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forest fire DANGER TABLES

*British Columbia
Coast*

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FOREST FIRE DANGER TABLES

British Columbia Coast

by J. S. Mactavish

Issued under the authority of
The Honourable Maurice Sauvé, P.C., M.P.
Minister of Forestry

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FOREWORD

This revised edition of "Forest Fire Danger Tables - British Columbia Coast" contains a modification to the Drying Code intended to improve the accuracy of the danger and hazard indexes during periods of cool weather, especially during autumn when slash disposal programs are usually carried out. The other tables remain unchanged. Included are tables for computing the danger index and hazard indexes for some specific fuel types, relative humidity tables, a wind scale, and instructions. The danger index itself can be calculated by referring to only one set of facing pages once the few simple weather factors required have been recorded. However, for those who desire greater precision, tables have been included to correct the danger index for the effect of night relative humidity on the moisture content of fuels, and for the effect of wind on the rate of spread of fire.

Although prepared from field research confined primarily to the Douglas fir types, these tables should prove useful in other major forest types of the coastal region. Modification that may be necessary to improve the accuracy of the tables for use in these other types, such as western hemlock and Sitka spruce, will become apparent most readily from in-use trials and a continuing program of investigation. Some research related to the problem is now under way.

The project under which these danger tables were developed was directed by J.S. Mactavish.

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GENERAL INSTRUCTIONS

1. ARRANGEMENT OF TABLES

The four principal tables – Rainfall Code, Drying Code, Drought Index, and Fire Danger Index – have been placed on facing pages to simplify computations. The detailed instructions for these four tables have been placed on the preceding facing pages so that they may be referred to easily. Fire Hazard Tables for specific fuel types that may be prevalent in some areas are found on the succeeding few pages.

The two tables required to correct the Danger Index for the effects of night relative humidity and wind velocity, together with instructions, may be found on the facing pages immediately following the Fire Danger Index Table.

Relative humidity tables, a wind estimation scale, and examples to show how to use the Weather Record and the Forest Fire Danger Chart complete the booklet.

2. TIME OF OBSERVATIONS

It is important that ^{weather observations (relative humidity, wind and precipitation) be made at noon} relative humidity and wind observations be made at noon. This refers to ^{noon} noon which is ~~12:10 p.m.~~ near Chilliwack, ~~12:15 p.m.~~ near Lake Cowichan, and ~~12:20 p.m.~~ near Courtney. Maximum overnight relative humidity must be recorded at 8:00 a.m. Rain amounts should be measured following each rainfall. ^{Times quoted are for Pacific Standard Time, but if Daylight Saving Time is used in the district, add one hour to the above figures.} However, if it is impossible to make observations then, for instance if the observer is away from his station, they should be made as soon as possible but not more than two hours later. If the delay is more than two hours, observations should be considered as missed and the procedure noted in paragraph 4, below, should be followed. The time of observations should always be noted to the nearest five minutes on the Weather Record.

3. OBSERVATIONS REQUIRED

- (a) Rainfall – Rains separated by more than five hours count as different rains. They should be measured separately if possible. This will improve the accuracy of results.

A trace of rain, which is an amount less than 0.01 inch, is too small to have a measurable effect on fire danger and is not considered in the Tables, although traces of rain are to be noted on the Weather Record and the Forest Fire Danger Chart.

- (b) Snowfall – Snowfalls are to be treated as rains. Measure each snowfall in inches and record one-tenth of the amount on the Forest Fire Danger Chart, noting that the precipitation occurred as snow.

Do not use the Danger Table while the ground remains snow covered. On the day the ground becomes exposed enough for fires to run use one-tenth of the total depth of snow that had accumulated to compute Rainfall Code Number (Table 1) and the Drought Index (Table 3). Then proceed to compute the Danger Index in the regular way.

- (c) Relative Humidity at noon.

(d) Wind Velocity at noon.

Generally speaking, the wind should be measured in the open at a height of about ten feet above the surrounding trees or buildings. It should not be measured on exposed mountain tops where the readings would usually be higher than the average for the whole area.

(e) Maximum Relative Humidity of previous night.

Record these observations on the Weather Record and then on the Forest Fire Danger Chart in the appropriate blocks.

