APPENDIX A

FIRE BEHAVIOR

Long-Term Fire Behavior, Fire Weather and Risk Assessment
Uncles Complex
Klamath National Forest
August 19th- 28th, 2006

Prepared by:
Krista Gollnick-Waid, LTAN
Brenda Wilmore, FBAN
Jessica Wade, RERAP tech specialist
Mark Burger, IMET

Introduction

The Uncles Complex consists of two individual fires that were ignited in late July:

1) The Uncles Fire, on the Scott-Salmon River District (2,600 acres), and
2) The Hancock Fire (8,000 acres), on the Unkonum District.

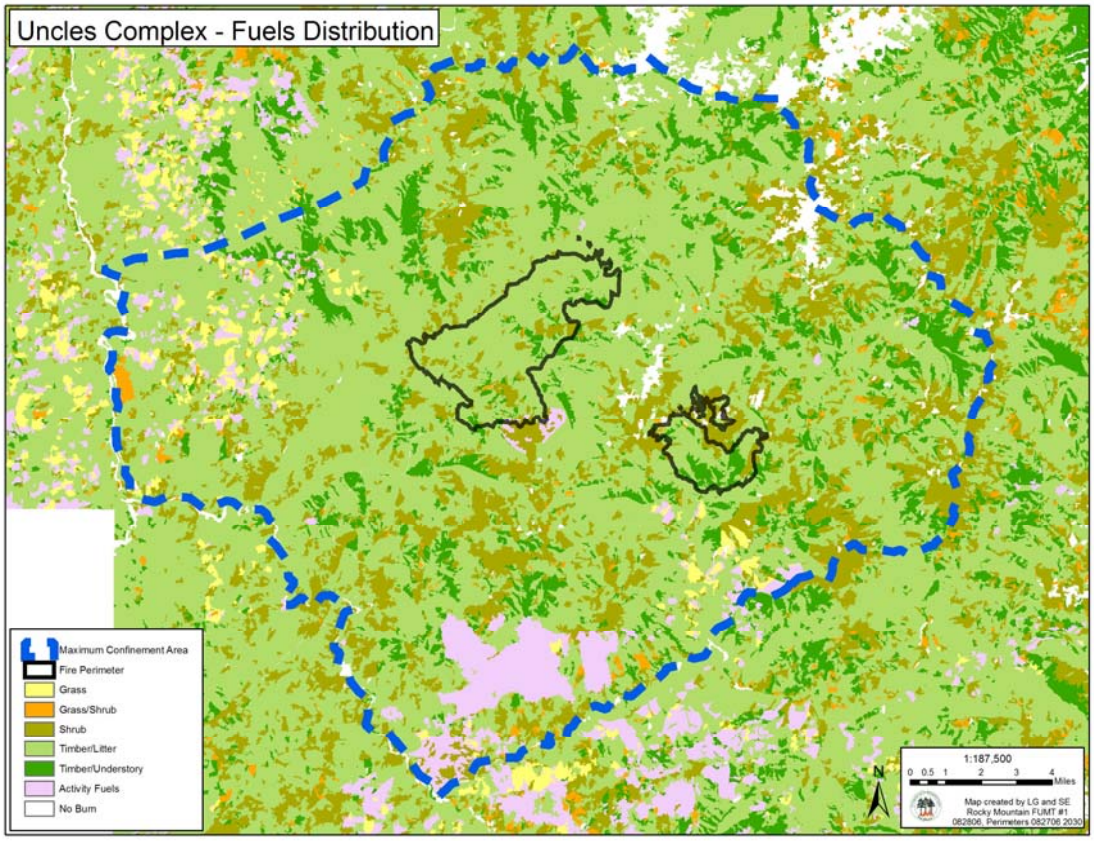
Both fires are located in the Marble Mountain Wilderness. In general, the fire activity and daily growth has been low to moderate.

The **Uncles Fire** is approximately 2,600 acres in a combination of timber dominated fuel models over 85% of the fire area and shrub dominated fuel models over the remainder (see fuel model map in section below). There are extremely heavy dead and down fuel loads in areas that have not recently burned. The fire is in very steep terrain on all aspects, at between 3600' and 6900' elevation. The Specimen Fire (1994) burned east of the fire, in addition to several historical fires in the wilderness, including the Hog Fire (1977) and the Yellow Fire (1987) southwest of the Uncles Fire. The Uncle Fire has been backing, flanking, rolling out, and making short uphill runs, with occasional torching.

The **Hancock Fire** is approximately 8,000 acres and continues to burn actively in a combination of timber dominated fuel models over 86% of the fire area and shrub dominated fuel models over the remainder. There are extremely heavy dead and down fuel loads within the Hancock Fire area as a result of historic burns occurring in the 1950's and 1980's (see fire history map). The Hancock fire is also in very steep terrain on all aspects, at between 2000' and 5600' elevation. Nearly the entire fire area lies within the Yellow Fire (1987) perimeter.

Fuels and vegetation structure in the vicinity of the Uncles Fire Complex is largely the result of past fire history. In the drainage bottoms and below 3,000 feet, tanoak, manzanita, and madrone are the primary understory species with an overstory of old-growth conifer or regeneration dominated by Douglas-fir, red fir, sugar pine or incense cedar. Fuel Models 9, TL8 or TL9 have proven to be a good representation of the fire behavior (rates of spread, flame lengths and scorch height) observed in these stands which comprise 25 percent of the fire area. On the upper slopes, large stands of pure

conifer are comprised of Douglas-fir, red fir and sugar pine. These stands cover 40 percent of the fire area and have a heavy surface fuel loading, best represented by Fuel Models 10, TL7 or TU5. Additionally, 20 percent of the area is represented by timbered stands with light conifer litter best modeled with Fuel Models 8, TL2 and TL3. There are also intermittent patches of shrubs, ~10 percent of the fire area, in the upper elevation bowls, in old fire areas, and along some ridgelines. The patches of the shrub fuels are best modeled by Fuel Models 5, SH4, SH6, and TL7 (old burn scars with a heavy dead and down component).



Fire growth projections and probability of fire movement were derived from the Rare Event Risk Assessment Process (RERAP), Fire Spread Probability (FSpro), and Fire Area Simulator (FARSITE) models that consider:

- Vegetation characteristics
- Fire History, including historic burn patterns and severity
- Fuel loading
- Slope
- Aspect
- Observed fire behavior and weather 7/28 through 8/28

- Historical weather observations

  (Sawyers Bar: 1971-2005 and Blue Ridge: 1999-2005)
- Predicted weather
- Distance to points/areas of concern
- Observed daily growth

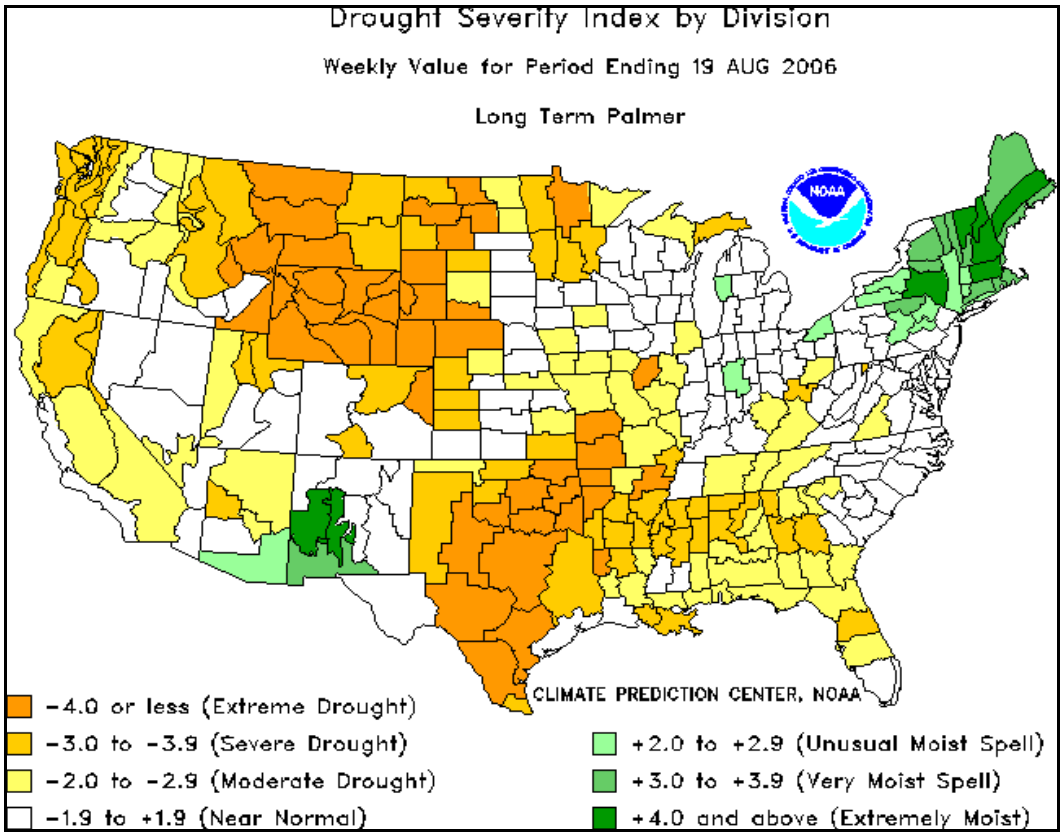
Weather, fuels, large fire history, and long-range forecasts for the Northern California region, as well as local expertise were used in this assessment. The Rare Event Risk Assessment Process (RERAP) and Fire Family Plus were used to determine the probability of fire movement to the identified Trigger Points (TPs), Trigger Areas, Points of Concern, and the Management Confinement Area (MCA). Weather data from the Sawyers Bar RAWS (Station #040222) were used to assess historical trends. Other products were assessed to determine season severity and potential for large fire growth. Fire progression was monitored and progression maps were produced based on aerial recon and daily observed growth.

This document presents a summary of long-term fire behavior predictions and a risk assessment to be used to support fire management and operational decisions. This information supplements the Uncles Fire Complex Long-Range Implementation Plan with technical documentation of the analysis results. The information and results from this assessment are intended to be used in the continued management of the Uncles and Hancock fires under a confinement AMR.

Long-Term Weather Trends/Season Severity

Palmer Drought Index

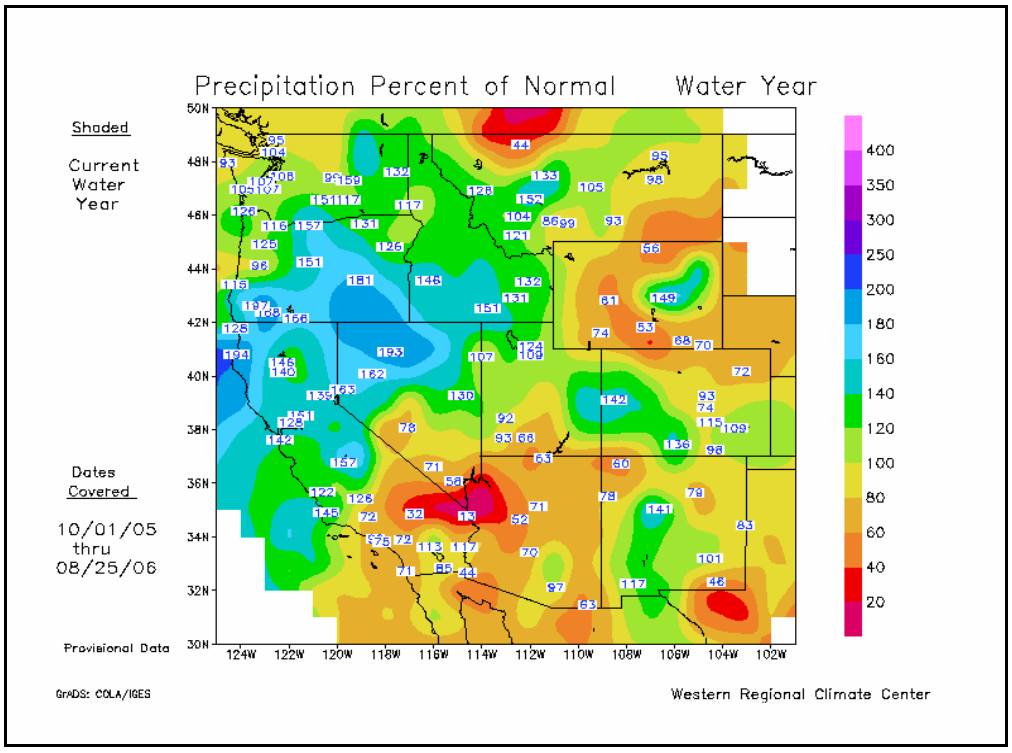
The Palmer Drought Index indicates moderate drought conditions for this time of year. However, this region did receive an abnormal amount of rain since October 2005 and is currently approximately 150% of normal for the water year. Despite the unusual precipitation amount over the winter months, the region is experiencing hot and dry conditions that are rapidly curing the live fuels.



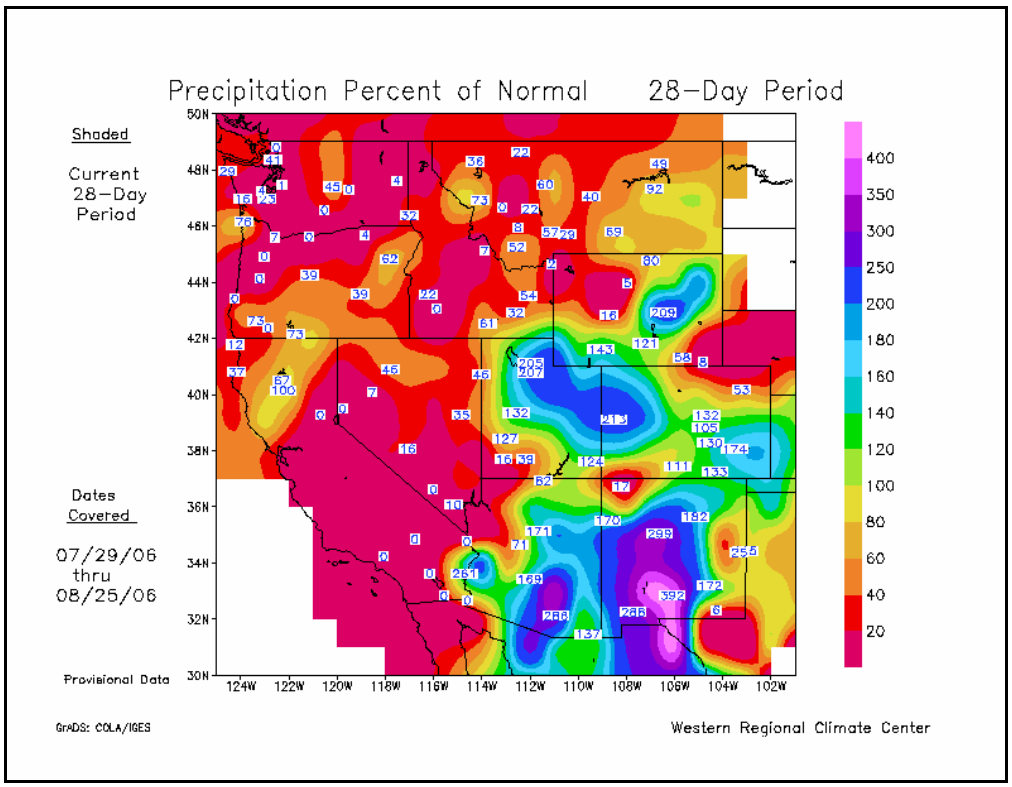
Precipitation

The snow pack in the area of the Uncles and Hancock Fires was over 175% of normal by April and lingered long into spring. Since May, the weather patterns have been dominated by high pressure much more frequently, resulting in much drier and generally warm conditions over the fire area, including 10 consecutive days of >100 degree temperatures in July.

Since July 28th, the fire area has received 40% to 60% of the normal precipitation amounts as shown in the below graphs.



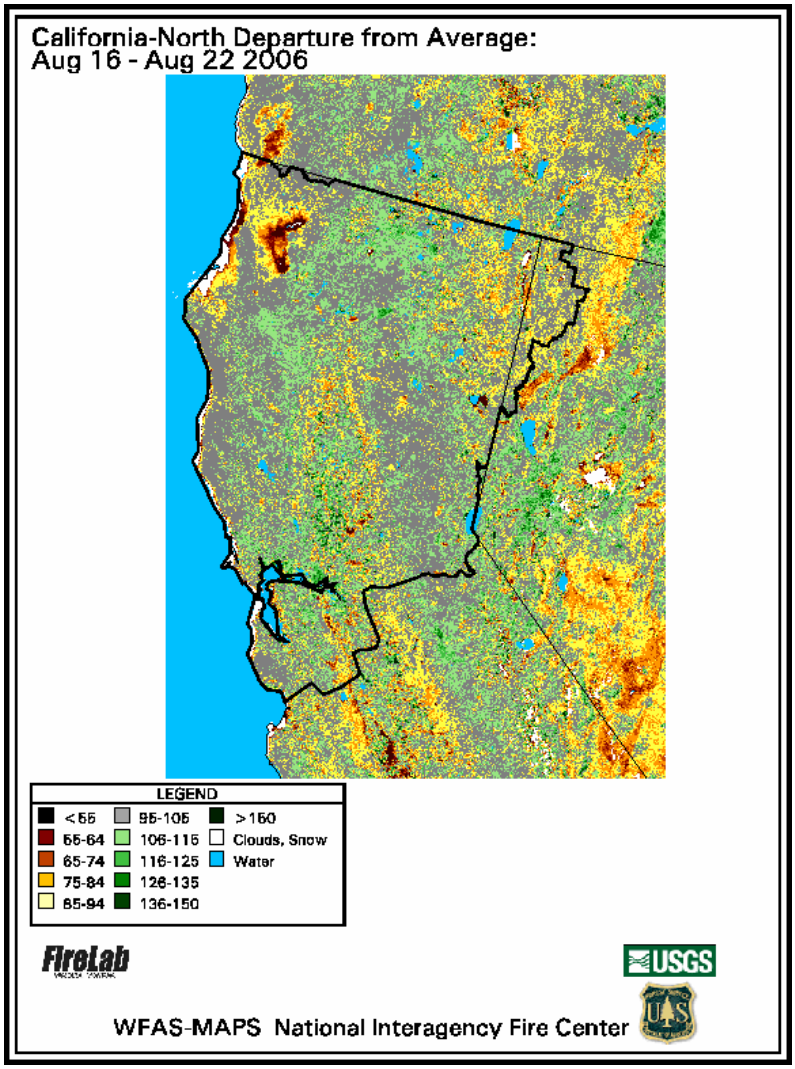
Precipitation percent of normal for the Western United States since October 2005. This figure shows that the fire area is approximately 140 to 160% of normal.



Precipitation percent of normal for the month of August. This graph shows the fire area as 40 to 60% of the normal precipitation.

Greeness Mapping

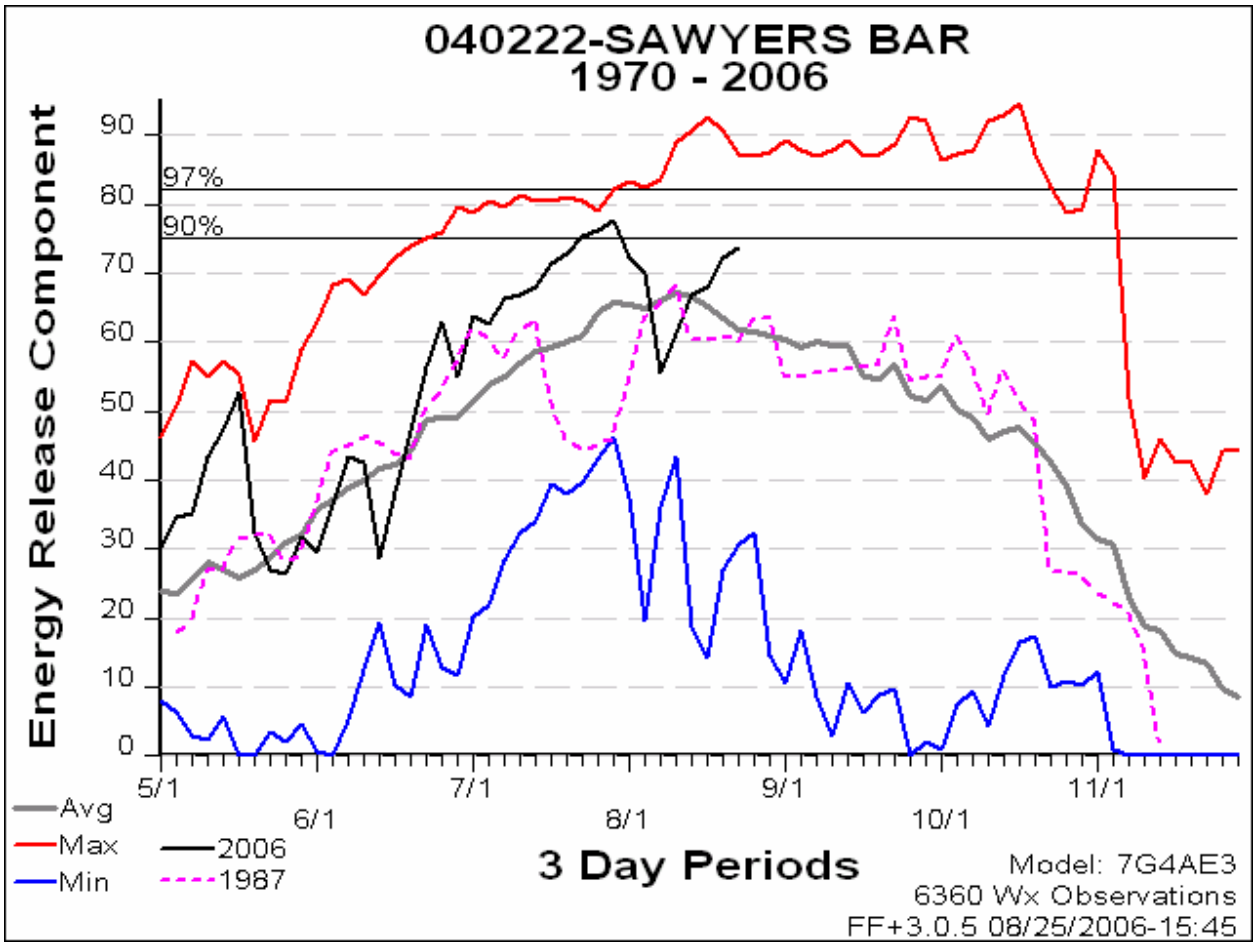
The greenness index portrays how green vegetation is compared to its average greenness for the current week of the year based on all years of data since and including 1989. When assessing this image, we considered the time within the season when the image was taken and estimating how much more curing will occur until the season ending event. The area around the Uncles Complex of fires shows to be either average or a little above average compared to the last 17 years during the week of August 16 to 22.



