

SOUTH CENTRAL OREGON INTERAGENCY FIRE DANGER OPERATING PLAN

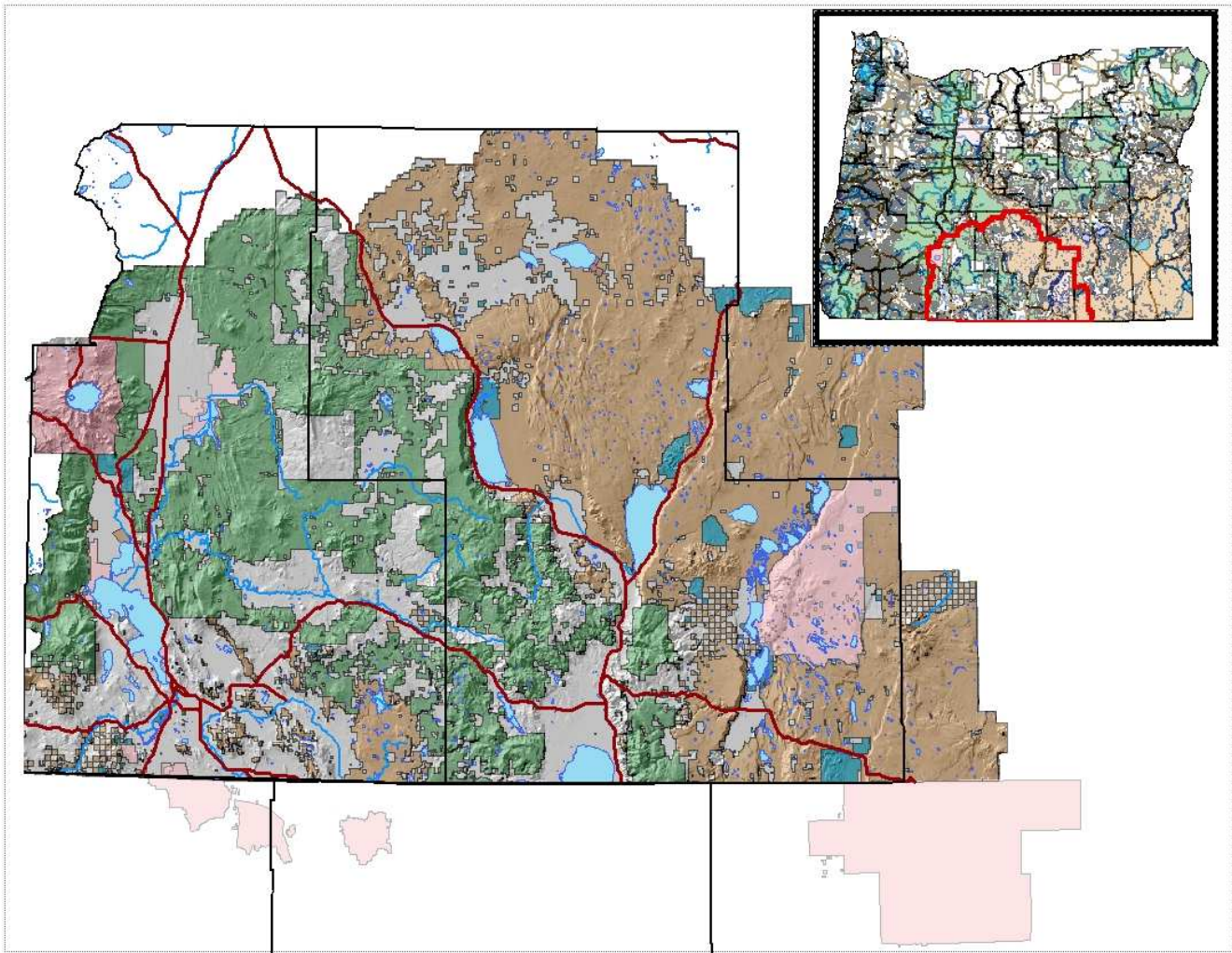
US Forest Service: Fremont-Winema National Forest

Oregon Department of Forestry: Klamath-Lake District

Bureau of Land Management: Lakeview District

US Fish & Wildlife Service: Klamath Basin, Sheldon/Hart Mountain

National Park Service: Crater Lake National Park



2004/5 Plan Approval

This Fire Danger Operating Plan is approved and will remain in effect until rescinded or revised.

_____ Agency Administrator US Forest Service	_____ Date
_____ Agency Administrator Oregon Department of Forestry	_____ Date
_____ Agency Administrator Bureau of Land Management	_____ Date
_____ Agency Administrator US Fish & Wildlife Service, Shelton - Hart Mountain Complex	_____ Date
_____ Agency Administrator US Fish & Wildlife Service, Klamath Basin NWR Complex	_____ Date
_____ Agency Administrator National Park Service	_____ Date

Plan Prepared

June 12, 2003

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I. INTRODUCTION

This Fire Danger Operating Plan has been developed to describe the setup and management of the National Fire Danger Rating System for all wildland fire agencies in the south central Oregon area. This plan was prepared to assist in planning and operational decisions relative to fire danger, operational preparedness, resource needs, personnel briefings, and overall situational awareness.

The intent of this plan is to form a framework for decisions while providing guidance to decision-makers. The plan is a work-in-progress and should be reviewed and updated annually.

II. ROLES AND RESPONSIBILITIES

A. Fire Danger Technical Group

Each participating agency will be responsible for providing an NFDRS technical specialist to participate in the maintenance, review, and update of this plan. The following are specific individuals by agency or Dispatch Center:

- For USFS, Lakeview BLM it will be Betsy Schenk.
- For ODF it will be Mike Leach.
- For USFWS, Sheldon Hart National Refuge is Andy Goheen.
- For USFWS, Klamath Basin National Refuge is Dave Goheen.
- For NPS, Crater Lake National Park is the park Brad Reed.

Members of the Fire Danger Technical Group will monitor NFDRS to ensure validity, coordinate/communicate any problems identified, review plan implementation, coordinate plan revisions, present the plan, and be available for NFDRS technical consultation. Some specific elements to monitor and coordinate are ensuring observations are selected appropriately (time, SOW, wet flag, consistent), station management in WIMS (herb state, catalog), station maintenance (instrument errors, transmit times), station siting (eliminate redundant/inappropriate, propose new sites where appropriate).

B. Fire Weather Station Owner

Following is the list of weather station owners for the south central Oregon area:

- For USFS, KFIFC it will be Kristi Cutler.
- For BLM, KFIFC it will be Kristi Cutler.
- For USFS and BLM, LIFC it will be Nina Hardin.
- For USFWS, Sheldon Hart National Refuge is Andy Goheen.
- For USFWS, Klamath Basin National Refuge is Dave Goheen.
- For NPS, Crater Lake National Park is Brad Reed.

The station owner is the contact for all issues regarding station management in WIMS and station maintenance for stations under their control. The station owner will assure that identified problems with a weather station are either corrected or assure that someone else corrects the problem.

C. Dispatch/Communications/Command Center

Personnel at both the Klamath Falls Interagency Fire Center (KFIFC), and the Lakeview Interagency Fire Center (LIFC) are responsible for entering observations daily and updating the Fire Danger workbook. The dispatch centers will communicate daily the fire danger outputs by reading the indices for all the danger rating area over the radio. KIFIC will be responsible for posting the Fire Danger Workbook to the KFIFC website and uploading the workbook to the ftp2 website. ODF and LIFIC will set up a link to the KIFIC website.

D. Field Operations Managers

Unit Fire Management Officers/Unit Foresters, and their assistants, i.e. District Fire Management Officers and Assistant DFMOs, will assure that their personnel understand NFDRS outputs and how they are to be used. Field Operations Managers are responsible for implementing this plan, and ensuring decisions are made consistent with the intent of the plan. Unit Fire Management Officers/Unit Foresters will also provide support for those stations that are covered by Depot maintenance agreements.

E. Program Managers/Agency Administrators

The program manager, i.e. NWR Project Leaders, Refuge Managers, Unit FMO, Forest or BLM District FMO/agency administrator, i.e. Forest Supervisors, District Managers, or District Foresters, will use this Fire Danger Operating Plan and NFDRS outputs as a tool to coordinate and to make informed fire related decisions. The program manager/agency administrator is ultimately responsible for ensuring this plan is maintained, utilized, and communicated.

III. FIRE DANGER RATING INVENTORY

A. The Administrative Unit

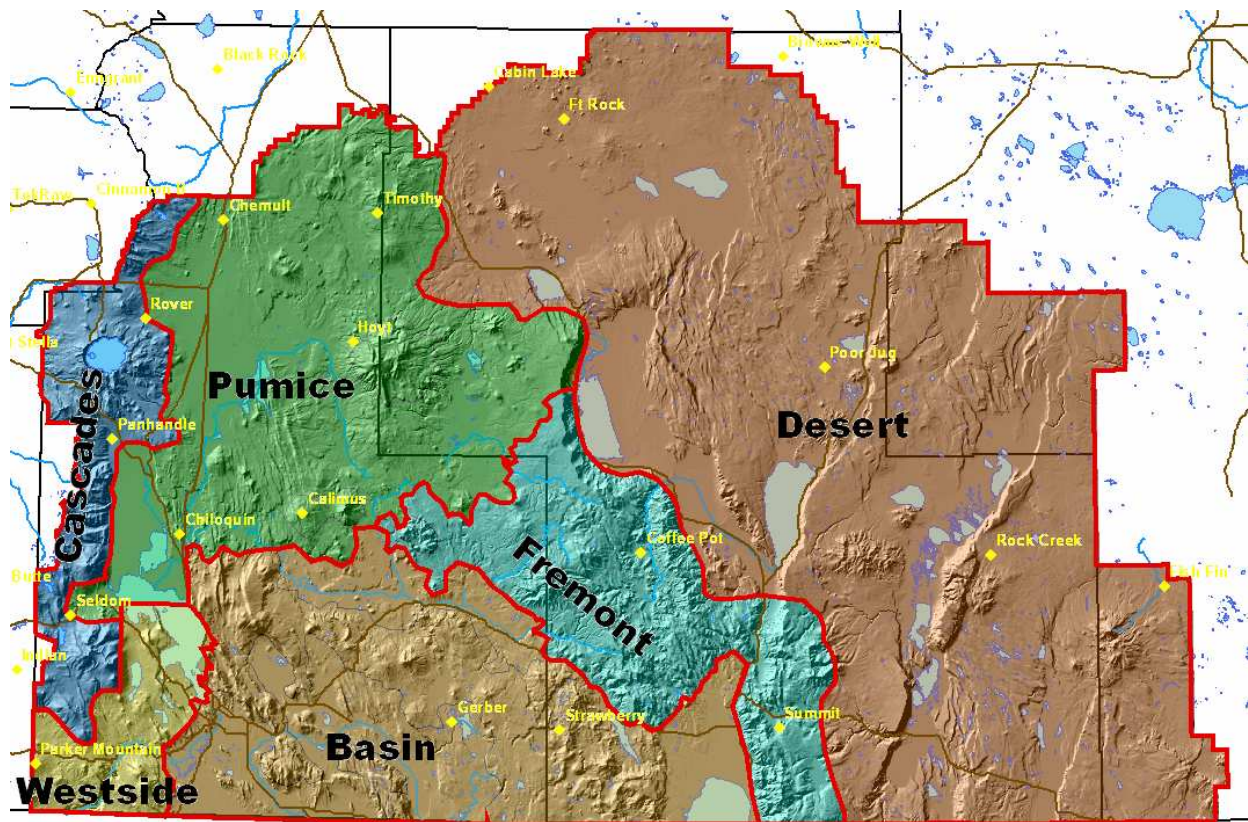
This plan encompasses an area of approximately 9.8 million acres in south central Oregon and NW Nevada, with Wildland Fire Management responsibilities being shared among the US Forest Service (USFS), Bureau of Land Management (BLM), Oregon Department of Forestry (ODF), US Fish & Wildlife Service (USFWS), National Park Service (NPS) as well as numerous cooperators such as Rural Fire Protection Districts, and Landowners. South central Oregon includes the peak of the Cascade Mountains on the west, vast sagebrush desert on the east, some of the highest site timber production land in Oregon east of the Cascade Mountains, and scabrock flats and lava flows. It is a highly diverse area in all three elements described as the Wildland Fire Environment: Fuels, Weather, and Topography.