4. IF OBSERVATIONS ARE MISSED

For best results special steps should be taken to avoid missing any scheduled weather observations, except those missed during rains. If observations are missed for not more than three days, weather readings from the nearest weather station, if available, should be used to calculate the Danger Index on those days. If no rain has fallen on the intervening days, the Drought Index may be calculated directly. If rain has fallen, the amount in the rain gauge should be considered as having fallen in one rain and used to calculate the Drought Index. It is best to start again as at the beginning of the season if observations are missed for more than three days or if records for the period missed are not available from another station.

5. TO START RECORDS IN THE SPRING

Start with a Drying Code Number of 90 and a Drought Index of 3 -- preferably on the third day after the snow has cleared enough so that fires might run in the open, or on the third day after a good rain (about 0.5 inch) if the snow has already gone.

6. THE FIRE DANGER INDEX

Fire hazard or danger indexes are numerical ratings that indicate the probability of fires starting and spreading, and the probable degree of difficulty in controlling such fires.

A fire hazard table takes account of one specific fuel type, such as slash or grass. The Fire Danger Index takes account of all important fuel types in a region. It may be thought of as an "average" fire hazard table.

The numerical scale of a hazard or danger index ranges from 0 to 16. This scale is divided into five classes: Nil (0); Low (1-4); Moderate (5-8); High (9-12); Extreme (13-16). Conditions that may be expected in each danger class are:

High (9-12) Very High (13-16)

- Nil - The forests are generally safe from man-caused fires although fires already burning may continue to smoulder.
- Low - Fires spread slowly from large sources of heat such as slash piles and camp fires, but are quite easy to control.
- Moderate - Fires often start from matches and tend to spread more rapidly as they increase in size. Control usually is not difficult if action is prompt.
- High - Fires start readily from matches and may start from glowing embers or cigarette butts. Rate of spread is rapid and control difficult.
- Extreme - Fires may start from small sparks. They burn fiercely and "spot" readily. Conditions are often called "explosive".

INSTRUCTIONS FOR CALCULATING FOREST FIRE DANGER

TABLE 1

RAINFALL CODE

1. WHEN TO USE TABLE 1

USE THE RAINFALL CODE TABLE FOR EACH SEPARATE RAIN.

Rains separated by more than five hours count as separate rains. If separated by less than five hours, total them and use them as one rain.

2. HOW TO FIND THE "STARTING CODE NUMBER"

- (a) For the first rain since the Danger Index was last worked out, the "Starting Code Number" will be the last Drying Code Number worked out.
- (b) For the second and successive rains since the Danger Index was last worked out, the "Starting Code Number" will be the Rainfall Code Number found for the last preceding rain.

3. HOW TO USE TABLE 1

- (a) In the first column on the left, find the line showing the amount of "Rain".
- (b) On the same line, and under the correct "Starting Code Number", find the new Rainfall Code Number.
- (c) Record the Rainfall Code Number in the appropriate box (in relation to the rain graph) on the Forest Fire Danger Chart.
- (d) Repeat these three steps for all rainfalls separated by more than five hours until the first noon at which it is not raining. Then proceed to TABLE 2.

USE TABLES 2, 3, AND 4 EVERY DAY AT NOON – UNLESS IT IS RAINING.

If it is raining at noon and stops before 2 p.m., take new weather readings following the rain and work out the Danger Index – starting with TABLE 1.

If it is raining at noon and does not stop before 2 p.m., the Danger Index for that day cannot be worked out. Start with TABLE 1 the next day.

IF RAIN STARTS BETWEEN NOON AND 2 P.M., CANCEL THE DRYING CODE NUMBER, DROUGHT INDEX, AND DANGER INDEX (TABLES 2, 3, AND 4) COMPUTED AT NOON.

If this rain stops before 2 p.m., make a new set of weather observations after the rain and compute the Danger Index – starting with TABLE 1.

TABLE 2

DRYING CODE

1. HOW TO FIND THE "STARTING CODE NUMBER"

- (a) If it has not rained since the Danger Index was worked out yesterday, the "Starting Code Number" will be yesterday's Drying Code Number, or the closest number to it shown in the table.
- (b) If it has rained since the Danger Index was last worked out, the "Starting Code Number" will be the last Rainfall Code Number determined from TABLE 1.

2. HOW TO USE TABLE 2

- (a) In the first column on the left, select the "R.H. Class" that includes today's noon relative humidity.
- (b) Within this "R.H. Class", select the "Wind" line that contains today's noon wind speed.
- (c) On the same line, and under today's "Starting Code Number", find today's Drying Code Number.
- (d) When noon temperature is below 60°F subtract adjustment factor, at the bottom of the column, from the Drying Code Number.
- (e) Record this Drying Code Number in the appropriate box of the Forest Fire Danger Chart.