Energy Release Component

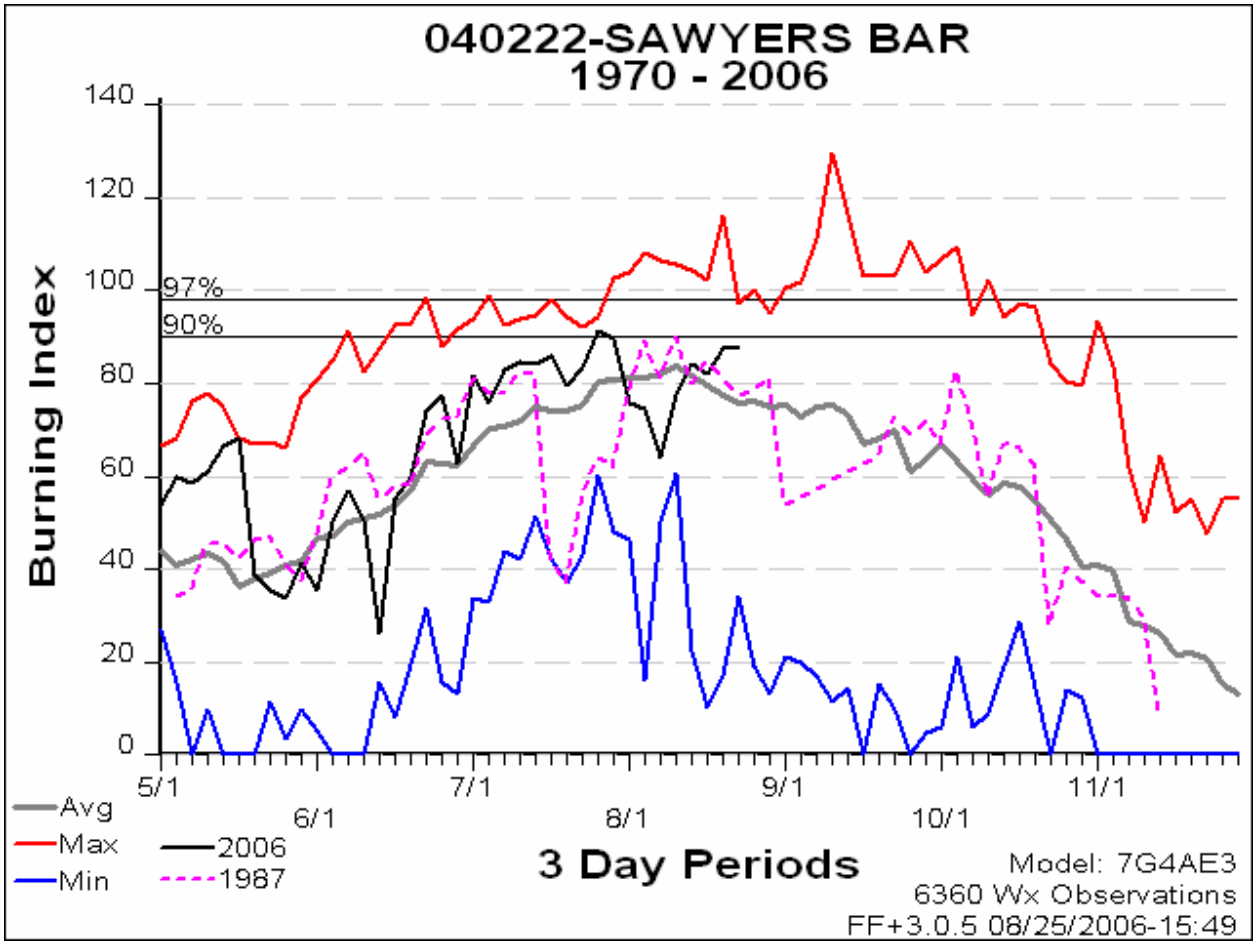
Energy Release Component (ERC) is a National Fire Danger Rating System (NFDRS) index related to how hot a fire could burn. It is derived from daily weather records and is associated with the worst case 24-hour potential energy at the flaming front of a given fire. As the fuels dry through the season and become available to burn, adding to the potential energy, the ERC rises.

The ERC was rising steadily beginning in mid-June, dropped significantly in early August when the area received 0.44 inches of precipitation, and has been climbing since. The data through August 24th indicate the ERC is approaching the 90th percentile, and is predicted to continue climbing as conditions dry into the fall. Historically, the ERC peaks in mid-August but can stay high through late October. The current upward trend and the long-term weather outlook suggest the 2006 season will be higher than average through the end of September.



Burning Index

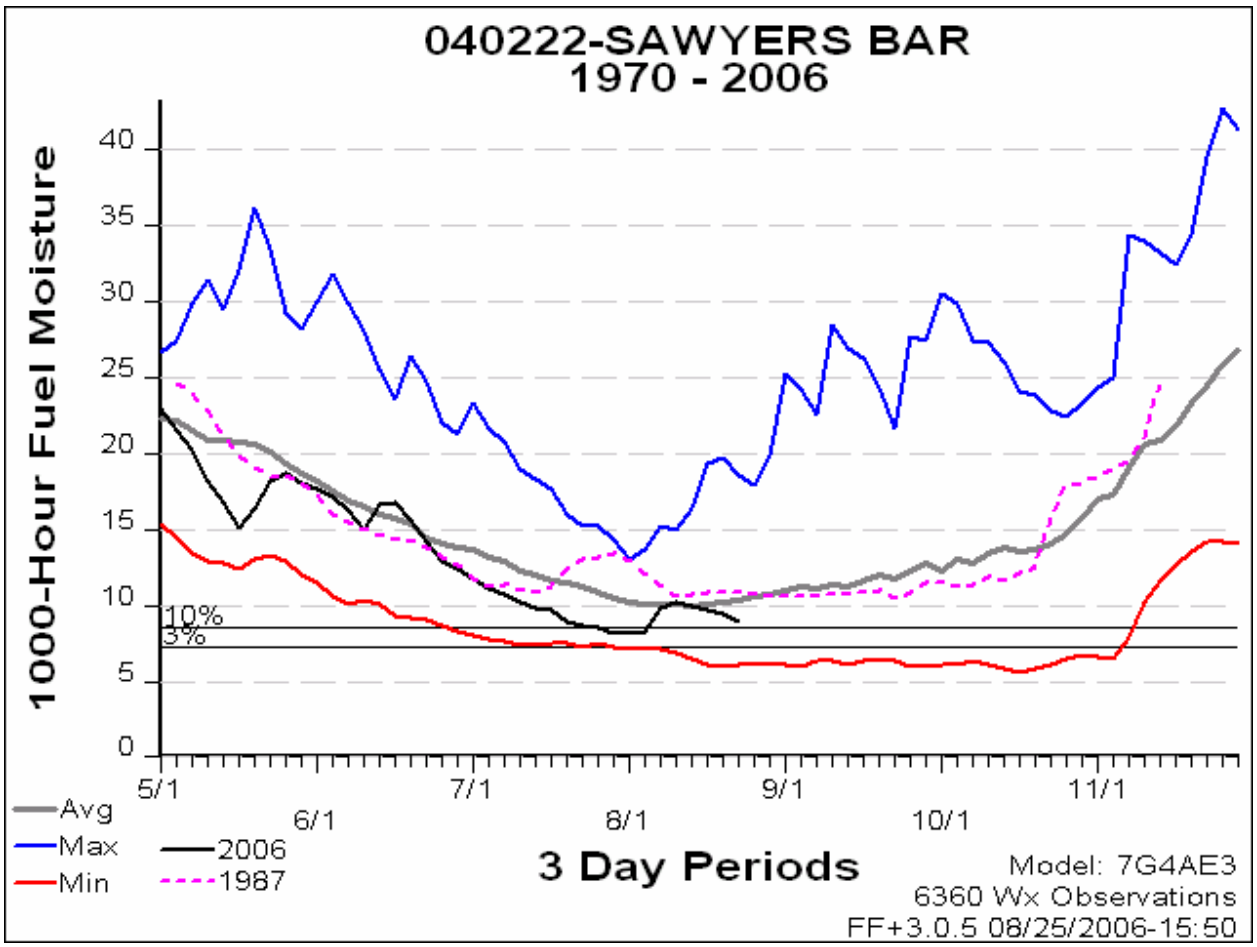
Burning Index (BI) is a National Fire Danger Rating System (NFDRS) index that gives a number related to the contribution of fire behavior to the effort of containing a fire. It is derived from a combination of the predicted spread and energy release components. It is expressed as a numeric value closely related to the flame length in feet multiplied by 10. The graph below shows that the BI for the Sawyers Bar RAWS is above average, but not quite to the 90th percentile.



1000-Hour Fuel Moisture

Fuel moisture in the large dead surface fuels is another indicator of seasonal dryness. The 1000-hour dead fuels support long duration smoldering and burning, and can provide heat to initiate torching. They also support smoke production over the long term, along with duff, which is a major contributor to smoke. The dominant high pressure and associated warm dry weather has contributed to significant drying of the surface fuels, especially since the last half of June. At most of the northern California weather stations, the calculated 1000-hour fuel moisture percentage has been steadily declining and is approaching the 90th percentile at Sawyers Bar.

The 1000-hour (3-9 inch) size class fuel moisture is calculated at less than 9% at Sawyers Bar RAWS. The actual fuel moisture on-site is likely higher in most of the large fuels than the calculated value, which represents the worst case.



Live Fuel Moisture

The live foliar moisture content of Manzanita within the fire area is estimated to be approximately 90-109% based on gravimetric sampling. Live fuels are not a significant factor to fire spread at this time. As the season progresses warmer and drier conditions will continue to dry these live fuels to a point at which they will become available to burn. Fuel samples taken in the area indicate the following average fuel moisture measured in August:

	Bar Complex	Uncles Complex	Uncles Complex
Elevation	**6000**	**6000**	**5,000**
Sample Date	**8/18**	**8/18**	**8/24**
Live	113%	127%	99%

Weather Outlook

The weather pattern the last several weeks has featured an unusual tendency towards frequent and rather vigorous upper level disturbances moving across the Pacific Northwest and northern California. These disturbances initially bring periodic bouts of increased southwest winds affecting the ridge tops of the Uncle Complex, with winds favoring west to northwest following the passage of the associated trough. Such a trough is likely to approach the complex late Tuesday, August 29 and pass east of the fire areas by sunrise Wednesday, August 30. Thus, an increase in southwest ridge winds is probable Tuesday afternoon, with gusty northwest ridge winds of 10 to 20 mph developing Tuesday night into early Wednesday. Winds will diminish Wednesday afternoon as the trough continues to retreat to the east. Mid-atmospheric moisture will be very limited with this trough, so the likelihood of dry thunderstorm activity is minimal near the complex, although an increase in surface relative humidity will precede the trough.

3 to 5 Day Outlook for Wednesday August 30 through Friday September 1

By Wednesday afternoon, the predominant wind direction will favor northwest to north with diminishing speeds. As surface high pressure settles into the northern Rockies Wednesday night, the wind flow will trend northeast, bringing lower afternoon humidity in the days to follow, along with poor overnight humidity recovery. At this time, it appears the combination of ridge top winds and lower overnight humidity Wednesday night and especially Thursday night over the fire may approach Red Flag criteria, although relatively weak and non-coincident flow aloft argues for a marginal event at best. Warmer temperatures can be expected through the period, with a slight increase in afternoon humidity during the day Friday as the offshore flow weakens.

6 to 14 Day Outlook for September 2 through September 10

Data garnered from NOAA's Climate Prediction Center support a moderate tendency (above 40% chance) for above normal temperatures through the period. This is augmented by a similar moderate tendency for below normal precipitation. Climatologically for the fire area, this would argue for little to no chance for wetting rain with a dominant upper level ridge pattern in place. This would represent somewhat of a departure from the relatively active frontal pattern displayed during August. However, with above normal temperatures also expected for the northern Rockies with similar probabilities for below normal precipitation there, the implication is for a low likelihood of significant wind events, offshore or otherwise, through the period for the Uncles complex.

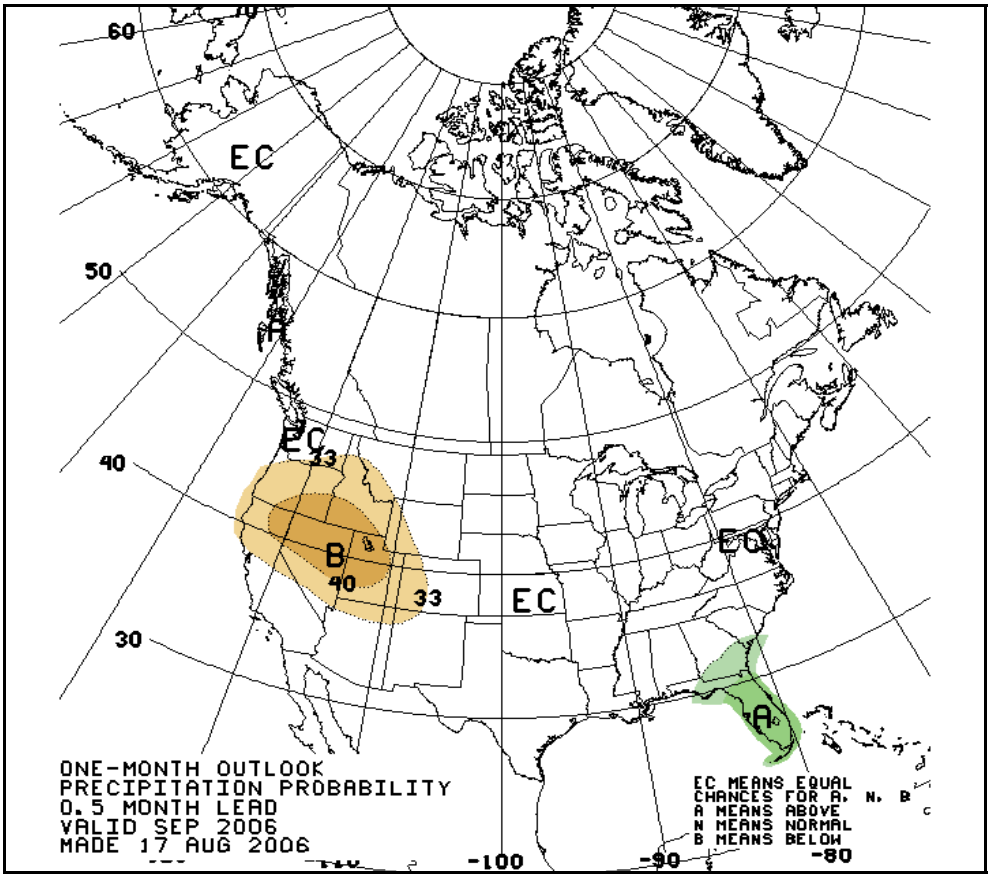
30 Day Outlook

NOAA data support a slight bias (between 33 and 40 percent) towards warmer than average temperatures accompanied by a moderate tendency (around 40 percent) for below normal precipitation for the Uncles complex. Interestingly, these data also indicate a cooling trend towards normal temperatures across the northern Rockies.

Such a development is consistent with improved chances for colder systems to infiltrate the northern tier of states, which often results in more significant offshore wind events for California. Given the transition into fall, this is climatologically to be expected. Thus, this may be a harbinger of potential significant northeast wind events, especially towards the latter half of September.

60 to 90 Day Outlook

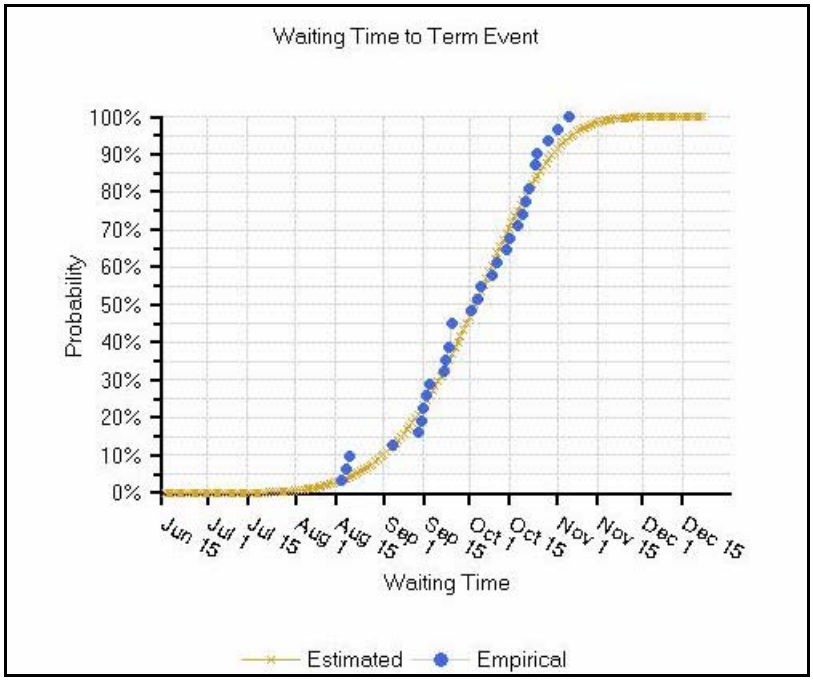
The expectation is for little bias towards either above or below normal temperatures through this period, with a slight (between 33 and 40 percent chance) tendency towards below normal precipitation. Given a resurgence of above normal temperature probabilities throughout the Rocky Mountain States, this would favor a lower than average probability for strong offshore (northeast) wind events across the Uncles Complex. However, given a noted bias (above 40 percent) towards below normal precipitation across Oregon and Washington, it would appear that the typical progression of the storm track farther south may be delayed; thus, opportunities for northern California to experience a widespread, "season-ending" event may be limited and/or late in arriving.



September 2006 precipitation probability

Season Ending Events

Fire seasons commonly end with a large scale rain event, but they can also end with the onset of shorter days and cooler/moister conditions. A useful indicator that is associated with seasonal fire potential is the energy release component (ERC). A fire analysis in Fire Family Plus was conducted using the Sawyers Bar RAWS (station ID 040222). The analysis indicated that fires over 100 acres occurred at ERCs generally greater than 50. Season ending events were defined where the ERC dropped below 50 for more than five days after October 1st. The Term program in the Rare Event Risk Assessment Process (RERAP) was used to determine the probability of the termination of the season for different dates. The results give a probability curve as shown below:



Probability graph for season end based on Sawyers Bar RAWS dropping and remaining below an ERC of 50.

This graph shows the following:

30% probability of a season ending event by September 20th
40% probability of a season ending event by September 28th
50% probability of a season ending event by October 4th
60% probability of a season ending event by October 11th
80% probability of a season ending event by October 26th
90% probability of a season ending event by November 6th

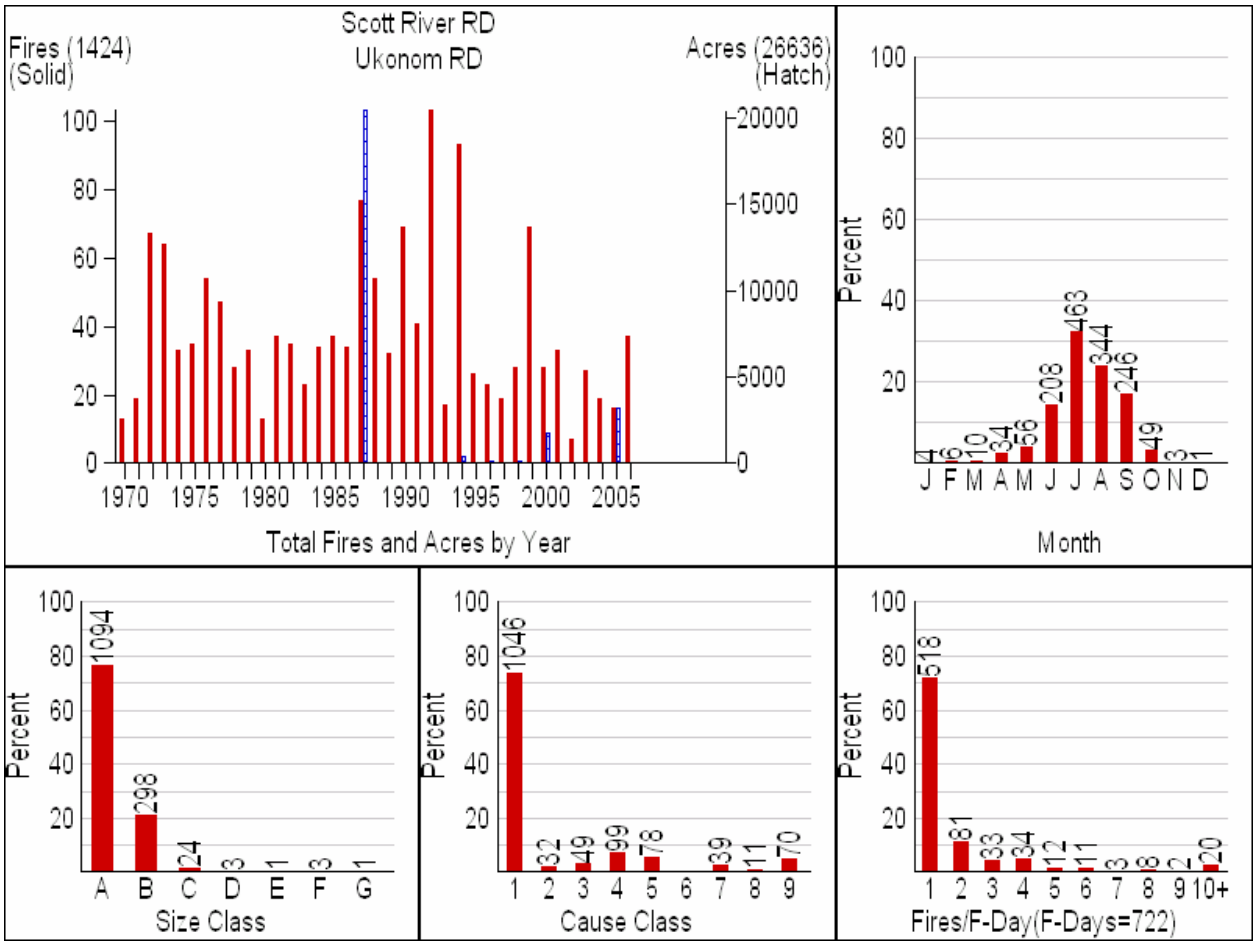
Fire-Slowing Events

Along with season ending events, there is a possibility of fire-slowing 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 probabilities of receiving greater than 0.25 inches of rain in one day were derived using Sawyers Bar weather station precipitation data due to its proximity to the fire area. Based on historical weather records, it is most likely that precipitation will occur in late September as that is the time period when cold frontal passages are most common.

