

Salmon River Fire Safe Council

Black Bear Ranch Cooperative Fire Safe Plan 2002

Background

Salmon River Subbasin Fire History

The entire Salmon River watershed is at risk of catastrophic fire. One hundred plus years of fire suppression have had its effect on the fuels build up of the area. In 1911, the United States Congress passed the Weeks Act. Uncontrolled aboriginal and European settler burning practices and a severe fire year in 1910, particularly in the western U.S, precipitated this Act. The Act set up the collaboration between federal and state fire agencies for the purpose of systematically and efficiently suppressing forest fires. Since 1911, records show that 44% of the basin has burned. Suppression, coupled with an abnormally wet century (increased vegetation growth), and federal agency management activities (such as logging with insufficient fuel cleanup and silvicultural practices), have contributed to the increased fire risk and damage in our forests. The Salmon River watershed is one of the highest risk fire areas on the Klamath National Forest. It has a high natural frequency of lightning occurrence. In recent years the Offield Fire (1973) burned the area near the river confluence. The Hog Fire (1977) burned extensively in the lower North and South Fork watershed and in Nordheimer and Crapo Creeks. The total area was about 58,000 acres. In 1987, wildfires burned over 90,000 acres in four separate areas, covering much of the Salmon River subbasin, intensely re-burning many areas that had burned in the '77 fire. In 1994, the Specimen fire burned approximately 7,000 acres (3,045 acres within the LSR). A snow/wind storm in the winter of 1996 exacerbated the heavy fuels condition by breaking out the tops of trees and knocking trees over throughout the watershed. Previous years of drought and overstocking have also resulted in areas of heavy mortality. The conditions and threats in the watershed mandate that we identify needs and prioritize and complete projects in a timely manner to protect life, property, and this unique ecosystem. We must also reintroduce a natural fire regime to the Salmon River watershed. Suppression and fuels reduction activities are currently being used in the watershed. There is a critical need for more fuels reduction. As we look at the range of conditions and concerns, we can begin to piece together a cohesive strategy that will detail areas needing specific treatment or protective measures. The identification of priority areas will include the influence of these areas on each other and on adjacent areas – this will allow us to treat smaller areas that will have an impact on the larger landscapes in the basin.

Project Background

In 2001, the Salmon River Fire Safe Council (FSC) received a BLM grant from the Sacramento Regional Foundation. This grant calls for development of detailed fire and fuel management plans on three separate properties in the Salmon River watershed, and performance of some recommended fuel reduction activities on the project properties. The overall goals of the Plan and project activities are to: 1.) identify the current conditions of the property and adjacent land as they relate to fire. 2.) reduce fuels in the planning area to a safe level that will maximize safety and protection of life and property, while eventually allowing fire to resume a more natural role in the project area.

This is a cooperative planning document that suggestions fuels reduction activities that could protect life and property when future fires occur. This is not a binding agreement and no parties will be held responsible for not meeting any of the recommendations. In fact, it is expected that only some of the recommendations will be accomplished in the near future. However, this plan lays the groundwork for future fuels reduction activities and fire safe improvements when and if

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funding becomes available. This plan will help to procure funding for future fuels reduction and fire safing by prioritizing areas of work and possible prescriptions to be done in these areas. Land boundaries and other data layers (streams, roads, etc.) are approximate; inclusion of these layers in this plan does not constitute agreement by any parties involved in the planning process.

Black Bear Ranch Historical and Current Background

The Black Bear Ranch property was a mining town from 1862 until the 1950s, supporting the Black Bear Mine. The Black Bear Mine is up Black Bear creek to the northeast of the Ranch property. The town had it's own Post Office, sawmill, trading center, iron foundry, church, school, general store, and boasted a population of over 2,000 people at it's height. During the active mining years, the land on and surrounding the property was heavily impacted. Historic pictures show a very open and often treeless landscape. Wood was used for mining timbers, building construction, fuel, etc. In the late 1960s, the property was sold to a group of San Francisco hippies who established a commune on the property that still exists today.

The Black Bear Ranch property is a 70-acre parcel that is jointly owned by numerous people, formed as the Black Bear Family Trust. The property still has 2 historic houses, (John Daggett's Homestead and the original school house run by Hallie Daggett), as well as the original Black Bear Barn and what used to be the Black Bear general store. The ranch also has numerous cabins and several sheds and outbuildings. Other valued features include community water systems, two potential helispots and community safety areas, extensive gardens and orchards, and a county-maintained access road. In the commune's heyday, there were over a hundred residents. Fuel wood in the area was collected by the many people and goats free ranged, leaving an open and uncluttered forest. More recently, there are 3-15 residents, with 50-100 visiting on holidays and special occasions, especially during the summer and late fall.