TABLE 3

DROUGHT INDEX

1. HOW TO USE TABLE 3

- (a) In the first column on the left, locate the total amount of "Rain" that has accrued since the Drought Index was last determined.
noon yesterday
- (b) On the same line, and in the proper column of "Yesterday's Drought Index", find today's Drought Index.

- (c) Record the Drought Index in the appropriate box on the Forest Fire Danger Chart.

Monthly Weather Summary

TABLE 4

FIRE DANGER INDEX

1. HOW TO USE TABLE 4

- (a) Choose the proper section of the Table according to season. (See below).
- (b) In the first column on the left, find "Today's Drought Index".
- (c) On the same line, in the proper column of "Today's Drying Code Number", find today's Uncorrected Danger Index.
- (d) Record the ^{Today's} Uncorrected Danger Index in the appropriate box on the Forest Fire Danger Chart. *Monthly weather Summary*
2. USE TABLE 5 TO CORRECT THE DANGER INDEX FOR THE EFFECT OF LAST NIGHT'S RELATIVE HUMIDITY.

3. USE TABLE 6 TO CORRECT THE DANGER INDEX FOR THE EFFECT OF TODAY'S WIND.

4. HOW TO INCLUDE THE EFFECT OF SEASON

- (a) **SPRING:** In areas where hardwoods are important as firebreaks, add one unit to the calculated Danger Index until the leaves are nearly fully formed. If this is done, note it on the Forest Fire Danger Chart.
- (b) **FALL:** After September 1 change from the Spring and Summer section to the Fall section of the Danger Table:
- (i) following a rain of 0.50 inch, or
(ii) not later than September 15.

Record the date of season change on the Forest Fire Danger Chart.

TABLE 3

DROUGHT INDEX TABLE

Rain Inches	Yesterday's Drought Index																									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
.00-.05	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	25
.06-.10	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
.11-.14	0	0	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
.15-.18	0	0	0	0	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
.19-.22	0	0	0	0	0	0	1	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
.23-.26	0	0	0	0	0	0	0	1	1	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
.27-.30	0	0	0	0	0	0	0	0	0	1	1	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15
.31-.34	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	4	5	6	7	8	9	10	11	12	13
.35-.38	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	3	4	5	6	7	8	9	10	11
.39-.42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	3	3	4	5	6	7	8	9
.43-.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	3	4	5	6	7
.47-.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3	3	4	5
.51-.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	3
.55-.59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2
.60-.64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
.65-up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SPRING AND SUMMER PERIOD

TABLE 4

FIRE DANGER TABLE

Today's Drought Index	Today's Drying Code Number																													
	5-55	60	65	70	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	
0-1	0	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	4	4	4	4	4	5	5	5	5	
2-3	0	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4	4	5	5	5	6	6	7	8
4-5	1	1	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	5	6	6	7	7	8	9	
6-7	1	1	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	5	5	5	6	6	7	7	8	8	9	10	
8-9	1	2	3	3	3	3	4	4	4	4	4	4	4	4	4	5	5	6	6	6	7	7	8	8	9	9	10	11	11	
10-12	1	2	3	3	3	4	4	4	4	4	4	4	4	4	5	5	6	6	6	7	7	8	8	9	9	10	10	11	12	12
13-15	2	3	3	3	4	4	4	4	4	4	4	4	4	5	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	
16-19	2	3	4	4	4	4	5	5	5	5	5	5	5	6	7	7	8	8	8	9	9	10	10	10	11	12	13	14	14	
20-24	3	3	4	4	5	5	5	6	6	6	6	6	6	6	7	7	8	8	9	9	10	10	11	11	11	12	13	14	15	15
25	3	4	4	5	6	6	6	7	7	7	7	7	7	7	8	8	9	10	10	11	11	12	12	12	13	14	15	16	16	

FALL PERIOD

Today's Drought Index	Today's Drying Code Number																													
	5-55	60	65	70	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	
0-2	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	4	4	5	5	5	6	
3-5	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5	6	6	7	8	
6-9	0	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	5	5	6	6	7	7	8	9	
10-13	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4	4	4	5	5	6	6	6	7	7	8	8	9	10
14-17	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	5	5	6	6	6	7	7	8	8	9	9	10	11	
18-21	2	2	2	3	3	3	3	3	3	3	4	4	4	4	5	5	6	6	7	7	7	8	8	9	9	10	11	12	13	
22-24	2	3	3	3	4	4	4	4	4	4	4	4	4	5	5	6	7	7	8	8	9	9	10	10	11	12	13	14	14	
25	3	4	4	4	5	5	5	5	5	5	5	5	5	6	6	6	7	8	8	9	9	10	10	11	12	13	14	15	15	

TABLE 5

NIGHT HUMIDITY CORRECTION

HOW TO USE THE NIGHT HUMIDITY CORRECTION TABLE

Use this TABLE only if there has been no measurable rain since yesterday's noon readings.

