

Salmon River Complex

CA-KNF-005561

Strategic Operations Plan

as of 08/10/13



Introduction

This strategic operations plan outlines the long-term management of the Salmon River Complex located on the Salmon River District of the Klamath National Forest. The strategic operating plan links strategic goals and objectives to tactical goals and objectives. It can help identify milestones, goals, objectives, and actions which all can be monitored to determine progress of the overall plan. The strategic plan can help define: where are we now, where do we want to be, how do we get there, and how do we measure our progress.

Five fires were ignited on July 31, 2013. Three of the fires were contained, while two fires; Boulder and Shelly, are still actively burning and are formally called the Salmon River Complex. The fires are likely to be a long-term event due to steep, rugged and largely inaccessible terrain coupled with current and expected weather and fire behavior. Past experiences and climatology records of the Salmon River drainage indicate a season ending fire event may not occur for a couple months.

Current fire suppression efforts include a combination of direct, indirect and point suppression tactics to take advantage of opportunities that provide for a high probability of success. The complex is utilizing a full suppression strategy. The intent of the strategic operating plan is to further build on opportunities that will provide for the highest probability of success for the duration of this incident.

To successfully manage and communicate the CA Interagency Incident Management Team – Team 1 developed the strategic operating plan. This tool can be used for informing and planning of ongoing suppression efforts as well as a communication tool for agency administrators, public information, and/or information for incoming incident management teams.

Objectives

Develop a strategic operating plan to assist in the short-term and long-term management (strategic and operational) of the Salmon River Complex.

Gather intelligence from the local public and fire agency resources including partners to provide a more robust knowledge/dataset of the area.

Produce timely products to assist the incident management team and agency administrators in the decision making process.

Develop a product that can be used as a communication tool for the concept of:

- The right plan, in the right place, at the right time, with the right assets, and for the right duration

Management Action Points

Management Action Points (MAPs) are mapped locations where the fire's leading edge may reach. They are places where fire's arrival identifies a specific fire mitigation action to limit fire spread, to protect values at risk and when to provide updated information. Each MAP's description recommends the number and kinds of operational resources needed to accomplish the mitigation. MAPs can be accomplished sequentially or simultaneously, allowing for better utilization of resources.

MAP actions may be initiated at the discretion of an incident management organization. Implementation *should not* occur without consideration of current and predicted weather and fire behavior, and of other factors influencing the Salmon River Complex fires and their management. These factors will determine the need for implementation of the management actions as well as drive the location, urgency, and intensity of the actions.

All firefighting resources listed in MAP descriptions should be considered as recommendations only. In order to be safe and effective, Incident Commanders and other fire managers need the flexibility to use any tactical resources needed to meet the objectives of managing these fires. They should give careful consideration to geographic area preparedness levels and draw-down levels. **All fire management actions must be based on current and expected fire behavior, including in light of the time of year and season.**

As needed in response to the changing fire situation, it is important to update the plans in this document. The Boulder and Shelly fires will grow in size and/or complexity during the rest of the fire season. New fires may start. The Butler Fire northwest of Forks of Salmon is likely to continue to spread. Any of these fires may influence each other. In response to all of these changes, fire managers should reassess this document's contingency plans. Each day's operational priorities and planned strategic and tactical actions should be assessed in light of the location of fire's leading edge relative to MAPs. Add new MAP's or change existing ones as needed.

Management Action Point 1: **Sawyers Bar Road**

Physical Location of MAP:

South of the fire's current perimeter

Sawyers Bar Road from Idlewild to the Forks of Salmon; and the dozer line already completed just north of the community of Sawyers Bar.

Condition: The Sawyers Bar Road MAP has already been reached; Fire is well established on the north side of the Sawyers Bar Road. The details about this MAP that follow therefore describe actions already underway.

Sawyers Bar Road is serving as a primary line to keep fire north of the North Fork Salmon River and the local community's main road system.

Values to Protect:

Structures and private property. Approximately 200 people live along the River between Mulebridge and Forks of Salmon, with the highest concentration in Sawyers Bar. Their homes are at stake.

Municipal watershed for Sawyers Bar. Potential degradation after a fire includes heavy silt entering filtration plants that purify domestic-use water.

Related to the River,

Loss of recreation opportunities, especially rafting, due to closures

Long-term loss of visual beauty. The Salmon River is designated as Wild and Scenic.

Habitat for Coho salmon and other sensitive aquatic species, which could be degraded by increased siltation and turbidity, warmer water due to lost streamside vegetation, and changed water chemistry.

Campground improvements, and shorter-term loss of recreational camping opportunities due to closures

Historic mining structures. Especially valuable concentrations exist near Tanners Peak and in Jackass, Tanner, Rattlesnake, and Eddy Gulches.

Economic benefits of possible timber sales, and ecological benefits of possible timber sales and fuels treatments. Sales and low-intensity prescribed fires near the wildfire would not occur. Also other sales elsewhere on the district could not rapidly be substituted because in recent years some of the extensive NEPA work required before project implementation has focused on several large project areas near the Shelly and Boulder fires.

Viability of sensitive plant populations. As an example, an uncommon lady's slipper grows in the area.