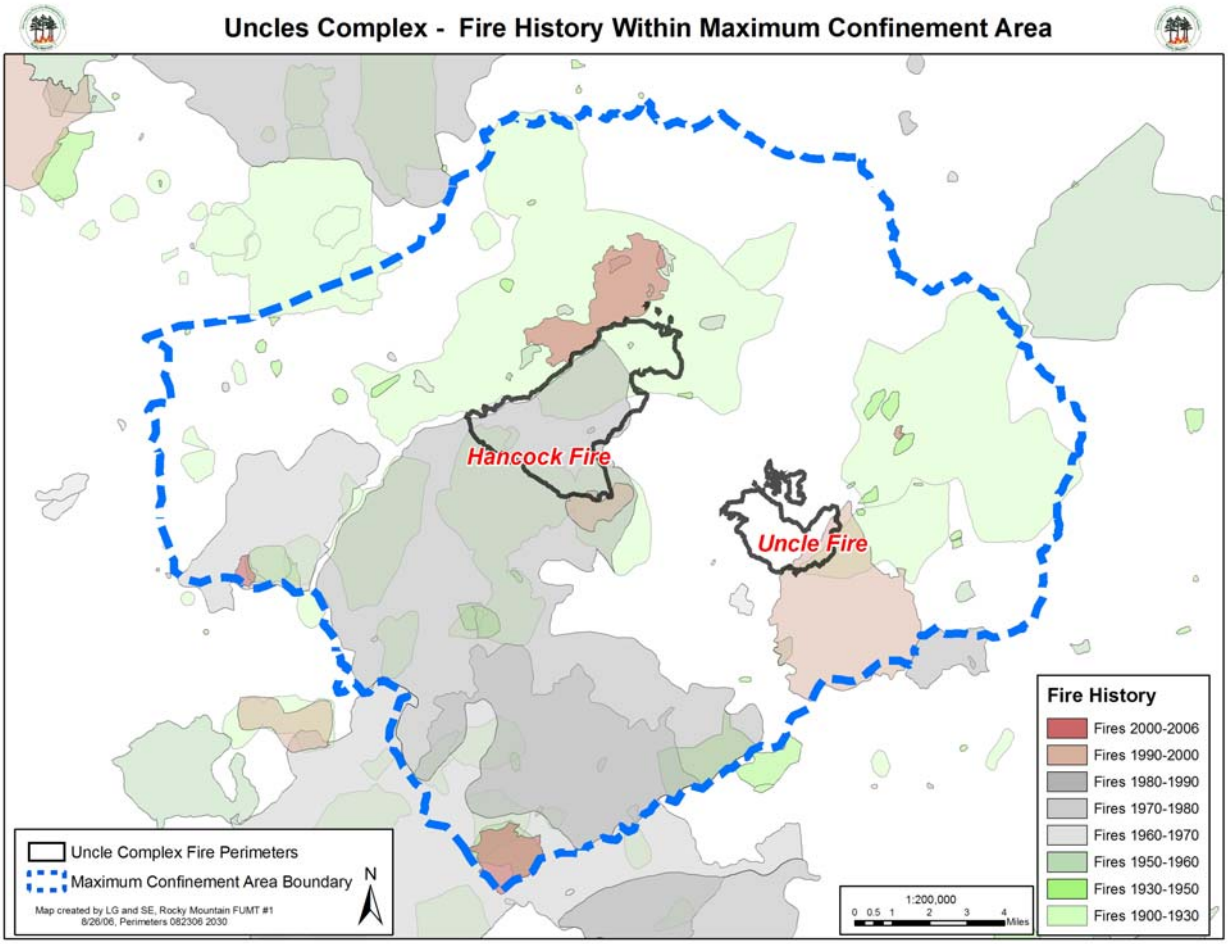
Sawyers Bar RAWS	**Total Number of Days Receiving >0.25 inches of Rain 1971-2005 SAWYERS BAR RAWS**
Late August	10
Early September	9
Late September	37
Early October	18
Late October	30

Local Large Fire History

The Klamath National Forest has historically experienced moderately large fires. District fire perimeter data is available for 1970 to 2005. Data indicates that large fires in the Scott River and Ukonom Ranger Districts averaged 7,500 acres in size in the last 30 years. In 1977 and 1987, weather and fuel conditions were particularly conducive to large fire growth. Records indicate that fire size increases to an average of 12,000 acres in size during these years. Most fires on the Forest occur in July, August and September (73%). Fire Family Plus was used to summarize fire history data for the Klamath National Forest (Scott River and Ukonom Ranger Districts). The graphs below summarize the information.



An analysis of the fire history within the Management Confinement Area (MCA) was also conducted. The figure below displays the fire history by decade.

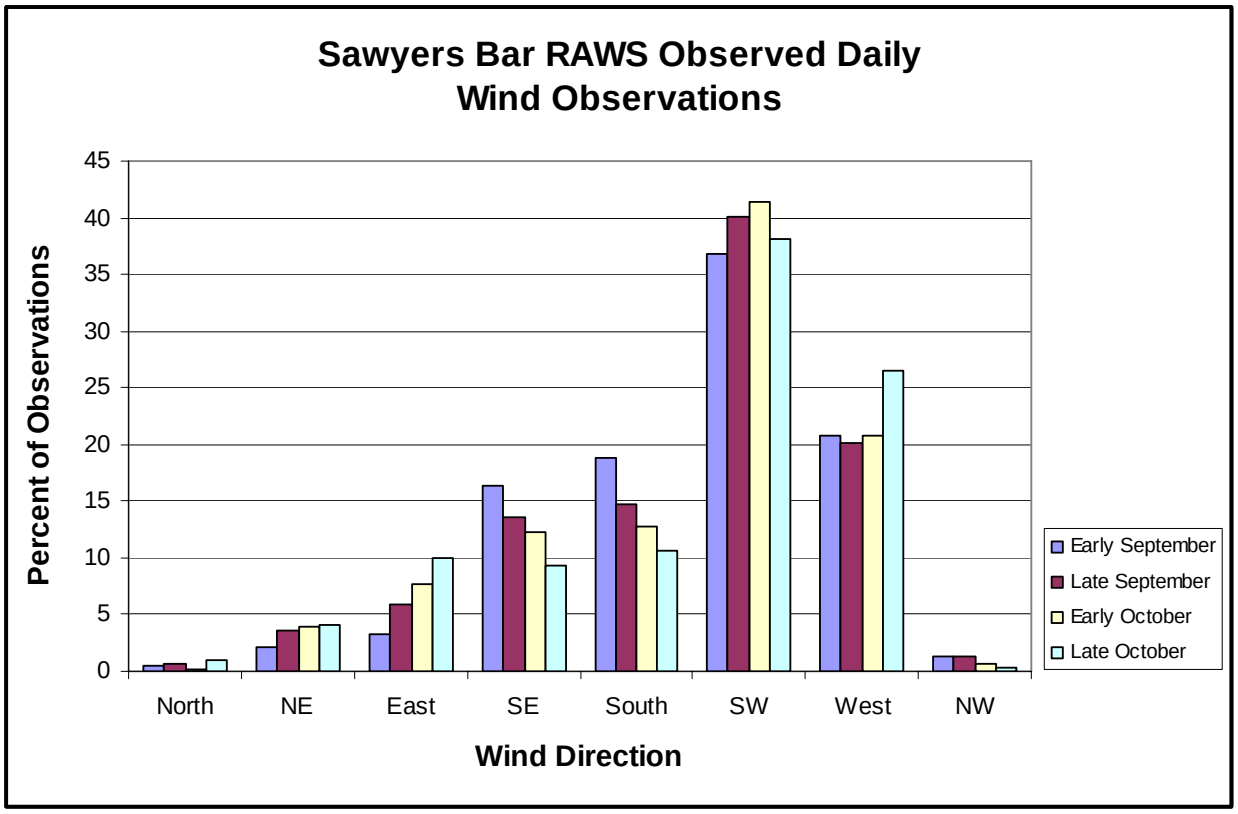


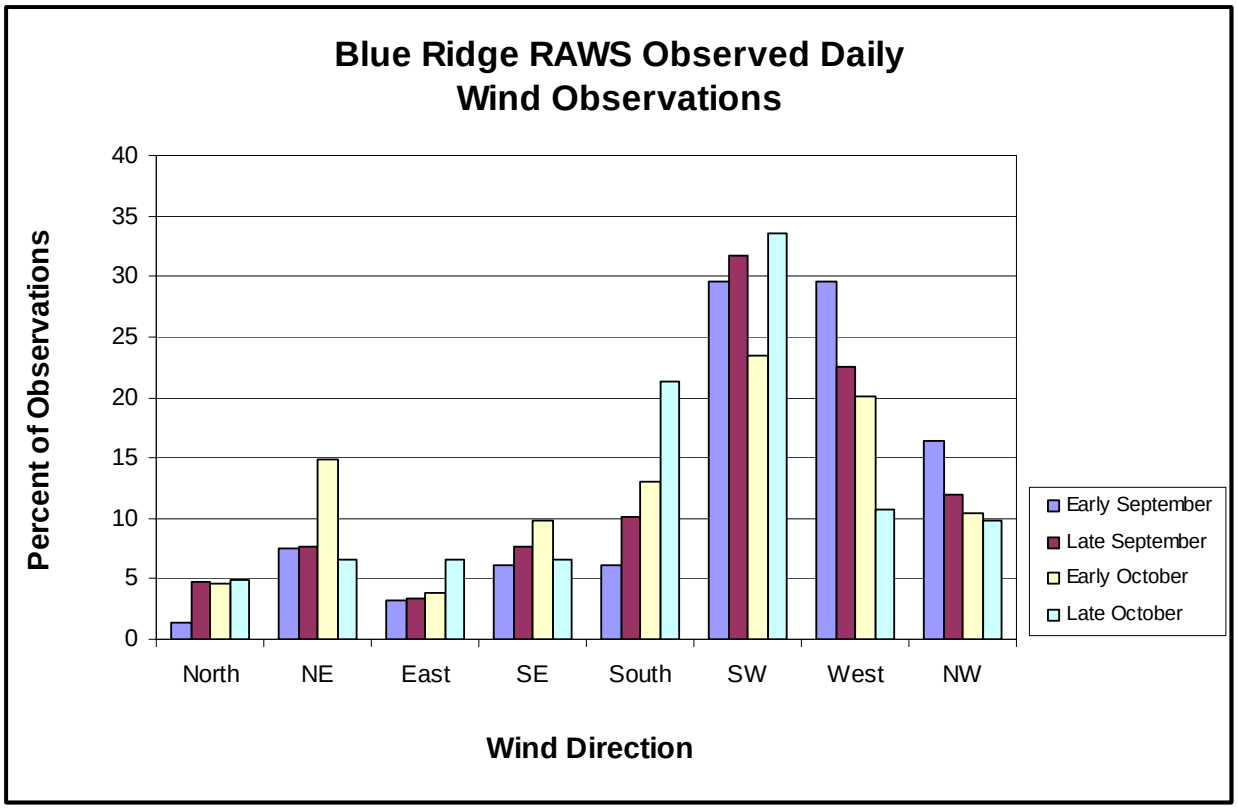
Fire history data indicates that the average large fire size (large fire = >1,000 acres) is approximately 15,000 acres in the MCA. The largest fires in history included the King Titus Fire in 1987 (68,000 acres), the Hog Fire in 1977 (58,000 acres), and the Yellow Fire in 1987 (51,000 acres).

Wind Analysis

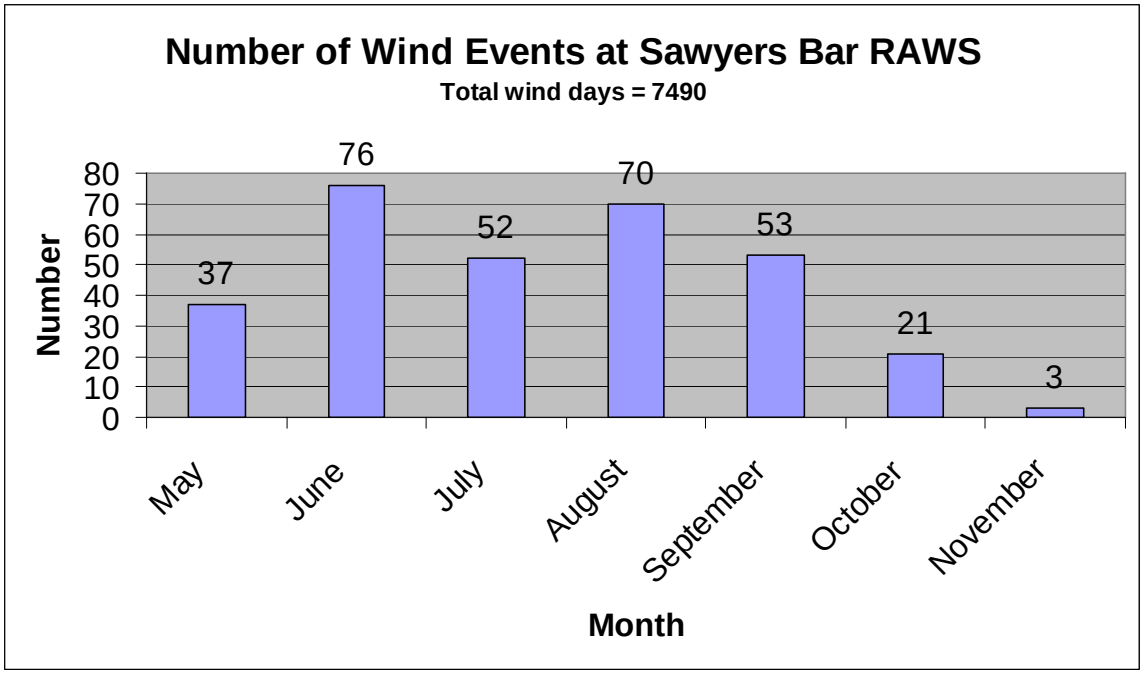
An analysis of winds was conducted using historical weather data from the Sawyers Bar and Blue Ridge RAWS. The table below shows wind directions that would move the fire toward identified points of concern:

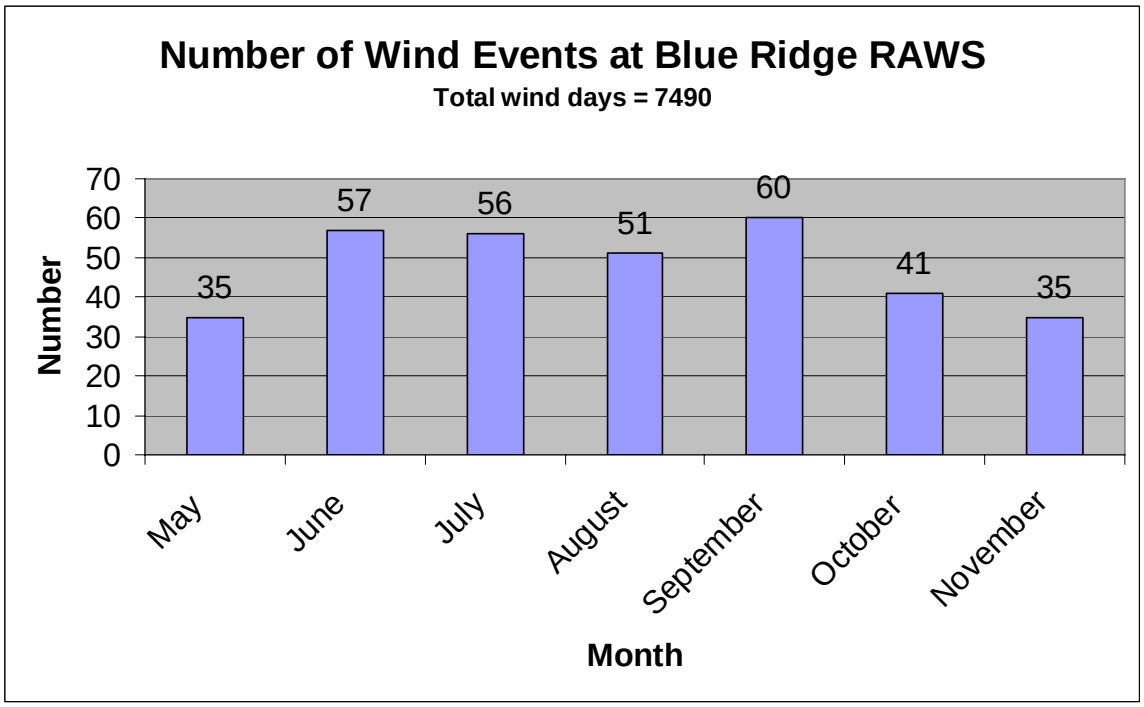
Historical data analysis indicates that wind direction is typically from the SW, moving fires toward the NE. The Sawyers Bar station is located at the valley bottom and daily weather observations are recorded at 1300 so wind events associated with cold front/thunderstorm passage are likely under represented. The Blue Ridge weather station is located on a ridge top and therefore would represent the winds aloft more accurately than the Sawyers Bar RAWS.


Sawyers Bar RAWS Observed Daily Wind Observations
Percent of Observations
45
40
35
30
25
20
15
10
5
0
North
NE
East
SE
South
SW
West
NW
Wind Direction
Early September
Late September
Early October
Late October


Blue Ridge RAWS Observed Daily Wind Observations
Percent of Observations
40
35
30
25
20
15
10
5
0
North
NE
East
SE
South
SW
West
NW
Wind Direction
Early September
Late September
Early October
Late October

“Rare event” fire spread would likely be associated with a cold front passage and strong, gusty winds. To determine the probability of such an event occurring Fire Family Plus was used to locate wind events >10 MPH. The results are displayed below:





Rare Event Risk Assessment Process

The Rare Event Risk Assessment Process (RERAP) was used to calculate fire movement and the probability of various fires reaching identified Trigger Areas, Trigger Points, and Points of Concern. RERAP inputs for active burn hours, daily spread rates, and rare event spread were calibrated using actual observations. Results assume an average daily common spread of 3-14 chains per day. A rare event spread is defined as daily spread of up to 5 miles per day. Line descriptions and RERAP results can be found in the tables/maps below for each fire assessed.

The RERAP analysis uses the following assumptions:

1) Suppression actions would not be taken on the fires assessed
2) Fire is active at the point of line origin
3) The Sawyers Bar RAWS adequately represents conditions in the areas where the fire is burning
4) Local fuel model layers and fire history maps provided by the forest are generally accurate
5) Local knowledge and observed fire behavior would improve calculated results
6) If observed fire behavior or fire weather changes significantly from observed and fire movement changes, recalculation of probabilities will occur

The data used to complete the analysis includes:

1) Fuels Data provided by the Region. New 40 Fuel Models were used.
2) Fire History Data
3) Aspect and Slope layers created from DEMs
4) 1971-2005 weather observations from Sawyers Bar weather station
5) Rate of spread values calibrated to approximate observed fire growth from 7/28 to 8/25.

SUMMARY OF RERAP ANALYSIS LINES AND RESULTS

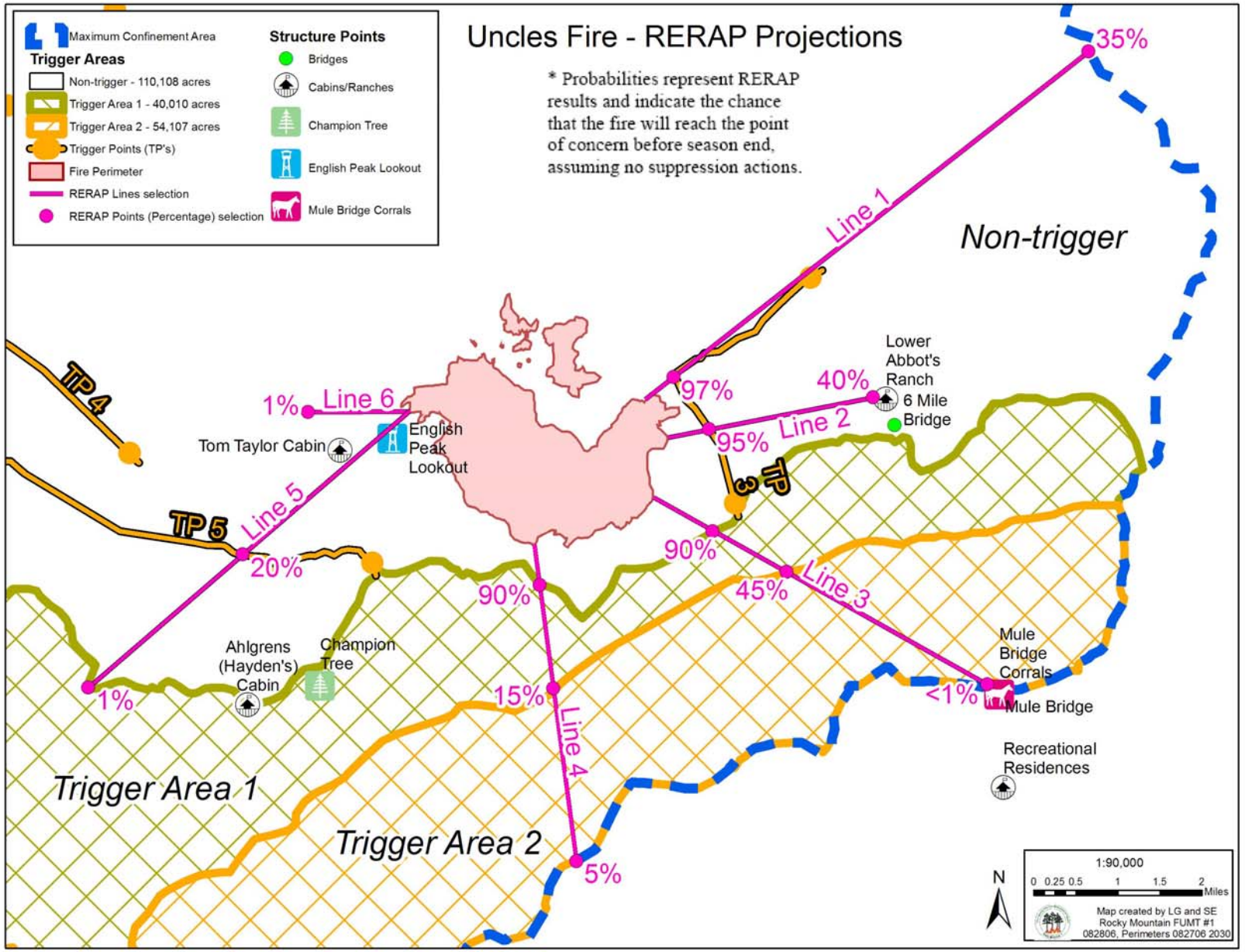
Hancock Fire

RERAP results are displayed in the table below. Assuming no suppression actions are taken, RERAP shows that it is most likely (45-50%) that the **Hancock Fire** will reach Trigger Point 2 (northeast of current fire) and Trigger Point 5 (Steinacher Ridge) before season end with the greatest likelihood occurring in early September.

