EUREKA FIRE WEATHER

2003

ANNUAL REPORT

Fire Weather Summary

The National Weather Service office in Eureka began its inaugural fire weather program on January 2nd , 2003. During the winter off-season (Jan 2-May 5) one daily narrative forecast was produced, with a total of eight spot forecasts. Eureka Fire Weather transitioned into its full fire season activities on May 5th producing two narrative forecasts and NFDRS trend forecasts seven days a week. In addition to the routine products, Eureka Fire Weather issued various Red Flag Warnings, Fire Weather Watches, Spot Forecasts and provided incident meteorological support to three large wild fires within Eureka's area of responsibility. An official end to the 2003 fire season was declared on November 10th.

Prior to the start of fire season, a warm and dry end to winter allowed for scheduled burning during late January through March. Record breaking rainfall during the month of April resulted in a slow start to the fire season, but from mid May to October only minimal amounts of rain were recorded across the region. Fire activity was low during the months of June through August however on September 3rd a complex of thunderstorms spawned many fires over northwest California, thus Eureka's Fire Weather Program was very busy for the remainder of season. The first Red Flag Warning was issued on the morning of the 3rd for dry lightning, followed by nearly 90 spot forecasts for the numerous ensuing fires. Three fires eventually grew large and threatening enough to require IMET support; a complex near Garberville, one in the vicinity of Big Bar and the other near Covelo. Several additional Red Flag Warnings and Fire Weather Watches were issued for strong winds and low humidity's during the months of September and October.

Red Flag Warning Verification

Eureka Fire Weather issued a total of 14 individual zone Red Flag Warnings during the 2003 fire season. 10 of the 14 warnings verified, and no warnings were issued with no lead time and one warning was issued for Dry Lightning, which verified. 5 Fire Weather Watches were issued of which 4 verified.

Of the 10 verified Red Flag Warnings 4 were preceded by a Fire Weather Watch 4 of 10 or **40%.**

- Correct Warnings (Verified) = **10**
- Incorrect Warnings (not verified) = **4**
- Events not warned (issued with no lead time) = **none**

POD (Probability of Detection)…**100%**
CSI (Critical Success Index)……**71%**
FAR (False Alarm Ratio)……..**29%**

4 of 5 or **80%** Fire Weather Watches reached Red Flag Criteria.

The average lead time for Red Flag Warnings issued for high winds and low RH was 13.0 hours. The lead time for the lone Dry Lightning Red Flag Warning was 2.0 hours.

Spot Forecasts Issued

As of November 1st , Eureka Fire Weather has issued a total of 95 spot forecasts. Of these, 85 were for wild fires and the remaining 10 were for prescribed burns. Of the 85 wild fire spots 68% were associated with the dry lightning event in early September (see Fig. 3.1). The majority of spot forecasts were provided for the USFS and CDF, with only a small amount distributed between the BLM and the BIA-Hoopa (see Fig. 3.2).

Figure 3.1 **Spot Forecasts Per Month**

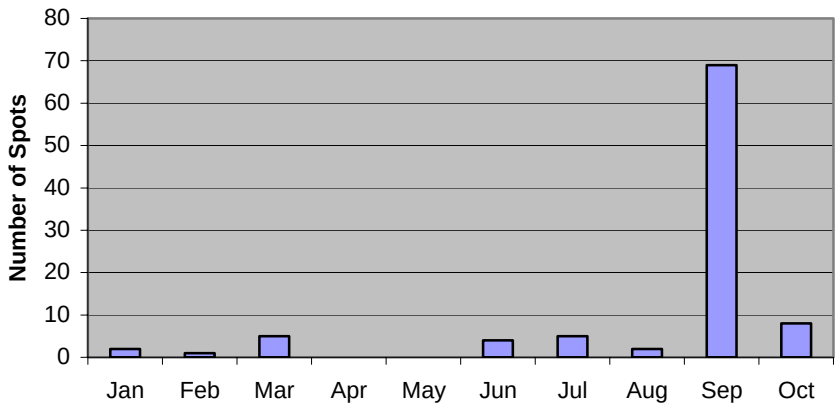
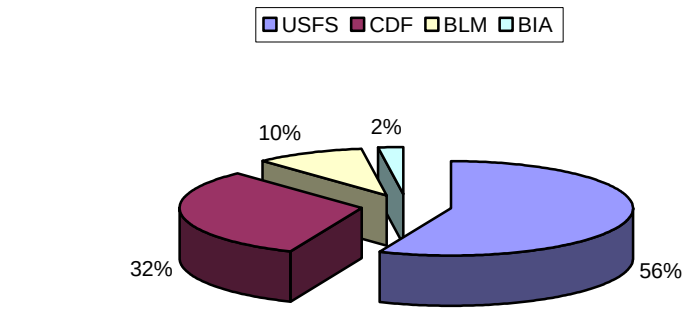