Example: Humidity at noon yesterday, 30%; highest humidity last night, 60%; Danger Index at noon today, 9.

Opposite 9 in the left-hand column, and in the section for "Yesterday's Noon Relative Humidity" 26% to 35%, under "Highest Relative Humidity Last Night" 56% to 65%, find the corrected Danger Index, 12. Record this index in the appropriate box of the Forest Fire Danger Chart.

Today's Uncorrected Danger Index	Yesterday's Noon Relative Humidity																	
	25% or less					26% to 35%					36% to 45%							
	Highest Relative Humidity Last Night																	
	35% or less	36 to 45	46 to 55	56 to 65	66 to 75	76 to 85	86% or more	45% or less	46 to 55	56 to 65	66 to 75	76 to 85	86% or more	45% or less	46 to 55	56 to 75	76 to 85	86% or more
	Night Corrected Danger Index																	
0	3	3	3	3	2	1	0	3	3	2	2	1	0	3	2	2	1	0
1	4	4	4	4	3	2	1	4	4	3	3	2	1	4	3	3	2	1
2	5	5	5	5	4	3	2	5	5	4	4	3	2	5	4	4	3	2
3	6	6	6	6	5	4	3	6	6	5	5	4	3	6	5	5	4	3
4	7	7	7	7	6	5	4	7	7	6	6	5	4	7	6	6	5	4
5	9	9	8	8	7	7	5	9	8	8	7	6	5	8	8	7	6	5
6	10	10	9	9	8	8	6	10	9	9	8	7	6	9	9	8	7	6
7	11	11	10	10	9	9	7	11	10	10	9	8	7	10	10	9	8	7
8	12	12	11	11	10	9	8	12	11	11	10	9	8	11	11	10	9	8
9	14	13	13	12	11	11	9	13	13	12	11	10	9	12	12	11	10	9
10	15	14	14	13	12	12	10	14	14	13	12	11	10	13	13	12	11	10
11	16	15	15	14	13	13	11	15	15	14	13	12	11	14	14	13	12	11
12	16	16	16	15	14	14	12	16	16	15	14	13	12	15	15	14	13	12
13	16	16	16	16	15	15	13	16	16	16	15	14	13	16	16	15	14	13
14	16	16	16	16	16	16	14	16	16	16	16	15	14	16	16	16	15	14
15	16	16	16	16	16	16	15	16	16	16	16	16	15	16	16	16	16	15
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16

Today's Uncorrected Danger Index	Yesterday's Noon Relative Humidity															
	46% to 55%				56% to 65%				66% to 75%				76% to 85%		86% or more	
	Highest Relative Humidity Last Night															
	55% or less	56 to 65	66 to 85	86% or more	65% or less	66 to 75	76 to 85	86% or more	75% or less	76 to 85	86% or more	85% or less	86% or more	85% or less	86% or more	
	Night Corrected Danger Index															
0	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	
1	3	3	2	1	2	1	1	1	1	1	1	1	1	1	1	
2	4	4	3	2	3	2	2	2	2	2	2	2	2	2	2	
3	5	5	4	3	4	3	3	3	3	3	3	3	3	3	3	
4	6	6	5	4	5	4	4	4	4	4	4	4	4	4	4	
5	8	7	6	5	7	6	5	5	6	5	5	5	5	5	5	
6	9	8	7	6	8	7	6	6	7	6	6	6	6	6	6	
7	10	9	8	7	9	8	7	7	8	7	7	7	7	7	7	
8	11	10	9	8	10	9	8	8	9	8	8	8	8	8	8	
9	12	11	10	9	11	10	10	9	10	9	9	9	9	9	9	
10	13	12	11	10	12	11	11	10	11	10	10	10	10	10	10	
11	14	13	12	11	13	12	12	11	12	12	11	12	11	11	11	
12	15	14	13	12	14	13	13	12	13	13	12	13	12	12	12	
13	15	15	14	13	15	14	14	13	14	14	13	14	13	14	13	
14	16	16	15	14	16	15	15	14	15	15	14	15	14	15	14	
15	16	16	16	15	16	16	16	15	16	16	15	16	15	16	15	
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	