Additionally, if the fire crosses Wooley Creek to the north, it is somewhat likely (40%) the fire will reach Medicine Mountain if no suppression actions are taken.

Based on historical weather data and observed fire behavior, it is less likely (<15%) that the fire will reach the MCA boundary to the southwest, west, north or northeast.

Hancock Fire				
Assessment Point	**Line Segment**	**Distance of Line**	**Time Period with highest probability**	**Probability by Season End (November)**
POINTS OF CONCERN -WEST				
Wooley Camp and Trigger Area 1	Line 1-West to Wooley Camp	120 chains; 1.5 miles	Early Sept	10%
Trigger Area 2	Line 2-West from Wooley Creek		None	<1%
Management Confinement Area (MCA) Boundary WEST	Line 2-If fire crosses Wooley Creek, to WFSA boundary WEST	526 chains; 6.5 miles	None	<1%
POINTS OF CONCERN-SOUTHWEST				
Trigger Point 5 Steinacher Ridge	Line4-SW to Steinacher ridge from Rock Creek	113chains; 1.4 miles	Early Sept	30%
Trigger Area 1	Line 4-SW from Rock Creek	226 chains; 2.8 miles	Early Sept	15%
Trigger Area 2	Line 4-SW from Rock Creek	314 chains; 4 miles	Early Sept	10%
MCA Boundary SW	Line 4-SW from Rock Creek	396 chains; 5 miles	Early Sept	10%
Brannon Bar and MCA SW	Line3-If fire reaches Wooley Camp, SW along Wooley Creek	203 chains; 2.5 miles	None	<1%
POINTS OF CONCERN-NORTH and NORTHEAST				
Medicine Mountain	Line 6-North if fire crosses Wooley Creek north up canyon creek to medicine mountain.	250 chains; 3.0 miles	Late Sept	40%
MCA Boundary North	Line 6-North if fire crosses wooley creek past Medicine Mnt to WFSA Boundary N	609 chains; 7.6 miles	Late Sept	5%
Trigger Point 2	Line 5-NE from Big Meadow Creek	114 chains; 1.4 miles	Early Sept	45%
MCA Boundary NE	Line 7-If fire crosses Wooley Creek at Big Meadow, NE following North Fork Wooley Creek	267 chains; 3.3 miles	Late Sept	15%
POINTS OF CONCERN-SOUTHEAST				
Trigger Point 5	Line 8-SE following Salt Log Creek	184 chains; 2.3 miles	Early Sept	50%
Hayden's Cabin	Line 8-SE past TA1	368 chains; 4.6 miles	Early Sept	10%

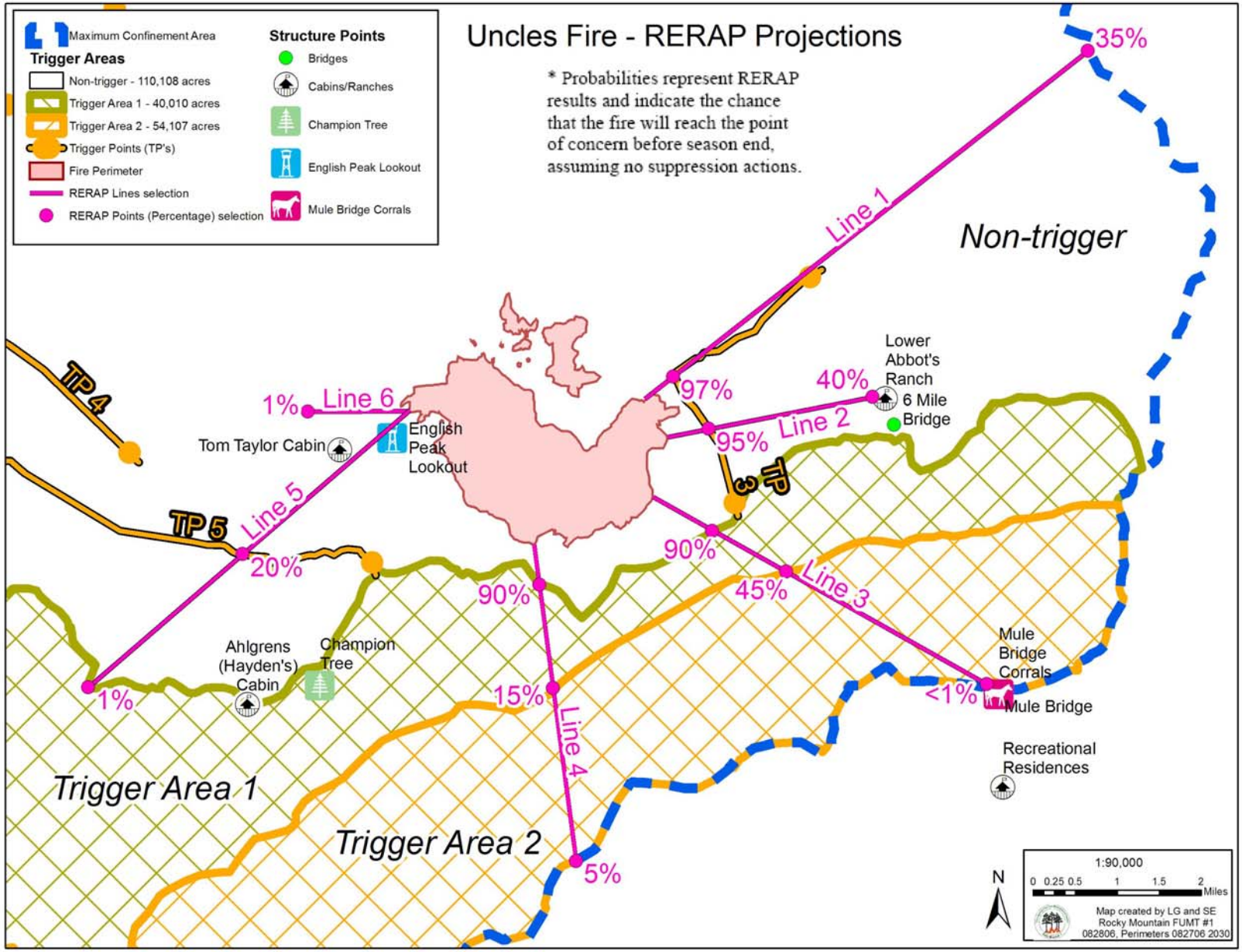

Uncles Fire - RERAP Projections
* Probabilities represent RERAP results and indicate the chance that the fire will reach the point of concern before season end, assuming no suppression actions.
Maximum Confinement Area
Trigger Areas
Non-trigger - 110,108 acres
Trigger Area 1 - 40,010 acres
Trigger Area 2 - 54,107 acres
Trigger Points (TP's)
Fire Perimeter
RERAP Lines selection
RERAP Points (Percentage) selection
Structure Points
Bridges
Cabins/Ranches
Champion Tree
English Peak Lookout
Mule Bridge Corrals
Non-trigger
Trigger Area 1
Trigger Area 2
TP 4
TP 5
TP 3
Line 1
Line 2
Line 3
Line 4
Line 5
Line 6
35%
97%
95%
40%
90%
45%
90%
20%
1%
15%
5%
1%
<1%
Lower Abbot's Ranch
6 Mile Bridge
Tom Taylor Cabin
English Peak Lookout
Ahlgrens (Hayden's) Cabin
Champion Tree
Mule Bridge Corrals
Mule Bridge
Recreational Residences
N
1:90,000
0 0.25 0.5 1 1.5 2 Miles
Map created by LG and SE
Rocky Mountain FUMT #1
082806, Perimeters 082706 2030

Uncles Fire

RERAP results are displayed in the table below. Assuming no suppression actions are taken, RERAP shows that it is most likely that the **Uncles Fire** will reach Trigger Point 3 (95%) to the east and Trigger Area 1 (90%) to the south and southeast. Additionally, it is somewhat likely (40%) that the fire will reach Abbot's Ranch and the North Fork of the Salmon River to the east. Furthermore, there is a 35% chance the fire will reach the MCA boundary to the northeast if no suppression actions are taken. However, since suppression actions are being taken on the northern and eastern flanks of the Uncles Fire, these probabilities have been greatly reduced.

Based on historical weather data and observed fire behavior, it is not likely (<5%) that the fire will reach the MCA boundary to the southwest, south or southeast (Mule Bridge).

Uncles Fire				
Assessment Point	**Line Segment**	**Distance of Line**	**Time Period with highest probability**	**Probability by Season End (November)**
POINTS OF CONCERN-EAST and NORTHEAST				
Trigger Point 3	Line 2-East from the Right Hand Creek of Uncles	33 chains; 0.4 miles	Late Sept	95%
Abbot's Cabin	Line 2-East from the fire's edge down Wall Creek drainage to Middle Fork	203 chains; 2.5 miles	Late Sept	40%
MCA Boundary to NE	Line 1-Northeast through Deadman Gulch	502 chains; 6.2 miles	Early Sept	35%
POINTS OF CONCERN-SOUTHEAST and SOUTH				
Trigger Area 1	Line 3-Southeast to ridgetop	67 chains; 0.8 miles	Late Sept	90%
Trigger Area 2	Line 3-Southeast	126 chains; 1.6 miles	Late Sept	45%
Mule Bridge and MCA SE	Line 3-Southeast	393 chains; 5 miles	None	<1%
Trigger Area 1	Line 4-South	33 chains; 0.4 miles	Late Sept	90%
Trigger Area 2	Line 4-South	87 chains; 1.0 miles	Late Sept	15%
MCA South	Line 4-South to Salmon River	208 chains; 2.6 miles	Late Sept	5%
POINTS OF CONCERN-SOUTHWEST AND WEST				
Hayden's Cabin and Trigger Area 1	Line 5- Southwest	354 chains; 4.4 miles	None	<1%
Tom Taylor's Cabin	Line 6-West	98 chains; 1.2 miles	None	<1%


Uncles Fire - RERAP Projections
* Probabilities represent RERAP results and indicate the chance that the fire will reach the point of concern before season end, assuming no suppression actions.
Maximum Confinement Area
Trigger Areas
Non-trigger - 110,108 acres
Trigger Area 1 - 40,010 acres
Trigger Area 2 - 54,107 acres
Trigger Points (TP's)
Fire Perimeter
RERAP Lines selection
RERAP Points (Percentage) selection
Structure Points
Bridges
Cabins/Ranches
Champion Tree
English Peak Lookout
Mule Bridge Corrals
Non-trigger
Trigger Area 1
Trigger Area 2
Line 1
Line 2
Line 3
Line 4
Line 5
Line 6
35%
97%
95%
90%
45%
15%
5%
90%
20%
1%
1%
40%
<1%
TP4
TP5
TP3
Tom Taylor Cabin
English Peak Lookout
Lower Abbot's Ranch
6 Mile Bridge
Ahlgrens (Hayden's) Cabin
Champion Tree
Mule Bridge Corrals
Mule Bridge
Recreational Residences
1:90,000
0 0.25 0.5 1 1.5 2 Miles
N
Map created by LG and SE
Rocky Mountain FUMT #1
082806, Perimeters 082706 2030

FIRE BEHAVIOR

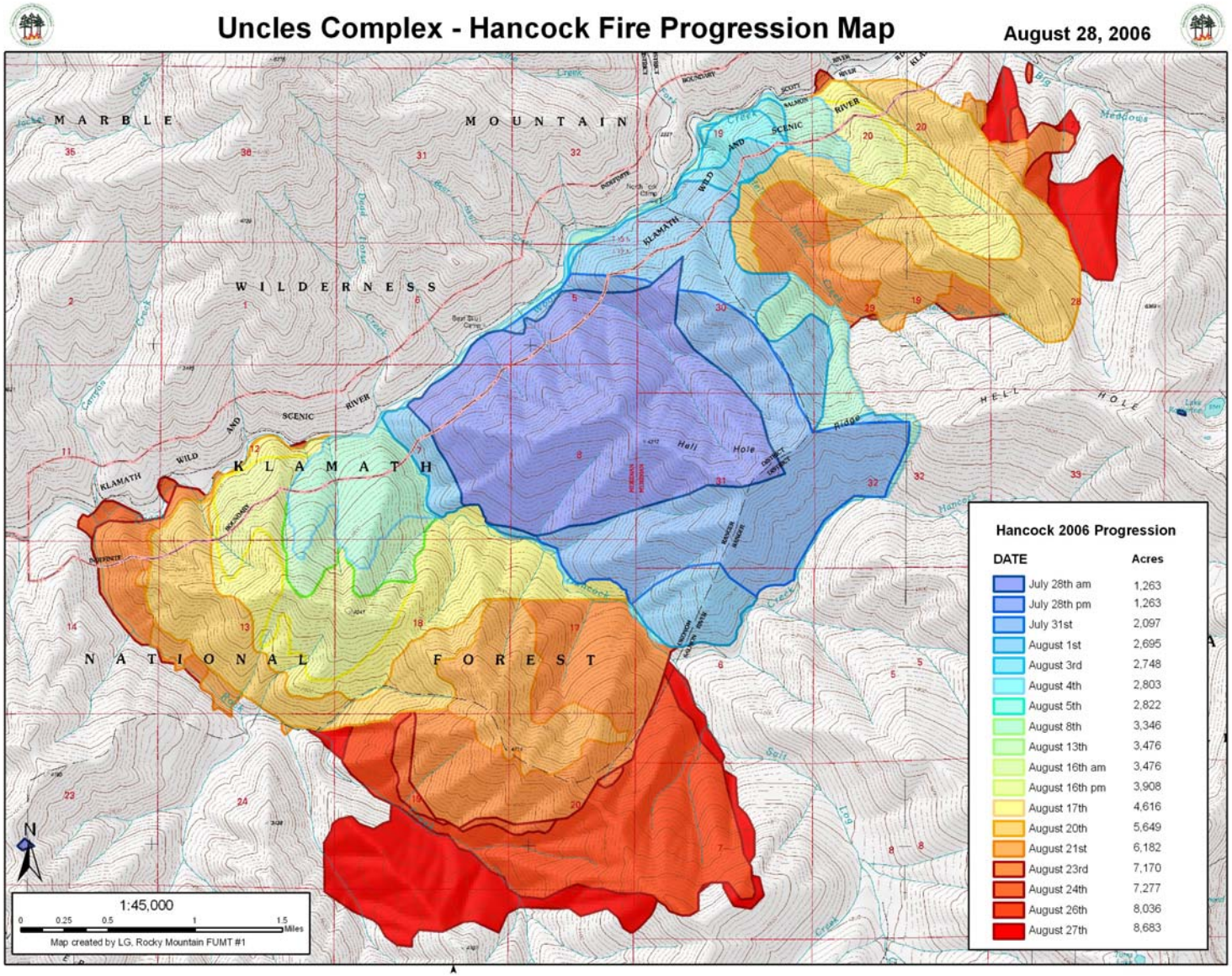
Observed Fire Behavior Summary and Discussion

Fire behavior has been significantly influenced by the fuels and topography. Currently fire growth has been slowed in the drainage bottoms (Hancock, Wooley, Rock, and Uncles Creek) by the influences of the relatively high moisture content (>100%) in the heavy shrub and tanoak component. Fire spread via low to moderate backing and flanking activity is the norm. Where 1000 hour fuels are driest (west and south aspects) and on exposed slopes spotting and isolated uphill crown fire runs have occurred in areas with heavier fuels and canopy. Upper level winds have been light and variable and generally have had little influence on fire behavior when less than 10 MPH. Minimum RH has typically ranged from 15-20% with maximum temperatures in the 90's. Generally, the fires become active when the inversion breaks, after 1300, and have also been burning in the evening and early morning hours when relative humidity recovery is poor. On average the fires have been burning activity and gaining acres in a 3-5 hour period between 1500 and 1800 daily.

The **Hancock Fire** is approximately 8,000 acres and continues to burn in shrub and timber fuel models (mixed conifer stands and shrub fields with moderate to heavy loads of downed woody fuels (see map in Fire Behavior Appendix); in very steep terrain, at between 2000' and 6000' elevation along the south side of Wooley Creek between Big Meadows and Rock Creek. This area was burned in the 1950's, 1987, and 1999. The fire has been backing and flanking though all fuel models with occasional torching in the timber. Ignitions from roll out occasionally make small upslope stand replacement runs on the upper 1/3 of the slope. Flame lengths range from 1 foot backing, 1-4 feet flanking, and >5 feet on upslope runs with short range spotting in Big Meadows, Hell Hole, Hancock, and Rock Creek drainages. The fire is most active at the headwaters of these drainages where slopes are exposed.

The Hancock Fire has burned 250-300 acres per day, mostly to the east/southeast in the head of Rock and Hancock Creeks, and also toward the west/north in Hell Hole and Big Meadow Creek (see Observed Fire Growth Table and Progression map below). The fire will become more active if it becomes established across Wooley Creek, Rock Creek and/or Big Meadow Creek and as live fuels continue to dry and warm weather persists across the region.