Figure 3.2 **Spots Per Agency**



Spots For Wildfires…….85
Spots For Prescribed Burns…….10
Average Turnaround Time……..1:10 hour/minutes
Total Spots ……95

Wild Fire / Prescribed Burning Activity

Approximately 30,000 acres were burned due to wild fires within Eureka's area of responsibility during the summer of 2003. Nearly 85% of the burned acreage was attributed to the Honeydew / Canoe fire under the protection of CDF (see Fig. 4.1). Prescription burning totaled approximately 3000 acres of which nearly 80% was accomplished by the USFS in the Mendocino National Forest (see Fig. 4.2).

Figure 4.1 **Number of Acres Burned Per Wild Fire**

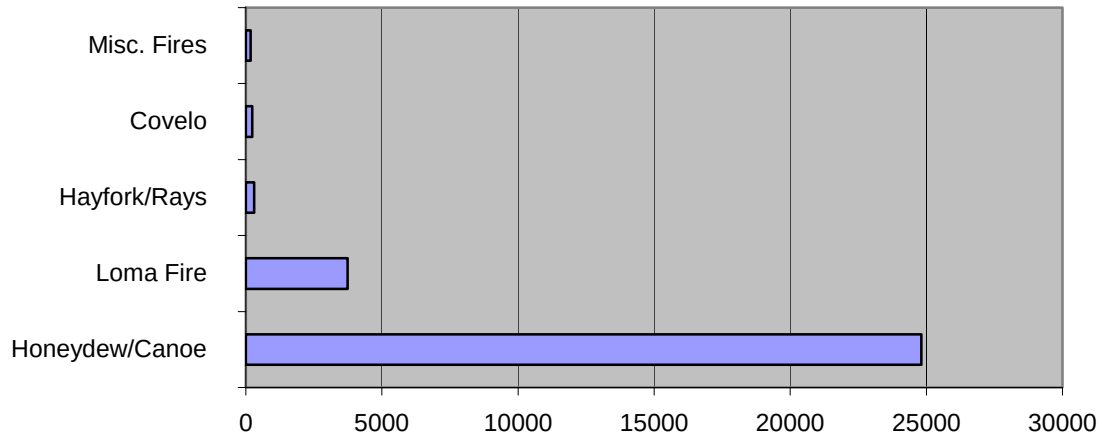
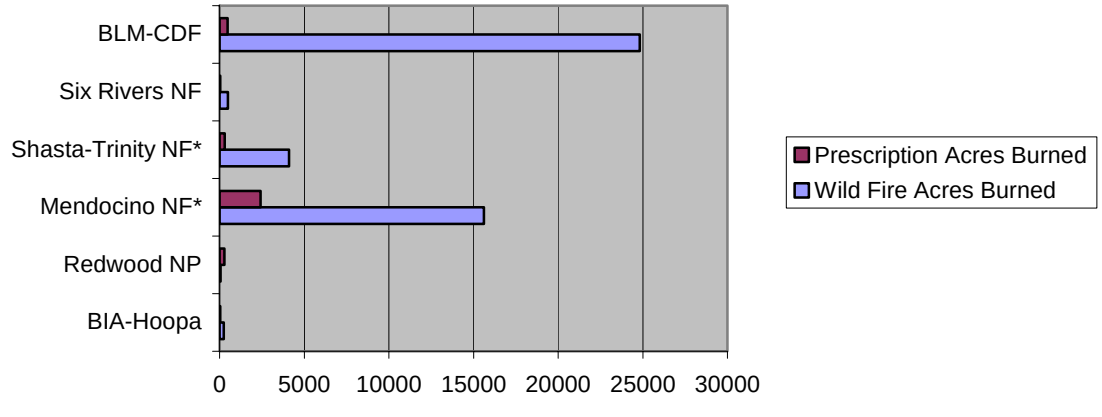