B. Fire Danger Rating Areas

A Fire Danger Rating Area (FDRA) is defined as: “A geographic area relatively homogenous in climate, fuels and topography, tens of thousands of acres in size, within which the fire danger can be assumed to be uniform. Its size and shape is primarily based on influences of fire danger, not political boundaries. It is the basic on-the-ground unit for which unique fire management decisions are made based on fire danger ratings. Weather is represented by one or more NFDRS weather stations.” (NWCG Fire Danger Working Team. 2002. Gaining an Understanding of the National Fire Danger Rating System. NWCG, PMS 932, Boise, Idaho. 72 pp.)

A comprehensive analysis of the south central Oregon area was conducted using Geographic Information Systems (GIS) programs and data. All of the data sources utilized were developed consistently across the entire area, not unique by ownership. The primary data utilized includes 10m Digital Elevation Model (DEM), Kuchler Potential Vegetation, Oregon GAP Vegetation, and climate data produced by Oregon Climate Services and distributed by The Climate Source (CSI). {Portions of this document include intellectual property of The Climate Source and are used herein by permission. Copyright © 200_ The Climate Source, www.climatesource.com. All Rights Reserved.} Climate data included average monthly (for the period 1960-1991): Maximum Temperature, Average Temperature, Minimum Temperature, Relative Humidity, and Precipitation.

Six Fire Danger Rating Area’s were delineated based on identifying areas of uniform fire danger. The contribution of fuels, or weather, or topography was weighed as to which would have the greatest effect on wildland fire in making the delineation. Following are the results and a table with descriptive parameters:



	FDRA_NAME	Cascades	Pumice	Fremont	Westside	Basin	Desert	SCO AREA	
AREA	AREA	20,455 M	76,897 M	40,183 M	12,700 M	65,653 M	186,677 M	402,565 M	sq feet
	PERIMETER	1,206,795	1,703,087	1,421,820	625,315	1,492,369	2,373,594		feet
	ACRES	469,580	1,765,301	922,486	291,554	1,507,189	4,285,514	9,241,623	acres
ELEVATION (10m Grid)	MIN	3,957	4,124	4,157	2,759	4,036	4,147	2,759	feet
	MAX	9,036	8,176	8,455	6,588	7,267	8,012	9,036	feet
	RANGE	5,079	4,052	4,298	3,829	3,231	3,865		feet
	MEAN	5,838	5,065	5,932	4,349	4,820	4,969	5,084	feet
	STD	669	586	712	403	538	577	694	feet
	VARIETY	1,526	1,236	1,311	1,168	986	1,179		feet
	MAJORITY	6,178	4,141	5,535	4,144	4,702	4,315		feet
	MINORITY	3,957	8,176	8,455	6,588	7,267	8,012		feet
SLOPE (30m Grid)	MEDIAN	5,840	4,994	5,925	4,269	4,771	4,869		feet
	MIN	0	0	0	0	0	0	0	percent
	MAX	383	225	220	120	146	330	383	percent
	RANGE	383	225	220	120	146	330	383	percent
	MEAN	16	7	18	10	9	6	8	percent
STD	15	8	14	12	11	10	11	percent	

The peak elevation is in the Cascades at 9,036', and the lowest elevation is in the Westside at 2,759'. The Fremont has the highest mean elevation, followed closely by the Cascades, and the lowest mean elevation is found in the Westside.

C. Fire Activity

For the 17 year period used in the analysis, 1986-2002, there was an average of 340 fires per year, and an average 24,916 acres burned per year (largely skewed by

acres burned in 2001 and 2002). August tends to have the most fires with approximately 33%, followed by July with 27%, September with 16%, June with 12%, May and October both have about 5%. Approximately 78% of the fires are less than ¼ acre, 18% ¼-9 acres, 2.5% 10-99 acres, and less than 2% of the fires are over 100 acres. Lightning is the ignition source for approximately 74% of the fires, which leaves 26% to human caused.

The following fire history table displays statistics, by Fire Danger Rating Area, which indicate some notable differences in fire history by area. Four of the Fire Danger Rating Area's have about the same density (Acres/Fire/Year in Fire Danger Rating Area) of fires with the exception of the Westside which has twice the density, and the Desert which has approximately 20% of the density. Fire cause exhibits another distinct difference between Fire Danger Rating Area's with an approximate 70% / 30% ratio of lightning to human caused fires for three of the areas. Fremont at 85% / 15% and Desert at 89% / 11% have a significantly higher proportion of lightning fires, while the Westside at 58% / 42% has a higher proportion of human caused fires. Notice the higher proportion of human caused fires is in the same Fire Danger Rating Area as having double the density of fires.

	FDRA_NAME	Cascades	Pumice	Fremont	Westside	Basin	Desert	SCO AREA
FIRE HISTORY (USFS, ODF, BLM: 1986-2002)	FIRES	469	1,789	864	536	1,355	738	5,788
	FIRES/YR	28	105	51	32	80	43	340
	AC/FIRE/YR	17,021	16,775	18,151	9,247	18,909	98,718	27,144
	FIRES/AC/YR	0.0588	0.0596	0.0551	0.1081	0.0529	0.0101	0.0368
	ACRES/YR	32	7,222	3,163	215	1,767	12,506	24,916
	Lightning	68%	69%	85%	58%	72%	89%	74%
	Human	32%	31%	15%	42%	28%	11%	26%

D. Weather Stations

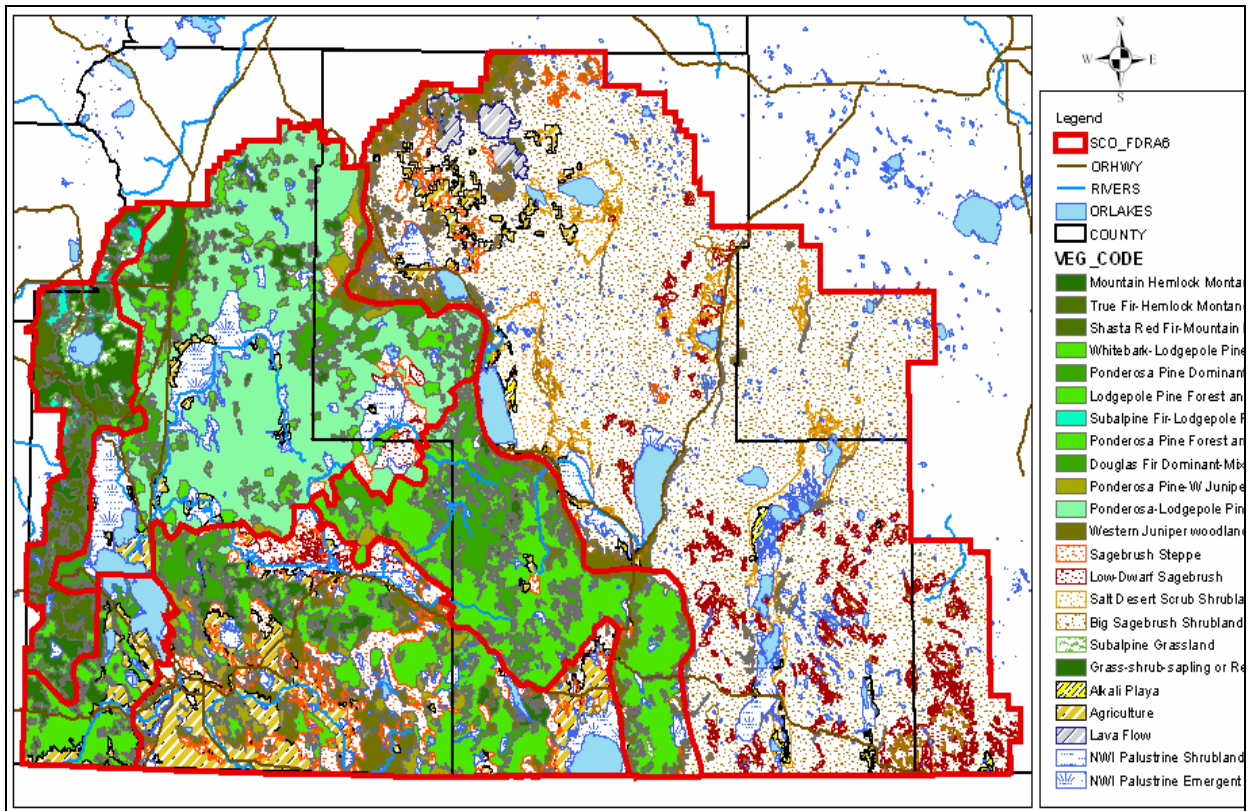
There are 23 permanent Remote Automated Weather Stations (RAWS) in and representatively near the south central Oregon area. Three stations (Panhandle, Rover, Poor Jug) were not used due to poor historic data, missing, and/or instrument errors, and one station (Chemult) had been discontinued in 2001 due to poor location. Catnip Mountain data for Sheldon NWR, which is in NW Nevada was also not used in this analysis but can be incorporated when the plan is updated. A quality control process was developed and utilized on 18 RAWS, producing the most consistent, least erroneous historic weather data available (Appendix A: Goff, Brian; 2003: Quality Control Processing of Historic Weather Data for South Central Oregon).

In general, the quality control processing involved obtaining original, unprocessed historic weather data for each station from the Western Region Climate Center (WRCC), remove erroneous and inappropriate readings, estimate missing readings where appropriate, calculate daily summaries, consistently select daily observations, and write data into a format compatible with fire analysis software. Descriptions, by RAWS, of weather data quality and a comparison of the quality control weather data to NIFMID weather data is available in the report.