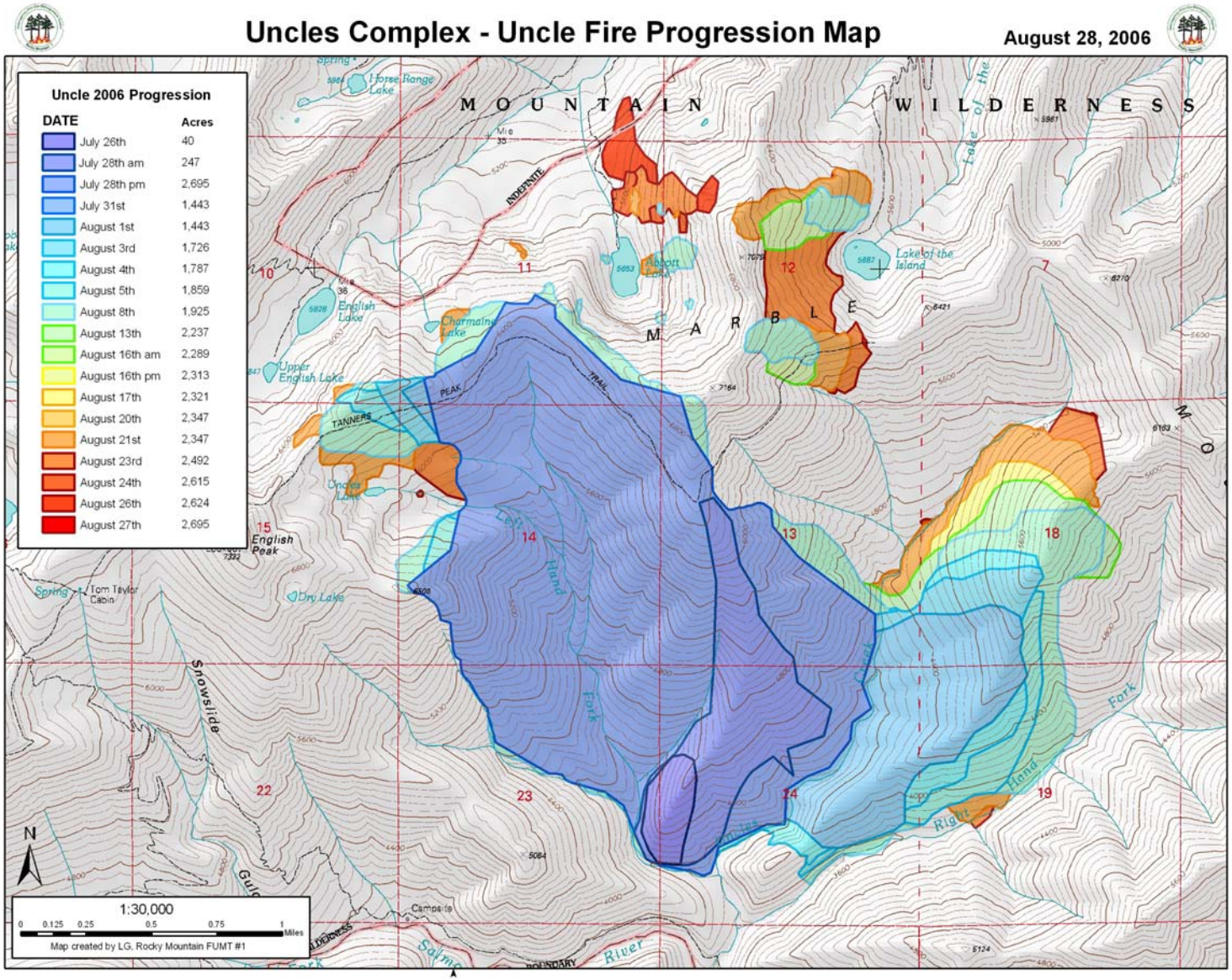
Day	North	NE	East	SE	South	SW	West	NW	Total Chains per Day	Average Daily Spread	Estimated Fire Size	Total Daily Growth (ac)
Hancock Fire												
7/26/06	4.8	42.6	56.5	56.5	10.13	4	2.6	2.6	**179.73**	**22**	10	40
7/27/06	4.8	42.6	56.5	56.5	10.13	4	2.6	2.6	**179.73**	**22**	626	616
7/28/06	4.8	42.6	56.5	56.5	10.13	4	2.6	2.6	**179.73**	**22**	1263	637
7/29/06	10.6	8.53	6.66	10.66	11.2	3.33	4.8	0	**55.78**	**7**	1541	278
7/30/06	10.6	8.53	6.66	10.66	11.2	3.33	4.8	0	**55.78**	**7**	1819	278
7/31/06	10.6	8.53	6.66	10.66	11.2	3.33	4.8	0	**55.78**	**7**	2097	278
8/1/06	16	32	30.4	0	0	0	0	0	**78.4**	**10**	2695	598
8/2/06	5.6	5.6	5.6	0	0	0	6.4	6	**29.2**	**4**	2721	26
8/3/06	5.6	5.6	5.6	0	0	0	6.4	6	**29.2**	**4**	2748	27
8/4/06	0	8	8	0	0	0	0	0	**16**	**2**	2803	55
8/5/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	**No Data**	2822	19
8/6/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	**No Data**	2997	175
8/7/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	**No Data**	3171	175
8/8/06	ND	ND	ND	ND	ND	ND	ND	ND	ND	**No Data**	3346	175
8/9/06	0	7.6	6	0.8	7.6	0	0	0	**22**	**3**	3372	26
8/10/06	0	7.6	6	0.8	7.6	0	0	0	**22**	**3**	3398	26
8/11/06	0	7.6	6	0.8	7.6	0	0	0	**22**	**3**	3424	26
8/12/06	0	7.6	6	0.8	7.6	0	0	0	**22**	**3**	3450	26
8/13/06	0	0	0	0	32	56	60	12	**160**	**20**	3476	26
8/14/06	0	6.66	8	9.3	20	1.6	11.2	12	**68.76**	**9**	3620	144
8/15/06	0	6.66	8	9.3	20	1.6	11.2	12	**68.76**	**9**	3764	144
8/16/06	0	6.66	8	9.3	20	1.6	11.2	12	**68.76**	**9**	3908	144
8/17/06	8	3.2	1.6	68	44	54.5	24	12	**215.3**	**27**	4616	708
8/18/06	10.6	8.26	8.26	14.13	4.8	9.86	10.4	3.3	**69.61**	**9**	4960	344
8/19/06	10.6	8.26	8.26	14.13	4.8	9.86	10.4	3.3	**69.61**	**9**	5305	345
8/20/06	10.6	8.26	8.26	14.13	4.8	9.86	10.4	3.3	**69.61**	**9**	5649	344
8/21/06	10	10.4	37.6	70.4	40	32	32	0	**232.4**	**29**	6182	533
8/22/06	3.2	0	28	7.6	13.6	19.2	37.5	5	**114.1**	**14**	6676	494
8/23/06	3.2	0	28	7.6	13.6	19.2	37.5	5	**114.1**	**14**	7170	494
8/24/06	8	8	0	0	4.8	8.8	8	10	**47.6**	**6**	7277	107
8/25/06	10	8	31.2	48	24	22	10	0	**153.2**	**19**	7690	413
8/26/06	10	8	31.2	48	24	22	10	0	**153.2**	**19**	8036	346
8/27/06	29.6	40	28	24.8	40	56	48	0	**266.4**	**33**	8683	647
8/28/06	0	0	0	44.8	10	14.4	0	0	**69.2**	**9**	8732	49
Totals	**187.2**	**357.35**	**497.46**	**594.17**	**414.79**	**360.47**	**366.8**	**109.7**	**2887.94**	**361**		
Average CH per Aspect	**5.51**	**10.51**	**14.63**	**17.48**	**12.20**	**10.60**	**10.79**	**3.23**	**84.94**	**10.62**		**250**


Uncles Complex - Hancock Fire Progression Map
August 28, 2006
MARBLE MOUNTAIN
WILDERNESS
KLAMATH
NATIONAL FOREST
SCENIC
RIVER
WILD
AND
Hell Hole
HELL HOLE
Hancock 2006 Progression
DATE
Acres
July 28th am 1,263
July 28th pm 1,263
July 31st 2,097
August 1st 2,695
August 3rd 2,748
August 4th 2,803
August 5th 2,822
August 8th 3,346
August 13th 3,476
August 16th am 3,476
August 16th pm 3,908
August 17th 4,616
August 20th 5,649
August 21st 6,182
August 23rd 7,170
August 24th 7,277
August 26th 8,036
August 27th 8,683
N
1:45,000
0 0.25 0.5 1 1.5 Miles
Map created by LG, Rocky Mountain FUMT #1

The **Uncles Fire** is approximately 2,700 acres, located approximately 1 mile east of English peak. It continues to smolder and creep at 3600 – 6500 feet elevation, mainly in timber patches in the vicinity of Abbot Lake and in Uncles and Right Hand Uncles Creek. The fire burned mostly in mixed conifer stands that have no recent fire history. Fire growth was slowed by the Specimen Fire (1994) located along the eastern fire perimeter. High fuel moistures in the creek bottoms, suppression actions, and sparse, discontinuous fuels in the vicinity of the lakes have significantly slowed fire spread.

The fire has grown on average between 50-100 acres per day (see Observed Fire Growth Table and progression map below). Spread is primarily towards the east and north as a backing and flanking fire, with average rates of spread of 1-3 chains/hour and flame lengths 1-3 feet backing and 2-4 feet flanking and upslope. When active the fire made several uphill crown runs on the west aspects approximately 1 mile from Abbot and Lake of the Islands and spotted on 7/28 in the isolated timber patches in the vicinity of the lakes. As of 8/26, the fire was no longer active or growing except in the vicinity of the lakes.

Day	North	NE	East	SE	South	SW	West	NW	Total Chains per Day	Average Daily Spread	Estimated Fire Size	Total Daily Growth (ac)
Uncles Fire												
7/26/06	32	0	0	0	0	0	0	0	**32**	**4**	40	40
7/27/06	38	34	26	17.5	0	0	25.2	65.3	**206**	**26**	247	207
7/28/06	38	34	26	17.5	0	0	25.2	65.3	**206**	**26**	546	299
7/29/06	0	20	13.3	8.53	12	0	2.4	0.8	**57.03**	**7**	845	299
7/30/06	0	20	13.3	8.53	12	0	2.4	0.8	**57.03**	**7**	1144	299
7/31/06	0	20	13.3	8.53	12	0	2.4	0.8	**57.03**	**7**	1443	299
8/1/06	8	14.4	0	0	8.8	6.4	6.4	0	**44**	**6**	1726	283
8/2/06	3.2	2	5.2	2.8	5.2	6	8	2	**34.4**	**4**	1756	30
8/3/06	3.2	2	5.2	2.8	5.2	6	8	2	**34.4**	**4**	1787	31
8/4/06	3.2	2	5.2	2.8	5.2	6	8	2	**34.4**	**4**	1859	72
8/5/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	1925	66
8/6/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2029	104
8/7/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2133	104
8/8/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2237	104
8/9/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2247	10.4
8/10/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2257	10
8/11/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2268	10.4
8/12/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2278	10.4
8/13/06	1.77	2.66	2.22	1.61	0.88	1.16	2.22	1	**13.52**	**2**	2289	10.8
8/14/06	5.05	2.66	1.6	1.06	0	0	0	0	**10.37**	**1**	2300	10.6
8/15/06	5.05	2.66	1.6	1.06	0	0	0	0	**10.37**	**1**	2310	10.6
8/16/06	5.05	2.66	1.6	1.06	0	0	0	0	**10.37**	**1**	2321	10.8
8/17/06	8	2.66	6.5	0	0	8	8	8.8	**41.96**	**5**	2344	23
8/18/06	1.6	2.66	0	0	0	0	0	0	**4.26**	**1**	2345	1
8/19/06	1.6	2.66	0	0	0	0	0	0	**4.26**	**1**	2346	1
8/20/06	1.6	2.66	0	0	0	0	0	0	**4.26**	**1**	2347	1
8/21/06	12	2.66	9.6	4.8	7.2	10.4	4.8	3	**54.46**	**7**	2492	145
8/22/06	4	2.66	8	2	11	6	8	1	**42.66**	**5**	2554	61.5
8/23/06	4	2.66	8	2	11	6	8	1	**42.66**	**5**	2610	56.5
8/24/06	0	0	0	0	0	1.6	3.2	1.6	**6.4**	**1**	2615	5
8/25/06	11.2	3.2	1.6	0	0	0	0	5.4	**21.4**	**3**	2645	30
8/26/06	11.2	3.2	1.6	0	0	0	0	5.4	**21.4**	**3**	2695	50
8/27/06	0	0	0	0	0	0	0	0	**0**	**0**	2695	0
8/28/06	0	40	14.4	8.8	0	0	0	0	**63.2**	**8**	2788	93
Totals	**211.88**	**2.66**	**181.98**	**104.26**	**97.52**	**66.84**	**139.98**	**174.2**	**1222**			-2788
Average CH per Aspect	**6.23**	**0.08**	**5.35**	**3.07**	**2.87**	**1.97**	**4.12**	**5.12**	**35.94**	**4**		**0**


Uncles Complex - Uncle Fire Progression Map
August 28, 2006
Uncle 2006 Progression
DATE
Acres
July 26th 40
July 28th am 247
July 28th pm 2,695
July 31st 1,443
August 1st 1,443
August 3rd 1,726
August 4th 1,787
August 5th 1,859
August 8th 1,925
August 13th 2,237
August 16th am 2,289
August 16th pm 2,313
August 17th 2,321
August 20th 2,347
August 21st 2,347
August 23rd 2,492
August 24th 2,615
August 26th 2,624
August 27th 2,695
MOUNTAIN
WILDERNESS
MARBLE
Horse Range Lake
English Lake
Charmaine Lake
Upper English Lake
Abbott Lake
Lake of the Island
Uncles Lake
English Peak
Dry Lake
Tom Taylor Cabin
Spring
Snowslide
Left Hand Fork
Right Hand Fork
Lake Fork
Campsite
Salmon River
INDEPENDENCE
TRAIL
PEAK
TANNERS
10
11
12
13
14
15
18
19
22
23
24
N
1:30,000
0 0.125 0.25 0.5 0.75 1 Miles
Map created by LG, Rocky Mountain FUMT #1

Predicted Fire Growth

If conditions remain the same, expect the Hancock fire to reach 12,000 acres by Sept 8th. The fire should continue to grow to the southeast, and east towards the Uncles fire and the lakes, as well as move south and southeast across Rock Creek toward Steinacher Ridge. Also, expect the fire to continue growing to the east/southeast in the headwaters of Hell Hole and the un-named drainage. To the north, expect the fire to cross Big Meadow Creek but stall out before reaching the South Fork of Wooley Creek. Given suppression actions taken along Wooley Creek, expect the fire to hold along Wooley Creek. If the fire does cross Wooley Creek however, the fire has potential to increase in activity if established in the SW/NE oriented and aligned drainages of Canyon Creek (in the vicinity of Fowler Cabin), and North Fork Wooley (near the confluence of Big Meadow Creek and Wooley on the northeast end of the fire).

If conditions remain the same, expect the Uncles Fire to reach 3,000 acres by September 8th. The fire should continue to grow slowly around the lakes toward the north and east. Suppression actions have generally slowed and/or stopped fire growth in other directions.

Fire Spread Probability (FSPRO)

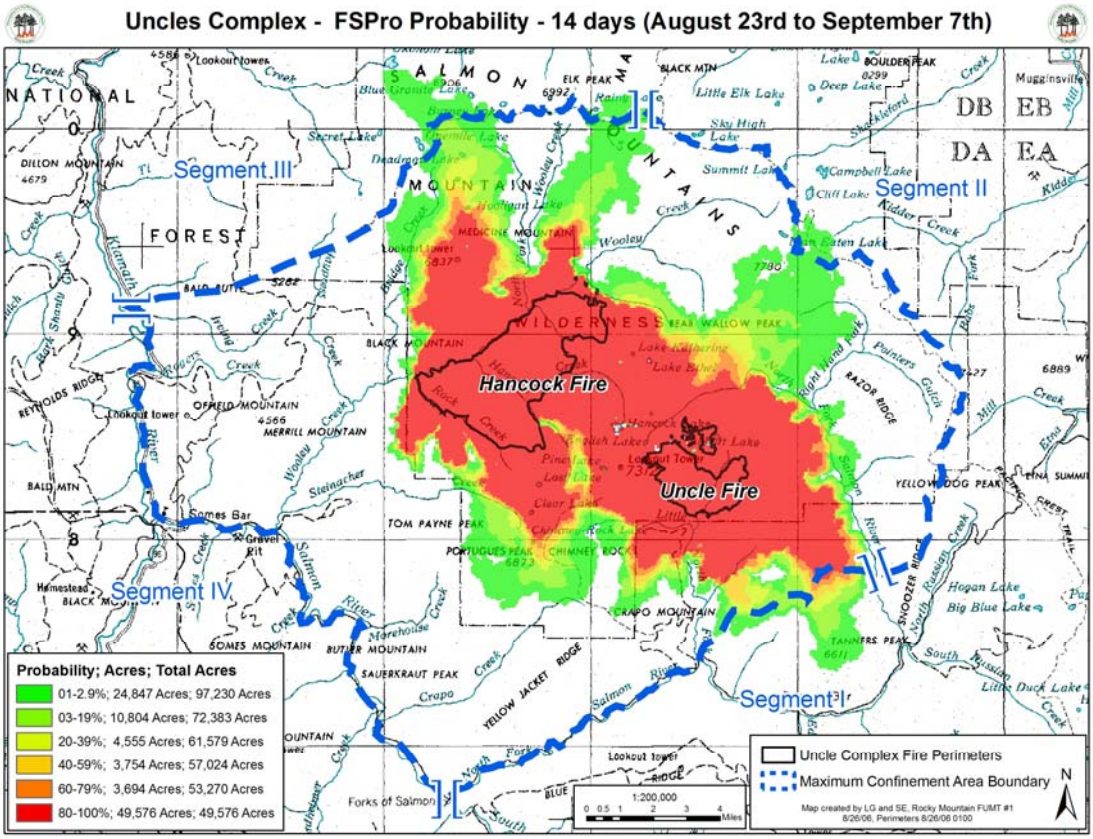
The Rare Event Risk Assessment Process is typically used to determine the likelihood of a fire spreading to a point of interest or concern before a season-ending or fire-ending event. Because it is not likely that either of those will occur within the next three months, this process may not provide all of the information fire managers need to make decisions in the short term on this wildland fire use event.

A new tool just being developed for wildland fire decision support is Fire Spread Probability (FSPro). The Missoula Fire Lab is developing and testing this experimental program that is designed to estimate the likely paths of fire spread from a point or polygon and the probability of this spread occurring in a given time period based on fuels, topography, and historical weather and wind data. In the FSPro analysis, thousands of scenarios are generated based on historical probabilities of daily fuel moistures and ERCs as well as hourly winds for a given time period. Fire spread is then projected for that time period under each of these thousands of weather/wind scenarios to determine the probability of the fire spreading across the landscape.

The Hancock and Uncles Fire were analyzed together in a 14 day probability analysis (August 23rd-Sept 7th). Model results showed an 80 percent probability of the Uncles Complex reaching 50,000 acres in size. Though FSpro results show a high probability of the fire breaching the MCA to the southeast, it is not likely as FSpro results assume no suppression actions and an active perimeter. Suppression actions have been taken on the south and east flanks which has substantially reduced the probability.

Fire Spread Probability (FSpro) RESULTS	
80%	**50,000 acres**
60%	**53,000 acres**
40%	**57,000 acres**
20%	**62,000 acres**
<20%	**72,000 acres**

The map with results is displayed in Section XX, Threats to MCA. This information was modeled by utilizing the historical weather data from the Sawyers Bar and the Blue Ridge RAWS. The results of the 14 day FSPRO which was calculated for the Hancock and Uncles fires showed a significant increase in the overall acreage and in fact the two fires growing together. The fires are predicted to increase in generally all directions with minimal spread to the west. The probability of fire spreading to each area on the map based on the current perimeter within the given time period is displayed by the different colored bands. Beginning with a >90% probability of spreading to the areas within the innermost red contour in the 14-day period, each successive contour of color represents decreasing probability of fire spread. The outermost green contour indicates there is less than a 0.5% probability of the fire spreading to those areas within the given time period based on the historical weather and fuel model data used in the analysis. It also indicates that the weather parameters that could cause fire spread to those areas has happened at least once in the historical record.



Summary of Expected Fire Behavior

- If the dry weather pattern continues, expect the shrub species to become more available for burning as live fuel moisture decline. Expect increased intensity, spread rates and daily growth for the next month, especially on the south aspects.
- Sustained winds of >10 mph were a primary factor for fire spread on both the Uncles and Hancock Fires during the periods of large fire growth. As canyons align with winds stronger than 10 mph, the fire behavior should be expected to increase significantly.
- Expect the Hancock Fire to continue to move south and southeast within and across Rock Creek and towards Steinacher Ridge. Also expect fire continue to move east and northeast in Hancock, Hell Hole and Big Meadows Creek. Ignitions from rollout will continue to be the primary method for fire growth in steep terrain. A westerly or SW wind event could move the fire significantly up drainage where it could make runs toward the Uncles fire area.
- Expect the Uncles Fire not to increase in size significantly in the next week unless a wind event occurs. Fire activity is currently limited to the head of Uncles Creek and Abotts Lake.

APPENDIX B

RESOURCE ADVISORS MITIGATION / CONCERNS / TRAIL CLOSURES

Recreation Resources

Minimum Impact Suppression Tactics Utilize appropriate suppression response and Minimum Impact Suppression Techniques in the Marble Mountain Wilderness.

Fire Line: Use natural barriers if possible. Minimize the bucking and felling of trees. Allow burning trees or snags to burn themselves out. Minimize the construction of Helispots and handlines.

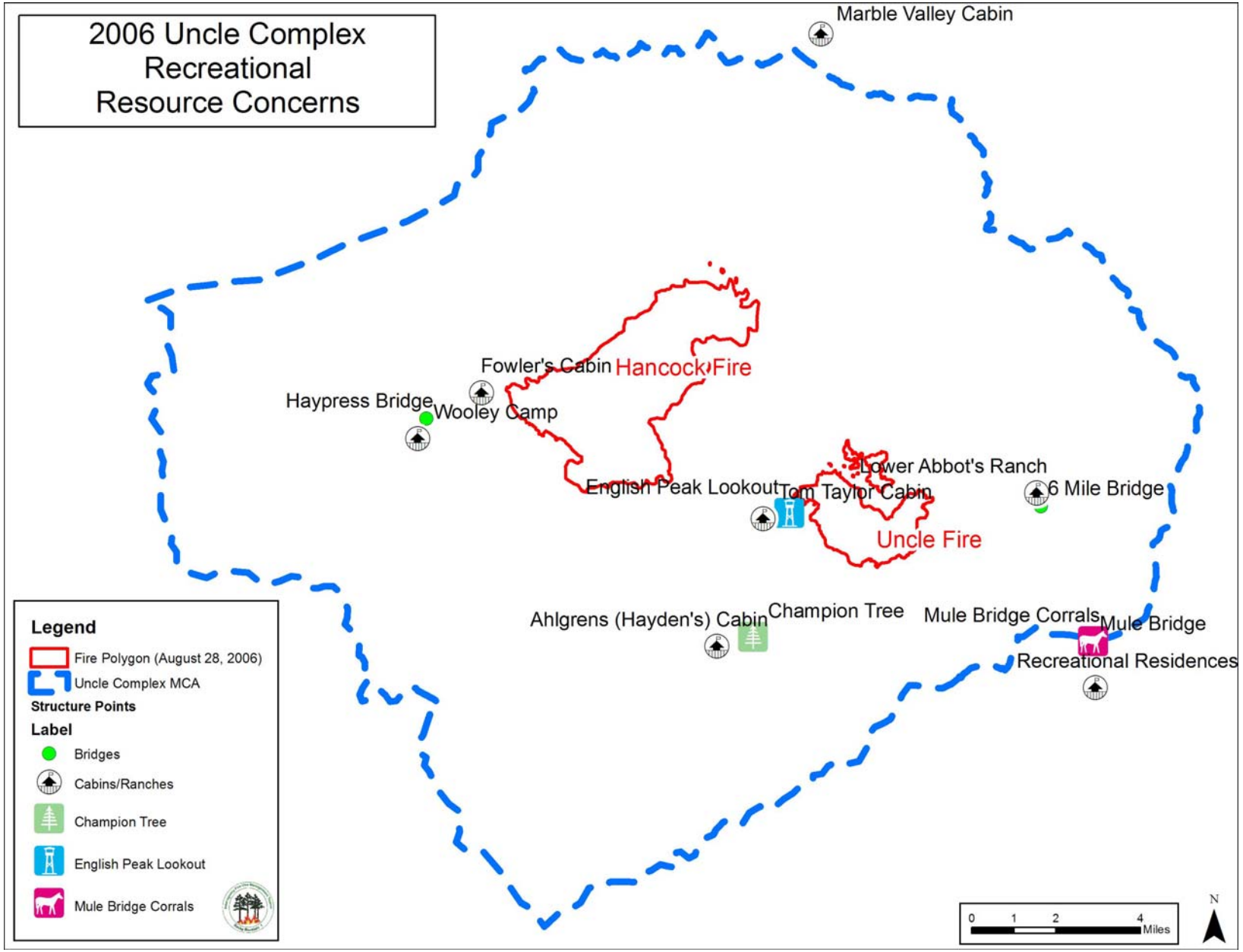
Camps: Select impact resistant sites. Pack out all garbage-keep a clean camp. Carry water and bathe away from lakes. Use toilets if provided otherwise dig a cathole 6"-8' deep and 200' away from water sources. Minimize the number of trails in and around camps. Practice "Leave No Trace" Techniques.