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Actions:

Completed actions include construction of a dozer line just north of the community of Sawyers Bar.

Complete preparation of vegetation along Sawyers Bar Road to minimize likelihood fire will cross the road.

Extinguish any spot fires or slopovers as quickly as possible.

Provide structure protection and follow structure protection and evacuation plans as needed.

Probability of Success: High. Numerous suppression resources are working near Sawyers Bar Road. Both day and night shifts are established. Fire modeling shows growth to the north and east is most likely, with some potential of slopovers or spot fires in other directions. However, Sawyers Bar Road has been prepared to increase the likelihood of success. Also, with resources on scene there is a high likelihood of catching any slopovers or spot fires.

Consequences of Not Taking Action:

A much larger and more expensive fire

Likely private property damage and loss of structures

Increased threat to natural, historic, and cultural resources

Loss of value to current and ongoing NEPA projects and investments

Longer period of poor air quality

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]

Notifications:

Agency Administrator

Forest fire duty officer

Resource advisors

Siskiyou Sheriff

California Highway Patrol

Office of Emergency Services

Red Cross

Community liaison

Community of Sawyers Bar. A public meeting should be considered.

Godfrey Ranch, Blue Ridge Ranch, Black Bear Ranch

Eddy Gulch neighborhood

Eddy Gulch Lookout

Resources:

4 strike teams of engines

6 hand crews

2 dozers

4 water tenders

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- 4 pairs of fallers
- 1 type 1 helicopter
- 2 type 2 helicopters
- 1 division supervisor
- 1 task force leader
- 1 line safety officer

Cost [to be completed later, for each recommended action]:

Management Action Point 2: **Picayune Ridge System and west of 39N21**

Physical Location:

Southwest of the fire's current perimeter

Area north of Picayune Ridge from Forks of Salmon to Blue Ridge Lookout and south of North Fork Salmon River; and west of 39N21 road.

Condition: Fire has crossed south of Sawyers Bar Road, south of the North Fork Salmon River and west of the 39N21 road system or threatens to cross the MAP and cannot be contained or controlled in the next operational period. The 39N21 road is also known as Smith Ridge Road.

Values to Protect:

Emergency access routes for Sawyers Bar. The community has established alternative ingress and egress routes for use during emergencies that close the Sawyers Bar Road. Closure of alternate routes leaves people more vulnerable to severe consequences if the primary road also becomes compromised.

Plantations, planted stands of timber trees

Dispersed campgrounds

Critical spotted owl habitat

Deer winter range

At Mud Lake, habitat for a shrimp, which is an isolated population far removed from the species' core range.

Structures and private property*

Portions of the municipal watersheds for both Sawyers Bar and Forks of the Salmon*

Values related to the River*

Historic mining structures*

Benefits of possible timber sales and fuels treatments*

Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

Construct fireline on the Picayune ridge system.

Develop a structure protection plan and evacuation plan for Godfrey Ranch, Blue Ridge Ranch, and any other structures likely to be threatened.

Probability of Success: Moderate. There has been no significant fire in this area since 1987. Fuels are continuous. The fire could grow significantly, including long-range spotting if

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established south of the North Fork Salmon and modeling suggests some probabilities of spot fires. The terrain is only moderately accessible and is steep and rugged. On the other hand, some major ridgelines might be effective places to stop fire spread.

Consequences of Not Taking Action:

- A much larger and more expensive fire
- Likely private property damage and loss of structures
- Increased threat to natural, historic, and cultural resources
- Loss of value to current and ongoing NEPA projects and investments
- Longer period of poor air quality

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

Same as for Sawyers Bar MAP

Resources:

- 6 strike teams of engines
- 8 hand crews
- 4 dozers
- 6 water tenders
- 4 pairs of fallers
- 1 grader
- 2 type 1 helicopters
- 4 type 2 helicopters
- 2 division supervisors
- 2 task force leaders
- 2 resource advisors

Cost [to be completed later, for each recommended action]:

Management Action Point 3: **Deadhorse (primary); Pollock (alternative); Swans (contingency)**

Physical Location:

West of the fire's current perimeter

Ridge west of Dead Horse Gulch; ridge east of Pollocks Gulch and east of Swans Gulch from Yellow Jacket Ridge to Sawyers Bar Road.

Condition: Use the Deadhorse ridge system as an indirect line to stop fire spread to the west. Pollock and Swans ridge systems are designated as alternative and contingency plans respectively.

Values to Protect:

Dispersed campgrounds

Plantations

Private property and structures*, especially those along the North Fork Salmon River, and Forks of Salmon community

Portions of the municipal watershed for Forks of the Salmon*

Benefits of possible timber sales and fuels treatments*

Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

Begin line construction on the Deadhorse ridge system as an indirect fireline.

Construct handline on the Pollock Ridge system as a contingency plan.

If fireline on the Deadhorse ridge system fails, construct fireline on the Swan Ridge system or prepare the 40N51 road ridge system.

Scout for other opportunities to locate fireline, such as more direct fire line construction if conditions present themselves for doing so safely.

Blackline along Yellow Jacket Ridge as time and weather permits.