Black Bear Ranch Fire History and Current Fuels Conditions

The 1987 lightening fires burned lightly through the property, on the east side of Black Bear creek and the south side of Callahan Creek. During this fire, Black Bear residents put in a fireline above the houses on the southwest side of the property as the fire was creeping down, saving the structures. The property is surrounded by publicly owned land. Large areas of medium and high intensity fire occurred below the ranch to the south and west in 1987 (3,681 acres). A number of clear cuts were created in late 1980s and early 1990s on the public land in the watershed below Black Bear Ranch. The 1987 fire, combined with logging, has created high-risk fuel areas below the Black Bear Ranch property. These high risk areas, and the fact that the steep and narrow county road is the only drivable emergency access or egress in case of a fire coming from below, makes for a very dangerous situation. With 140 years of occupancy, 35 years of woodcutting and maintenance, 20 years of goat grazing, and the absence of over-story removal for over 60 years the forest under-story on the property is quite clear. The forest can be generalized as mature, 2nd growth, conifer stands with scattered hardwoods, increasing on the south and west facing slopes. The under-story is clear of brush for the most part, however there has been an increase in dead and down in several small pockets on the property (see polygons #175 & 161). For the past 9 years there hasn't been a steady herd of goats at Black Bear Ranch. As a result, under-story vegetation has increased somewhat in forested areas, and encroachment of seedlings, brush, and other flammable vegetation has greatly increased in the open, meadow areas and along roads and streams.

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Emergency Response

In terms of emergency fire response, the Forest Service station at Sawyers Bar has a 280 gallon tanker that can respond within 35 minutes. The Salmon River Volunteer Fire & Rescue has a 160 gallon tanker that can respond within 35-100 minutes.

Methods

The purpose of the Black Bear Ranch Fire Safe Plan is to guide fuel reduction activities designed to create a future condition that will minimize the risk of loss of life, property, and resources from fire. This Desired Future Condition will mimic the historic fire regime while helping to protect high value residential and resource areas from future fires. The Plan is being developed using the Fire Plan Framework created by the Salmon River Fire Safe Council. This framework identifies these planning steps:

1. Identify existing information:
 - a. Identify Fuel Modification Zones
 - b. Evacuation Plan (Emergency Access)
 - i. Notification Procedures
 - ii. Guidelines for evacuation
 - iii. Availability of Emergency Services
 - iv. High risk individuals (i.e. medical concerns, age factors)
 - v. Location of Helicopter landings
 - vi. Location of Safe Areas in Neighborhoods
2. Identify High Risk Areas (also identify low and medium risk areas)
3. Identify Opportunities
4. Identify Water Sources for fire protection efforts
5. Update Pre-Fire Plan (Residential Risk Assessment)
6. Identify Resource Values and Prioritize (Assets at Risk)
 - a. Manmade
 - b. Cultural
 - c. Natural

A Fuel Modification Zone (FMZ) is any area being assessed for the benefit of reducing fire risk. Actions within a FMZ can include anything from no action, to shaded fuel breaks, to areas cleared to bare ground. The Salmon River FSC's fuel reduction prescription policy was used to prescribe ground fuel reduction activities; this prescription policy recommends distances and types of fuel reduction activities that need to occur in different areas.

The Black Bear Ranch property generally has slopes less than 50%, so the techniques mainly call for a standard Shaded Fuel Break that breaks up fuel continuity and the fuel ladder and leaves at least 60-100% canopy cover (if available). The theory of a Shaded Fuel Break is that thinning out flammable and overstocked vegetation in the understory, as well as dead and down fuel will reduce a future fire's ability to move through the forest with high (and destructive) flame lengths. It must be understood that a Shaded Fuel Break will not stop a fire, but will give suppression forces and landowners extra time for safely fighting the fire and accessing or evacuating the fire area. The trimming of the branches for 6-8 feet up the stem of the remaining trees will reduce a

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future fire's ability to climb the "Fuel Ladder" and burn the crowns of the remaining trees. Other variations on the standard Shaded Fuel Break will be used in some areas of the property.