The District requests that it be stressed at briefings that Wilderness Values and Characteristics be kept in mind when making decisions that have significant impacts upon the landscape during this Appropriate Management Response to the Uncle's Complex.

Structure	Lat/Long	Material	Actions Needed
Recreational Residences	41.341 N 123.073 W	Wood	Clear Around Buildings / Wrap
Mule Bridge Corrals	41.357 N 123.074 W	Wood	Clear Around Corrals
Bridges			
Mule Bridge	41.357 N 123.074 W	Metal Wood Decking	Wrap or Cover Decking
6 Mile Bridge	41.4035 N 123.098 W	Metal Wood Decking	Wrap or Cover Decking
Lower Abbot's Ranch	41.408 N 123.100 W	Metal	Clear Around Building.
Ahlgrens (Hayden's) Cabin	41.355 N 123.246 W	Wood	Wrap
English Peak Look out	41.401 N 123.213 W	Wood / Metal Roof	Wrap
Tom Taylor Cabin	41.399 N 123.225 W	Wood	Wrap
Marble Valley Cabin	41.566 N 123.199 W	Wood	Wrap
Fowler's Cabin	41.442 N 123.354 W	Wood	Clear Around Buildings / Wrap
Wooley Camp	41.426 N 123.383 W	Wood	Clear Around Buildings / Wrap

Upper North Fork Salmon River Drainage: Hancock, Abbott, English Lake area - High Wilderness and recreational values

***** Waiting to hear from Ukonom Ranger District for Lat / Long of their bridges


2006 Uncle Complex
Recreational
Resource Concerns
Marble Valley Cabin
Fowler's Cabin
Hancock Fire
Haypress Bridge
Wooley Camp
Lower Abbot's Ranch
English Peak Lookout
Tom Taylor Cabin
6 Mile Bridge
Uncle Fire
Ahlgrens (Hayden's) Cabin
Champion Tree
Mule Bridge Corrals
Mule Bridge
Recreational Residences
Legend
Fire Polygon (August 28, 2006)
Uncle Complex MCA
Structure Points
Label
Bridges
Cabins/Ranches
Champion Tree
English Peak Lookout
Mule Bridge Corrals
0 1 2 4
Miles
N

Fishery Resource Fire Concerns and Resource Protection Measures

Water Use and Withdrawal

1) It is preferable for engines to pump from a Fold-A-Tank rather than directly from a stream channel. Draft water from ponds, if available, in order to avoid drafting in streams where coho salmon juveniles or their critical habitat may be present. The goal is to minimize using water sources where there is a risk of entraining listed species or reducing stream flows, both on and off-site.
2) Water tenders: be careful of oil drips on stream banks. Put drop clothes down prior to drafting.

When water drafting from anadromous fish bearing reaches:

1) Screen intake hoses with 3/32" mesh, or create in stream fish-exclusion area using a box or other device with 3/32" mesh.
2) Where practical (and suppression efforts are not impeded), pumping rate will not exceed 350 gallons per minute or 10% of the stream flow, measured at the first point of anadromy downstream of the drafting site.
3) Pumping will be terminated when tank is full to avoid bank erosion and rilling.

Priorities for taking water (Helicopters):

1) 1st choice – Lakes outside wilderness
2) 2nd choice – Lakes inside wilderness
3) 3rd choice – Mainstem Klamath above confluence with tributaries

Foam Use

1) Avoid using foam near Riparian Reserves (RRs) as foam is at least Ten Time More Toxic than Non-Foam retardant to Aquatic Life! Ok to use foam on hillslopes and ridgelines away from stream channels and RRs
2) Follow USFS 2000 directions be dropping retardant at least 300 feet from a stream channel.
3) Try to use the newer form of retardant (I think it's called 95-A) as this retardant is less toxic to aquatic life than previous versions.

   Exceptions:

   - When alternative line construction tactics are not available due to terrain constraints, congested area, life and property concerns, etc. it is acceptable to anchor the retardant line to the RR. When anchoring a retardant application to the RR, use the most accurate method of delivery in order to minimize placement of retardant in the stream channel (e.g., a helicopter rather than an air tanker).

- Deviations from these guidelines are acceptable when life or property is threatened and the use of retardant or foam can be reasonably expected to alleviate the threat.
- When potential damage to natural resources outweighs possible loss of aquatic life, the unit administrator may approve a deviation from these guidelines.
- Report to fish biologist when the USFS 2000 direction was not met ASAP so that follow up fieldwork can be done to determine impacts. This means, that when the direction is not met, report number, location, and magnitude of aerial retardant applications [with regard to stream channels].

Opening Closed Roads

1) To the extent practical, avoid and minimize road and stream crossing reconstruction. Restore roads damaged or opened during fire suppression. Restoration work should be done during fire suppression rehabilitation.
2) Track the amount of re-opened, and rehabilitated roads.

Fire Line Construction

1) Restore dozer and hand lines constructed during fire suppression. Restoration work
should be done during fire suppression rehabilitation.

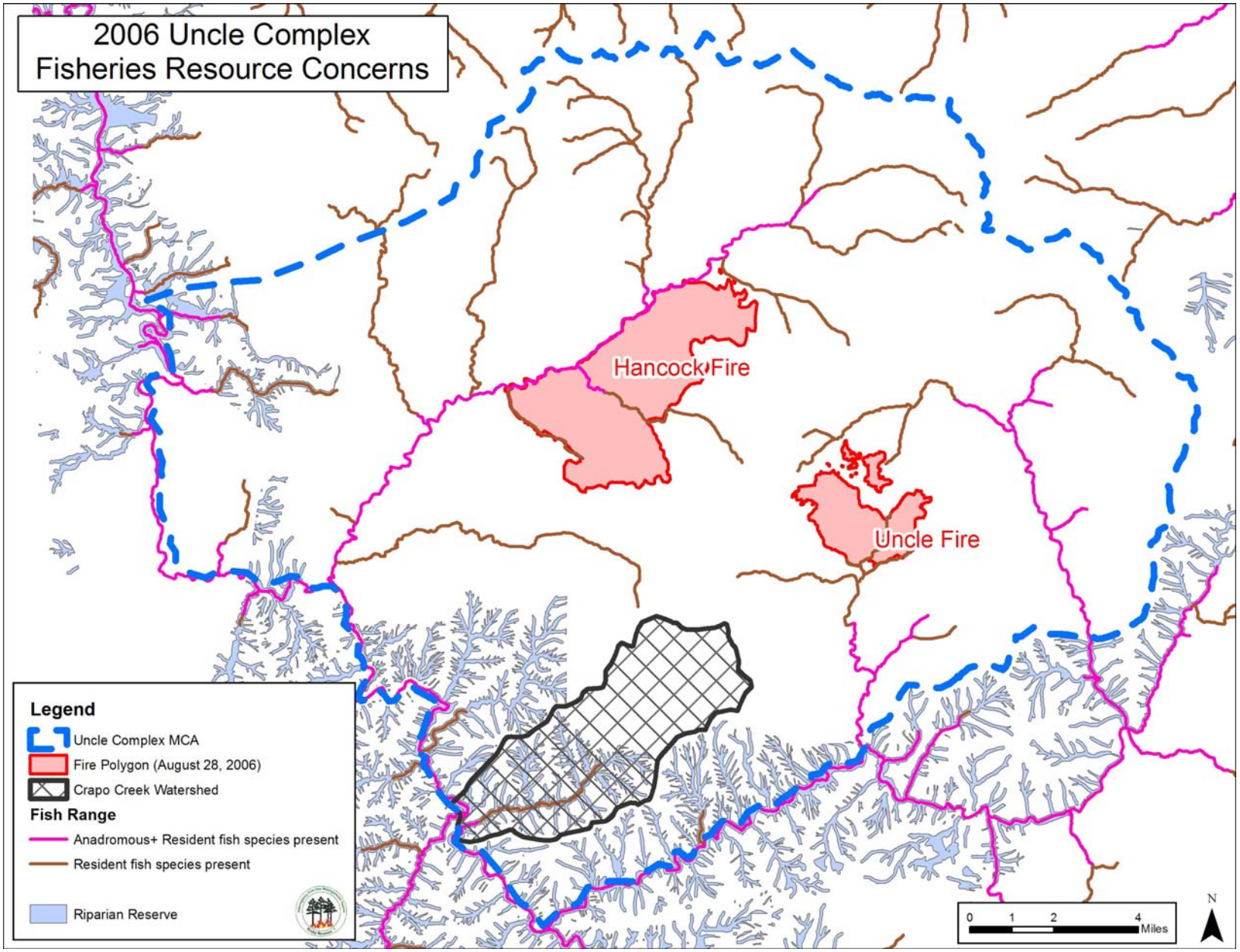
Backfire Operations

1) Approval to backfire from RR's if necessary.
2) Since backfiring operations are low to moderate intensity, it is acceptable if some fire backs into RR's during these operations.
3) Restore fire lines constructed for backfiring operations as stated above.

Other concerns

1) Since the fire within the Wooley Creek drainage is largely low to moderate intensity no concerns at this time.
2) Keep the fire out of Crapo Creek Watershed if possible since there are large portions of decomposed granitics present throughout that watershed so high risk of erosion occurring should the fire reach that watershed.

Any Question please contact:
Brian Thomas
Fishery Biologist
Klamath National Forest Supervisor's Office
530-841-4547


2006 Uncle Complex
Fisheries Resource Concerns
Hancock Fire
Uncle Fire
Legend
Uncle Complex MCA
Fire Polygon (August 28, 2006)
Crapo Creek Watershed
Fish Range
Anadromous+ Resident fish species present
Resident fish species present
Riparian Reserve
0 1 2 4 Miles
N

Late Seral Forest Threatened, Endangered, And Sensitive Species

Northern Goshawk and Northern Spotted Owls

Northern goshawk and northern spotted owls can occur throughout the project areas. GIS layers indicate known activity centers for these species. Many of these historic locations have not been verified for years. There is a low risk of disturbances to reproducing owls and goshawk, since breeding chronology's are nearly completed for this year.

Suitable spotted owl habitat will benefit from low to moderate intensity burns by reducing fuel loadings and increasing the longevity of the stand. A mosaic of low to moderate fire intensities should not preclude its use next breeding season. High intensity burns will result in a loss of habitats and may take many years before reaches suitability again. In suitable habitat and areas of historic NSO, suppression actions should attempt to emphasize low to moderate intensity fires and limit stand replacing (high) intensities if possible. Back firing can be beneficial particularly if it can keep fires in a low to moderate intensity.

Peregrine Falcon

One known eyrie is located in the Tom Payne area (SW portion of the Marble Mountains Wilderness). In addition, a credible incidental sighting of an adult peregrine falcon was made by the helitack crew member on 8/3/2006 near English Peak above the Uncles Fire. Peregrine falcons nests on exposed cliff habitat thru the end of July. Though this species is very susceptible to human disturbance, there should be little risk to nesting since breeding is complete this year. Dozer lines should consider not being placed on the edges of exposed cliff habitats

Pacific Giant Salamander (aka native American name "puf-puf")

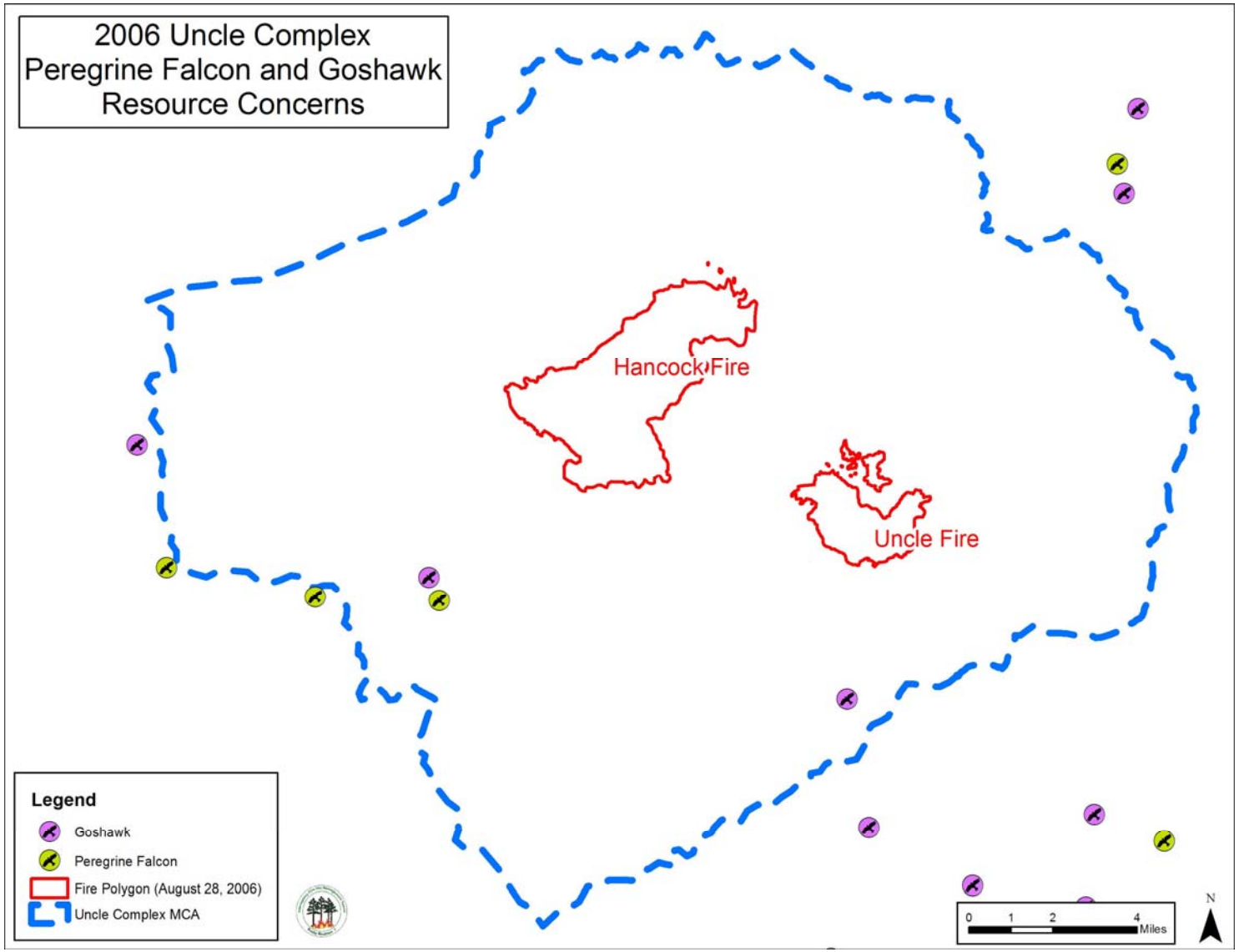
Common aquatic salamander in cold high gradient streams can reach 300 mm (11-12") long. Recognized to be important to local native culture. This species can have gills as adults or metomorphasize to terrestrial life.

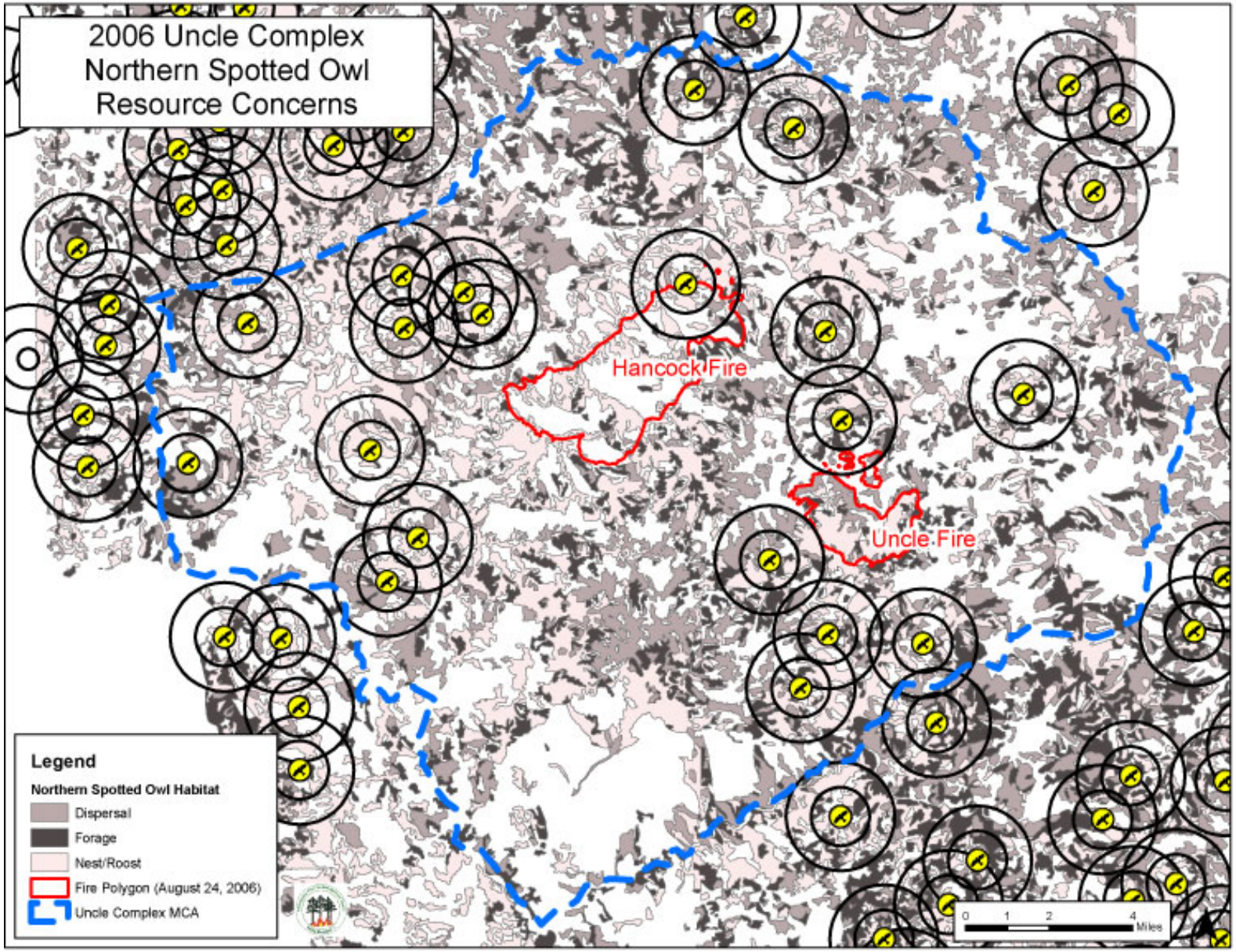
Recommendations are to prevent suction into portable pumps by applying adequate filters on intakes. Do not run any ponds or standing bodies of water dry.

Rough-skinned Newt

Common aquatic newt in ponds and small lakes and can reach 170 mm (6-7") long. This newt has a bright orange underside and many small glands on dorsal side. Rough-skinned newts are highly toxic and should not be handled.

Recommendations are to prevent suction into portable pumps by applying adequate filters on intakes. Do not run any ponds or standing waterbodies dry. Do not handle this species. If handled hands should be washed thoroughly.




2006 Uncle Complex
Northern Spotted Owl
Resource Concerns
Hancock Fire
Uncle Fire
Legend
Northern Spotted Owl Habitat
Dispersal
Forage
Nest/Roost
Fire Polygon (August 24, 2006)
Uncle Complex MCA
0 1 2 4
Miles

Range Management Information for the Uncle's Complex Fires

The Uncle's complex is in the vicinity of the Little North Fork grazing allotment for which a term livestock grazing permit is issued to the Hayden Ranch in Scott Valley. Charlie and Pam Hayden are the primary family members operating in the area and run 250 cow/calf pairs from mid-July through mid-October. The current grazing allotment boundaries are in GIS. Currently the fires are outside the allotment boundaries and the livestock grazing occurs in high meadows and openings several miles from current fire activity.

The primary grazing areas include Crapo Meadows, Dollar Meadows, Morehouse Meadows, Devils Canyon and the head of Steinacher Creek. The permittee has a cabin (Alghren Cabin) located in Sec. 32 at the head of Crapo Creek. I have contacted the permittee and left a message indicating that we would like to know when they go in to the allotment area, which typically is every week or two to manage livestock, move salt, etc. The livestock and the permittee access the allotment via the Little North Fork and Cherry Creek roads--40N51 road and then up 40N33 to the end. Both roads are on the hillside to the west of the Little NF Salmon River. At the end of 40N33, cattle are herded up a trail that crosses the Little NF Salmon River and heads up toward the main pasture units of the allotment.