The Fire Danger Rating Area map exhibits RAWs locations, and below is a table describing RAWs parameters.

STATION		STATION METADATA								
NUMBER	NAME	Agency	OWNER	Elev	ASPECT	SITE	Precip	Transmit	County	Zone
352618	Lava Butte	USFS	Deschutes	4,655	South	Ridge/Peak	12	0:14:00	Deschutes	611
352619	Camp 2	USFS	Deschutes	4,770	West	Ridge/Peak	10	0:25:00	Deschutes	611
353307	Calimus	USFS	Winema	6,629	South	Ridge/Peak	25	0:00:00	Klamath	624
353310	Chiloquin	USFS	Winema	4,517	South	Ridge/Peak	20	0:00:50	Klamath	624
353328	Gerber	BLM	Lakeview	4,920	Southwest	Valley Bottom/Flat	19	0:12:00	Klamath	624
353337	Timothy	USFS	Fremont	6,020	South	Midslope	28	0:24:00	Klamath	624
353339	Seldom	USFS	Winema	4,875	Southeast	Midslope	43	0:07:52	Klamath	623
353342	Black Rock	USFS	Deschutes	4,880	South	Midslope	23	0:01:00	Klamath	611
353343	Hoyt	USFS	Winema	5,445	Southwest	Midslope	25	0:01:00	Klamath	624
353344	Parker Mountain	State	Medford BLM	5,250	South	Ridge/Peak	24	0:47:00	Klamath	623
353402	Cabin Lake	USFS	Deschutes	4,545	Southwest	Valley Bottom/Flat	8	0:50:00	Lake	611
353406	Ft Rock	BLM	Lakeview	4,430	Flat	Valley Bottom/Flat	11	0:37:00	Lake	625
353421	Summit	USFS	Fremont	6,147	South	Midslope	32	0:24:00	Lake	624
353422	Coffee Pot	BLM	Lakeview	5,250	South	Valley Bottom/Flat	22	0:37:00	Lake	624
353423	Strawberry	USFS	Fremont	5,590	South	Midslope	22	0:24:00	Lake	624
353424	Rock Creek	USFWS	Hart	5,640	Northwest	Ridge/Peak	12	0:44:00	Lake	625
353428	Browns Well	BLM	Prineville	4,500	Southwest	Ridge/Peak	7	0:02:00	Lake	630
353516	Fish Fin	BLM	Lakeview	4,900	Flat	Valley Bottom/Flat	11	0:30:00	Harney	625
260109	Catnip Mountain	USFWS	Sheldon	5,741	Southeast	Valley Bottom/flat	10	0:44:50	Wahoe	458

E. Vegetation and Fuels



Two sources of GIS vegetation data were utilized in the analysis:

1. Kuchler Potential Natural Vegetation of the Conterminous United States,
2. 1998 OR-GAP Land Cover for Oregon.

Some key elements of these data sources which make them ideal for this type of analysis are that they are developed using a consistent process of delineation and labeling across vast areas, generally fairly gross scale, and do not consider administrative boundaries. Drawbacks are that there is limited ground-truthing to verify accuracy, and being fairly gross scale eliminates detail.

CASCADES – Mostly true Fir and Hemlock forests. In the south includes some Pine forest and regeneration. Fire Behavior Prediction System (FBPS) fuel model 8.

PUMICE – Mostly Ponderosa-Lodgepole Pine forests on pumice soils, quite a lot of pine forest regeneration on U.S. Timberland ownership. Understory vegetation commonly consists of brush such as manzanita or bitterbrush, and/or grasses. Pumice soils are likely a key microclimatic factor for this area due to rapid gain and loss of temperature. FBPS fuel models 2, 6, 9.

FREMONT – Mostly Ponderosa Pine forest and woodland with some mixed conifer forest. Understory vegetation commonly consists of brush such as manzanita or bitterbrush, and/or grasses. FBPS fuel models 2, 6, 9.

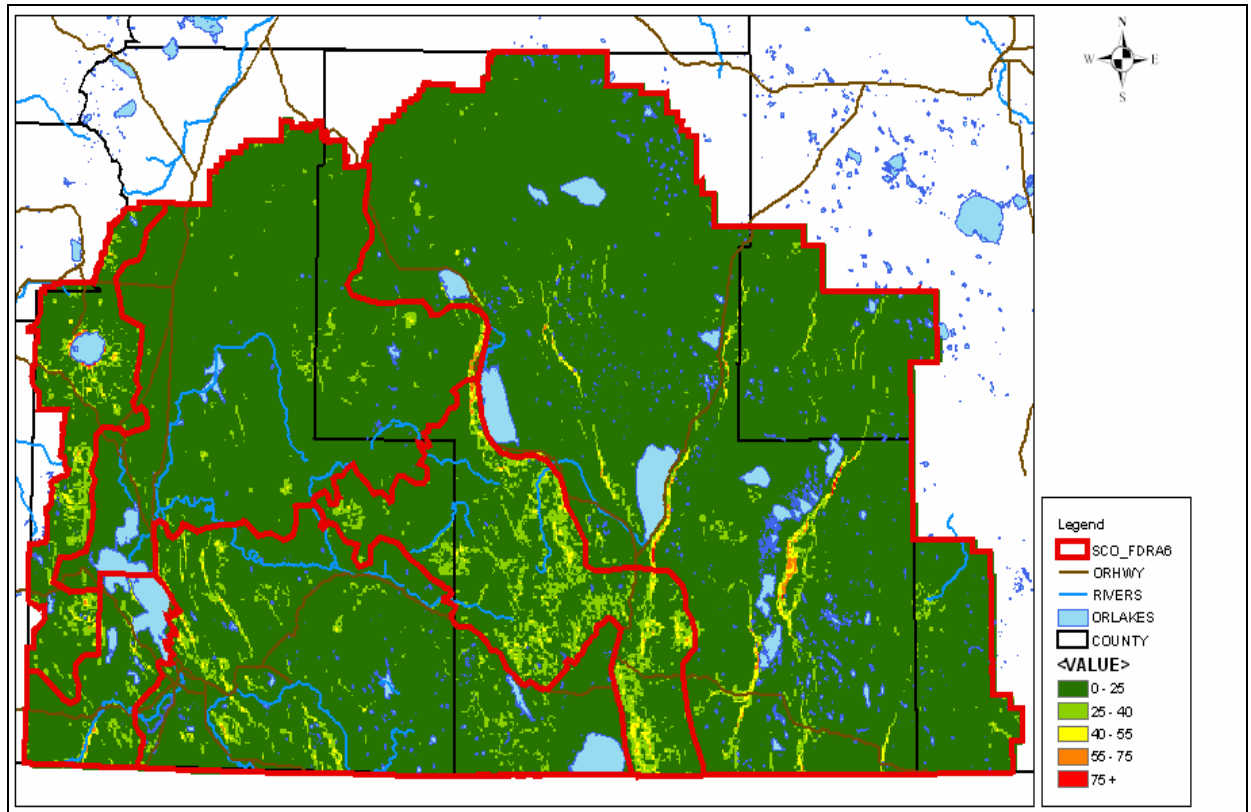
WESTSIDE - Mostly Ponderosa Pine forest and woodland. Much of the forest in regeneration or younger age class. Understory vegetation commonly consists of brush such as manzanita or bitterbrush, and/or grasses. Grasses common in Klamath River canyon. FBPS fuel models 2, 6, 9.

BASIN – There is a wide variety of fuel types in this area. In the north, the Sprague River valley has a significant amount of sagebrush and Juniper woodland. To the south of the Sprague River is Ponderosa Pine woodland and mixed conifer woodland. Much of the Klamath and Goose basins are agriculture with sagebrush and juniper woodlands. FBPS fuel models 2, 6, 9.

DESERT – As the name implies this area truly is desert consisting of mostly sagebrush. FBPS fuel model 6.

F. Topography

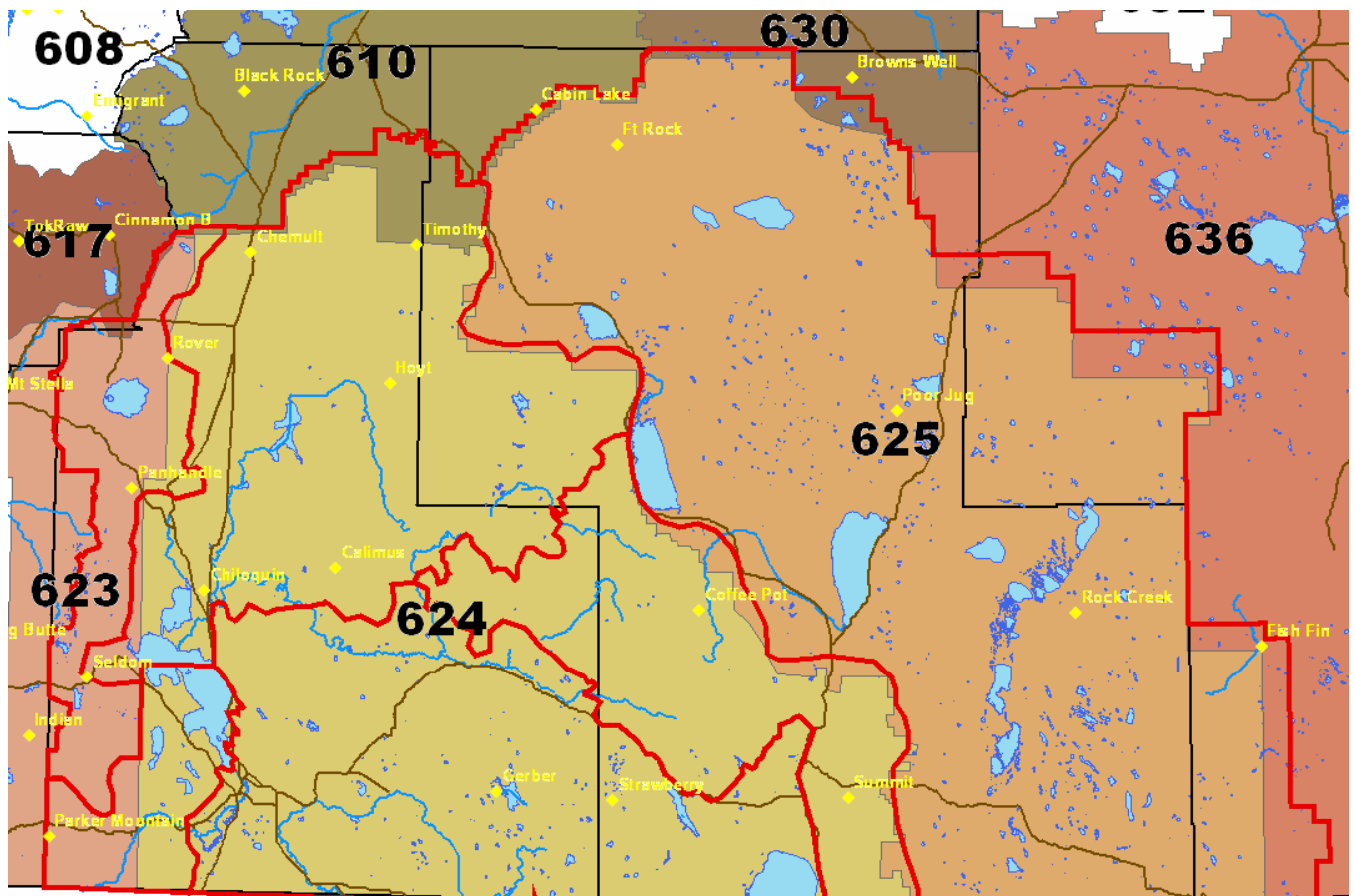
With the highest elevations generally to the west and to the north, the area generally has a southeast aspect. Slope over the majority of the area is less than 25% with the highest slopes and terrain diversity in the Cascade and Fremont areas. Pumice and the Desert area have the least slope and terrain diversity.