The above steps are being accomplished by:

1. Creating a GIS (Geographical Information System) of Black Bear Ranch that will identify steps 1, 2, 3, 4, and 6 above.
2. Conducting a field visit with a planning team. The planning team consists of: Jim Villeponteaux, FSC Facilitator; Jim Bennett, Volunteer Fire & Rescue Fire Chief; Chris Love, Black Bear Ranch Resident; Ted Tsudama, CDF Siskiyou unit Vegetation Management Coordinator; Karuna Greenberg, Salmon River Restoration Council (SRRC) GIS Technician and former Black Bear Ranch Resident; and Rachel Galindo, SRRC GPS Technician. We will be meeting with the landowners this summer to go over the draft plan in person.
3. The field team looked over the Black Bear Ranch Property and made recommendations for what should be done to protect the high value areas and reduce fuels in the high-risk areas. The team also discussed recommendations for landowners' maintenance of their defensible spaces. The surrounding public property was discussed and recommendations were made for fuel reduction projects and fuel break construction on the public property portion of the Black Bear Ranch creek watershed.
4. The Forest Service Fuel Specialist, Mike Journey, was on a fire assignment when we conducted the field visit with the planning team. At our June 27th FSC meeting Jim Villeponteaux, FSC Facilitator, Petey Brucker, SRRC's Program Coordinator and Karuna Greenberg, SRRC's GIS Technician met with Mike Journey and discussed the field visit by the planning team and the priorities assigned to the private and surrounding public property. Journey made additional comments and recommendations.

Risks and Mitigation Measures

What are the specific risks affecting the Black Bear Ranch property and community?

Black Bear Ranch saddles Black Bear creek and lies at the bottom of the upper half of the watershed. This slope position is considered a high risk in terms of fire behavior. In general, the main threat to the Ranch comes from the burned and logged areas on the National Forest, that are adjacent to the property on the south and west sides (below the Ranch). On private property, the fuels are in relatively good condition, however there is a risk of a fire starting on the Ranch and moving out to the surrounding National Forest lands. The following describes, in detail, risks and potential mitigations on the private property and the public property surrounding Black Bear Ranch.

1. **Risk:** There are numerous stacked residences and cabins with potential ignition sources. These ignition sources include, indoor and outdoor cooking facilities, wood burning fireplaces for heat, ceremonial fires, kerosene lamps and candles for light, wiring and electrical system, cigarette smoking, and generators. These structures are constructed of wood with metal roofing for the most part, 3 buildings still have

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- shake/wooden roofing. A few of the structures have wooden porches and/or decks around them. These ignition sources have the potential to threaten public property.
- Mitigation Measures:** Wooden decks could be replaced with non-flammable materials. The underside of balconies and above ground decks could be enclosed with fire resistant materials. It is recommended that any future building projects rely on fire resistant materials where practicable. A quick fuels cleanup should be conducted within 75ft of the structures, especially those structures that have encroachment around them, removing any dead and flammable debris that have accumulated. The proposed 300' shaded fuel break on the public property adjacent to the Ranch property could help reduce the risk of a fire moving from private to public lands. New residents and visitors should be briefed on fire safe practices.
2. **Risk:** Maintenance of structures and high value areas varies depending on the number of residents and their skills. At times materials/junk and plants build up around structures creating a fire hazard and making safe access to the structures difficult. The current low occupancy at the Ranch has made fire-safety maintenance around all of the structures and associated high value areas difficult.
Mitigation Measures: This plan will help to prioritize high-risk areas at the ranch. The initial fuels reduction work, associated with this plan, will be done in the highest risk areas, this will jumpstart the residents fuels reduction efforts, and make maintenance easier. The Plan also explains the need to keep the area around each structure clear of flammable material.
 3. **Risk:** Residents change throughout time, knowledge of fire risks, hazards, and suppression measures and systems change as well.
Mitigation Measures: Instructions for fire-safe maintenance of structures and high value areas, a Suppression Plan and an Emergency Access Plan should be created and posted as necessary reading for new residents and visitors. Fire-safe and unsafe practices should be posted in appropriate locations and hazards should be well marked. (i.e. Fuels tanks should be marked with shutoff instructions, Fireline locations and maintenance needs should be readily available, etc.)
 4. **Risk:** The Black Bear Ranch property has heavy occupancy during fire season.
Mitigation Measures: Most residents are fire aware and are conscientious with their actions. Residents should have an emergency fire plans including suppression and evacuation plans in place. New residents and visitors should be briefed on fire safe practices, and fire drills could be conducted every six months or so.
 5. **Risk:** The grassy meadow areas contain highly combustible, flashy fuels in fire season.
Mitigation Measures: Meadows should be mowed and/or kept wet to reduce the chance of carrying fire. At minimum, cut, cleared, or greened buffers along the roads adjacent to the grassy meadow areas would greatly reduce the risk of road related fire starts. The common meadow areas can serve as safety zones for the residents and as potential, emergency helicopter-landing sites if the fuels are kept at a reasonable level during the dry season. Active ditches run above both meadow areas; these ditches could be used to flood the safety zones in case of emergency.