Probability of Success: High. During its first week the fire has actively backed to the west, toward the Deadhorse ridge system. Indirect fireline is already in place. Also fuels become less continuous west of the fire, increasing the likelihood of success. The alternate and contingency plan ridge systems are also good holding features, giving a higher likelihood of success in keeping the fire east of Forks of Salmon.

Consequences of not taking action:

The fire could burn homes and other private property in the Forks of Salmon community and nearby residences.

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It could burn campgrounds, road access, Wild and Scenic River Corridor, plantations, domestic water-source, and active NEPA projects. Cultural, historic and natural resources could be negatively affected.

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

Agency Administrator
Forest fire duty officer
Resource advisors
Siskiyou Sheriff
California Highway Patrol
Red Cross
Office of Emergency Services
Community liaison
Forks of Salmon and nearby communities. A public meeting should be considered.

Resources:

3 strike teams of engines
3 hand crews
4 water tenders
3 pairs of fallers
1 grader
1 division supervisor
1 task force leader
1 line safety officer
1 security officer

Cost [to be completed later, for each recommended action]:

Management Action Point 4: **Yellow Jacket Ridgeline**

Physical Location:

Northwest of the fire's current perimeter

Yellow Jacket Ridgeline from Pollocks Gulch, past Crapo Mountain until ridgeline ties into Little North Fork Trail.

Condition: Use Yellow Jacket Ridge to prevent fire moving to the north-northwest.

Suppression actions may be either more or less difficult due to the proximity to the Butler Fire.

Values to Protect:

English Peak Lookout

Tom Taylor Cabin, in Marble Mountain Wilderness

Permittee's cabin in Crapo Meadows

Private property at Smith Lake

Range allotments

Wilderness recreational opportunities, affected by closures of Wilderness areas

World's largest incense cedar

Spotted owl habitat

Tree plantations

Campgrounds, both dispersed and Wilderness

Local income from outfitter-guide services in any areas closed to public access.

Portions of the municipal watersheds for Forks of the Salmon*

Habitat for sensitive aquatic species*

Historic mining structures*

Benefits of possible timber sales and fuels treatments* on Yellow Jacket Ridge

Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

Use Yellow Jacket Ridge and its road system to construction direct and indirect line construction. Likely actions will include igniting along the ridgeline as needed to ensure head fires do not push ridge system, and to have desired fire effects of low severity.

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Probability of Success: High. The Jake Fire in 2008 burned up to Yellow Jacket Ridge from the north. The Jake fire footprint in conjunction with the dominant Yellow Jacket Ridge system gives a high likelihood of success.

Consequences of Not Taking Action:

Fire could get established into Crapo Creek, which is a domestic water-source. Fire could potentially impact private property and structure near or within the Forks of Salmon. Investments such as plantations and on-going NEPA projects could be negatively impacted. Range allotments would likely be affected.

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

Agency Administrator
Forest Fire Duty Office
Office of Emergency Services
Siskiyou Sheriff
California Highway Patrol
Red Cross
Permittee of range allotment
Community liaison
Community of Forks of Salmon
Resource advisor

Resources:

3 strike teams of engines
8 hand crews
3 dozers
4 water tenders
2 pairs of fallers
1 grader
2 type 1 helicopters
1 type 2 helicopter
2 division supervisors
2 task force leaders
2 line safety officers
2 resource advisors

Cost [to be completed later, for each recommended action]:

Management Action Point 5: **Sauerkraut Ridge**

Physical Location:

Northwest of the fire's current perimeter

Ridgeline that connects Nordheimer Flat to Sauerkraut Peak to Chimney Rock.

Condition: Fire gets established in the Crapo Creek drainage.

Values to Protect:

Campgrounds

Local income from outfitter-guide services in any areas closed to public access.

Structures and private property* near Nordheimer Flat

Values related to the River*

Benefits of possible timber sales and fuels treatments*

Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

Construct line on the Sauerkraut ridgeline.

Provide structure protection, and develop structure protection and evacuation plans.

Probability of Success: High. This area burned during the Jake Fire of 2008. The fuels are still light enough to serve as a moderately effective barrier to fire spread. This is a dominant ridge system and become very sparse with vegetation in the upper portions of the ridge system serving as natural barriers to fire spread.

Consequences of Not Taking Action:

Fire would become a much larger and costly event.

Additional disturbance would increase sediment to the stream. Crapo Creek has burned in 1977, 1987 and 2008 and is already above cumulative watershed effects for sediment.

There is active management of plantations in the drainage that would likely have high mortality if fire were to burn through.

Air quality would likely stay poor for longer.

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

Agency Administrator

Forest fire duty officer

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Resource advisor
Community liaison

Resources:

- 4 strike teams of engines
- 6 hand crews
- 2 dozers
- 4 water tenders
- 4 teams of fallers
- 1 type 1 helicopter
- 2 type 2 helicopters
- 1 division supervisor
- 1 task force leader
- 1 line safety officer

Cost [to be completed later, for each recommended action]:

Management Action Point 6: **Tanner Peak to Wilderness Boundary Ridge System**

Physical Location:

Northeast of the fire's current perimeter

Ridgeline from Tanner's Peak north to Wilderness boundary; and follows the Wilderness boundary west to the point in which it meets the Little North Fork trail.

