

Salmon River Fire Safe Council Rainbow Cooperative Fire Safe Plan

Background

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. A major heavy 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.

Rainbow Historical and Current Use

The Rainbow property is a 254-acre parcel that is jointly owned by Mr. And Mrs. Richard Watts and Rita Watts. The property has 4 home sites and 4 large shop buildings. Other valued features include two water systems, a potential helispot, and access roads. No fires have

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burned on the Rainbow property boundary since 1911, except for part of a 1,767 acre fire in 1917 that burned the lower east side of the property. Fire starts around the property have been mainly lightning caused, except for near the North Fork Salmon (downslope from Rainbow) where there have been fires started from campfires and debris burning. The property is surrounded by publicly owned land, and on the south side, two 3-acre private parcels, a 1-acre private parcel, and a 0.5 acre private parcel. A number of clear cuts were created in the 1970s through the 1990s on the public land in the Rainbow watershed. The Rainbow property was logged (partial cut) in the 1990's.

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 Rainbow 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 protecting 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

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- 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 SRFSC'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 Rainbow property has slopes less than 100%, 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 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 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. An excavator with a masticating head may be used in areas with less than 40% slopes to thin out smaller, over-stocked trees and vegetation, while leaving a layer of chips on the ground.

The above steps are being accomplished by:

1. Creating a GIS (Geographical Information System) of Rainbow 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: Dick Watts, property owner; Andy McBroom, local resident; Jim Villeponteaux, FSC Facilitator; Mike Journey, US Forest Service Fire Management Officer, Paige Davidson, US Forest Service Fuel Specialist; Karuna Greenberg, Salmon River Restoration Council (SRRC) GIS Technician; and Donald Flickenger, National Marine Fisheries Service Natural Resource Management Specialist.

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We will be meeting with the landowners more this summer to go over the draft plan.

3. The field team looked over the Rainbow 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 Rainbow watershed.

Risks and Mitigation Measures – What are the specific risks affecting the Rainbow property and community?

1. **Risk:** There are numerous stacked residences and shops with potential ignition sources. These ignition sources include, indoor and outdoor cooking facilities, wood burning fireplaces, kerosene lamps, welding equipment, and generators. These structures are constructed of wood with metal roofing for the most part. Many of the structures have wooden decks around them. The structures at Rainbow are old and several of them are beginning to fall apart, which could pose a fire and safety risk. One of the houses and the main water storage tank near by has had major vegetation encroachment upon it. These ignition sources have the potential to threaten both private and public property.
Mitigation Measures: The main residence is well maintained, with open areas surrounding it and well spaced, limbed trees. The other structures are in various degrees of disrepair. Maintenance of these structures and their grounds could reduce the risk of fire starts and hazard to people. Wooden decks could be replaced with non-flammable materials. The underside of balconies and above ground decks should 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 150' shaded fuel break to the north of residential areas and upper road 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:** The Rainbow property and the properties below Rainbow are occupied during fire season. The adjacent

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property owners often have groups of people up to camp out during fire season. A fire started on these properties is a severe threat to Rainbow.

Mitigation Measures: Rainbow residents and adjacent property residents are fire aware and are conscientious with their actions. They should be encouraged to participate in fuel reduction programs available to them – reducing fire risk on their property will also reduce the risk to Rainbow. Residents should have an emergency fire plan including suppression and evacuation plans in place. New residents and visitors should be briefed on fire safe practices.

3. **Risk:** Although the landowner cleaned up more of the logging slash than was required by law, most of the logged areas contain highly combustible logging slash.
Mitigation Measures: Slashy areas should be cleaned up to reduce the chance of carrying fire, especially those areas that were logged below the residential areas. At minimum, buffers along the roads adjacent to the slashy areas should be cleared of flashy fuels, this would greatly reduce the risk of road related fire starts. Some key skid trails should be cleared of slash – the skid trails could then be used as firelines to isolate fireheds for treatment such as pullback and underburning.
4. **Risk:** The water line covers a great distance from its source/intake on the public property, to the end. Though the line is buried, the distance and severe terrain may add to the possibility of something interfering with the normal operation of the system.
Mitigation Measures: Water system should be periodically checked for problems and repaired as needed. Water storage should be increased on the property for use upon water system failure.
5. **Risk:** There is water storage on the property. There is one 10,000 gallon redwood tank above the houses. Below the larger tank is a 1,700 gallon tank that is kept filled for fire emergencies. Though the water storage is good, the 10,000 gallon redwood tank is old, and has vegetation encroaching upon it.
Mitigation Measures: The 10,000 gallon tank should be replaced with a newer metal or plastic tank that can hold water in case the water system fails. These tanks should be plumbed for fire fittings as well as standard pipe. It would

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also be good to have a dedicated line down to the road for filling fire tankers. Also, at the bottom of the Rainbow property, there is an old large diameter pipe coming from a dam on South Russian creek. This system used to go to a power plant. It still can provide a great amount of water and should be plumbed for filling fire tankers. The landowner may want to put in a large storage tank at this location.

6. **Risk:** The property is surrounded by densely forested and brushy National Forest lands. There are patches of dead timber located all around the property.
Mitigation Measures: USFS Salmon River Ranger District personnel have indicated that they are interested in looking at fuel reduction activities in the area. Specifically, the team recommended a shaded fuel break as a buffer along the emergency access routes, and shaded fuel breaks on the ridges surrounding the watershed. The Team also encourages cooperation with the Salmon River Ranger District on projects affecting the Rainbow watershed.