TABLE 6
WIND VELOCITY CORRECTION

Night Corrected Danger Index	Noon Wind Velocity											
	0	1 to 2	3 to 4	5 to 6	7 to 8	9 to 10	11 to 13	14 to 17	18 to 22	23 to 27	28 to 34	35 or more
	Wind Corrected Danger Index											
0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	2	2	2	2	2	2	3
2	1	2	2	2	2	2	3	3	3	3	3	4
3	2	2	2	3	3	3	3	3	4	4	4	5
4	3	3	3	4	4	4	4	4	5	5	5	6
5	4	4	4	5	5	5	6	6	7	7	8	8
6	5	5	5	6	6	6	7	7	8	8	9	10
7	6	6	6	7	7	7	8	8	9	9	10	11
8	6	7	7	8	8	8	9	9	10	10	11	12
9	7	7	8	9	9	9	10	10	11	11	12	13
10	8	8	9	10	10	10	11	11	12	12	13	14
11	9	9	10	11	11	11	12	12	13	14	15	15
12	10	10	11	12	12	12	13	13	14	15	16	16
13	11	11	12	13	13	13	14	14	15	16	16	16
14	11	12	12	13	14	14	15	15	16	16	16	16
15	12	12	13	14	15	15	15	16	16	16	16	16
16	13	13	14	15	15	16	16	16	16	16	16	16

HOW TO USE THE WIND VELOCITY CORRECTION TABLE

1. In the left-hand column, "Night Corrected Danger Index", find the Danger Index obtained from TABLE 5. On the same line, in the column for the observed "Noon Wind Velocity", find the Wind Corrected Danger Index. Record this index in the appropriate box on the Forest Fire Danger Chart. If the NIGHT HUMIDITY CORRECTION TABLE has not been used, the "Uncorrected Danger Index" obtained from TABLE 4 may be use in the WIND VELOCITY CORRECTION TABLE.

Example: Night Corrected Danger Index 12, the wind velocity 4 miles per hour. Opposite 12 in the left-hand column, under the heading for winds of 3 to 4 m.p.h., find the corrected Danger Index, 11.

INSTRUCTIONS FOR CALCULATING SLASH FIRE HAZARD

1. USE "BROWN SLASH" TABLE FOR SLASH RETAINING MORE THAN 25 PER CENT OF THE NEEDLES.
2. USE "LEAFLESS SLASH" TABLE FOR SLASH RETAINING 25 PER CENT OR LESS OF THE NEEDLES.
3. HOW TO USE TABLE 7

- (a) Compute today's Drying Code Number (TABLES 1 and 2).
- (b) Compute today's Drought Index (TABLE 3).
- (c) Select the proper SLASH TABLE according to the condition of the slash, as described above.
- (d) Select the proper section of that TABLE according to the season, as described below.
- (e) In the first column on the left, find "Today's Drying Code Number".
- (f) On the same line, in the proper "Drought Index" column, find today's Uncorrected Hazard Index.
- (g) Use TABLE 5 to correct the Hazard Index for the effect of last night's relative humidity.
- (h) Use TABLE 6 to correct the Hazard Index for the effect of today's wind.
- (i) Record the corrected Slash Hazard Index on the Forest Fire Danger Chart.

4. WHEN TO CHANGE SEASONS

After September 1, change from the Spring and Summer section to the Fall section as follows:

- (i) following a rain of 0.50 inch or more, or
- (ii) not later than September 15.

The date of season change should be recorded on the Forest Fire Danger Chart.

5. EXAMPLE

Suppose that on September 28 the Drying Code Number were found to be 94 and the Drought Index 17. If a slash area had 10 per cent of its needles remaining:

- (i) Choose the FALL section of the LEAFLESS SLASH TABLE.
- (ii) In the left-hand column, find the Drying Code Number of 94.
- (iii) On the same line, in the column for Drought Index 17, find the Uncorrected Slash Hazard Index 16.
- (iv) If last night's maximum relative humidity were 75% and yesterday's noon relative humidity were 40%, find in TABLE 5 the Night Corrected Hazard Index 16.
- (v) Similarly use TABLE 6 to correct the Hazard Index for wind. If today's wind is 2, today's Slash Hazard Index corrected for wind is 13.