Condition: Prepare an indirect line on this ridge system – which may turn into the primary line if direct attack operations fail.

Values to Protect:

Wilderness recreational opportunities (e.g. wilderness closures due to fire)

Structures and infrastructure at Abbott Ranch and Mulebridge

Campgrounds

Little North Fork trail - recreation access, trails & erosion

Investments including plantations

Critical habitat for spotted owls

Habitat for sensitive aquatic species*

Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

Construct indirect line on ridge system to prevent fire spread to the north and east. Likely actions may include backing fire from the top of the ridge to the bottom to reduce fire intensity.

Construct indirect fireline on ridge system north and east on Wilderness boundary.

Open trail to the north of Tanners Peak going east to the North Fork of the Salmon River. Use as a containment line.

Probability of Success: Moderate. There is no fire history on record for this area to the east and an old fire scar (Specimen 1994) to the north. The fire has mainly been pushing to the north and east and may be difficult to hold with a chance of spot fires. Near-term and FSPro fire modeling runs continue to show the main push of the fire to the north and east in upcoming days. Terrain is rugged and relatively remote with poor access. This is a dominant ridge system, has a historic fire line constructed portions of it, and contains vegetation that is sparse on portions of it. These factors may reduce fire behavior and allow for a moderate chance to stop the fire on this ridge system.

Consequences of Not Taking Action:

A much larger and more expensive fire

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Loss of recreation opportunities due to trail closure

Longer duration of heavy smoke in Sawyers Bar and surrounding areas

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

Agency Administrator

Forest fire duty officer

Resource advisors

Community liaison

Resources:

6 hand crews

3 pairs of fallers

1 division supervisor

1 task force leader

1 line safety officer

Cost [to be completed later, for each recommended action]:

Management Action Point 7: **Mulebridge trail system**

Physical Location:

East and northeast of the fire's current perimeter

Mulebridge Trail from Idlewild campground to Abbott Ranch

Condition: Fire crosses or threatens to cross Tanner Peak to Wilderness Boundary MAP and cannot be contained/controlled in the next operational period.

Values to Protect:

Spotted owl habitat

Campground

Range allotment

Local income from outfitter-guide services in any areas closed to public access.

Permittee Structures and private property* at Mulebridge and Abbott Ranch; Sawyer's Bar may also be at risk if fire spreads to the south.

Habitat for sensitive aquatic species*

Historic mining structures*

Benefits of possible timber sales and fuels treatments*

Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

Implement structure protection and evacuation plan for Mulebridge area.

Construct fireline or prepare trails to serve as fireline in order to keep fire west of the Mulebridge trail system.

Look for opportunities to use old firelines from the 1987 Neilon Fire in order to contain fire spread more quickly and efficiently.

Look for opportunities to eliminate spread to the south toward the community of Sawyer's Bar, ie. Trail E/W of Tanners Peak.

Probability of Success: Moderate. The Mulebridge trail system is a well establish trail. Improvements and preparation to the trail system should provide for a moderate likelihood of success. There has been no fire history recorded in this area and the area is characterized by dense forested stands of timber.

Consequences of Not Taking Action:

Fire would likely become established in the North Fork of Salmon River which has no recorded fire history. This could contribute to large fire growth due to dense timber and understory growth.

Wilderness values and recreation opportunities could be compromised

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Abbott Ranch private property and structure could burn.

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

- Agency Administrator
- Forest Fire Duty Officer
- Resource advisor
- Permittee of range allotment and area residences
- Notify Abbott Ranch private land owner

Resources:

- 8 hand crews (Type 1)
- 2 wildland fire modules
- 4 type 1 helicopters
- 1 type 2 helicopter
- 2 heavy air tankers
- 1 division supervisor
- 1 taskforce leader
- 1 line safety officer
- 1 resource advisor (Wilderness Specialist)

Cost [to be completed later, for each recommended action]:

Management Action Point 8: Snoozer Ridge

Physical Location:

Northeast of the fire's current perimeter

Snoozer rideline from Idlewild to Shelly Lake. (Note: Snoozer ridge is steep and rugged with many natural barriers to fire spread; because of this, the Sawyers Bar Road from Idlewild to Etna Summit to Shelly lake may also be considered for this MAP.

Condition: Fire has established on the east side of ridgeline to the north of Tanner Peak.

Values to Protect:

Recreation opportunities related to the Pacific Crest Trail (PCT), and Trail improvements. The PCT brings visitors from out of the area who spend modestly at local businesses. The Trail is known nationally, and media coverage of any closures could reflect badly on the Valley.

Campgrounds

Air quality in the Salmon River communities and Scott Valley

Local income from outfitter-guide services in any areas closed to public access.

Headwaters of Etna, the municipal water source

Actions:

Construct line on Snoozer ridge where natural barriers do not exist.

Close portions of the Pacific Crest Trail if required for safety.

Probability of Success: High. Snoozer Ridge has many natural barriers to fire spread. However, Snoozer Ridge is also very steep and rugged which may limit fire suppression work there.

Consequences of Not Taking Action:

Fire would become much larger and more costly.