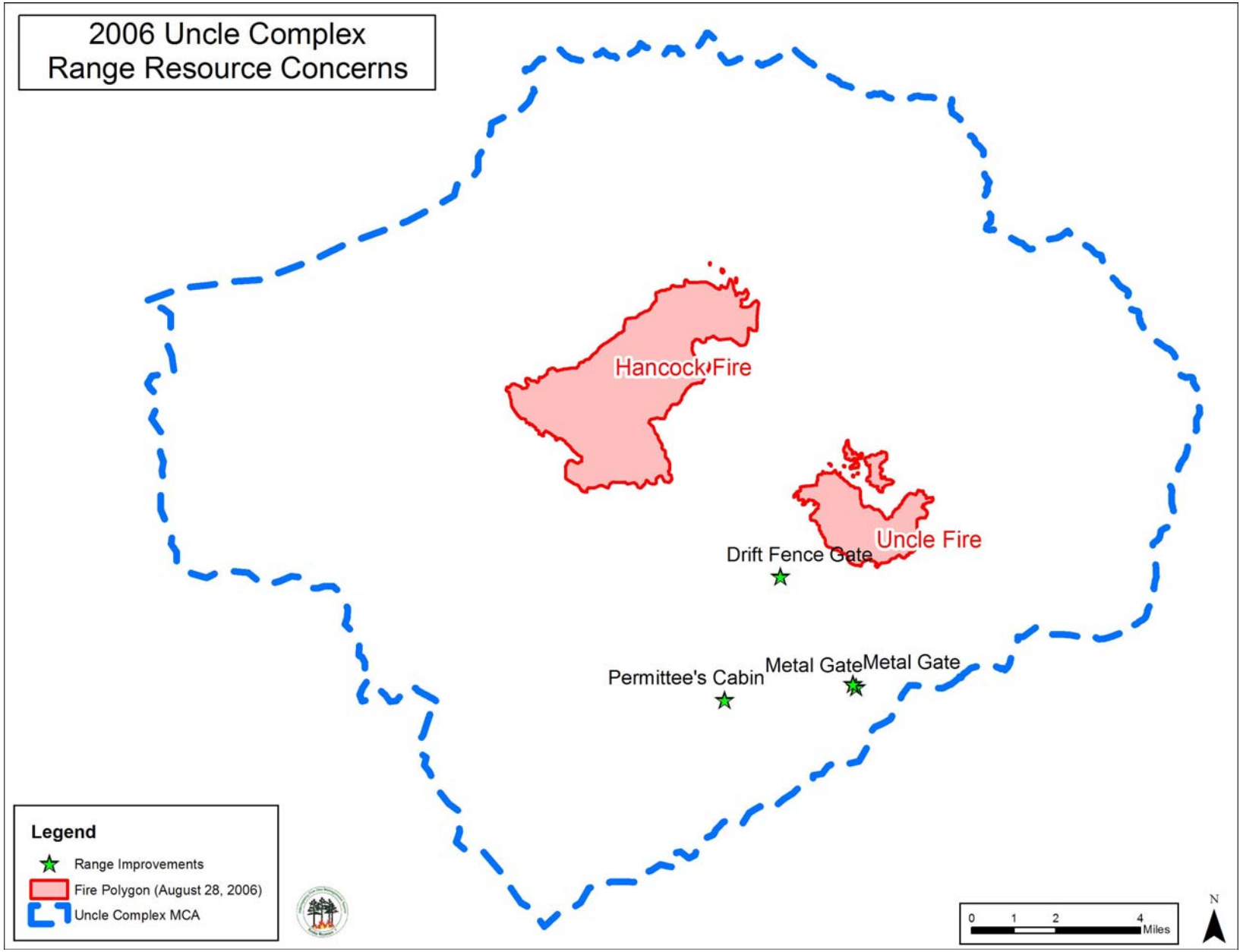
Where the trail heads up from the 40N33 road there is a gate that is closed after cattle are up in the allotment and should remain closed throughout the grazing season (Snowslide Gulch, see map), Cattle are usually stopped at this location as they attempt to head back down the 40N33 road near the end of the grazing season. Cows usually leave the allotment using the same trails and roads they used to get up. During the end of the grazing season (typically when the weather starts to change and cool off significantly late in the season) cattle start to move down and out of the allotment. They will typically move down together as a herd and are stopped at one of three gates along the cattle route used to control their movement and facilitate their transportation out of the area. At this time it will be important to coordinate with the permittee and fire personnel who may be using the same routes to access the fire area.

I can be contacted at 468-1226 or by cell 598-9330.

Charlie and Pam Hayden's home phone is 467-3915. Charlie's cell phone number is 598-6413.

If I receive more information from the Hayden's I will forward it on to Bill, Mike and the team.

Anne Yost
Regional Rangeland Management Specialist


2006 Uncle Complex
Range Resource Concerns
Hancock Fire
Uncle Fire
Drift Fence Gate
Permittee's Cabin
Metal Gate
Metal Gate
Legend
Range Improvements
Fire Polygon (August 28, 2006)
Uncle Complex MCA
0 1 2 4
Miles
N

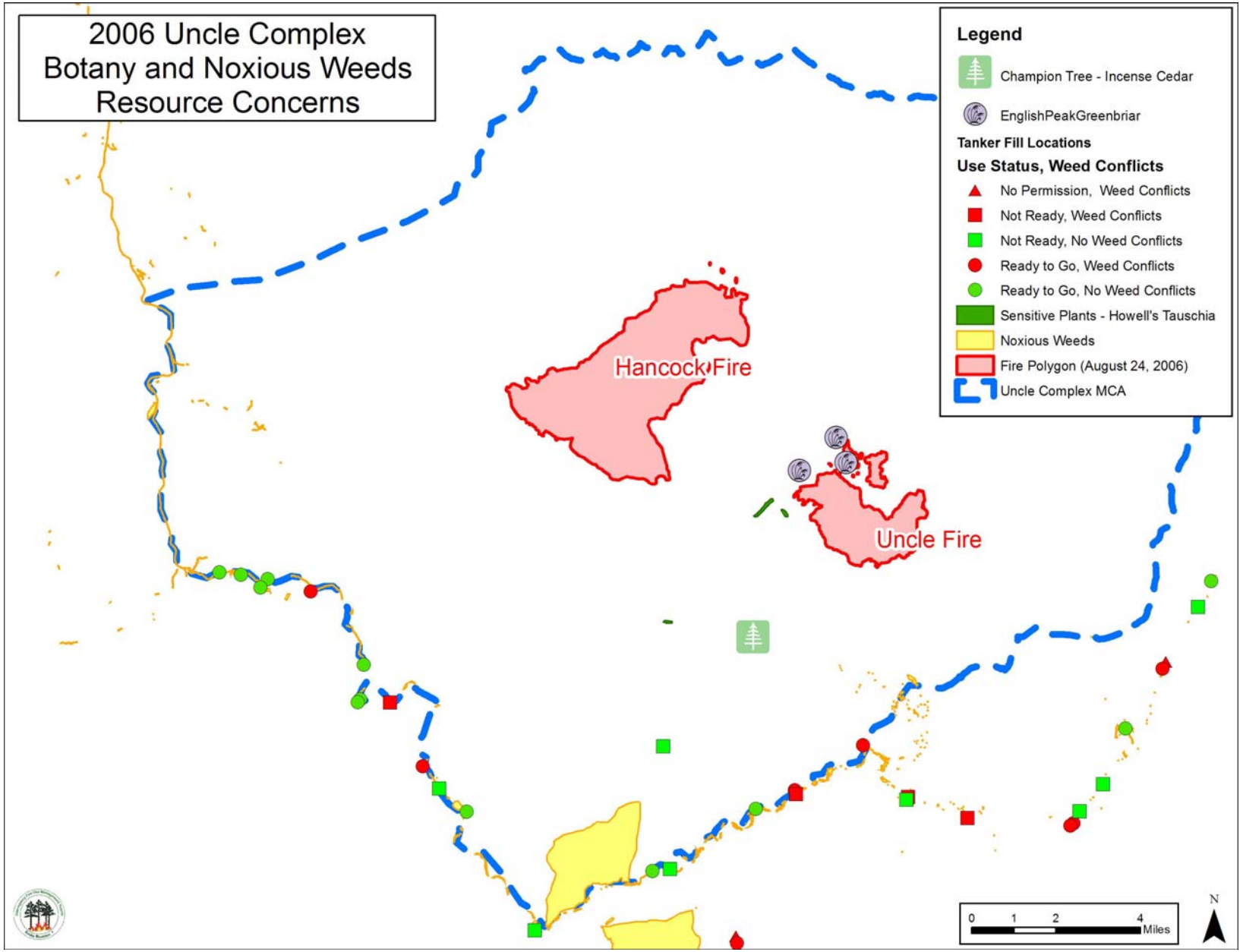
Botany, and Noxious Weeds

Marla Knight, Botanist. (530) 468-1238.
August 22, 2006

All Sensitive plant and noxious weed sites through field season 2005 are mapped in GIS.

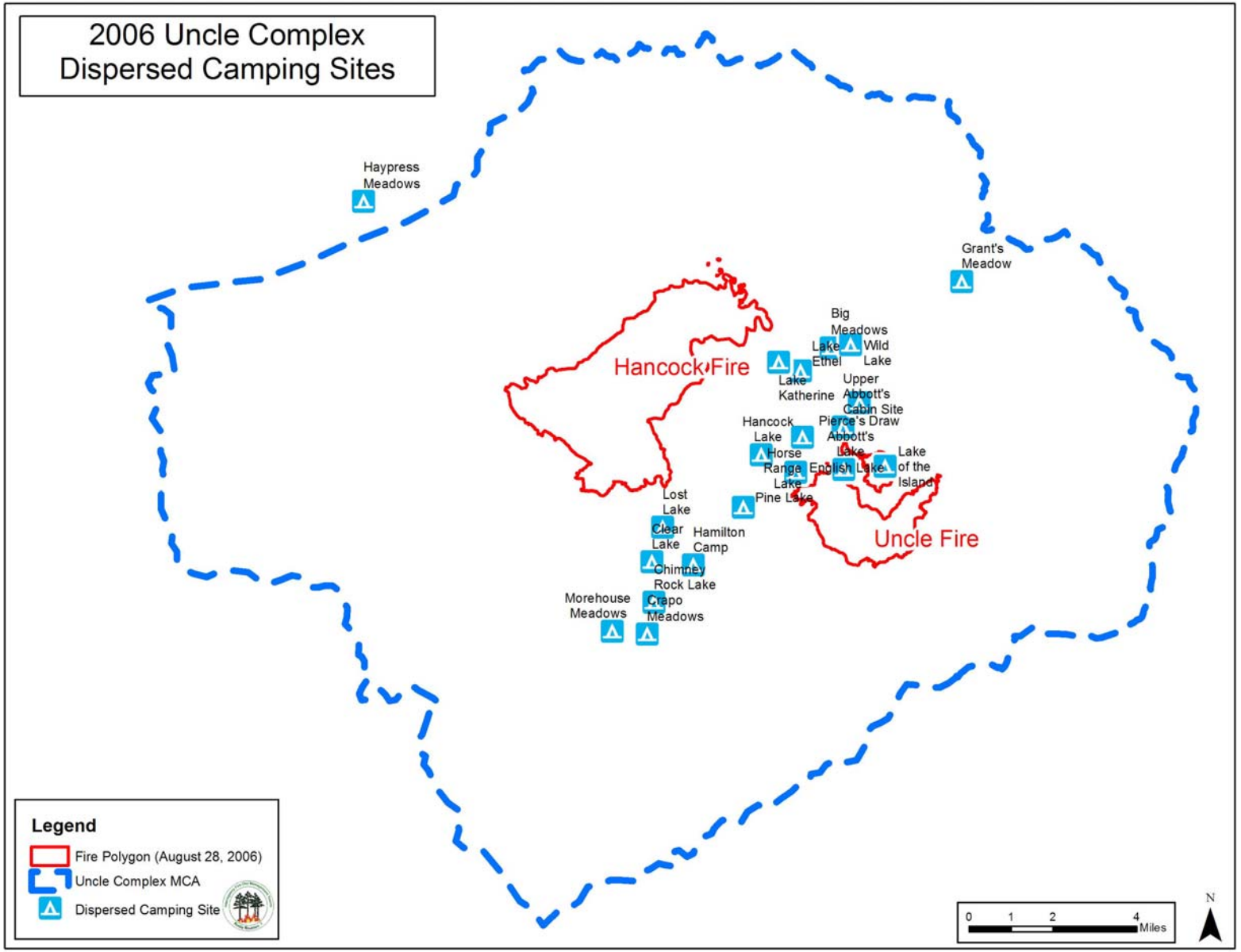
RESOURCE	RECOMMENDED MITIGATION
Sensitive Plant Species: Howell's Tauschia *Tauschia howellii* Code: TAHO2 Populations #: TAHO2-5-1 TAHO2-5-2 TAHO2-5-3 Locations are in GIS. Photos of habitat and plant available.	Use natural landscape as fire break if possible. If constructed fire line is necessary: hand line only, shallow scraping, no more than 2-3 inches deep.
Sensitive Plant Species: English Peak Greenbriar *Smilax jamesii* Code: SMJA Locations approximate, as provided on 7.5 minute quad map, not on Forest GIS layer.	No mitigation necessary. This is a perennial vine that dies back to a deep root crown every year.
National Champion Record Tree: Incense Cedar *Calocedrus decurrens* Code: CADE3 Height 163'; Diameter: 12' 6"; Circumference: 38' 1.5"; Spread: 52' Location: Datum NAD83: 480807 x 4578561 Devil's Canyon Photos available	If fire appears to be imminent in this location, site evaluation should be initiated for the protection of this resource. Potential for crown fire should be eliminated. Low intensity ground fire would not be a problem, and there are limited ground fuels around this tree.

RESOURCE	RECOMMENDED MITIGATION
Noxious Weeds: Species present: Spotted knapweed, CEMA4 Diffuse knapweed, CEDI3 Dyer's woad, ISTI (some locations of this species along the Cherry Creek road are not mapped. Yellow starthistle, CESO3 Scotch broom, CYSC4	All weed polygons should be avoided for all activities, including staging, and water fill sites (covered below). Incoming equipment should be washed prior to arriving on FS land, outgoing equipment washed on demobilization. All feed for stock used on this Incident, and materials used in rehab, are required to be "noxious weed free". A local source for hay and straw that is Certified as Weed Free is: Cody Custer, Scott Valley Farms, (530) 467-5745, cell (530) 598-1466. Sources for weed free gravel: unknown.
Tanker Fill Sites: Review of locations from the Salmon River Restoration Council was made on 8/22/06 for clearance of noxious weed issues.	Map provided to Uncles Fire Use Team by Richard Van deWater consisted of approved sites.


2006 Uncle Complex
Botany and Noxious Weeds
Resource Concerns
Legend
Champion Tree - Incense Cedar
EnglishPeakGreenbriar
Tanker Fill Locations
Use Status, Weed Conflicts
No Permission, Weed Conflicts
Not Ready, Weed Conflicts
Not Ready, No Weed Conflicts
Ready to Go, Weed Conflicts
Ready to Go, No Weed Conflicts
Sensitive Plants - Howell's Tauschia
Noxious Weeds
Fire Polygon (August 24, 2006)
Uncle Complex MCA
Hancock Fire
Uncle Fire
0 1 2 4
Miles
N

Potential Hunting/Outfitter Camps

Dispersed Camping Areas	**Uncle's Complex**
Name	**Lat/Long**
Upper Abbot's Cabin Site	41.430 N 123.186 W
Abbott's Lake	41.416 N 123.186 W
Big Meadows	41.458 N 123.192 W
Clear Lake	41.384 N 123.274 W
Crapo Meadows	41.359 N 123.276 W
Chimney Rock Lake	41.370 N 123.273 W
English Lake	41.415 N 123.208 W
Grant's Meadow	41.481 N 123.132 W
Hamilton Camp	41.383 N 123.255 W
Hancock Lake	41.421 N 123.224 W
Haypress Meadows	41.508 N 123.407 W
Horse Range Lake	41.427 N 123.205 W
Lake Ethel	41.450 N 123.206 W
Lake Katherine	41.453 N 123.216 W
Lake of the Island	41.417 N 123.167 W
Lost Lake	41.396 N 123.269W
Morehouse Meadows	41.360 N 123.292 W
Pierce's Draw	41.439 N 123.179 W
Pine Lake	41.403 N 123.232 W
Wild Lake	41.459 N 123.183 W


2006 Uncle Complex
Dispersed Camping Sites
Haypress
Meadows
Grant's
Meadow
Big
Meadows
Lake
Ethel
Wild
Lake
Hancock Fire
Lake
Katherine
Upper
Abbott's
Cabin Site
Pierce's Draw
Hancock
Lake
Abbott's
Lake
Horse
Range
Lake
English Lake
Lake
of the
Island
Pine Lake
Lost
Lake
Clear
Lake
Hamilton
Camp
Uncle Fire
Chimney
Rock Lake
Morehouse
Meadows
Crapo
Meadows
Legend
Fire Polygon (August 28, 2006)
Uncle Complex MCA
Dispersed Camping Site
0
1
2
4
Miles
N

LONG RANGE IMPLEMENTATION PLAN
UNCLES COMPLEX
KLAMATH NATIONAL FOREST

APPENDIX C

STRUCTURE PROTECTION & RISK ASSESSMENT PLANS

Structure Protection and Community Risk Assessment Plans

Structure plans are divided into two separate sections for the Uncles Complex. Both plans are combined in the Salmon River Community Risk Assessment binder that will be left with incoming Incident Management Teams and on file at the Salmon/Scott River Ranger District.

Contacts:

Ray Haupt
District Ranger
Salmon/Scott River District
Klamath National Forest

Thomas Annand
District Fire Management Officer
Orleans Ranger District
Six Rivers National Forest
530-627-3291
(Orleans Complex Structure Protection Plan)

APPENDIX D

SMOKE MANAGEMENT

Smoke

Three topics follow: a very rough estimate of total pollutants generated a discussion of the effects of particulate matter and carbon dioxide, and recommendations to manage smoke.

Quantity of Pollution from Smoke

The following spreadsheet builds estimates from coarse data. Its solutions convey a general magnitude, and are not precise. The source spreadsheet is included in the fires' records, and its assumptions can be changed.

Air Pollution from Hancock and Uncles Fires			
Assumptions and Intermediate Calculations	Timber	Brush	
Percent of area blackened within perimeter	0.25	0.25	
Surface fuel, tons/acre	47	13	
Percent of surface fuel consumed in black	0.7	0.7	
Canopy fuel, tons/acre	2.47	0	
Percent of canopy consumed in black	0.01	0	
Depth of litter and duff, inches	4	1	
Litter and duff wgt, tons/acre-inch	8	8	
Percent of litter consumed in black	0.33	0.2	
Total tons/acre consumed	10.90	2.63	
PM 2.5, tons per ton of fuel burned	0.0094	0.0112	
Tons of PM2.5 per perimeter acre	0.10	0.03	
CO2, tons per ton of fuel burned	1.58	1.54	
Tons of CO2 per perimeter acre	17.25	4.04	
Portion of area in the fuel category	0.84	0.16	

Summary	Area Totals	Daily Avg To Date	Per 10,000 ac
Acres in Fires' Perimeters	1	262	10,000
Tons of PM2.5	0.09	24	908
Tons of CO2	15.13	3,968	151,332

Data Sources

Emission factors: fire averages for mixed conifer and for hardwoods, D. Hardy et al 1989. Among the limited choices, hardwoods seem to be the best fit for this fire's intensity when it burns shrubs.

Duff depths and consumption are DIVS Winslow Robertson's best estimate, field-based.

Average % of area black, heavy fuel load, & % of surface and canopy fuels consumed are LTAN Krista Golnick-Waid's best estimate based on aerial observation

There is a notable dearth of published estimates of duff and litter density. A value assigned to litter and duff combined in the National Park Service's fire effects monitoring handbook is used.

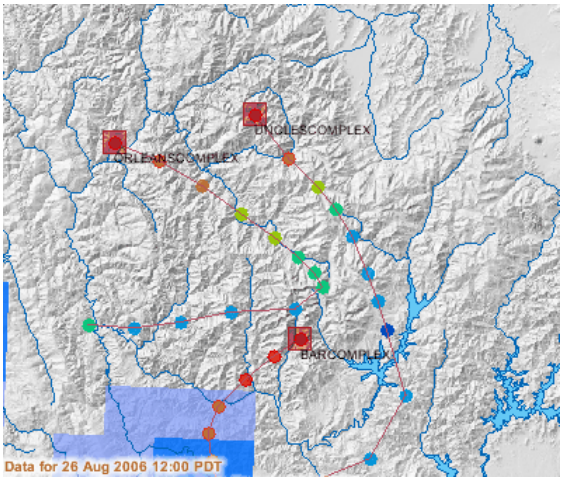
The daily average acres represents both fires' growth from 7/28 (the earliest date both fires had substantial perimeters that could spread) and 8/23

Canopy fuel estimated from Bernie Bahro's (USFS; see long-term analysis) canopy bulk density of .05 kg/m^3 and PIO field estimates of average stand height of 70' and crown base height of 10'. 60% closure was estimated from airborne incident photos Canopy fuel load is not estimated for brush; zero is a placeholder.

Surface fuel: 1000 hrs: LTAN estimate from fuel photo series: 40 t/a timber; 7 t/a shrub. 1 - 100 hrs & live woody from Scott & Burgan via B Bahro's spreadsheet. FM 183 = TL 3 = 5.5 t/a; FM 187 = TL 7 = 9.8 t/a; FM 25&26 = SH6 = 5.75 t/a, mo

Effects of Smoke's Pollutants

Particulates are the pollutant in smoke primarily responsible for poor visibility. Particulates also harm lungs. People with existing respiratory or circulatory impairments are most likely to be affected strongly. Also at risk due to their above-average volume of air breathed for their body weights are pregnant mothers, and children. Finally, elderly people's lungs are not as efficient as younger people's, so they too suffer disproportionately.



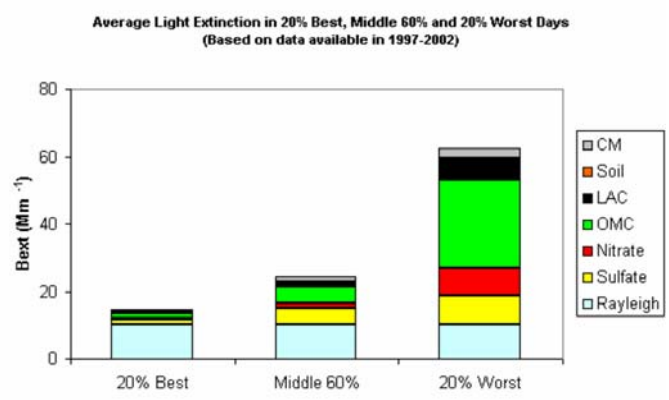
Health effects can be quantified based on smoke concentrations, not directly from total weight of pollution released. Unfortunately, modeling that converts production to dispersion are guidelines at best. Blue Sky/Rains' website gives a general projection of direction and smoke density. An example screen capture is included. Red dots mark locations where smoke concentration is expected to be at or above EPA's current health warning threshold. EPA is currently reviewing public comment on its proposal to revise the (24-hour average PM 2.5) particulate health standard from 65 /m^3 to 35 /m^3. Light green through red dots mark locations where smoke is projected to be heavier than 35 /m^3. 65 /m^3 is the minimum sustained concentration at which all people are advised to adapt their activities in response to the health threat: "People with heart or lung

disease, older adults, and children should avoid prolonged or heavy exertion; everyone else should reduce prolonged or heavy exertion."