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6. **Risk:** There is a minimum amount of water storage on the property. There are three 500 gallon water tanks that are currently used for agriculture. There is an approximately 5,000 gallon plastic tank that is not currently set up. There are potential tanker fill sites at the ford directly below the main structures, and at the Argus creek culvert below the Gate House.

Mitigation Measures: An increase in the water storage at the Ranch could greatly improve the likelihood of the Ranch and its structure's survival in a future fire. Approximately 2,500 gallons of water storage is recommended for each residential area. The 5,000 gallon tank should be placed above the main residential and high value area. These tanks could be filled in times of excess water and should be plumbed to fire suppression systems (i.e. sprinklers on roofs, etc.) and/or tanker fills. The tanker fill sites should be assessed for functionality and improved if necessary when they are approved as sites.
7. **Risk:** The property is surrounded by densely forested National Forest lands on the east and north sides and dense brush intermixed with trees on the west and south sides.

Mitigation Measures: USFS Salmon River Ranger District personnel have indicated that they are interested in looking at fuels reduction activities in the area. Specifically, the team recommended a 300' shaded fuel break as a buffer surrounding the private property, road work (to make it passable for fuels reduction) and fuels reduction along the White Bear road (to the north and east of the property), and fire lines on strategic ridges within and surrounding the watershed. The Team also encourages cooperation with the Salmon River Ranger District on fuel reduction projects affecting the Black Bear Ranch watershed.
8. **Risk:** There is only one main emergency access &/or egress route from Black Bear Ranch to a main forest service road system. The county road access (1E001) comes in from the north, through the residential area, and ends at the bottom of the property. This is a narrow, steep road, originally constructed in the mining days; most of the road is in moderate condition, however, there is one narrow, bluffy area. In the past few years the Ranch has not had a dependable vehicle. There is a 5 mile trail alongside Black Bear creek that goes down to the South Fork of the Salmon, and a 1mile trail that goes up Marley Gulch and intersects the 39 road. These trails are used frequently by residents and visitors coming in and out of the Ranch, and without a vehicle, might be the preferred egress routes. Both of the trails are brushy and in need of maintenance.

Mitigation Measures: The main road system is in moderate condition. The county roads crew plows the road after major snow events, however, most of the maintenance is conducted by the residents on an as needed basis. It is wide enough for tanker access, and has several pullouts. Though the slopes adjacent to the county road are too steep to put a fuels reduction crew on in many areas, fuel reduction along this route, where applicable, would make access and egress safer. At the bottom of the property, the road continues 5,033 feet below the property, above the creek. At the end of this road the Black Bear trail continues on down the creek to the South Fork, Salmon River. With some work, the road could also allow emergency traffic access to

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Forest Service road 39N64 that goes to the South Fork at Mathews Creek. Both the lower road and trail should have fuels reduced to allow for safe use during fire emergencies. All of the emergency access routes, roads and trails, should be regularly maintained and kept free of rocks, fuels and debris.

9. **Risk:** Winter access is often difficult if not impossible during storms and snow events. The Black Bear summit, on the only vehicle access route, is a 4,000ft+ saddle that is often inaccessible during snowstorms until the county road crew plows it. If a fire were to start on or around the Ranch during one of these events it would be difficult for residents to get out, or suppression crews to access the property. In wood heated residences, like those on the Ranch, structure fires are more common in cold times of the year.

Mitigation Measures: Along with biannual fire-safety clearing of residences and potential ignition sources, residents should have could create a Structure Fire Evacuation Plan, and should conduct regular fire drills. Communication systems with neighbors should be improved. Availability of a landing site for helicopters has been identified, but should be okayed with emergency rescue providers, and any necessary improvements made. The county road crew should attempt to keep the road open as much as possible.