Air quality would likely stay poor for longer due to heavy smoke production.

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

Agency Administrator
Forest Fire Duty Officer
Resource advisor
Community liaison

Resources:

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- 4 strike teams of engines
- 6 hand crews
- 4 water tenders
- 4 teams of fallers
- 1 type 1 helicopter
- 2 type 2 helicopters
- 1 division supervisor
- 1 task force leader
- 1 line safety officer

Cost [to be completed later, for each recommended action]:

Management Action Point 9: Jackass Creek to Tanner Peak

Physical Location:

- Southeast of the fire's current perimeter
- Ridgeline that connects the mouth of Jackass Creek to Tanners Peak

Condition: The Jackass-to-Tanner-Peak MAP has already been reached. The following further description of this MAP describes actions that already are underway.

Prepare an indirect line on this ridge system – which may turn into the primary line if direct attack operations fail.

Values to Protect:

- Relationships between USFS and local residents, especially related to fuels mitigation.
 - A prescribed burn whose primary benefits include protection of Sawyers Bar has been publicized, has strong local support, and has been held up by procedural delays for a couple years.
- Travel corridor / highway
- Structures and private property* at Sawyers Bar
- Portions of the municipal watersheds for Sawyers Bar *
- Historic mining structures*
- Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

- Construct indirect line on ridge system to prevent fire spread to the south and east.
 - Likely actions may include backing fire from the top of the ridge to the bottom toward Jackass Creek in order to reduce fire intensity and keep fire out of the town of Sawyers Bar.
- Provide structure protection and follow structure protection and evacuation plans as needed.
- Move fire support operations out of Whites Gulch.

Probability of Success: Moderate. There is no fire history on record for this area to the east. The fire has mainly been pushing to the north and east. Both prevailing wind and the primary drainage's topography encourage further spread to the northeast. However, topography will encourage fire also to move uphill toward the ridge east of Jackass Creek, which poses a greater threat to Sawyers Bar.

Terrain is rugged and relatively remote with poor access. This is a dominant ridge system and contains vegetation that is sparse on portions of it. These factors may

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reduce fire behavior and allow for a moderate chance to stop the fire on this ridge system.

Consequences of Not Taking Action:

- A much larger and more expensive fire
- Likely private property damage and loss of structures
- Increased threat to natural, historic, and cultural resources
- Loss of value to current and ongoing NEPA projects and investments
- Longer period of poor air quality

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

- Agency Administrator
- Forest fire duty officer
- Resource advisors
- Siskiyou Sheriff
- California Highway Patrol
- Red Cross
- Office of Emergency Services
- Community liaison
- Sawyers Bar and nearby residents. A public meeting should be considered.

Resources:

- 5 strike teams of engines
- 5 hand crews
- 4 water tenders
- 1 dozer
- 3 pairs of fallers
- 1 division supervisor
- 1 task force leader
- 1 line safety officer
- 1 security officer

Cost [to be completed later, for each recommended action]:

Management Action Point 10: **Picayune Ridge System and east of 39N21**

Physical Location:

south of the fire's current perimeter

Area north of Picayune ridge from Blue Ridge Lookout to Eddy Gulch Lookout and south of North Fork Salmon River; and east of 39N21 road.

Condition: Fire has crossed or threatens to cross south of Sawyers Bar Road, south of the North Fork Salmon River and east of the 39N21 road system, and cannot be contained/controlled in the next operational period.

Values to Protect:

Emergency access routes for Sawyers Bar

Traffic flow on Sawyers Bar Road

Protection of the headwaters of Mill Creek, which is the municipal watershed of the community of Etna. Note: The head of Mill Creek has a high density of mortality and disease infected trees in the red fir zone that would likely be high intensity if fire is to establish in that area.

Plantations, progeny site, and source for seed of rust-resistant sugar pines

Campgrounds

Burns Ranch cabin

Eddy Gulch and Blue Ridge Lookouts including outbuildings

Critical Spotted Owl Habitat

Winter range for deer

Portions of municipal watershed *

Values related to the River*

Historic mining structures* and pre-historic archaeology sites

Benefits of possible timber sales and fuels treatments*

Sensitive plant habitat*

* For details about these values, see values section of the first MAP.

Actions:

Implement the structure protection plan and evacuation plan for the structures in Sawyers Bar that are south of Salmon River

Construct line on the Picayune ridge system.

Where feasible, promote backing fire rather than allow high intensity spread.

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Develop protection and evacuation plan for Black Bear Ranch, Eddy Gulch Lookout and Blue Ridge Historic Lookout.

Probability of Success: Moderate. There has been no significant fire in this area since 1987. Fuels are continuous and fire could grow significantly if established south of the North Fork Salmon River. The terrain is moderately accessible and is steep and rugged. On the other hand, some major ridgelines might be effective places to stop fire spread.

Consequences of not taking action:

- Larger and more costly fire.

- Likely private property damage and loss of structures

- Increased threat to natural, historic, and cultural resources

- Loss of value to current and ongoing NEPA projects and investments

- Longer duration of poor air quality potential.