TABLE 7

SLASH FIRE HAZARD

BROWN SLASH

Today's Drying Code Number	SPRING AND SUMMER					FALL				
	Drought Index 1 4 11 18 0 to to to up 3 10 17					Drought Index 1 4 11 21 0 to to to up 3 10 20				
Uncorrected Hazard Index										
25	0	0	1	2	3	0	0	1	1	2
30	1	1	2	3	4	0	1	1	2	2
35	1	2	3	4	5	0	1	2	3	3
40	2	3	4	5	5	1	2	3	4	4
45	3	4	5	6	7	2	3	4	5	6
50	4	5	6	7	8	3	4	5	6	7
55	5	6	7	8	9	4	5	6	7	8
60	6	7	8	9	10	5	6	7	8	9
65 to 74	7	8	9	10	11	6	7	8	9	10
75 to 77	8	9	10	11	12	7	8	9	10	11
78 to 80	9	10	11	12	13	8	9	10	11	12
81	10	11	12	13	14	8	9	10	11	12
82 to 84	10	11	12	13	14	9	10	11	12	13
85 to 88	11	12	13	14	15	10	11	12	13	14
89 to 90	12	13	14	15	16	11	12	13	14	15
91	13	14	15	16	16	12	13	14	15	16
92	13	14	15	16	16	13	14	15	16	16
93	-	15	16	16	16	-	14	15	16	16
94	-	15	16	16	16	-	15	16	16	16
95	-	15	16	16	16	-	15	16	16	16
96	-	16	16	16	16	-	15	16	16	16
97 to 99	-	16	16	16	16	-	16	16	16	16

LEAFLESS SLASH

Today's Drying Code Number	SPRING AND SUMMER					FALL				
	Drought Index 1 4 11 18 0 to to to up 3 10 17					Drought Index 1 4 11 21 0 to to to up 3 10 20				
Uncorrected Hazard Index										
25	0	0	0	1	2	0	0	0	1	1
30	0	0	1	2	2	0	0	1	1	2
35	0	1	2	2	3	0	1	1	2	2
40	0	1	2	3	4	0	1	1	2	3
45	1	2	3	4	5	1	2	2	3	3
50	1	2	3	4	5	1	2	3	3	4
55	2	3	4	5	6	1	2	3	4	5
60 to 74	3	4	5	6	7	2	3	4	5	6
75 to 77	4	5	6	7	8	3	4	5	6	7
78 to 81	5	6	7	8	9	4	5	6	7	8
82 to 84	6	7	8	9	10	5	6	7	8	9
85 to 87	7	8	9	10	11	6	7	8	9	10
88	8	9	10	11	12	7	8	9	10	11
89	9	10	11	12	13	8	9	10	11	12
90	10	11	12	13	14	9	10	11	12	13
91	11	12	13	14	15	10	11	12	13	14
92	12	13	14	15	16	11	12	13	14	15
93	-	14	15	16	16	-	13	14	15	16
94	-	15	16	16	16	-	14	15	16	16
95 to 96	-	15	16	16	16	-	15	16	16	16
97 to 98	-	16	16	16	16	-	15	16	16	16
99	-	16	16	16	16	-	15	16	16	16

INSTRUCTIONS FOR CALCULATING FAST-DRYING HAZARD

1. WHEN TO USE TABLE 8

Use the FAST-DRYING HAZARD TABLE for open fuel types such as roadsides, old cut overs, or burns where the major fuels are bracken fern, salal, fireweed, etc., together with scattered shrubs and coniferous regeneration.

2. HOW TO USE TABLE 8

- (a) Select the proper section of the TABLE according to season. (See below).
- (b) Compute today's Drying Code Number (TABLES 1 and 2).
- (c) Compute today's Drought Index (TABLE 3).
- (d) In the first column on the left, find "Today's Drying Code Number".
- (e) On the same line, in the proper "Drought Index" column, find today's Uncorrected Fast-Drying Hazard Index.
- (f) Use TABLE 5 to correct the Hazard Index for the effect of last night's relative humidity.
- (g) Use TABLE 6 to correct the Hazard Index for the effect of today's wind.
- (h) Record the corrected Fast-Drying Hazard Index on the appropriate graph of the Fire Danger Chart.

3. WHEN TO CHANGE SEASONS

- (a) **SPRING TO SUMMER** – After the herbs and shrubs are 75 per cent developed, change from the Spring to the Summer section as follows:
 - (i) after a rain of 0.25 inch or more, or
 - (ii) not more than two weeks later.