7. **Risk:** There is only one emergency access &/or egress route. The road access comes in from the southwest and switchbacks uphill through the property.
Mitigation Measures: This main road system is in good condition. It is regularly maintained, wide enough for tanker access, and has several pullouts. Safety needs to be increased by treating fuels along the road – 150’ above the road and 200’ below the road, where practicable. An excavator with a masticating head can be used along the road to initially fire safe the road. The excavator can reach approximately 20’ from the road. Switchbacks can be used to underburn interior areas, increasing the safety of the access route, and decreasing the risk of future fires.

8. **Risk:** There are numerous diesel, gas and propane fuel tanks and barrels, compressed air and other debris that could pose a threat to residents, fire fighters and others in the case of a fire.
Mitigation Measures: Content should be identified. Tanks, barrels, and other debris should be disposed of in the appropriate manners.

High Value Areas

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

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1. residence areas – we identified 4 active and/or potential residential areas within the property boundary (see map)
2. community safety areas – one large “Landing” area is identified on map; there are several other smaller areas and there is an abandoned mining shaft (see map)
3. water system and storage

Emergency Access and Egress 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 road (40N54 and 40N54.4) is the only emergency access route. Sawyers Bar, Forks of Salmon, Somes Bar and Highway 96 are downriver (west) of Rainbow; Etna and Highway 3 are upriver (northeast), via the North Fork Salmon River. We have identified the primary access road into the property and to the individual living areas (see map) as Emergency Access routes.

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).

Suppression, Prevention, 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 your yard and house. There are many things you can do to reduce the risk of your buildings catching fire. Here are some suggestions on how you can make your home fire safe:

- store sufficient water for house protection in case of community water system failure
- 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
- plan for an emergency situation – have a plan, map, and signs ready in advance
- consider annual fire drills so everyone knows what to do in an emergency – this may also provide indications of areas that need work

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- buildings should be made of fire-resistant materials whenever possible
- structures should be 30-50 feet from flammable tree species
- update 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 on an annual basis to refresh their fire-resistant properties
- water system – upgrade exposed PVC pipe to metal or High Density Polyethylene pipe to prevent breakage and melting, and clear hazard trees and branches that could fall on line

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 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 priority (highest). They are around the residences on the property and along the single emergency access route on private and public property. The ground 30-50' from structures needs to be clear or kept well watered and green. In #1 priority polygons areas away from structures, the standard shaded fuel breaks will be used. The 1st priority polygons include numbers 242, 227 (on public property), and 228. Polygon # 244 is the emergency access route on public property from the Forest Service road 40N54. As identified in other parts of this plan, the emergency access route is the only access and therefore critical to the safety of residents and emergency responders. The firebreaks identified on the maps are also a number 1 priority. Fuel directly on these firebreaks (old skid trails) will be piled and burned. These firebreaks can then be used to break up the landscape into

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- firesheds. Future fuel reduction in these somewhat isolated firesheds may include winter underburning by the landowner.
2. The tan colored-shaded areas on the map are the second priority. These areas include a 100-150' standard shaded fuel break above and below the auxiliary roads on the southwest and southeast areas of the property (polygons 236 and 239). An area to the east of the emergency access route and below the "pigeon Shoot" access road is also considered the second priority (polygon 248). These areas should be treated as a standard shaded fuel break.
 3. The yucca yellow-shaded areas are the third priority. These include areas adjacent to first priority areas (polygons 240, 249, 250, 251, 252, 256, and 261). Polygon 261 is above the residences and adjacent to the water storage tanks. This should possibly be considered the highest in the third priority class. We recommend using a standard shaded fuel break technique for these areas.
 4. The powder blue-shaded areas are the fourth priority. These include areas close to the well-used residential area (polygons 253 and 260). Polygons 257, 258, and 259 round out the identified work areas and are also fourth priority. We recommend using a standard shaded fuel break technique for these areas.
 5. The apple dust green-shaded areas are the fifth priority. These include the area upslope to the ridge from the residential areas (polygon 262), a small polygon on the southeast corner, on the other side of the creek (polygon 265), and another area on the other side of the creek at the southeast corner (polygon 264). We recommend using a standard shaded fuel break technique for these areas.
 6. The fern green-shaded area is the sixth priority (polygon 263). This area is located on the north facing slope of the property on the other side of the ridge. There is limited access to this part of the property. We recommend treating jackpot fuels in this area.

Maintenance

The Rainbow 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, ongoing water system maintenance and upgrade, and periodic maintenance of standard shaded fuel breaks. The standard shaded fuel breaks can be kept up with an annual maintenance, but there will probably be a need for more labor intensive maintenance every 5 years. Funding may be available for the 5 year maintenance activities. We encourage the landowners to stay involved with the

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Salmon River Fire Safe Council for upcoming information and opportunities.

Conclusion

In conclusion, the Rainbow property is at high risk of being burned over in a wildfire. The houses are near the top of the ridge with much fuel below. Access and egress would be particularly threatening in the case of a fire coming from below. The defensible space on the Rainbow property and access/egress, 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.