Figure 4.2 **Wildfire and Prescription Acres Burned Per Agency**



* These forests overlap into the WFO Sacramento Fire District

Incident Meteorologist Dispatches For 2003

Eureka Fire Weather participated in 6 IMET dispatches during the 2003 fire season. IMET Nancy Dean was dispatched to two incidents and upon one certification assignment, Jeff Tonkin was dispatched to three additional inicident support assignments (see Table 5.1). IMET support from WFO Eureka totaled 45 days.

Table 5.1

Incident Name	IMET	Dispatch Dates	WFO District
Fawn Peak Complex (Training Assignment)	Jeff Tonkin	7/5 - 7/12	Spokane
Cooney Ridge Complex	Jeff Tonkin	8/15 - 8/30	Missoula
Covelo Complex	Jeff Tonkin	9/9 - 9/13	Eureka
Grindstone Complex	Jeff Tonkin	9/15 - 9/22	Sacramento
HoneyDew/Canoe Complex	Nancy Dean	9/26 - 10/3	Eureka
Whitmore Fire	Nancy Dean	10/28-10/31/	Sacramento

Additional IMET support to fires within Eureka's fire district included Cindy Bean (Hanford) serving on the Honeydew/Canoe complex and Mike Stavish (Medford) on the Loma Fire.

Fire Weather Training Assignments For 2003

Although both Nancy and Jeff are qualified to teach the weather portions of the S-290 "Basic Fire Behavior Course", Eureka Fire Weather did not participate in any fire weather teaching assignments during the 2003 season.

2003 EUREKA FIRE WEATHER PROGRAM ASSESSMENT

A. Verification

It is difficult to come to any definitive conclusions from verification data since the sample size was small and this was Eureka's first official season with no baseline to compare to. Nonetheless, a couple of items bear notice and potential for improvement certainly exists for future fire seasons.

- **Increase number of watches to better match the number of warnings**. Out of 14 Warnings issued only 5 watches were issued prior to the warning.

- **Forecasters need to be cognacent of the lack of strong east winds through Interior Mendocino County.**
  Out of the 4 Warnings for winds along higher elevations and rh that did not verify, 3 were in Zone 276 and one in Zone 202. Two problems exist with forecasting east winds through this area, one is that east winds even along higher elevations have a difficult time getting through/across the 5000-6000 foot mountains of the coast range. Secondly, there are no true representative raws at higher elevations in Zone 202 or Zone 276, most reside in valleys or are sheltered.

- **Increase lead time on Warnings.**
  Average lead time on all warnings issued was 11.8 hours. An average in the mid to upper teens would be more desirable.

B. Staff & Training

At times during the summer the operations staff was thin due to vacancies, travel and imet dispatches. Jeff Lorens, Regional Aviation Program Manager, accepted a temporary assignment to fill in for the depleted operational staff during the period of September 8-19th. Staffing was nearly 100% toward the end of the fire season however a shift from summer schedule to winter schedule left day shift operations to two forecasters while the fire season continued. A delay in shifting to the winter schedule until an official end to fire season is declared is suggested so as not to place additional burden on the staff.

As of November 1st, the forecast staff at WFO Eureka was fully trained as deemed by the National Fire Weather Directives. Two interns still require additional training and experience with non-routine and routine fire weather products.

C. Conclusion

Considering the fire activity over Northwest California and the additional work load placed on the office, I was very pleased by how the staff performed this summer. There were some "bumps in the road" but overall the staff responded well to the new workload especially considering the current political climate and that for some forecasters this was there first exposure to operational fire weather.

Jeff Tonkin
Fire Weather Program Leader
WFO Eureka