G. Climate Class

Climate class relates to how the NFDRS model greens up and cures live vegetation. Five of the Fire Danger Rating Areas in south central Oregon area are in a climate class 2 as it relates to NFDRS, the Desert area is a climate class 1. It is important to note that live fuel moistures across the landscape are much more variable than indicated by NFDRS. A climate class 2 causes greenup of live fuels in the NFDRS model to move from winter cured to peak greenness in 2 weeks, in a climate class 1 peak greenness is reached in 1 week. The climate class also effects the rate of drying of live fuels with a climate class 1 drying more slowly than a climate class 2. An analysis of historic NDVI imagery back to 1989 indicated a large variation in the amount of time from when greenup begins to when it peaks across the area, generally taking 6-8 weeks, peaking around the first of June, and showing significant curing by early to mid July.

H. Fire Weather Forecast Zones



Fire Weather Forecast Zone 623 covers the Cascades area. Zone 624 is a diverse weather zone with wide ranges of temperature and humidity covering the Pumice, Fremont, Westside, and Basin areas. Zone 625 covers the Desert area. A proposal will be made to the PNW Fire Weather Working Team and to the Medford National Weather Service to split Zone 624 into two zones, one being the combination of the Westside and Basin areas, the other being the combination of the Pumice and Fremont areas. It is also important to be aware of how representative individual stations are of the Fire Weather Forecast Zone they reside in. For instance Calimus RAWS is clearly located in the Pumice area, but Calimus is located atop Calimus Butte and is approximately 1,600' above the mean elevation for the Pumice area. Calimus will tend to have cooler temperatures, higher humidities, and higher wind velocities; not very representative of the Pumice area where fires would be a concern.

IV. FIRE-DANGER INDEXES AND FIRE BUSINESS ANALYSIS

A. FireFamily Plus Correlations/Analysis

1. Fire Weather history was re-created for 18 RAWS using a quality control process resulting in the most consistent, least erroneous historic weather data available. Weather history data, mostly 1986-2002, was imported into FireFamily Plus.
2. Fire Danger Rating Areas were developed based on Fuels, Weather, and Topography using GIS tools and data.
3. Fire histories of the USFS Winema NF, USFS Fremont NF, BLM Lakeview District, and ODF Klamath-Lake District were obtained.
 - a) Imported into Personal Computer Historical Analysis (PCHA) software.
 - b) With Microsoft Access, the Fire history table in the PCHA database edited to eliminate most duplicate fires between agencies.
 - c) Fire Danger Rating Area polygon was imported into PCHA. Federal fires were assigned to a Fire Danger Rating Area within PCHA.
 - d) PCHA was not able to plot ODF fires. Therefore the ODF fire history was assigned to Fire Danger Rating Area's using ESRI ArcView. The data table was imported into the PCHA database. A query was run updating the PCHA Fire table with the revised ODF fire history.
 - e) The PCHA Fire table, with combined fire history of all agencies, was exported.
 - f) The PCHA Fire table was imported into FireFamily Plus as a custom import. A custom agency was set up allowing the fire history to be selected by Agency and Fire Danger Rating Area.
4. FireFamily Plus probability analysis runs were made for each Fire Danger Rating Area using all RAWS within the Fire Danger Rating Area, and nearby possibly representative RAWS. Run results are recorded in Appendix B and the FireFamily Plus database used in the analysis is located on the CD in Appendix G.
5. Generally the Cumulative Fires Analysis graphs were used to identify the best fit by looking for the best separation between All Days, Fire Days, and Large Fire Days. The statistics recorded in Appendix B do not always correlate with the best fit looking at the graphs. The comments in the right column were used to indicate fit according to the graphs.
6. Generally ERC, Model G had the best fit by consistently having the best visual fit over the range of values.

- a) Numerous other fuel models were analyzed, sometimes exhibiting some correlation for a particular station and indice, but generally failed when evaluated with other stations and indices, indicating the correlation was likely an anomaly. Fuel model C was analyzed repeatedly, and fuel model T was analyzed for the Desert Fire Danger Rating Area.
- b) Indices analyzed extensively included ERC, BI, 100hr, and 1000hr.
 - 1) ERC frequently had good visual correlation but not always the best statistical correlation. Thresholds were fairly easy to identify and tended to filter all days reasonably.
 - 2) BI had good visual correlation sometimes, but not consistently. Better fit with Large Fire days. Possible reasons could include that the day of maximum fire growth does not always occur on the ignition date which is used in the analysis. For instance, thunderstorms could start numerous fires on a particular day, also providing some precipitation which could cause the BI to have a low value that day. Some of the fires resulting from the lightning could grow large a day or two later when the BI has a higher value. For analysis purposes though, that final fire size is associated with the day of ignition when the BI value was low. It is still possible BI could be a good indice to use in decision making, but needs to be monitored.
 - 3) 100hr frequently exhibited the best statistical fit, although when thresholds were identified based on the statistical correlation, it tended to filter out few days. For instance the graphs indicate a fairly clear threshold when fire days begin to occur, plotting that threshold against all days indicated a fire could occur almost all days. The threshold identified for ERC was a better indicator of a fire day by filtering out many more days as not being fire days. 100hr has a fairly narrow range of values which is likely a contributing factor.
 - 4) 1000hr was very similar to 100hr, not quite as good of a statistical fit.

B. Adjective Fire Danger Rating Definitions and Analysis

The following table describes the Adjective fire danger rating definitions. The two columns on the left are copied out of “Gaining an Understanding of the National Fire Danger Rating System”, and are considered the national standard. The column at the right describes the point where fire business thresholds were consistently identified as a result of the analysis and utilized in this plan. This plan does not use “VERY HIGH” because it was not possible to identify clear fire business break points between “HIGH”, “VERY HIGH” and “EXTREME”.

Energy Release Component (ERC) does not include wind in any part of the index calculation, and is heavily weighted to large fuel moistures. Due to this fact, the ERC index shows the cumulative effect of weather over time on large fuels. It displays the trend of net drying on large fuels when the slope is positive, and indicates large fuels are having a net gain of moisture whent the slope is negative. Large fuels moistures are a key factor in fire intensity, high intensity fires having a high resistance to

control. The ERC was selected because it is very stable, displays a seasonal trend, and due to the trend and stability allows decisions based on ERC to be stable.

Fire Danger Rating and Color Code	Description	South Central Oregon Analysis
Low (L) (Green)	Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.	Historically there have been few to no fires at this range of index values. (See chart on page 19 for index ranges)
Moderate (M) (Blue)	Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot.	Historically fires have occurred during this range of index values, but few to no large fires (as defined in the analysis) have occurred. (See chart on page 19 for index ranges)
High (H) (Yellow)	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.	Historically large fires have occurred during this range of index values. There may be less probability of high intensity, high resistance to control, and fires than in the Extreme category. Large fires during this range of index values may be most related to fine fuels. (See chart on page 19 for index ranges)
Very High (VH) (Orange)	Fires start easily from all causes and, immediately after ignition, spread rapidly, and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.	Not Used
Extreme (E) (Red)	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.	Historically large fires have occurred at a higher rate, more fire for a given number of days, than during the High range of index values. Large fires may have a higher resistance to control due to greater intensity, more fuel participating in the fire due to all components of fuel being more available, drier. (See chart on page 19 for index ranges)

C. Dispatch Level Analysis

1. Preplanned Incident Dispatching Analysis

The following table describes how fire business was used to indicate thresholds for Dispatch decisions. The intent was to identify categories at which fire business would be different than other categories, and would tend to require different strategy and tactic considerations to successfully minimize the net cost plus loss resulting from a fire. A Burning Index (BI) for a fuel model G was used

to set dispatch levels. The fuel model G had better correlation with fire history than any other fuel model for all Fire Danger Rating Areas.

The Burning Index is a combination of Energy Release Component (ERC) and Spread Component (SC). ERC does not include wind in any part of the index calculation, and is highly weighted to large fuel moistures. SC is very sensitive to wind and is weighted to fine fuel moistures. The BI can fluctuate fairly dramatically from day to day, but does tend to have a seasonal trend. Fires can occur at a BI of 0, but would have little spread potential as long as conditions on the fire were similar to conditions at the weather station, where the index value was computed from. The BI was selected because it considers wind, because a forecasted index value for the next day is available so the dispatch level can be set the afternoon before, and because firefighting resources are adaptable to changing dispatch levels.

Dispatch Level Color	South Central Oregon Analysis
Blue	Historically fires have occurred during this range of index values, but few to no large fires (as defined in the analysis) have occurred.
Yellow	Historically large fires have occurred during this range of index values. There may be less probability of high intensity, high resistance to control, and fires than in the Extreme category. Large fires during this range of index values may be most related to fine fuels.
Red	Historically large fires have occurred at a higher rate, more fire for a given number of days, than during the High range of index values. Large fires may have a higher resistance to control due to greater intensity, more fuel participating in the fire due to all components of fuel being more available, drier.

2. Air Tanker Dispatch Analysis

Starting in 1998 the Winema NF has been automatically dispatching a large air tanker to reported fires when the Chiloquin RAWS BI is 30 or above, and the ERC is 40 or above for fuel model G. This approximates FIL 2 @ 90th percentile ROS from NFMAS, a point at which fire growth necessitates higher fireline production capability resources. Specifically, fires at this intensity level typically are not successfully attacked with hand tools. A decided reduction in large fire occurrence has been achieved since implementation of this airtanker dispatch philosophy. Use of airtankers still requires fireline production and support (handline, firing, hose lays, patrol/mop-up).

Instead of a combined BI and ERC threshold, it is proposed to use BI only (as forecasted for that day). An analysis of historic weather data showed that a BI of 30 and ERC of 40 tended to occur at about the same time.

V. FIRE-DANGER BASED DECISIONS

A. Seasonal Fire Danger Tracking

1. Seasonal Chart

A Microsoft Excel workbook has been developed which includes an automated process to import data derived directly from the Weather Information Management System (WIMS), post it to appropriate worksheets, and automatically update numerous charts for display. Adjective Class charts in the workbook can be used to easily see, and to easily communicate current season tracking. Data Select charts in the workbook, and the station worksheets, can be used for validation of model outputs and station inputs.