- (b) **SUMMER TO FALL** – After September 1, change from the Summer to the Fall section as follows:

- (i) after a rain of 0.25 inch or more, or
- (ii) not later than September 15.

The date of season change should be recorded on the Forest Fire Danger Chart.

4. EXAMPLE

Suppose that on July 25 the Drying Code Number were 91 and the Drought Index 6:

- (i) In the left-hand column, find the Drying Code Number of 91.
- (ii) On the same line, in the column for Drought Index 6 of the Summer section, find the Uncorrected Fast-Drying Hazard Index 9.
- (iii) If last night's maximum relative humidity were 100% and the relative humidity at noon yesterday were 50%, find in TABLE 5 the Night Corrected Hazard Index 9.
- (iv) Similarly use TABLE 6 to correct the Hazard Index for wind. If today's wind is 4, today's Fast-Drying Hazard corrected for wind is 8.

TABLE 8

Today's Drying Code Number	SPRING					SUMMER							FALL						
	Drought Index 0 1 8 15 25 7 14 24					Drought Index 0 3 5 7 10 15 25 2 4 6 9 14 24							Drought Index 0 1 7 13 18 25 6 12 17 24						
FAST-DRYING FIRE HAZARD	Uncorrected Hazard Index																		
45 or less	0	0	0	1	2	0	0	0	1	1	1	2	0	0	0	0	0	1	
50	0	1	1	1	2	0	0	0	1	1	2	2	0	0	0	0	1	1	
55	0	1	1	2	2	0	0	0	1	1	2	2	0	0	0	0	1	1	
60	0	1	2	2	2	0	1	1	1	2	2	2	0	0	1	1	1	2	
65	1	1	2	2	3	1	1	1	2	2	2	3	0	1	1	1	1	2	
70	1	2	2	3	3	1	1	2	2	2	2	3	1	1	1	1	1	2	
75	2	3	3	3	3	2	2	2	2	2	3	3	1	1	1	2	2	3	
76	2	3	3	3	4	2	2	2	2	3	3	3	1	1	2	2	2	3	
77	2	4	4	4	5	2	2	2	3	3	4	4	1	2	2	2	2	3	
78	3	4	4	5	5	3	3	3	3	4	4	4	2	2	2	2	2	3	
79	3	5	5	5	6	3	3	3	4	4	4	5	2	3	3	3	3	4	
80	4	5	5	6	7	4	4	4	5	5	5	6	2	3	3	3	3	4	
81	4	6	6	6	7	4	4	4	5	5	6	7	2	3	4	4	4	5	
82	5	6	6	6	7	4	5	5	5	6	6	7	3	4	4	4	4	5	
83	5	7	7	7	8	5	5	5	6	6	7	8	3	4	4	4	4	5	
84	5	7	7	8	9	5	6	6	6	7	7	8	3	4	5	5	5	6	
85	6	8	8	8	9	5	6	6	7	7	8	9	4	5	5	5	6	7	
86	6	8	8	9	10	5	6	7	7	8	9	10	4	5	5	6	6	7	
87	7	9	9	10	11	6	6	7	8	9	10	11	4	5	5	6	7	8	
88	7	9	10	11	12	6	7	8	9	9	10	11	4	5	6	7	8	9	
89	8	10	11	12	13	6	7	8	9	10	11	12	5	6	6	7	8	9	
90	8	10	11	12	13	7	8	9	10	11	12	13	5	6	7	8	9	10	
91	8	11	12	13	14	7	8	9	10	11	12	13	5	7	8	9	10	11	
92	9	11	12	14	15	8	9	10	11	12	13	14	6	8	9	10	11	12	
93	-	12	13	14	15	9	10	11	12	12	13	14	-	9	10	11	12	13	
94	-	13	14	14	15	9	10	11	12	13	14	15	-	9	10	11	12	13	
95	-	13	14	15	16	10	11	12	13	14	15	16	-	10	11	12	13	14	
96	-	14	15	15	16	10	11	12	13	14	15	16	-	11	12	13	14	15	
97	-	14	15	16	16	11	12	13	14	15	16	16	-	12	13	14	15	16	
98	-	15	16	16	16	11	12	13	14	15	16	16	-	13	14	15	16	16	
99	-	16	16	16	16	12	13	14	15	16	16	16	-	14	15	16	16	16	

