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# Research Note



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## FOREST FIRE DANGER IN WESTERN OREGON AND WASHINGTON DURING 1953

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Following two successive fire seasons of record breaking severity, the 1953 season set new records for low fire danger in western Oregon and Washington. The low danger is reflected in the fire record--the U. S. Forest Service and forestry offices of both States all report the lowest acreage burned since fire records have been kept. A cool, wet spring, above normal relative humidities during the summer, general rains in late August, and recurring fall rains were largely responsible. October weather was the most favorable for burning logging slash of any fall period in recent years.

The fire season for 1953 and previous years has been rated by: (1) total number of days when no rain fell, (2) average number of days since a wetting rain of one-fourth inch or more, and (3) burning index, a rating of the combined effect of relative humidity and wind speed on rate of fire spread. High burning index means high rate of spread. Seasonal ratings are determined by averaging daily observations from scattered Weather Bureau stations. Relative severity is then determined by comparing ratings of the current season with those of previous years. A graphical record of seasonal ratings was published with the report of fire-weather conditions in 1952.<sup>1/</sup>

### Western Oregon

Fire weather of below normal severity persisted throughout the season (table 1). For both spring and summer, burning index was the lowest of record, and for the fall it was the second lowest. Burning index for the entire season, April through October, likewise set a

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<sup>1/</sup> Cramer, Owen P. Fire weather in western Oregon and western Washington in 1952 compared with other years. Pacific Northwest Forest and Range Experiment Station. Research Note No. 86. July 1953.

new low record. Low burning index and frequent rains gave the 1953 season a rating slightly lower than for even 1941 and 1948, the most recent years of low danger. The year 1953 was normal only in total rainless days during the summer and fall.

The low fire danger in 1953 resulted from cool moist air masses which produced above normal rainfall in May, June and August, and below normal temperatures April through August. May was the third coldest and second wettest since 1890, and June was the coldest of record.<sup>2/</sup> Spring was rainy until June 8. Rains were infrequent, light, and scattered during the rest of June. The next two months were mostly rainless up to the last ten days of August which brought general heavy rains. September rains were very light until general wetting rains occurred during the last week of the month. Two general rains kept fire danger down during October and the intervening dry periods proved ideal for slash burning.

Minimum relative humidities were considerably above normal throughout the 1953 season. Number of days with 4:30 p.m. relative humidity of 30 percent or lower in 1953 and 1952 was as follows:

	<u>1953</u>	<u>1952</u>
Portland	12	29
Eugene	17	39
Sexton Summit	13	26
Medford	66	102

The higher humidities may be attributed to low temperatures, infrequent east winds, and the prevalence of maritime air masses over the western part of the state.

#### Western Washington

In western Washington fire danger was the lowest of any season on record. Burning index, which was below normal throughout the season, set new low records for spring and for the entire season (table 2). Spring was unusually mild in other respects: it set a low record for number of rainless days and equalled the low record for average time since a wetting rain. Summer and fall were near normal when all three factors are considered. In overall severity the season was similar to 1948.

Above normal rainfall in May, June and August contributed to the low fire danger. The fire season was also cool with temperatures below normal in April, May and June. The Weather Bureau reports that June was the second coldest in their sixty-year record.<sup>3/</sup> After frequent

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<sup>2/</sup> U. S. Weather Bureau. Climatological Data--Oregon. Vol. LIX, Nos. 4-9.

<sup>3/</sup> U. S. Weather Bureau. Climatological Data--Washington. Vol LVII, Nos. 4-9.