Planning Areas - Areas of Increased Consideration

High Value Areas

The areas we identified as high value fell into several categories:

1. Residence areas – we identified 8 cabin and 2 house sites within or directly adjacent to the property boundary (see map)
2. Community safety areas – two large meadow areas are identified on map; there are several other smaller areas
3. Community water systems – Irrigation & Pond: the Main House garden, orchard and grounds are irrigated from a ditch system, which takes water from Argus Creek and carries it along the road, on the upper side of the grassy knoll, to a cistern above the orchard, garden, and main house. The Middle Garden is irrigated through a 1.5” line from lower Marley Gulch to a tank above the garden. The meadow garden has a 2” PVC line from Callahan Creek that runs in the ditch for part of the way and is buried through most of the meadow. The pond is fed from the same point in Callahan Creek, through a pipe and then ditched to the pond; the tail-out of the pond returns to Callahan Creek.
Potable: The Main House water is piped from a spring box behind the house.
Hydro and Fire Safety: the electricity at the Ranch comes from a small hydro system. The hydro line is a buried 2” line from Marley Gulch to the hydro-wheel, located on the southwest side of the Main House, this line also feeds a hydrant located behind the Main House. The hydrant is equipped with 600 ft of fire hose.
4. Gardens and orchards – there are four main garden areas and two orchards. The use of the gardens varies with the fluctuation in residency – currently not all of the gardens area being used given the small population
5. Historic Sites – old sawmill, other historic buildings and sites are included in other high value areas

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Emergency Access Routes

Safe access to the property by emergency personnel, as well as egress by residents and other individuals, is a high priority for fire planning. The main county road, 1E001, drops 3 miles down into Black Bear from Black Bear summit. It is the best emergency access route because of the quality of the road. The county road from Black Bear leads to Sawyers Bar and the Forest Service road system that connects to Cecilville, and Forks of Salmon.

From Black Bear summit there are three main escape routes, they are as follows: 1) To Sawyers Bar – FS road 39N60 (tie-through) to 39N27 (Louis Memorial road) which becomes the County road 2E001 (Eddy Gulch road), this connects to the main county road on the North Fork (1C01) at Sawyers Bar. 2) To Cecilville – either FS road 39 (Six Mile road) southeast to the main county road on the South Fork (1C02) several miles above Cecilville, or FS road 39N23 (Bacon Rind road) south, this road connects to the main county road on the South Fork (1C02) at Cecilville. 3) To Forks of Salmon, FS road 39 road west above Blue Ridge and Godfrey Ranch (Picayune road), connecting to 1C02 just up the South Fork from Forks.) Etna, Callahan, and Highway 3 are upriver (southeast), via the North Fork or South Fork Salmon River; from Forks of Salmon, the county road down the mainstem leads to Somes Bar and Highway 96.

Below the Ranch, there is a tie in to a Forest Service road (39N64) that can be used as another Emergency Access Route (the tie in needs work and is not passable at present). The tie-in road presently functions as the beginning of a foot trail that follows Black Bear creek down to the South Fork of the Salmon. This trail is currently used as an Emergency Access Route.

High Risk Areas

Fire risk is defined as the fuel loading in an area combined with other factors (i.e. ignition sources, slope, aspect, and elevation). We identified areas with various levels of fire risk. These areas are identified on the GIS map as colored polygons. Each polygon is numbered and has a team-assigned priority. These areas overlap with other area types as fuel reduction and/or maintenance activities will be performed on most of these areas (residential, water system, and safety zone).

Plan Recommendations

Suppression, Prevention, Restoration, and Maintenance Recommendations

Reducing fuels within the property will help protect structures from burning when a fire comes onto the property, but fire can still threaten yard and house. There are many things you can do to reduce the risk of households catching fire.

Some suggestions on how to make your home more fire safe:

- keep grass short and/or green in meadows and community safety areas
- upgrade water storage (Risks & Mitigation Measures # 4), store sufficient water for house protection in case of community water system failure
- add hydrants to this emergency fire water system for suppression and potential tanker fills
- roads should be wide enough to accommodate firefighting equipment, have turnouts for traffic, be well maintained; i.e.: clear of rocks and other obstacles; and road sides should be clear and free of highly combustible fuels