2. Fire Danger Pocket Card for Firefighter Safety

The Pocket Card for south central Oregon is a two-sided page including six charts, one for each Fire Danger Rating Area. The pocket card is posted on the NWCG, Fire Danger Working Team, Pocket Card website at:

<http://famweb.nwcg.gov/pocketcards/default.htm>

B. Daily Staffing Levels

1. Personnel and Initial Attack Resources

Staffing levels needed will vary throughout the year by Fire Danger Rating Area. When fire danger rating is Low, typically during pre/post and early season no or limited initial attack capability is required. Fire Danger Rating Area's have unique characteristics, for example Desert Fire Danger Rating Area is Low only 5% of the season days compared to the Cascades Fire Danger Rating Area which is Low 17% of the season days. Resources needed by staffing level should increase with increasing fire danger. Resources of higher firefighting production capability (dozers, air tankers) should be utilized as fire danger increases. Dispatching a few more of relatively low firefighting production capability resources will not result in successful initial attack on days with large fire potential.

Unit overhead draw-down is addressed in the operations plans. Statistics from this Fire Danger Operating Plan should guide future revisions of unit draw-down levels.

2. Aircraft – detection

Detection aircraft and aerial observer(s) are utilized following lightning episodes. Such use is very limited when the fire danger is Low. Detection flights for human-caused fires is limited to rare instances of arson activity.

3. Lookouts

Lookouts have historically been staffed to support the wildfire season. Some federal lookouts are staffed pre-season to support prescribed fire activities.

C. Preplanned/Incident Dispatching

1. A coordinated Dispatch Level based on the fire danger system will be utilized by all agencies within the south central Oregon area using a three level system described by colors, delineated by fire danger rating area, and tracked by dispatch centers. The described dispatch colors indicate likely differences in fire business. As dispatch levels change, production capabilities of suppression resources should change. Specific resource to be dispatched will be addressed in an Operation's Plan.

FDRA_NAME	Cascades		Pumice		Fremont		Westside		Basin		Desert	
STATION	Seldom		Chiloquin		Summit		Parker Mtn		Gerber		FtR-RCrk SIG	
MODEL	7G2PE2		7G2PE2		7G2PE2		7G2PE2		7G2PE2		7G1PE1	
INDEX	BI	%days	BI	%days	BI	%days	BI	%days	BI	%days	BI	%days
BLUE	0	40%	0	20%	0	20%	0	20%	0	33%	0	6%
YELLOW	35	48%	40	41%	39	49%	40	31%	50	54%	25	32%
RED	50	13%	55	39%	75	31%	55	49%	75	13%	55	62%
90 th	51	10%	67	10%	94	10%	71	10%	76	10%	80	10%
97 th	59	3%	74	3%	108	3%	79	3%	88	3%	92	3%

1. Air Tankers (this is a recommendation)

- a) Large Air Tanker

It is recommended that one large air tanker be automatically dispatched at the Yellow dispatch level. At the Red dispatch level, two or more air tankers should be considered. Two loads of retardant are much more effective if dropped in combination in a short period of time as achieved by ordering two or more aircraft simultaneously. This is opposed to having one aircraft drop, then load and return to drop the second load.

These thresholds are not to remove the professional judgment of a duty officer from the decision to use large airtankers. The respective unit duty officer ultimately retains control of the decision. However, it is recommended that if a decision is made to not use the air tanker that the decision, including the reasons for that decision, be documented. The intent is to efficiently prepare the aircraft for deployment prior to the decision to gain the discretionary time in the decision. Mission abort is easy and often results in no cost (no cost incurred until second propeller turns). If the mission continues to delivery of retardant on the fire, the time to deploy the aircraft and fly to the scene was not lost as "decision time". The arrival of that load of retardant is at maximum efficiency; it could not have been delivered any sooner.

- b) SEATS – Single Engine Air Tankers

Use of SEATS has the highest utility on lower intensity fires. The benefit of such tools diminishes inversely to fire intensity and spread rate. These tools require positive back-up and support by ground personnel.

2. Helicopter

Helicopter use varies by Fire Danger Rating Area and agency jurisdiction. Ship use ranges from aerial reconnaissance, to delivery of firefighters for initial attack of fires by handtools, to delivery of water by bucket. Delivery of water by a light helicopter is of marginal benefit on a fire of moderate or higher intensity, thus the tactical practicality of light helicopters is inversely proportional to fire intensity/spread. A light helicopter's utility may increase proportionally to fire intensity/spread as a strategic tool when an adequately experienced observer is onboard. This strategic value is a significant factor in the utilization of a light helicopter platform.

Medium and heavy helicopters have historically seen use on extended attack operations, not initial attack. This plan addresses thresholds for higher intensity fire potential and the need for resources of increased fireline production capability. The consideration of use of these resources should be the result of fire danger indices, predicted ignitions events, and lack of the availability of large air tankers.

3. Dozer (this is a recommendation)

Similar to the findings with air tanker dispatching, dozers are needed when increased fireline production capability is needed to contain fires. Since the specific location and needs of a given fire are unknown until qualified personnel are on-scene, it is recommended to dispatch dozer(s) at the same threshold as air tanker(s). It is recommended to automatically dispatch one dozer at dispatch level Yellow, consider two or more dozer's at Red. Dozer line is most effective if supported by burnout, patrolling line, and patrolling for spots outside the line.

D. Public Information

1. Public Fire Danger Signs

A coordinated Adjective fire danger system will be utilized by all agencies within the south central Oregon area using a four level system displayed on signs throughout the area. Signs will be set based on Adjective rating for the particular Fire Danger Rating Area best represented by the sign.

FDRA_NAME	Cascades		Pumice		Fremont		Westside		Basin		Desert	
STATION	Seldom		Chiloquin		Summit		Parker Mtn		Gerber		FtR-RCrk SIG	
MODEL	7G2P2		7G2P2		7G2P2		7G2P2		7G2P2		7G1P1	
INDEX	ERC	%days	ERC	%days	ERC	%days	ERC	%days	ERC	%days	ERC	%days
LOW	0	17%	0	6%	0	7%	0	10%	0	7%	0	5%
MODERATE	20	49%	20	23%	25	30%	25	23%	25	36%	30	31%
HIGH	43	24%	40	36%	55	39%	45	28%	55	31%	55	37%
EXTREME	53	10%	55	34%	75	24%	60	40%	70	27%	70	27%
90 th	53	10%	68	10%	82	10%	75	10%	80	10%	79	10%
97 th	60	3%	74	3%	88	3%	79	3%	85	3%	83	3%

For each Fire Danger Rating Area, the column on the left describes the Adjective class threshold value, the percent value on the right is the average number of

days between May 1 and October 31, during the analysis period (mostly 1986-2002), that had a value within that range.

2. News Releases

Public news releases related to fire danger should utilize information consistent with this Fire Danger Operating Plan.

E. Public Use Restrictions/Closures

To the extent possible, like public use restrictions between agencies should be coordinated and implemented similarly for the same Fire Danger Rating Area's. It is recommended that public restrictions such as smoking, campfires, vehicles off improved roads, etc. be coordinated and implemented when the Adjective level for a particular Fire Danger Rating Area is in the Extreme category and is anticipated to stay in the Extreme category for the foreseeable future. It should be recognized that the final decision as to put public use restrictions will not only be based on fire danger levels but will also consider other political and social factors, preparedness levels, and fire activity.

1. U.S. Forest Service –

Public use restrictions are put in place when the fire danger reaches a point where there is high potential for human starts. Restrictions are put in place to restrict smoking, driving vehicles off of system roads, building campfires, use of internal combustion engines, welding or cutting torches. These restrictions are put in place using a Forest Supervisor's Order, which are tied to CFRs.

2. Bureau of Land Management –

Public use restrictions are put in place when the fire danger reaches a point where there is high potential for human starts. Restrictions are put in place to restrict smoking, driving vehicles off of system roads, building campfires, use of internal combustion engines, welding or cutting torches. These restrictions are put in place using a District Manager Order, which are tied to CFRs.

3. Oregon Department of Forestry (ODF) –

- a) Burning inside or within 1/8 mile of a forest protection district requires a permit. The forest, by use of the permit, shall prescribe conditions necessary to be observed in setting a fire and preventing it from spreading out of control. The forester may waive the requirement for a burn permit, except during a fire season. {ORS 477.515, OAR 629-043-0040}
- b) Fire season is declared when conditions of fire hazard exist in a forest protection district, and continue until fire hazard conditions no longer exist. The State Forester issues a formal proclamation to place a district into fire season, which remains in effect until lifted by the State Forester. {ORS 477.505}

1. Automatic fire season regulations:

- (a) Smoking while working or traveling in an operation area; and

- (b) The use of fuses and caps for blasting {ORS 477.510}.
- 2. Public closures designated by proclamation {ORS 477.535-550}:
 - (a) Regulated closures, limits what the public can do while they are on forestland such as: campfires, smoking, non-industrial power saw use, motorized vehicles, travel requirements, metalwork, fireworks.
 - (b) Permit closure limits public access to forestland. People must have written permission from the District before they can enter the closed area.
 - (c) Absolute closures limit all access to forestland. Everyone is banned from entering the designated area, except to prevent and extinguish fires.

4. U.S. Fish & Wildlife Service – Shelton – Hart Mountain Complex

- a) Public use restrictions are put in place when the fire danger reaches a level where there is high potential for human starts. Restrictions are issued to restrict smoking, back country use, operating vehicles off of improved system roads, building campfires, use of fireworks, welding or cutting torches. These restrictions are put in place using the Project Leader orders, which are tied to CFRs.
- b) Campfire use is only allowed within established public campgrounds, which have developed sites with maintained campfire rings. The Virgin Valley and Hot Springs campgrounds are the only two campgrounds meeting these conditions during restricted use periods.

5. U.S. Fish & Wildlife Service – Klamath Basin NWR Complex

- a) Public use restrictions are put in place when the fire danger reaches a level where there is high potential for human starts. Restrictions are issued to restrict smoking, back country use, operating vehicles off of improved system roads, building campfires, use of fireworks, welding or cutting torches. These restrictions are put in place using the Project Leader orders, which are tied to CFRs.
- b) No campfires are allowed on the refuge.

6. National Park Service –

Public Fire Use Restriction and Closure Procedures

Introduction

Enforceable fire use restrictions and emergency closures can reduce the possibility of human caused wildfires occurring during periods of seasonal drought, when wildfires can cause serious damage to park resources and threaten the safety of park visitors and employees. It is unlikely that park areas would need to be closed to public entry because of fire danger reasons alone

although it could become necessary if there is substantial fire activity in the area and park staff decides that new fire starts must be prevented. Emergency closures for public safety reasons are also made during most fire seasons for certain park areas affected by fire operations.