Responsibility [name of role responsible for each action, such as Incident Commander or Agency Administrator. To be completed later.]:

Notifications:

- Agency Administrator

- Forest fire duty officer

- Resource advisors

- Siskiyou Sheriff

- Colorado Highway Patrol

- Office of Emergency Services

- Red Cross

- Community liaison

- Community of Sawyers Bar. A public meeting should be considered.

- Godfrey Ranch, Blue Ridge Ranch, and Black Bear Ranch

- Eddy Gulch neighborhood

- Eddy Gulch Lookout

Resources:

- 6 strike teams of engines

- 8 hand crews

- 4 dozers

- 6 water tenders

- 4 pairs of fallers

- 1 grader

- 2 type 1 helicopters

- 4 type 2 helicopters

- 2 division supervisors and 2 task force leaders

- 2 resource advisors

Cost [to be completed later, for each recommended action]:

Data Appendices

Management Action Points Map (attached)

WFDSS – FSPRO Probability (attached)

WFDSS – Near-Term Fire Behavior Analysis (attached)

WFDSS – Short-Term Fire Behavior Analysis (attached)

Wind Roses

A wind rose is a tool to display historical wind observations. It is useful for highlighting winds that may be problematic for the Salmon River Complex. The analysis below shows for the likely remaining duration of the Shelly and Boulder fires how wind typically shifts as autumn progresses.

Directions for reading a wind rose follow.¹

- The wind rose shows directional origin of wind for the period of historical data it displays. North is up, south down, etc...
- Wind observation data is binned into directional angles. For each direction, the portion of time the winds come from that direction is shown by the total length of the bar shown.
- Within each directional bar color coding indicates the distribution of wind speeds. Both the relative proportion of time when each wind speed category occurred, and the absolute percentage of observations for each wind speed and directional bin can be determined.

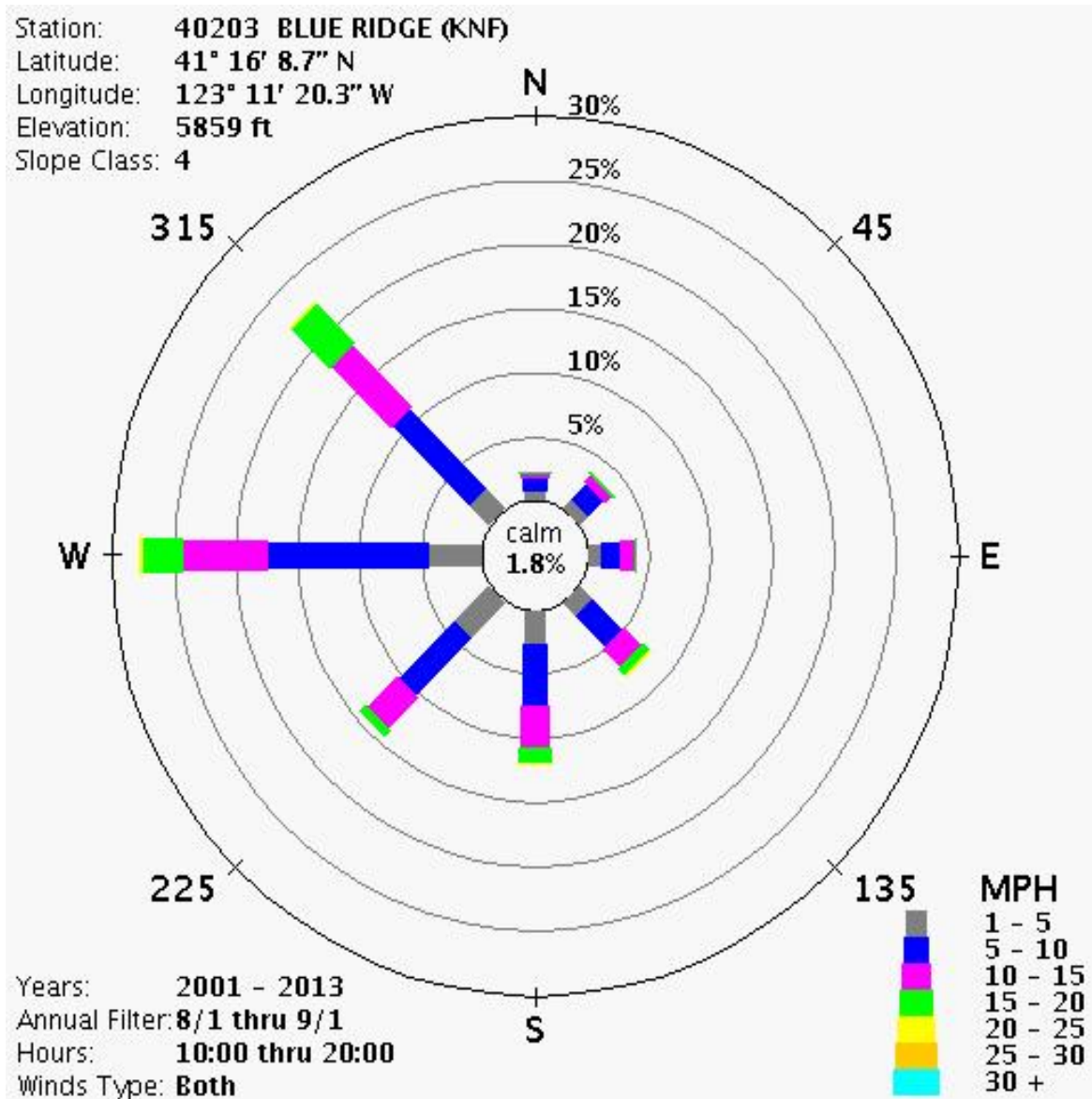
Analysis:

Three time periods were selected to display predominant winds and problematic winds for the Salmon River Complex (August, September and October). Blue Ridge RAWs was used for this analysis. The predominant and strongest winds in August are out of the west and northwest followed by south and southwest. Smaller percentages of wind occur in all other directions. September winds are almost identical to the August wind patterns. Due to the fact that September was so similar to August wind rose, we elected to only display August.

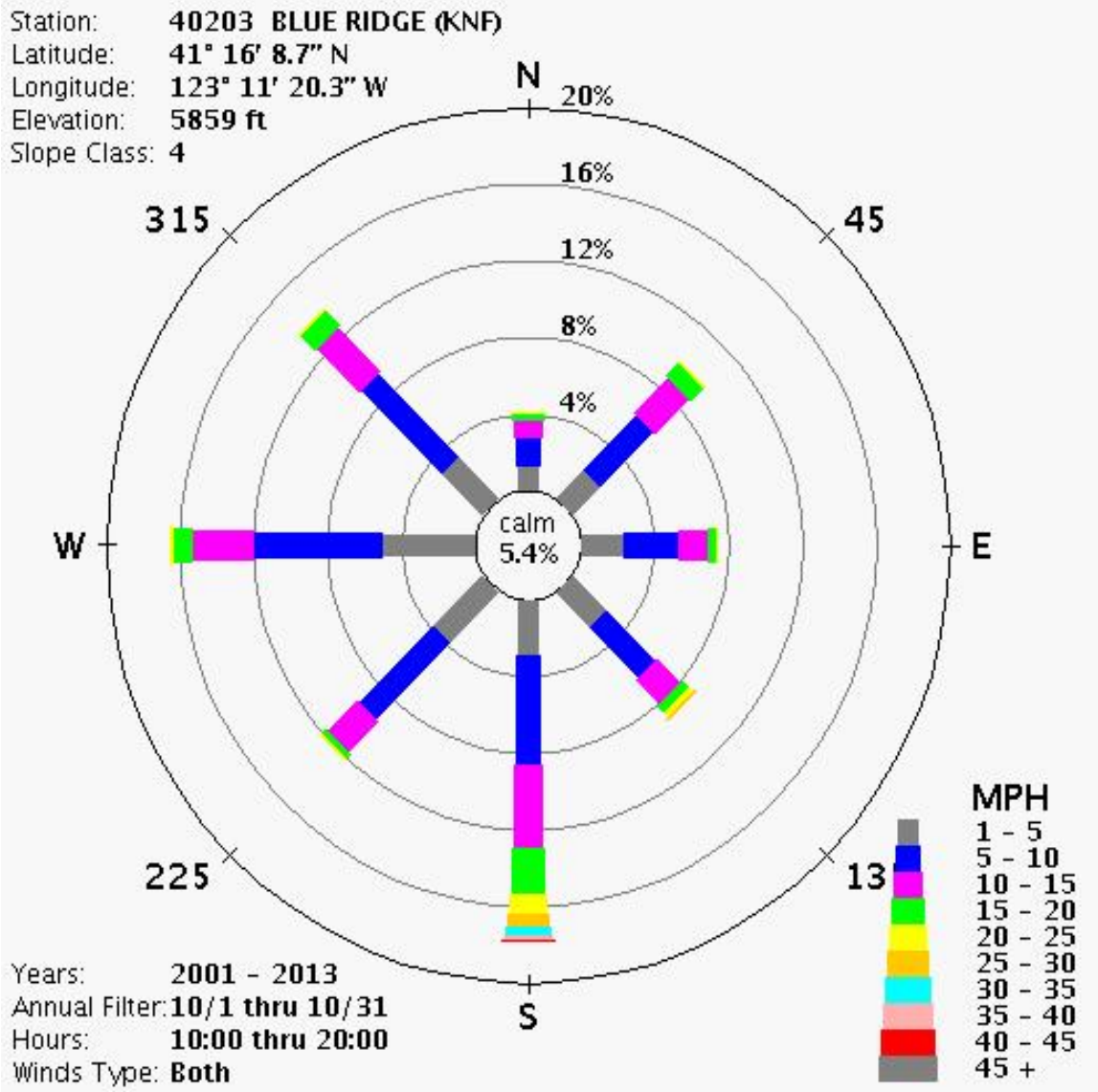
¹ Derived from <http://plone.airfire.org/wfdss-aq/help/raws-wind-roses>.

There is a noteworthy change in wind rose in the October analysis. The main highlight is an increased chance of wind speeds in nearly all directions. The probability is low for significant winds (35mph+) out of the south. This relatively rare wind event has contributed to large fire growth in the past.