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- consider quarterly fire drills so everyone knows what to do in an emergency – this may also provide indications of areas that need work
- buildings should be made of fire-resistant materials whenever possible
- structures should be 30-50 feet from flammable tree species
- update the residential risk assessment
- install sprinkler systems to protect houses in case of fire. These systems would ideally come from a water storage system to insure protection even if the main water system fails
- cover eaves, leaving only a few well screened ventilation openings, to prevent embers from lodging there in a fire
- select fire-resistant vegetation for landscaping, and keep the ground 30-50' from structures clear or green
- maintain the grassy and landscaped areas around structures on an annual basis to refresh their fire-resistant properties
- target firewood gathering in areas with higher fuels concentrations and increased dead and down material (and clean up areas where firewood is collected)
- continue old Black Bear tradition of moving ceremonial sweat lodges along creeks to reduce fuel in these zones
- create a Structure Fire Evacuation & Suppression Plan for all structures
- create guide to fire safe and unsafe practices at Black Bear Ranch and go over these practices with visitors and new residents
- create a fire shed (preferably out of fire proof and/or fire resistant materials) that would house fire tools, water pump, emergency fire equipment (such as fire shelters, oxygen, etc.), and a copy of the Structure Fire Evacuation & Suppression Plan for all structures

Other suggestions for making your home fire safe are listed in the CDF Brochure: *“Fire Safe, California”*.

A USFS Fire Prevention Specialist would be glad to personally visit the property and give specific recommendations for fire safe building, fuel storage, water storage, and fire safe landscaping.

Risk Area Priorities and Recommendations

The field planning team identified specific locations and made recommendations intended to decrease the risk of future fires destroying homes and other high value areas. The Priority map shows areas within the property that have been prioritized by the team.

1. The red-shaded areas are the #1 (highest) priority for action. They are along the emergency access routes, a 300' buffer around the property on public land, and include the residence areas. Another #1 priority site is on the southwest corner of the property (polygon # 161). The road to White Bear Mine (polygons 183, 213, 341, and 342) would also make a great shaded fuel break for fire safety and suppression. The 1st priority polygons will use a standard shaded fuel break. The distances along the roads for treatment are 150' above the road and 200' below the road, where practicable. In residence areas, the ground 30-50' from structures needs to be clear or kept well watered and green. These fuel breaks will be more open and interspersed with the existing landscaping. These areas will also be kept well watered and green.
2. The tan-shaded areas on the map are the 2nd priority. Long-term occupancy, grazing, and 87 fire low intensity burning have removed much of the fuel for firewood and left most of

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these areas in relatively good shape. Polygon # 175 does have higher fuel loading. All of the Priority 2 areas should be treated using a standard shaded fuel break.

3. The yellow-shaded areas are the 3rd priority. These include areas adjacent to 1st priority residential areas (polygons 188, 190, 191, 319, and 218). These areas should have a standard shaded fuel break.
4. The powder blue-shaded areas are the 4th priority. These include an area east of Black Bear creek on the property (polygon # 189). This area is fairly clean and not a heavily used area. We recommend using a standard shaded fuel break technique for this area. Other areas in the burned areas below the Ranch on public property are also 4th priority. These areas are more extensive and have heavy fuel loading, and may use a variety of techniques, such as strips of standard shaded fuel breaks, reduction of jackpot fuels and plantation thinning and fuel treatment.

Maintenance

The Black Bear Ranch Landowners need to consider a maintenance schedule for any fuel reduction activities completed on the property. These maintenance activities may include annual fire safe landscaping near residence areas, annual grassy meadow cutting and/or greening, ongoing water system maintenance and upgrade, and periodic maintenance of standard shaded fuel breaks. The standard shaded fuel breaks can be kept up with quick annual or biannual maintenance, but there will probably be a need for more labor-intensive maintenance every 5 to 10 years. Funding may be available for the 5 to 10 year maintenance activities. We encourage the landowners to stay involved with the Salmon River Fire Safe Council for upcoming information and opportunities. Because most of the Ranch is forested and has a full canopy with little to no underbrush, maintenance should be easy and fuels reduction work should be relatively long lasting in forested areas.

The open meadows and roadsides would benefit from yearly maintenance to keep back encroaching seedlings and brush. Maintenance could be accomplished through activities such as firewood gathering, livestock grazing, trail maintenance and/or annual burning. Maintenance is important for long-term success of fuels reduction activities, and therefore it is highly recommended, however, the landowners are not bound to doing this maintenance.

Conclusion

In conclusion, the Black Bear Ranch property is at high risk of being burned over in a wildfire. The houses lie at the bottom of the upper half of the watershed. This slope position is considered a high risk in terms of fire behavior. Access would be particularly threatening in the case of a fire coming from above. The defensible space on the Black Bear Ranch property can be improved with fuel reduction, maintenance, the use of fire-resistant building materials, and water storage improvement. There is also a good opportunity for coordination between the landowners and the Forest Service on mutually beneficial activities. Landowners' are encouraged to update this plan every 5 years for changes and accomplishments.