There are two additional ways to monitor smoke concentrations. A network of particulate monitors are deployed in the Siskiyou County area in response to the many fires nearby. Some of the readings in late August were in the 'hazardous' (> 250 /m^3) category. They are among the highest generally observed anywhere in the nation during a busy wildfire season. The current readings are posted at http://gacc.nifc.gov/oncc/predictive/weather/airquality.html. Archived data may be available as well.

Smoke concentrations vary significantly at a small scale of space and time. By far the simplest, and also probably the most accurate 'measurement' is to look at the hills. A table that roughly correlates the farthest distance at which any shape can be perceived with particulate concentrations is posted at http://www.cdphe.state.co.us/ap/smoke/DocumentsLinked/PMConcentrationEstimation.pdf. Generally, if the horizon or other features in the direction facing away from the sun are completely obscured within three miles, the current smoke concentration is at least as high as the health threshold average.

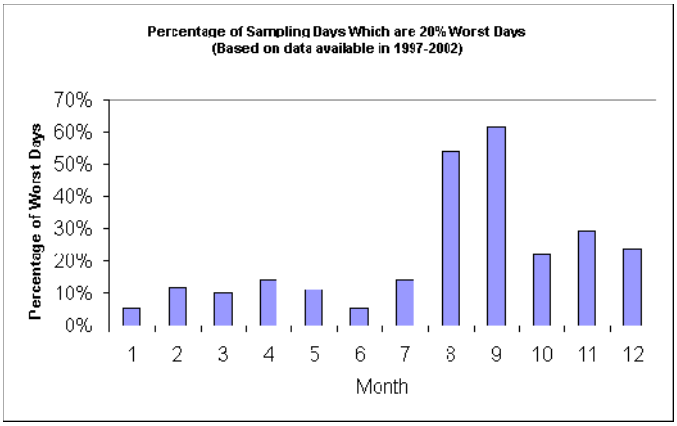
Uncles and Hancock were among the less smoky large wildfires in the County in late August 2006. But for people who breathe, identifying the responsible fire(s) is less important than the assistance and guidance. And as the estimates of pollution produced show, Uncles and Hancock definitely were substantial contributors and may continue for weeks. Responsive options are discussed below.



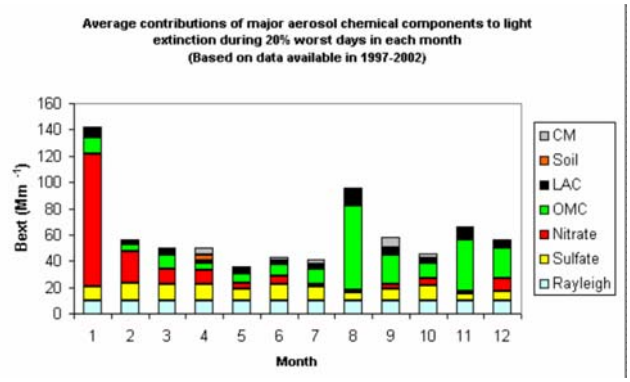
Average contributions of major aerosol chemical components to light extinction in 20% best, middle 60% and 20% worst days (Based on data available in 1997-2002) Source of this and following two graphs: http://www.coha.dri.edu/web/state_analysis/California/TRIN1/TRIN1.htm

Visual air quality is evaluated at sampling sites from which the chemicals that scatter or absorb light can be differentiated. The sampling site closest to the fires is in Trinity. Of the categories of pollution that are sorted out from sampling filters, wildland fire contributes to both elemental carbon (light-absorbing, LAC) and organic matter (OMC). For fire and most other sources of pollution, it is not at all straightforward to deduce sources from component chemicals. However, the adjacent graph shows that in Trinity, organic matter is the biggest contributor to days with poor visibility.

The next two graphs show that the number of days with notably compromised visibility in Trinity peaks in mid-summer. Among the causal pollutants, organic matter is the largest contributor.



Percentage of sampling days that are 20% worst days in each month



Average contributions of major aerosol chemical components to light extinction during 20% worst days in each month

Carbon dioxide is a greenhouse gas because CO_2 absorbs outgoing radiation. Its importance in climate change is reflected in its being the metric by which all greenhouse gasses are compared.
As of August 25, the fire had to date produced about a hundred thousand tons of carbon dioxide. Burning almost ten (9.6) million gallons of gasoline would create an equal amount of carbon dioxide.[1] Another equivalent is 25 miles of coal train.

2002 is the latest year for which a carbon dioxide emissions inventory is available for the State of California.[2] In 2002, statewide CO_2 net emissions for all activities combined were about 375 million (standard) tons. Hancock and Uncles Fires' potential to produce up to about half a million tons of CO_2 is the same quantity as approximately 2% of California's statewide annual residential use[3] of fossil fuel. This fire could produce an amount of carbon dioxide comparable to a notable change in residential energy use.

Recommendations for Smoke Management

In general, it may be helpful to maintain a clear division of responsibilities with the County Health Department. The Forest and fire managers know more than other people do about smoke generation, which they can provide to others. Public health professionals know more than other people do about how communities can prevent and respond to shared health challenges. Health departments can provide that information.

It would be optimal to work in a partnership that incorporated the differences. It isn't always feasible, however. Many community-level public health officials have either

[1] Combusting one gallon of gasoline yields 22# of CO_2.
[2] http://www.energy.ca.gov/2005publications/CEC-600-2005-025/index.html
[3] 27 standard tons, State of California inventory cited above.

never dealt with very heavy smoke, or have not responded aggressively. Because fire managers have been around the issues many times, they have information useful to health departments. And at times people surrounded by smoke need information fire managers have, and it should be shared even if the fire organization is not the optimal source.

- Continue to advise people in the area of ways they can minimize smoke impacts to their own and their families' health. If possible, offer the information via public health departments.
- Encourage and support the County in making information about smoke and health available to residents and healthcare providers. The information could include:
    - Location of public facilities with filtered air conditioning that residents can use as a respite haven of clean air. Buildings might include movie theaters, department stores, libraries, large meeting rooms in government buildings, or indoor sports facilities.
    - Remain in communication with school administrators about the advisability of providing recess and school athletics when smoke is heaviest.
    - Incident Meteorologist input to a County-issued daily smoke health impact forecast.
- Continue providing information about the fire's likely growth and smoke production for Forest managers to use in their on-going communications with state and local smoke regulators.
- For firefighters, unless the smoke abates significantly, continue to rotate people out of spike locations frequently, simply because of smoke exposure.

APPENDIX E

COST PROJECTIONS

Uncles Complex

Long Range Plan

Trigger Point 1

Type	#	Rate	Units	Total	
OVERHEAD					
BCMG	1	32	14	448	448
COML	1	32	14	448	448
COMT	1	32	14	448	448
COST	1	32	14	448	448
CTSP	1	32	14	448	448
DIVS	2	37	14	518	1,036
EDSP	1	32	14	448	448
FBAN	1	37	14	518	518
FEMO	3	32	14	448	1,344
FUM2	2	37	14	518	1,036
GISS	3	37	14	518	1,554
HECM	6	25	14	350	2,100
HELM	2	37	14	518	1,036
ICT2	1	32	14	448	448
IMET	1	32	14	448	448
LSC2	2	32	14	448	896
LTAN	1	32	14	448	448
OSC2	3	37	14	518	1,554
PIO2	2	32	14	448	896
PSC2	1	32	14	448	448
RADO	1	32	14	448	448
READ	2	32	14	448	896
RESL	1	32	14	448	448
SOF2	2	32	14	448	896
AVIATION					
AA	1	300	1	300	300
HEL2	1	1,400	14	19,600	19,600
HEL3	1	1,000	14	14,000	14,000
IRF	1	150	1	150	150
CREWS					
HC1	1	428	14	5,992	5,992
HC2	0	6,560	0	0	0
SUPPORT					
LODG	30	60	1	60	1,200
VAN	1	100	1	100	100
RENT CARS	10	53	1	53	530
CACHE	1		1	100	100
TRLR	1	30	1	30	30
PER DIEM	30	40	1	40	1,200
T.P. 1					
ADDITIONAL RESOURCES					
HEL1	2	3,000	14	42,000	84,000
HEL2	2	1,400	14	19,600	39,200
HC1	2	428	14	5,992	11,984
FFT1	8	428	14	5,992	47,936
AT	2	5,000	14	70,000	140,000
DIVS	2	37	14	518	1,036
DAILY TOTALS					386,496
3 DAYS					**$1,159,488**

Uncles Complex

Long Range Plan

Trigger Point 2 Senario 1

Type	#	Rate	Units	Total	
OVERHEAD					
BCMG	1	32	14	448	448
COML	1	32	14	448	448
COMT	1	32	14	448	448
COST	1	32	14	448	448
CTSP	1	32	14	448	448
DIVS	2	37	28	1036	1036
EDSP	1	32	14	448	448
FBAN	1	37	14	518	518
FEMO	3	32	42	1344	1344
FUM2	1	37	14	518	518
GISS	3	37	42	1554	1554
HECM	6	25	84	2100	2100
HELM	2	37	28	1036	1036
ICT2	1	32	14	448	448
IMET	1	32	14	448	448
LSC2	2	32	28	896	896
LTAN	1	32	14	448	448
OSC2	3	37	42	1554	1554
PIO2	2	32	28	896	896
PSC2	1	32	14	448	448
RADO	1	32	14	448	448
READ	2	32	28	896	896
RESL	1	32	14	448	448
SOF2	2	32	28	896	896
AVIATION					
AA	1	300	1	300	300
HEL2	1	1400	14	19600	19600
HEL3	1	1000	14	14000	14000
IRF	1	150	1	150	150
CREWS					
HC1	1	428	14	5,992	5,992
HC2	1	6560	2	13120	13120
SUPPORT					
LODG	30	60	30	1800	1800
VAN	1	100	1	100	100
REN CARS	4	53	4	212	212
CACHE				100	100
TRLR	1	30	1	30	30
PER DIEM	30	40	30	1200	1200
T.P. 2 S1					
ADDITIONAL RESOURCES					
HEL1	2	3,000	14	42,000	84,000
HEL2	2	1400	14	19600	39200
HC1	2	428	14	5,992	11,984
FFT1	8	428	14	5,992	47,936
AT	2	5,000	14	70,000	140,000
DIVS	1	37	28	1036	1036
DAILY TOTALS					399380
3 DAYS					**$1,198,140**

Uncles Complex

Long Range Plan

Trigger Point 2 Senario 1

BCMG	1	32	14	448	448
COML	1	32	14	448	448
COMT	1	32	14	448	448
COST	1	32	14	448	448
CTSP	1	32	14	448	448
DIVS	2	37	28	1036	1036
EDSP	1	32	14	448	448
FBAN	1	37	14	518	518
FEMO	3	32	42	1344	1344
FUM2	1	37	14	518	518
GISS	3	37	42	1554	1554
HECM	6	25	84	2100	2100
HELM	2	37	28	1036	1036
ICT2	1	32	14	448	448
IMET	1	32	14	448	448
LSC2	2	32	28	896	896
LTAN	1	32	14	448	448
OSC2	3	37	42	1554	1554
PIO2	2	32	28	896	896
PSC2	1	32	14	448	448
RADO	1	32	14	448	448
READ	2	32	28	896	896
RESL	1	32	14	448	448
SOF2	2	32	28	896	896
AVIATION					
AA	1	300	1	300	300
HEL2	1	1400	14	19600	19600
HEL3	1	1000	14	14000	14000
IRF	1	150	1	150	150
CREWS					
HC1	1	428	14	5,992	5,992
HC2	1	6560	14	91840	91840
SUPPORT					
LODG	30	60	30	1800	1800
VAN	1	100	1	100	100
REN CARS	4	53	4	212	212
CACHE				100	100
TRLR	1	30	1	30	30
PER DIEM	30	40	30	1200	1200
T.P. 2 S2					
ADDITIONAL RESOURCES					
FEMO	4	32	42	1344	1344
HEL1	1	3,000	14	42,000	42,000
HEL3	1	1000	14	14000	14000
DAILY TOTALS					211288
5 DAYS					**$1,056,440**

Uncles Complex

Long Term Plan

Trigger Point 3 Scenario 1

Type	#	Rate	Units	Total	
OVERHEAD					
BCMG	1	32	14	448	448
COML	1	32	14	448	448
COMT	1	32	14	448	448
COST	1	32	14	448	448
CTSP	1	32	14	448	448
DIVS	2	37	28	1036	1036
EDSP	1	32	14	448	448
FBAN	1	37	14	518	518
FEMO	3	32	42	1344	1344
FUM2	1	37	14	518	518
GISS	3	37	42	1554	1554
HECM	6	25	84	2100	2100
HELM	2	37	28	1036	1036
ICT2	1	32	14	448	448
IMET	1	32	14	448	448
LSC2	2	32	28	896	896
LTAN	1	32	14	448	448
OSC2	3	37	42	1554	1554
PIO2	2	32	28	896	896
PSC2	1	32	14	448	448
RADO	1	32	14	448	448
READ	2	32	28	896	896
RESL	1	32	14	448	448
SOF2	2	32	28	896	896
AVIATION					
AA	1	300	1	300	300
HEL2	1	1400	14	19600	19600
HEL3	1	1000	14	14000	14000
IRF	1	150	1	150	150
CREWS					
HC1	1	428	14	5,992	5,992
HC2	1	6560	2	13120	13120
SUPPORT					
LODG	30	60	30	1800	1800
VAN	1	100	1	100	100
REN CARS	4	53	4	212	212
CACHE				100	100
TRLR	1	30	1	30	30
PER DIEM	30	40	30	1200	1200
T.P.3					
ADDITIONAL RESOURCES					
HEL1	2	3000	14	42000	84000
HEL2	1	1400	14	19600	19600
HC1	1	428	14	5,992	5,992
DIVS	1	37	28	1036	1036
DAILY TOTALS					185852
2 DAYS					**$371,704**

Uncles Complex
Long Range Plan

Trigger Point 3 Scenario 2

Type	#	Rate	Units	Total	
OVERHEAD					
BCMG	1	32	14	448	448
COML	1	32	14	448	448
COMT	1	32	14	448	448
COST	1	32	14	448	448
CTSP	1	32	14	448	448
DIVS	2	37	28	1036	1036
EDSP	1	32	14	448	448
FBAN	1	37	14	518	518
FEMO	3	32	42	1344	1344
FUM2	1	37	14	518	518
GISS	3	37	42	1554	1554
HECM	6	25	84	2100	2100
HELM	2	37	28	1036	1036
ICT2	1	32	14	448	448
IMET	1	32	14	448	448
LSC2	2	32	28	896	896
LTAN	1	32	14	448	448
OSC2	3	37	42	1554	1554
PIO2	2	32	28	896	896
PSC2	1	32	14	448	448
RADO	1	32	14	448	448
READ	2	32	28	896	896
RESL	1	32	14	448	448
SOF2	2	32	28	896	896
AVIATION					
AA	1	300	1	300	300
HEL2	1	1400	14	19600	19600
HEL3	1	1000	14	14000	14000
IRF	1	150	1	150	150
CREWS					
HC1	1	428	14	5,992	5,992
HC2	1	6560	2	13120	13120
SUPPORT					
LODG	30	60	30	1800	1800
VAN	1	100	1	100	100
REN CARS	4	53	4	212	212
CACHE				100	100
TRLR	1	30	1	30	30
PER DIEM	30	40	30	1200	1200
T.P.3 S2					
ADDITIONAL RESOURCES					
HEL1	2	3300	14	46200	92400
HEL2	1	1400	14	19600	19600
HC1	1	428	14	5,992	5,992
DIVS	1	37	14	518	1036
DAILY TOTALS					194252
2 DAYS					**$388,504**

Uncles Complex

Long Range Plan

Trigger Point 4

Type	#	Rate	Units	Total	
OVERHEAD					
BCMG	1	32	14	448	448
COML	1	32	14	448	448
COMT	1	32	14	448	448
COST	1	32	14	448	448
CTSP	1	32	14	448	448
DIVS	2	37	28	1036	1036
EDSP	1	32	14	448	448
FBAN	1	37	14	518	518
FEMO	3	32	42	1344	1344
FUM2	1	37	14	518	518
GISS	3	37	42	1554	1554
HECM	6	25	84	2100	2100
HELM	2	37	28	1036	1036
ICT2	1	32	14	448	448
IMET	1	32	14	448	448
LSC2	2	32	28	896	896
LTAN	1	32	14	448	448
OSC2	3	37	42	1554	1554
PIO2	2	32	28	896	896
PSC2	1	32	14	448	448
RADO	1	32	14	448	448
READ	2	32	28	896	896
RESL	1	32	14	448	448
SOF2	2	32	28	896	896
AVIATION					
AA	1	300	1	300	300
HEL2	1	1400	14	19600	19600
HEL3	1	1000	14	14000	14000
IRF	1	150	1	150	150
CREWS					
HC1	1	428	14	5,992	5,992
HC2	1	6560	2	13120	13120
SUPPORT					
LODG	30	60	30	1800	1800
VAN	1	100	1	100	100
REN CARS	4	53	4	212	212
CACHE				100	100
TRLR	1	30	1	30	30
PER DIEM	30	40	30	1200	1200
T.P. 4					
ADDITIONAL RESOURCES					
HEL1	2	3,000	14	42,000	84,000
HEL2	2	1400	14	19600	39200
HC1	4	428	14	5,992	23,968
DIVS	1	37	28	1036	1036
SOF2	1	32	28	896	896
DAILY TOTALS					224324
6 DAYS					**$1,345,944**

Uncles Complex

Long Range Plan

Trigger Point 5

Type	**#**	**Rate**	**Units**	**Total**	
OVERHEAD					
BCMG	1	32	14	448	448
COML	1	32	14	448	448
COMT	1	32	14	448	448
COST	1	32	14	448	448
CTSP	1	32	14	448	448
DIVS	2	37	28	1036	1036
EDSP	1	32	14	448	448
FBAN	1	37	14	518	518
FEMO	3	32	42	1344	1344
FUM2	1	37	14	518	518
GISS	3	37	42	1554	1554
HECM	6	25	84	2100	2100
HELM	2	37	28	1036	1036
ICT2	1	32	14	448	448
IMET	1	32	14	448	448
LSC2	2	32	28	896	896
LTAN	1	32	14	448	448
OSC2	3	37	42	1554	1554
PIO2	2	32	28	896	896
PSC2	1	32	14	448	448
RADO	1	32	14	448	448
READ	2	32	28	896	896
RESL	1	32	14	448	448
SOF2	2	32	28	896	896
AVIATION					
AA	1	300	1	300	300
HEL2	1	1400	14	19600	19600
HEL3	1	1000	14	14000	14000
IRF	1	150	1	150	150
CREWS					
HC1	1	428	14	5,992	5,992
HC2	1	6560	2	13120	13120
SUPPORT					
LODG	30	60	30	1800	1800
VAN	1	100	1	100	100
REN CARS	4	53	4	212	212
CACHE				100	100
TRLR	1	30	1	30	30
PER DIEM	30	40	30	1200	1200
T.P.5					
ADDITIONAL RESOURCES					
HEL1	2	3,000	14	42,000	84,000
HEL2	2	1400	14	19600	39200
HC1	4	428	14	5,992	23,968
DIVS	1	37	28	1036	1036
SOF2	1	32	28	896	896
DAILY TOTALS					224324
4 DAYS					**$897,296**

APPENDIX F

ROCKY MOUNTAIN #1 FIRE USE MANAGEMENT TEAM

Contact Information

Incident Commander	Contact Name	Contact Number
F. William (Bill) Hahnenberg BLM (UCRIFMU) 2815 H Road Grand Junction, CO 81506	Office Fax (Office) Email	970-244-3103 970-244-3124 Bill_Hahnenberg@blm.gov
Safety Officer	Contact Name	Contact Number
Mark Rogers BLM (NWCIFMU) 73544 Hwy. 64 Meeker, CO 81641	Office Fax (Office) Email	970-878-3847 970-878-3805 Mark_Rogers@blm.gov
Information Officer	Contact Name	Contact Number
Sarah Gallup Colo. Dept. Health & Environ. mail to: 2536 Romeldale Fort Collins 80526	Office Fax (Office) Email	303-916-1260 (cell only) 907-491-8438 - pls phone 1st sgallup@lamar.colostate.edu
Operations Section Chief Jobshare	Contact Name	Contact Number
Andy Parker BLM State Office – Colorado 2850 youngfield St. Lakewood, CO 80215	Office Fax (Office) Email	303.239.3693 303.239.3811 Abdrew_Parker@co.blm.gov
Operations Section Chief Jobshare Fire Use Manager Trainee	Contact Name	Contact Number
Mark Hatcher 216 West Colo Gunnison, CO 81230	Office Fax (Office) Email	970-641-0471 970-642-4425 mchatcher@fs.fed.us
Planning Section Chief	Contact Name	Contact Number
Peter Anderson P.O. Box 4137 Evergreen, CO 80437-4137	Office Pager Fax Email	303-697-9103 303-281-6444 303-674-2643 pd_anderson@msn.com
Long Term Fire Analysis	Contact Name	Contact Number
Krista Gollnick-Waid 1387 South Vinnell Way Bosie, ID 83709	Office Fax (Office) Email	208-373-3856 208-373-3850 krista_waid@blm.gov
Fire Bahavior Analysis	Contact Name	Contact Number
Brenda Wilmore 125 W 5th St. Eagle, CO 81631	Office Email	970-328-6388 bwilmore@fs.fed.us
GIS Techinal Specialist Jobshare	Contact Name	Contact Number
Skip Edel Box 25046, MS 516 Denver Federal Center, Bld 810 Denver, CO 80225-0046	Office Fax (Office) Email	303.202.4314 303.202.4354 shedel@usgs.gov
Logistic Section Chief	Contact Name	Contact Number
Loren Wickstrom San Juan Public Lands Center 15 Burnett Court Durango, CO 81301	Office Fax (Office) Email	970-385-1373 970-375-2338 Loren_wickstrom@blm.gov
Cost Unit Leader/Finance	Contact Name	Contact Number
Liz Turner WRNF Blanco Ranger District 317 E. Market St Meeker, CO	Office Fax (Office) Email	970-878-4039 970-878-5173 laturner@fs.fed.us

APPENDIX G

MAPS