Objectives

- To restrict the use of fire by the public in defined areas of the park during periods of high, very high, and extreme fire danger.
- To provide park administrative staff with a procedure for making emergency closures for fire prevention and public safety reasons.
- To ensure that fire use restrictions and emergency closures comply with the requirements set forth in 36 Code of Federal Regulations, Part 1, section 1.5.

Authority

Fire use restrictions and emergency closures shall be made in compliance with the requirements set forth in 36 Code of Federal Regulations (CFR), sections 1.5 and 2.13(c). For enforcing fire use restrictions this plan serves as the written determination required in section 1.5 (c). Decision memoranda will be approved by the Superintendent when fire use restrictions, or emergency closures for fire prevention or public safety reasons, are implemented. Whenever fire use restrictions or area closures are implemented, public notice must be given in compliance with 36 CFR, section 1.7. Such notice will be widely disseminated, as described in this Appendix.

Procedures for Implementing Fire Use Restrictions or Closures

The Fire Management Officer will identify areas of the parks where fire use restrictions and emergency closures for fire prevention purposes should be implemented. The Fire Management Officer will consider:

- Weather data
- Fuels data
- Visitor use trends
- Fire situation within the park (number of active fires and their potential, probability of new starts, and draw-down of park suppression resources)
- Current fire use restrictions and emergency closures in adjoining national forests (Winema National Forest, Umpqua National Forest, Rogue River National Forest) and other public lands (Sun Pass State Forest).
- Regional and national preparedness plan levels

The Fire Management Officer will consult with the Ranger Operations Supervisor on potential closures and restrictions, and will recommend to the Chief Ranger

and Superintendent the appropriate Stage Level that should go in to effect. The Superintendent will approve a decision memorandum.

Once restrictions have been approved the Fire Management Officer will coordinate the following in order to place Stage I, Stage II or Stage III restrictions/closures into effect:

- Work with the Park Public Information Officer and issue a press release announcing the Stage Level.
- Notification of all park visitor center information desk personnel.
- Notification of Ranger Operations Supervisor.
- Coordinate the placing of signs (see Stage I, Stage II, and Stage III signing below).
- Make available to all visitor centers a fire use restriction and emergency closure handout for the public and employees.
- Request that Park Dispatch announce daily the current Stage Level during the morning report broadcast, and put Stage Level information in the written morning report.
- Notification of fire dispatch at Kingsley and Medford Interagency Fire Centers, and Klamath Unit of Oregon Department of Forestry.
- Notification of the park concessionaire.

Procedures for Lifting Fire Use Restrictions or Closures

When fire danger and fire occurrence moderates, the Fire Management Officer will recommend reduction of fire use restrictions and emergency closures for fire prevention purposes. The Fire Management Officer will consider:

- Weather data
- Fuels data
- Visitor use trends
- Fire situation within the park (number of active fires and their potential, probability of new starts, and draw-down of park suppression resources)
- Current fire use restrictions and emergency closures in adjoining national forests (Winema National Forest, Umpqua National Forest, Rogue River National Forest) and other public lands (Sun Pass State Forest).
- Regional and national preparedness plan levels

The Fire Management Officer will consult with the Ranger Operations Supervisor on lifting of fire use restrictions, and will recommend to the Chief Ranger and Superintendent the appropriate level of restrictions/closures or lifting of restrictions/closures. The Superintendent will approve a decision memorandum.

Once the lifting of restrictions/closures has been approved the Fire Management Officer will coordinate the following in order to lift Stage I, Stage II or Stage III restrictions/closures:

- Work with the Park Public Information Officer and issue a press release announcing the Stage Level.
- Notification of all park visitor center information desk personnel.
- Notification of Ranger Operations Supervisor.
- Coordinate the placing of signs (see Stage I, Stage II, and Stage III signing below).
- Request that Park Dispatch announce daily the current Stage Level during the morning report broadcast, and put Stage Level information in the written morning report.
- Notification of fire dispatch at Kingsley and Medford Interagency Fire Centers, and Klamath Unit of Oregon Department of Forestry.
- Notification of the park concessionaire.

Special Signage During 4th of July

Special "NO FIREWORKS" signs will be posted throughout the Parks five days prior to, and five days after the July 4th holiday. The Fire Management Officer will coordinate the posting of the signs with the Ranger Operations Supervisor.

Stage I Fire Use Restrictions

1. Campfires and Camp Stoves

- Wood fires and charcoal fires are permitted only within established grills or fire rings, or portable self-contained grills, in the following designated areas:
 - Mazama Campground
 - Lost Creek Campground
 - Rim Village Picnic Area ("Picnic Hill")
 - Park residential areas
- Gasoline and propane camp stoves and gas grills are permitted in campgrounds, picnic areas, backcountry areas and residential areas.

2. Smoking

- Smoking is permitted only in the following areas:
 - Within buildings where smoking is normally allowed, and directly adjacent to buildings. Ashtrays must be used for both ashes and butts.
 - In vehicles, provided that an ashtray is used for ashes and butts.
 - While stopped in an area at least three (3) feet in diameter that is barren or free of all flammable materials. Ashes and butts must be disposed of safely and may not be discarded on the ground.

3. Fireworks

- Fireworks are prohibited in the park at all times

4. Trigger Conditions

- Once the following conditions have been reached, and are anticipated to continue for an extended period of time, Stage 1 fire use restrictions will be implemented. The park will strive to avoid implementing restrictions when trigger conditions are expected to last only very short periods.
- Similar fire restrictions are in effect for adjoining National Forests are in effect (Winema National Forest, Rogue River National Forest, Umpqua National Forest), and
- National Fire Danger Rating Staffing Class for any Park fire weather station is three or higher

5. Signage

- Stage 1 signs will include the following wording:
 - “HIGH FIRE DANGER”
 - “NO WOOD OR CHARCOAL FIRES EXCEPT IN DESIGNATED CAMPGROUNDS AND PICNIC AREAS”
 - “GAS OR PROPANE STOVES PERMITTED”
 - “NO SMOKING EXCEPT WITHIN ENCLOSED VEHICLES, DEVELOPED AREAS, OR DESIGNATED CAMPGROUNDS”
- Signs will be placed at the following locations:
 - Ponderosa Picnic Area bulletin board
 - Old West bulletin board
 - Annie Springs Entrance Station bulletin board
 - North Entrance Station bulletin board
 - Mazama Store bulletin board
 - Mazama Campground kiosk
 - Steel Information Center
 - Rim Visitor Center
 - Crater Lake Lodge
 - Rim Village Cafeteria and Gift Shop
 - Cleetwood Cove ticket shed
 - Trailheads for all maintained trails in park
 - Rim Village Picnic Area

Stage II Fire Use Restrictions

1. Campfires and Camp Stoves

- Wood fires and charcoal fires are prohibited throughout the park.
- Gasoline and propane camp stoves and gas grills are permitted in campgrounds, picnic areas, backcountry areas and residential areas.

2. Smoking

- Smoking is prohibited throughout the park.

3. Fireworks

- Fireworks are prohibited in the park at all times.

4. Trigger Conditions

- Once the following conditions have been reached, and are anticipated to continue for an extended period of time, Stage II fire use restrictions will be implemented. The park will strive to avoid implementing restrictions when trigger conditions are expected to last only very short periods.
- Similar fire restrictions are in effect for adjoining National Forests are in effect (Winema National Forest, Rogue River National Forest, Umpqua National Forest), and
- National Fire Danger Rating Staffing Class for any Park fire weather station is four or higher

5. Signage

- Stage 1 signs will include the following wording:
 - o “VERY HIGH FIRE DANGER”
 - o “NO WOOD OR CHARCOAL FIRES”
 - o “GAS OR PROPANE STOVES PERMITTED”
 - o “SMOKING PROHIBITED”
- Signs will be placed at the following locations:
 - o Ponderosa Picnic Area bulletin board
 - o Old West bulletin board
 - o Annie Springs Entrance Station bulletin board
 - o North Entrance Station bulletin board
 - o Mazama Store bulletin board
 - o Mazama Campground kiosk
 - o Steel Information Center
 - o Rim Visitor Center
 - o Crater Lake Lodge
 - o Rim Village Cafeteria and Gift Shop
 - o Cleetwood Cove ticket shed
 - o Trailheads for all maintained trails in park
 - o Rim Village Picnic Area

Stage III Fire Use Restrictions

1. Campfires

- Wood fires and charcoal fires are prohibited throughout the park.
- Gasoline and propane camp stoves and gas grills are prohibited throughout the park.

2. Smoking

- Smoking is prohibited throughout the park.

3. Fireworks

- Fireworks are prohibited in the park at all times.

4. Trigger Conditions

- Once the following conditions have been reached, and are anticipated to continue for an extended period of time, Stage III fire use restrictions will be implemented. The park will strive to avoid implementing restrictions when trigger conditions are expected to last only very short periods.
- Similar fire restrictions are in effect for adjoining National Forests are in effect (Winema National Forest, Rogue River National Forest, Umpqua National Forest), and
- National Fire Danger Rating Staffing Class for any Park fire weather station is five

5. Signage

- Stage 1 signs will include the following wording:
 - “EXTREME FIRE DANGER”
 - “NO WOOD OR CHARCOAL FIRES”
 - “GAS AND PROPANE STOVES PROHIBITED”
 - “SMOKING PROHIBITED”
- Signs will be placed at the following locations:
 - Ponderosa Picnic Area bulletin board
 - Old West bulletin board
 - Annie Springs Entrance Station bulletin board
 - North Entrance Station bulletin board
 - Mazama Store bulletin board
 - Mazama Campground kiosk
 - Steel Information Center
 - Rim Visitor Center
 - Crater Lake Lodge
 - Rim Village Cafeteria and Gift Shop
 - Cleetwood Cove ticket shed
 - Trailheads for all maintained trails in park
 - Rim Village Picnic Area

Additional Emergency Fire Restriction Orders can be put in place using Park Superintendent Orders.

F. Industrial Restrictions/Closures

To the extent possible, like industrial use restrictions between agencies should be coordinated and implemented similarly for the same Fire Danger Rating Area's. Some industrial restrictions are unique by agency and based on different guidelines (statutes, rules, policy), sometimes with different philosophies. A description by agency follows:

1. U.S. Forest Service –

All industrial operations are restrictions to prevent fires are controlled using the IFPL system. Industrial operations are those operations that require a signed

contract (timber sales, road maintenance, trail maintenance, silvicultural operations, etc) and in so signing the contract the signer agrees to abide by the IFPL provisions in the contract. This system has been in place since the late eighties and is used by all federal agencies in the Pacific Northwest Region. The intent of the system is to prevent large fires. On the eastside of the Cascades a fuel model “C” is used with a 90th percentile value of 16 and 97th percentile value of 20.

The IFPL moves to the next higher level after the precaution value has been in the next higher level for three days and the weather is not predicted to change. The IFPL drops down on the first day that the precaution level moves to a lower level.

The following table shows the stations, and their weighting, that are used to determine the IFPL levels for each of the FDRA.