August



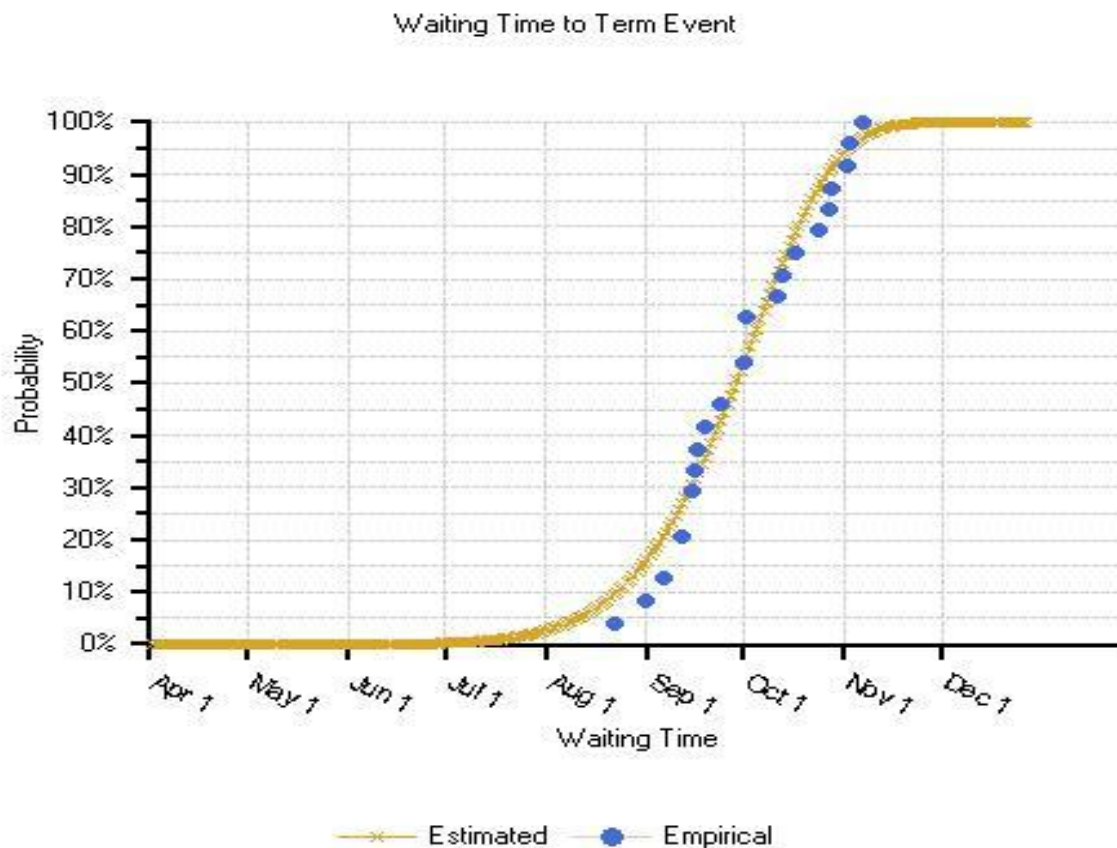
October



Season End

Fire season commonly ends with a large scale rain event in the Klamath Mountains, but they can also end with the onset of shorter days and cooler/moister conditions. Often, a fire season fades away due to a combination of scattered, smaller precipitation events and changing day length and sun angle which, in turn, translates into lower maximum temperature, higher relative humidity, and a shorter burn period. Energy release component (ERC)² can serve as an integrator of all these factors.

We developed criteria for estimating the end of fire season by talking with fire managers at the Klamath National Forest. The criteria selected included ½ inch of rain over a five day period, throughout which the ERC never climbed above 50. Using the dates from this analysis we developed a Term file for the probability of season-ending dates displayed in the graphic below.



² Energy release component (ERC) is a National Fire Danger Rating System (NFDRS) index related to how hot a fire could burn. It is derived from daily weather records and is associated with the worst case 24-hour potential energy at the flaming front of a given fire. This index tracks well with warming and drying as the season progresses and with the eventual cooling and lower fire potential as the season winds down. As the fuels dry through the season and become available to burn, adding to the potential energy, the ERC rises. As the days get shorter, temperatures fall, and nighttime humidity rises, the ERC falls.

Fire Slowing Event

Along with season ending events, there is a possibility of fire-slowng precipitation events prior to the end of the fire season. Precipitation of at least 0.25 inches in a day might be expected to at least slow fire spread for two or three days, while greater amounts of rain (over 0.5 inches) could slow or check fire spread for several days. The probability of receiving greater than 0.25 inches of rain in one day was derived using the Blue Ridge RAWs. The likelihood of such events increases significantly in the latter part of September with the return of frontal systems moving in off the Pacific Ocean.

| Time Period | Total Number of Days Receiving >0.25 inches of Rain 1961-1979 & 1999-2010 Blue Ridge RAWs | Probability of Having at Least One Fire Slowing Event During this Time Period |
|--------------------|---|--|
| Late August | 12 | 39% |
| Early September | 6 | 19% |
| Late September | 23 | 74% |
| Early October | 24 | 77% |