in the BHR Policies and Procedures Manual.

Following are recommendations for monitoring and evaluating the BHR CWPP:

- Evaluate what resources are needed and available to accomplish action items
- Establish clear timelines for regular CWPP reviews and major updates
- Review action items at EMC quarterly meetings
- Track accomplishments
- Identify why certain goals have not been met
- Identify and reevaluate wildfire risk following completion of projects
- Monitor local, state, and federal policy changes that may require CWPP modifications
- Review and record lessons learned
- Establish effective recordkeeping policies to document progress

ACRONYMS

AI	Artificial Intelligence
ARES	Amateur Radio Emergency Service
BHR	Blackhawk Ranch
BNSF	Burlington Northern and Santa Fe Railroad
BOD	Board of Directors
CDA	Colorado Department of Agriculture
CDOT	Colorado Department of Transportation
CO-WRA	Colorado Wildfire Risk Assessment
CO-WRAP	Colorado Wildfire Risk Assessment Portal
CR	County Road
CSFS	Colorado State Forest Service
CWPP	Community Wildfire Protection Plan
DRMS	Division of Reclamation Mining and Safety
EMC	Emergency Management Committee
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FCC	Federal Communications Commission
FMC	Fuel Moisture Content
FRWRM	Forest Restoration and Wildfire Risk Mitigation
HCFPD	Huerfano County Fire Protection District
HFRA	Healthy Forests Restoration Act
HIZ	Home Ignition Zone
IAFC	International Association of Fire Chiefs
IFC	International Fire Code
LEAP	Low-Income Energy Assistance Program
LVFPD	La Veta Fire Protection District
NFPA	National Fire Protection Association
NRCS	Natural Resources Conservation Service
NTSB	National Transportation Safety Board
POA	Property Owners Association
ROS	Rate of Spread
TRASE	Tree Removal Allowing Safe Evacuation
USDA	U.S. Department of Agriculture
VEC	Volunteer Examiner Coordinator
WFA	Wildfire Analyst
WUI	Wildland Urban Interface

GLOSSARY

Active Crown Fire

A fire in which a solid flame develops in the crowns of trees, but the surface and crown phases advance as a linked unit dependent on each other.

Aspect

Cardinal direction toward which a slope faces.

Chain

Unit of measure in land survey, equal to 66 feet (20 M) (80 chains equal 1 mile).

Crown Fire

A fire that advances from top to top of trees or shrubs more or less independent of a surface fire.

Dead Fuels

Fuels with no living tissue in which moisture content is governed almost entirely by absorption or evaporation of atmospheric moisture (relative humidity and precipitation).

Debris Flow

Hazardous flows of rock, sediment and water that surge down mountain slopes and into adjacent valleys

Defensible Space

The area around a home (or structure) that has been modified to reduce fire hazard by creating space between potential fuel sources.

Duff

The layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

Fire Behavior

The manner in which a fire reacts to the influences of fuel, weather, and topography.

Fire Intensity

The amount of energy or heat given off by a forest fire at a specific point in time.

Firebrand

Any source of heat, natural or human made, capable of igniting wildland fuels. Flaming or glowing fuel particles that can be carried naturally by wind, convection currents, or by gravity into unburned fuels.

Firebreak

A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Flame Height

The average maximum vertical extension of flames at the leading edge of the fire front. This distance is less than the flame length if flames are tilted due to wind or slope.

Flame Length

The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity.

Fuel

Any combustible material, especially petroleum-based products and wildland fuels.

Fuel Characteristics

Factors that make up fuels such as compactness, loading, horizontal continuity, vertical arrangement, chemical content, size and shape, and moisture content.

Fuel Continuity

The degree or extent of continuous or uninterrupted distribution of fuel particles in a fuel bed thus affecting a fire's ability to sustain combustion and spread.

Fuel Moisture Content

The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees F.

Fuelbreak

A natural or manmade change in fuel characteristics which affects fire behavior so that fires burning into them can be more readily controlled.

Ground Fire

Fire that consumes the organic material beneath the surface litter ground, such as a peat fire.

Hazard Reduction

Any treatment of a hazard that reduces the threat of ignition and fire intensity or rate of spread.

Home Hardening

The practice of reducing structural ignitability.

Home Ignition Zone

The area where the factors that principally determine home ignition potential during extreme wildfire behavior (high fire intensities and burning embers) are present. The characteristics of a home and its immediate surroundings within 100’ comprise the HIZ.

Ladder Fuels

Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease.

Long-Range Spotting

Large glowing firebrands are carried high into the convection column and then fall out downwind beyond the main fire starting new fires. Such spotting can easily occur 1/4 mile or more from the firebrand's source.

Mitigation Actions

Actions that are implemented to reduce or eliminate (mitigate) risks to persons, property or natural resources. Actions can include fuel treatments, creation of fuel breaks or barriers around critical or sensitive sites or resources, and vegetation modification and structural changes to increase the chance a structure will survive a wildfire with or without active protection (sometimes referred to as defensible space or the home ignition zone).

Passive Crown Fire

A fire in the crowns of trees in which trees or groups of trees torch, ignited by the passing front of the fire. The torching trees reinforce the spread rate, but these fires are not basically different from surface fires.

Rate of Spread

The relative activity of a fire in extending its horizontal dimensions. Usually it is expressed in chains or acres per hour for a specific period in the fire's history.

Short-Range Spotting

Firebrands, flaming sparks, or embers are carried by surface winds, starting new fires beyond the zone of direct ignition by the main fire. The range of such spotting is usually less than 1/4 mile.

Slope
The amount or degree of incline of a hillside.

Spot Fire
Fire ignited outside the perimeter of the main fire by a firebrand.

Spotting
Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.

Structural Ignitability
The likelihood the materials in and on your home will ignite during a wildfire.

Surface Fire
Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.

Surface Fuels
Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.

Timelag
Time needed under specified conditions for a fuel particle to lose about 63 percent of the difference between its initial moisture content and its equilibrium moisture content.

Torching
The burning of the foliage of a single tree or a small group of trees, from the bottom up.

Understory
The vegetation layer consisting of suppressed trees and shrubs beneath a dominant canopy.

Vertical Fuel Arrangement
Fuels above ground and their vertical continuity, which influences fire reaching various levels or vegetation strata.

Wildland Urban Interface
The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels.

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