FDRA NAME	Cascades	Pumice	Fremont	Westside	Basin	Desert
Station	Seldom	Chiloquin	Summit	Parker Mtn	Gerber	Ft Rock/ Rock Cr
Model	7C2PC	7C2PC	7C2PC	7C2PC	7C2PC	7C2PC
Weight %	100 %	40%	50 %	100 %	50 %	50%
Station		Calimus	Coffeepot		Strawberry	Ft Rock
Model		7C2PC	7C2PC		7C2PC	7C2PC
Weight %		20%	50 %		50 %	50%
Station		Hoyt				Rock Creek
Model		7C2PC				
Weight %		40%				
Station		Chiloquin				

The IFPL system allows for waivers of IFPL restriction if the situation on a particular site is different than is represented by the model. The basic principle is that the Agency will not be assuming additional risk by granting a waiver. Waiver guidelines were prepared and agreed to by members of the Pacific Northwest Wildfire Coordinating (PNWCG). The waiver guidelines can be found in Appendix D.

2. Bureau of Land Management –

Industrial operations on BLM lands, with the exception of those BLM lands that are protected by the Oregon Department of Forestry (ODF) west of Highway 97 are regulated using the IFPL system. On those lands that are protected by ODF the industrial operations are regulated according to ODF rules.

3. Oregon Department of Forestry (ODF) –

- a) Permit to use fire or power-driven machinery required year round {ORS 477.625}.
- b) Fire season is declared when conditions of fire hazard exist in a forest protection district, and continue until fire hazard conditions no longer exist. The State Forester issues a formal proclamation to place a district into fire season, which remains in effect until lifted by the State Forester {ORS 477.505}.
 - (1) Automatic fire season regulations:
 - (a) Smoking while working or traveling in an operation area; and
 - (b) The use of fuses and caps for blasting {ORS 477.510}.
 - (2) During fire season forest operations (industrial activity, any development or any improvement on forestland ... {ORS 477.001(17)}) shall comply with:
 - (a) Use and refueling of power saws {ORS 477.640}; spark arrester, fire extinguisher, shovel, refueling {OAR 629-043-036}.
 - (b) Equip and maintain internal combustion engines {ORS 477.645}, with spark arresters {OAR 629-043-0015}.
 - (c) Water supply for stationary internal combustion engines {ORS 477.650, OAR 629-043-0020}.
 - (d) Firefighting tools and equipment at operation area and on trucks {ORS 477.655}; toolbox at operation areas; fire extinguisher at each internal combustion engine; shovel, axe, and fire extinguisher on trucks; pump and shovel at each block {OAR 629-043-0025}.
 - (e) Fire watch services {ORS 477.665}, watchman service {OAR 629-043-0030}.
 - (3) Take reasonable precautions to prevent spread of fire from an operation area {ORS 477.625(1a)}, such as:
 - (a) Cable logging: clear ground around block, no line run {OAR 629-043-026(1)}.
 - (b) Water supply for mobile equipment {OAR 629-043-026(2)}.
 - (c) Keep machinery free of excess flammable material {OAR 629-043-026(3)}.
 - (d) Burn plan to dispose of slashing {OAR 629-043-026(4)}.
 - (e) Additional requirements by written order {OAR 629-043-026(5)}.
 - (4) Additional Fire Prevention Requirements for Industrial Forest Operations During Extreme Fire Danger Periods for High Speed Rotary Saws and Tracked Felling/Skidding equipment {authorized under ORS 477.625(1a) and OAR 629-043-026(5)}.
 - (a) Shut Down 1-8 p.m.
 - (b) High Speed Saw requires operation area observer and fire protection

equipment.

(5) Written waivers generally available by State Forester.

4. U.S. Fish & Wildlife Service –

Industrial operations on Fish and Wildlife Service lands are limited primarily to hazard fuels reduction and smaller refuge maintenance projects. The refuges opt to utilize the IFPL system.

5. National Park Service –

The National Park Service will utilize the IFPL system for its hazardous fuel program. A waiver system is in place and is signed by the Fire Management Officer or Chief Ranger. Hotwork for building construction and activities fall outside the scope of this plan and are included under RM-58 Structural Fire Management.

G. Severity

1. Season

A brief methodology is described in “Interagency Standards for Fire and Fire Aviation Operations” (Red Book) under chapter 7, Preparedness.

NFMAS analysis includes a determination of fire season start and end dates.

Although weather conditions vary from season to season, this process drives the fire program budget for most federal agencies. Severity is identified when fire season thresholds are exceeding the fire seasons in the database that was used in the NFMAS fire season.

2. Episode – Event Considerations

- a) Mass ignitions such as forecast lightning, especially when not accompanied by precipitation – dry.
- b) A very unstable atmospheric condition, one indication is a Haines Index of 5 or 6.
- c) Forecast high wind events.
- d) Prolonged low relative humidity events, such as provided by subsidence.
- e) Ignition sources believed to be Arson.
- f) NFMAS analysis defines multiple-fire days. These episodes certainly increase the workload for initial attack modules, but typically do not account for large fires. Onset of forecasted conditions for lightning episodes when the Adjective Class is High or Dispatch Level is Yellow, or higher, should prompt consideration for additional IA resources.

H. Fire Use

Fremont - Winema N. F. and Lakeview BLM - At this time there are no approved fire use plans within the area covered by this Fire Danger Operating Plans. Appropriate

Suppression Response will be used on all fires.

Sheldon – Hart National and Klamath Basin Wildlife Refuge - there are no approved fire use plans within the area covered by this Fire Danger Operating Plans. Appropriate Suppression Response will be used on all fires.

Crater Lake National Park - Crater Lake has included the use of fire for resource benefit as part of the 2004 Fire Management Plan. The appropriate management response of wildland fire use will be used whenever conditions permit with the approval from the park duty officer. Resources will be dispatched with consideration for levels commensurate with active management of these fires.

I. Prescribed Fire

Crater Lake National Park - The National Park Service is required to have all contingency resources on scene and committed to prescribed fire operations in their jurisdiction. These resources are based off of the contingency resource worksheet as identified in the burn plan.

Other Agencies – Yet to be developed is a system for Contingency Staffing for prescribed burning.

VI. OPERATIONAL PROCEDURES

A. Seasonal Schedule

1. Station Initialization

The Station Owner is responsible to ensure station initialization; timing should be coordinated with the Fire Danger Technical Group. Annual cycle would be for stations to have the herb state at frozen during the winter. Approximately two weeks prior to the peak of greenness set the herb state to green to trigger green-up. This point would typically be about mid-May, with peak of green-up being early June. Normalized Difference in Vegetative Index (NDVI) imagery should be used to monitor greenness. Once a killing frost has occurred in the fall, the station herb state should be set to frozen. A killing frost involves several days with minimum temperatures at approximately 28 degrees or less, for several hours.

2. Station Catalog inputs in WIMS

The Station Owner is responsible to ensure appropriate catalogs are tracked in WIMS; catalogs should be coordinated with the Fire Danger Technical Group.

B. Daily Schedule

Personnel at both the Klamath Falls Interagency Fire Center (KFIFC), and the Lakeview Interagency Fire Center (LIFC), will access WIMS daily and enter observations.

1. Quality Control Station Data

Weather readings for the previous 24 hours will be checked by looking at hourly readings (DRAWS fastpath in WIMS) for abnormal or inappropriate readings, possibly indicating instrument errors.

2. Enter Observations

All observations will be for the hourly weather record closest to 13:00 hours. For stations with transmit times more than :30 minutes after the hour, that will be a 12 hour reading in WIMS, all rest will be a 13 hour reading in WIMS. State of the Weather will be selected based on conditions at 14:00 hours (daylight savings time) for the majority of the Fire Danger Rating Area the station represents, not necessarily just the station. The Wet Flag will be set to “Y” when appropriate, as described in the latest WIMS Technote or Help Desk guidance. Tasks associated with selecting an observation should be accomplished by 15:00 hours each day, so that the observations will be available to the Medford National Weather Service, so they can enter trend forecasts, therefore allowing forecasted indices to be available for the next day.

3. Fire Danger Chart

DIDX and DOBS will be downloaded from WIMS daily after forecasted indices become available, then the Microsoft Excel Workbook for SCO_NFDRS_Tracking will be opened, the “Import_DIDX_DOBS” macro executed, automatically updating the workbook. Instructions will be stored with the Excel Workbook.

C. Large Fire Support

1. CD of local data
2. Seasonal Chart – Pocket Card – Posters

VII. PROGRAM NEEDS

A. Weather Stations Sites

Weather station siting, maintenance, and data management is to be evaluated annually to ensure the stations are meeting the intent and needs of fire danger rating and weather forecasting.

B. Training

1. Development of future Fire Danger Technical Specialists. It takes a number of years to become proficient as a technical specialist, developing technical specialists requires forethought so that they are available with the need.
2. Managers. To interpret NFDRS data appropriately and to make the best decisions within a fire program requires some understanding of NFDRS. S-491 is recommended for all area managers.

C. Computer Equipment Needs

None have been identified at this time.

VIII. APPENDIX

A. Quality Control Processing of Historic Weather Data for South Central Oregon

B. FireFamily Plus probabilities spreadsheets

C. Fire Danger Pocketcard for Firefighter Safety

D. Fire Danger Rating Areas - Boundary Descriptions (Developed in 2005)

The following are the descriptions that will be used to identify boundaries on the ground for the six fire danger rating areas identified in the South Central Oregon Fire Danger Operating Plan (Note these described boundaries do not exactly match the boundaries identified in the plan but were developed to facilitate the identification of the Fire Danger Rating Area boundaries on the ground):

WESTSIDE –

The described boundary of this Fire Danger Rating Area starts at the point where the Klamath/Jackson County line intersect with the Oregon/California border and proceeds north following the Klamath /Jackson County line to the Dead Indian Memorial highway, then east along the Dead Indian Memorial Highway to the junction of the Dead Indian Memorial Highway and the Clover Creek road, then south on the Clover Creek Road to the junction of the Clover Creek Road and the FS Road 3828 then east on FS Road 3828 to where it intersects with the southern boundary of Section 25, then east along the southern line of Section 25 to the SE section corner of Section 25, T. 39 S., Range 6 E, then north along the Range line between R. 6, 7 W. to where that Range line intersects with Highway 140, then NW on Highway 140 to the junction of Highway 140 and Forest Road 3637, then west on Forest Road 3637 to the junction of Forest Road 3637 and Forest Road 3610, then north on Forest Road 3610 to the junction of Forest Road 3610 and Highway 140, then west on Highway 140 to the junction of Highway 140 and Forest Road 3651, then north on Forest Road 3651 to where it intersects with the 8th Standard Parallel South, then west along the 8th Standard Parallel South to where it intersects with Pelican Bay, Upper Klamath Lake, then the boundary follows the northern edge of Upper Klamath Lake to Highway 97, then south on Highway 97 to the California border then west following the Oregon/California border to the beginning point, the intersection of the Klamath/Jackson County line and the Oregon/California border.