Table 1--1953 fire weather indices and comparative data  
for western Oregon<sup>1/</sup>

	Current year (1953)	Previous year (1952)	10-year average 1944-53	Lowest of record <sup>2/</sup>	Year of low record	Highest of record <sup>2/</sup>	Year of high record
<u>Spring</u> (April 1 - June 30)							
Burning index	15.9 <sup>3/</sup>	23.9	25.1	17.7	1948	33.7	1951
Average days since rain	7.6	12.7	14.4	5.5	1933	22.9	1935
Total rainless days	47.8	63.5	59.6	46.2	1948	75.8	1924
<u>Summer</u>							
Burning index	25.8 <sup>3/</sup>	31.4	33.2	27.2	1948	37.8	1945
Average days since rain	30.6	29.1	40.1	15.9	1947	75.5	1935
Total rainless days	66.8	71.5	68.2	61.2	1941 1947	74.8	1929
<u>Fall</u>							
Burning index	11.3	22.7	17.9	10.0	1940	26.4	1936
Average days since rain	10.7	47.1	21.4	6.0	1941	94.4	1932
Total rainless days	34.5	41.0	30.9	22.2	1950	42.5	1936
<u>Season</u>							
Burning index	18.5 <sup>3/</sup>	26.4	27.1	20.2	1948	31.3	1951
Average days since rain	16.3	26.0	24.5	13.5	1941	48.8	1932
Total rainless days	149.1	176.0	160.0	139.5	1948	176.0	1952

1/ Indices based on observations at the following Weather Bureau stations:  
burning index--Portland International Airport, Eugene, Sexton Summit and  
Medford; rainfall indices--Portland, Eugene, North Bend and Medford.

2/ Burning index computed 1932-1953 except for 1933, 1934, 1937 and 1939.  
Average time since wetting rain and total number of rainless days computed  
1922-1953 except 1923 and 1927.

3/ New low record.

rains in April through June, only scattered light rains occurred until late August when general wetting rains occurred. September was mostly rainless until the last week. Three general rains in October were separated by short dry periods favorable for slash burning.

Relative humidities were above normal. Number of days with a 4:30 p.m. relative humidity of 30 percent or lower in 1953 and 1952 was as follows:

	<u>1953</u>	<u>1952</u>
Toledo	8	22
Stampede Pass	7	15
Boeing Field	8	9
Bellingham	0	0

Table 2--1953 fire-weather indices and comparative data  
for western Washington<sup>1</sup>

	Current year (1953)	Previous year (1952)	10-year average 1944-53	Lowest of record <sup>2</sup>	Year of low record	Highest of record <sup>2</sup>	Year of high record
<u>Spring</u> (April 1 - June 30)							
Burning index	12.9 <sup>3</sup> / <sub>1</sub>	19.1	18.6	16.6	1946	24.3	1951
Average days since rain	4.2	6.5	8.6	4.0	1942	15.7	1938
Total rainless days	43.7 <sup>3</sup> / <sub>1</sub>	60.3	55.6	46.3	1937	69.7	1938
<u>Summer</u> (July 1 - Sept. 15)							
Burning index	16.5	22.3	20.6	14.2	1948	24.8	1945
Average days since rain	27.0	12.3	27.7	8.3	1943	60.5	1951
Total rainless days	61.7	64.3	61.3	49.3	1948	67.5	1951
<u>Fall</u> (Sept. 16 - October 31)							
Burning index	8.7	15.6	10.8	8.4	1947	15.6	1952
Average days since rain	11.8	22.8	7.2	2.9	1941	28.3	1942
Total rainless days	24.0	37.3	27.5	19.0	1941	38.0	1936
<u>Season</u> (April 1 - October 31)							
Burning index	12.8 <sup>3</sup> / <sub>1</sub>	19.5	18.0	14.4	1948	21.4	1951
Average days since rain	14.1	12.1	15.4	7.0	1948	28.9	1951
Total rainless days	128.7	161.9	145.8	122.7	1941	162.3	1938

1/ Indices based on observations at the following Weather Bureau stations: burning index--Toledo, Seattle (Boeing Field), Bellingham, and Stampede Pass; rainfall indices--Toledo, Hoquiam-Aberdeen, and Bellingham.

2/ Burning index computed 1944-1953. Average time since wetting rain and total number of rainless days computed 1936-1953.

3/ New low record.