CASCADE –

The described boundary of this Fire Danger Rating Area starts at point where the Klamath/Jackson County line intersect with the Dead Indian Memorial highway and proceeds north along the Klamath County and the Jackson County line to where it intersects Forest Road 3795, then east along the Skylakes Wilderness boundary to where it intersects with the Southwest corner of Crater Lake National Park, then north and east along the west and north boundary of Crater Lake to where it intersects with the Umpqua and the Fremont-Winema National Forest boundary, then north along the boundary of the Umpqua and Fremont – Winema National Forest boundary to where it intersects with the Range line, R. 6/6 ½ E./ R.7E., and then south along the and R. 6/6 ½ E./ R.7 E., range line to where it intersects Highway 138, then east on Highway 138 to the Fremont – Winema Boundary N.F., then south along the Fremont – Winema boundary to where it intersects with the boundary of Sun Pass State Forest, then west along the boundary line of Sun Pass State Forest to the point it intersects with the boundary of Crater Lake National Park, then west along the boundary line of Crater Lake National Park to the point it intersects with the Fremont – Winema National Forest boundary and then south along the boundary line of Fremont – Winema National Forest to the point it intersects with the 8th Standard

Parallel South, the west along the 8th Standard Parallel South to the point it intersects with Forest Road 3651 then south along Forest Road 3651 to where it intersects with Highway 140, then east on Highway 140 to where it intersects with Forest Road 3610, then south along Forest Road 3610 to where it intersects with Forest Road 3637 then east on Forest Road 3637 to where it intersects with Highway 140 then SE on Highway 140 to where it intersects with the Range line between Range 6 and Range 7 E, then south along the Range line between R. 6, 7 E. to the SE section corner of Section 25, T. 39 S., Range 6 E, then west along the southern section line of Section 25 to where it intersects with Forest Road 3828, then south on Forest Road 3828 to where it intersects with the Clover Creek Road then north on the Clover Creek Road to where it intersects with the Dead Indian Memorial highway and then west on the Dead Indian Memorial Highway to the starting point, the intersection of Dead Indian Memorial Highway and the Jackson/Klamath County line.

PUMICE –

The described boundary of this Fire Danger Rating Area starts at Modoc point on Highway 97, and proceeds west along the northern edge of Upper Klamath Lake to where it intersects with the Fremont – Winema National Boundary, then north following the Fremont – Winema National Forest boundary to where it intersects with the Crater Lake National Park boundary, then east along the Crater Lake National Park boundary to where it intersects with the boundary of Sun Pass State Forest, then east along the boundary line of Sun Past State Forest to where it intersects with the boundary of the Fremont – Winema National Forest then north following the Fremont - Winema boundary to Highway 138, then west on Highway 138 to where it intersects with the R. 6/6 ½ E./ R. 7 E. range line then north following the R. 6/6 ½ E./ R.7 E. range line to where intersects with the Fremont - Winema National Forest and Umpqua National Forest boundary then north to where it intersects with the Discuses National Forest boundary, then east along the boundary of the Fremont/Fremont – Winema National Forest boundary to where it intersects with the Lakeview District BLM boundary then south along the Lakeview to where it intersects with Forest Road 2901 in the NE ¼ of Section 34, T. 30 S., R. 16 E., then following Forest Road 2901 west and south to where it intersects with Forest Road 3129, then west following Forest Road 3129 to where it intersects with Forest Highway 28, then north on Forest Highway 28 to where it intersects Forest Road 3239, then southwest following Forest Road 3239 to where it intersects with the Sycan River, then following the Sycan River down stream to where it intersects with the Fremont – Winema National Forest boundary, then west along the Fremont - Winema National Forest boundary to the Sprague River Road/Lone Pine Road junction, then west on the Sprague River road to where the road intersects with the Fremont – Winema National Forest boundary, then south following the Fremont – Winema National Forest boundary to the point of origin, Modoc Point on Highway 97.

BASIN –

The described boundary of this Fire Danger Rating Area starts at the California border on Highway 97, then north on Highway 97 to the Fremont – Winema Forest Boundary at Modoc Point then north on the Fremont – Winema Boundary to the Sprague River road, then east on the Sprague River Road to the Sprague River Road/Lone Pine Road junction, then at this point east along the Fremont – Winema

boundary to where the Ivory Pine Road, the Fremont – Winema boundary and the North Fork of the Sprague River intersect, then east on the North Fork of the Sprague River to Forest Road 3411, then south on Forest Road 3411 to the 335 Road, then south on the 335 to Forest Highway 34, then east on Forest Highway 34 to the Klamath/Lake County, County line, then south following the Klamath/Lake County, County line to Highway 140, then east on Highway 140 to where Highway 140 intersects the ODF Protection District Boundary, then north following the ODF Protection District Boundary to the NE section corner of Section 26, T. 37 S., R 20 E., then south until it intersects with Highway 395, then south on Highway 395 to the Oregon/California border, then west along the Oregon/California border until it intersects with Highway 97, the starting point.

FREMONT –

The described boundary of this Fire Danger Rating Area starts at the Oregon/California border on Highway 395, then north on Highway 395 to it's intersection with the ODF Protection District boundary, then north on the ODF Protection District Boundary to the NE section corner of Section 26, T. 37 S., R. 20 E., then west along the ODF Protection District boundary to where it intersects with Highway 140, then west on Highway 140 to the Klamath/Lake County, County line, then north following the Klamath/Lake County, County line to where it intersects with Forest Highway 34, then west on Forest Highway 34 to the intersection with road 335, then north following Road 335 where it intersects with Forest Road 3411, then north on Forest 3411 to where it intersects the North Fork of the Sprague River, then west down the North Fork of the Sprague River to where the Ivory Pine Road, the Fremont – Winema boundary and the North Fork of the Sprague River intersect, then west along the Fremont – Winema National Forest boundary to where the boundary intersects with the Sycan River, then north following the Sycan River to where it intersects with Forest Road 3239 then follow Forest Road to where it intersects with Forest Highway 28, then south following Forest Highway 28 to where it intersects with Forest Road 3129 then northeast following Forest Road 3129 to where it intersects with Forest Road 2901, then north following Forest Road 2901 to where it intersects the ODF Protection District boundary in the NE ¼ of Section 34, T. 30 S., R. 16 E., then south following the ODF Protection District boundary to where it intersects with the Oregon/California state line, then west along the Oregon/California state line to the beginning point, the Oregon/California border and Highway 395.

DESERT –

The described boundary of this Fire Danger Rating Area starts Starting at the SE section corner of Section 23, T. 41 S., R. 22 E., at the Oregon/California Border north following the ODF Protection District boundary to where it intersects with Forest Road 2901 in the NE ¼ of Section 34, T. 30 S., R. 16 E., then north following the boundary of the Lakeview BLM in a clock wise manner to where it intersects with the Oregon/California border then west along the Oregon/California border to the starting point, the SE section corner of Section 23, T. 41 S., R. 22 E.. This fire danger rating area also includes the Shelton National Wildlife Refuge in Nevada.

E. IFPL Procedures

The following is the IFPL waiver guidelines that were developed and agreed to by the Pacific Northwest Wildfire Coordinating Group (PNWCG) in 1989.

PACIFIC NORTHWEST REGION WAIVER MANAGEMENT GUIDELINES

1989

**PREPARED BY
INDUSTRIAL FIRE PRECAUTIONS LEVELS REVIEW TEAM**

I. WAIVER MANAGEMENT GUIDELINES

A. Background

The issuance and management of waivers is a problem that has surfaced in both the 1987 and 1988 reviews. This concern has resulted in an action item that was agreed to by the 1988 Industrial Fire Precaution Levels (IFPL) Review Team (see appendix I). The action item called for the development of interagency waiver management guidelines by June 30th.

The following guidelines have been developed by the Northwest Interagency Fire Prevention Group (NWIFPG) and Industry. The guidelines are general and will require administrative field units to develop specific guidelines/procedures that will support interagency and industry coordination and cooperation in the Pacific Northwest Region.

B. Objective

To enhance interagency uniformity and industry cooperation in the management of waivers.

To provide a framework for the development of more specific guidelines/procedures by field administrative units.

C. Introduction

A waiver may be considered when local site conditions, prevention, detection, suppression capabilities, or combinations of these alternatives can be used to effectively reduce risk.

Administrative field units should use the guidelines as a base to develop specific guidelines that support the review team's coordination and cooperation in the Pacific Northwest Region.

D. Definitions

Waiver: A written authorization that allows an operation to commence or continue so long as the level of risk present in the lower IFPL is not exceeded.

II. DIFFERING SITE CONDITIONS AND ADDITIONAL/SUBSTITUTE MEASURES

The specific operation site is not representative of the overall conditions in shutdown zone/regulated use area.

A. Site Specific Considerations:

- Area of continuous slash versus unit surrounded by timber.
- Type of work being performed.
- Opportunities for control.
- Time and distance from initial attack resources.
- Adjacent values at risk.
- Moist sites.
- Aspect (north slope versus south slope).
- Fog belt.

Note Specific guidelines can be determined on an agency basis for weather parameters to be used on waivers.

B. Additional/Substitute Measures:

1. Prevention

- Raising of fuel moisture.
- Exceeding fuel clearing precautions required by law/contract, i.e., tail block clearing wider than required. Clearing moss/fuel off potential line rubs, etc.
- Cleaning all tracked and rubber tired skidders daily i.e., belly pans, manifolds and radiators.
- Timing of operation (at night, earlier shut-down, etc.).

2. Detection

- Additional watchman/security service at high hazard and risk locations at agreed time intervals.
- Special detection measures (IR).

3. Extra Suppression

- Prepositioning personnel and equipment in addition to that required (on site).

NOTE Should be reasonable based on predicted fire behavior in the event of a start

4. Other

- Communication system exceeds minimum requirements.
- Weather controls (humidity, temperature, wind, shut-down).

III. EXPERIENCE WITH OPERATOR

- History of compliance
- History of law/contract violations
- History of ignitions
- Condition of equipment
- Operators attitude towards prevention

IV. LANDOWNER/LAND MANAGEMENT AGENCY CONSIDERATIONS

- Landowner in agreement with the waiver issued to the operator (N/A USFS)
- Insure coordination with adjoining cooperators

V. AVAILABILITY OF SUPPRESSION RESOURCES

- National/Regional/State situation
- Ability to mobilize resources to respond to an ignition
- Ability to support an extended attack situation
- Ability to administer waivers due to a shortage of personnel

NOTE Any combination of the above factors could result in the cancellation of waivers.

NOTE This is a supervisor/staff/agency decision (not "on the ground" administrator decision)

NOTE The above may include additional resources made available by the operator

IFPL REVIEW TEAM

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- Jaime Pinkham - BIA
- Ken Roegner - BLM
- Dan Shults - ODF
- Howard Thronson - DNR
- Mike Miller - AOL
- Dave Jessup - OFIC
- Bill Pickell - WaCLA
- Jim Harberd -BC

F. CD of Data