**HIGH ALTITUDE
RELATIVE HUMIDITY TABLE**
(above 1500 feet)

		Dry-bulb Temperature																														
		35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58		59	60	61	62	63	64
Wet-bulb Temperature	24	8	3													94	88	82	76	71		66	62	57	53	49	46	42	39	36	33	49
	25	16	10	5	1												94	88	82	77		72	67	62	58	54	50	46	43	40	37	50
	26	24	18	13	8	3												94	88	82		77	72	67	63	59	55	51	47	44	41	51
	27	32	26	20	15	10	6	2											94	88		82	77	72	68	64	59	55	52	48	45	52
	28	40	34	28	22	17	13	8	4	1										94		88	83	78	73	68	64	60	56	52	49	53
	29	48	42	35	30	24	19	15	11	7	3											94	89	83	78	74	69	65	61	57	53	54
	30	56	50	43	37	32	26	22	17	13	9	5	2										94	89	83	78	74	69	65	61	57	55
	31	65	58	51	45	39	33	28	24	19	15	11	8	4	1									94	89	84	79	74	70	66	62	56
	32	74	66	59	53	47	41	35	30	26	21	17	13	10	6	3	0								94	89	84	79	75	70	66	57
	33	82	75	67	61	54	48	42	37	32	27	23	19	15	11	8	5	2							95	89	84	79	75	71	58	
	34	91	83	75	68	62	55	49	44	38	33	29	24	20	17	13	10	7	4	2						95	90	84	80	75	59	
	35		91	84	76	69	62	56	50	45	40	35	30	26	22	18	15	12	9	6	3	1					95	90	85	80	60	
	36			92	84	76	69	63	57	51	46	41	36	32	27	24	20	17	13	10	8	5	3	0				95	90	85	61	
	37				92	84	77	70	64	58	52	47	42	37	33	29	25	21	18	15	12	9	7	4	2	0			95	90	62	
	38					92	84	77	71	65	59	53	48	43	39	34	30	26	23	20	17	14	11	8	6	4	2		95	90	63	
	39						92	85	78	71	66	60	54	49	44	40	35	31	28	24	21	18	15	12	10	8	5	3	1			
40							92	85	78	72	66	60	55	50	45	41	37	33	29	26	23	20	17	14	11	9	7	5	3	1		
41								92	86	79	72	67	61	56	51	46	42	38	34	30	27	24	21	18	15	13	11	8	6	5		
42									92	86	79	73	67	62	57	52	47	43	39	35	31	28	25	22	19	17	14	12	10	8		
43										93	86	80	74	68	63	57	53	48	44	40	36	33	30	27	24	21	18	16	13	11		
44											93	86	80	74	69	63	58	53	49	45	41	37	34	31	28	25	22	19	17	15		
45												93	86	80	74	69	64	59	54	50	46	42	38	35	32	29	26	23	21	18		
46													93	87	81	75	70	65	60	55	51	47	43	39	36	33	30	27	24	22		
47														93	87	81	76	70	65	60	56	52	48	44	40	37	34	31	28	26		
48															93	87	82	76	71	66	61	57	52	49	45	41	38	35	32	29		

INSTRUCTIONS FOR USING THE RELATIVE HUMIDITY TABLES

1. Find the dry-bulb temperature in the top line of tables.
2. In the columns headed "Wet-bulb Temperature" find the wet-bulb temperature reading.
3. The figure in line with the wet-bulb reading and in the proper dry-bulb column is the relative humidity.
If the wet-bulb and dry-bulb temperatures are the same the relative humidity is 100 per cent.

Examples

- (i) Dry-bulb 49, wet bulb 48, humidity is 93 per cent.
- (ii) Dry-bulb 50, wet-bulb 49, humidity is 94 per cent.
- (iii) Dry-bulb 80, wet-bulb 64, humidity is 42 per cent.
- (iv) Dry-bulb 96, wet-bulb 93, humidity is 90 per cent.

Out

HIGH ALTITUDE
RELATIVE HUMIDITY TABLE

(above 1500 feet)

Wet-bulb Temperature	Dry-bulb Temperature																	
	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
41	3	1																
42	6	4	3	1														
43	9	7	6	4	2	1												
44	12	11	9	7	5	4	2	1										
45	16	14	12	10	8	7	5	4	2	1								
46	19	17	15	13	11	10	8	6	5	4	2	1						
47	23	21	18	16	14	13	11	9	8	6	5	4	2	1	0			
48	27	24	22	20	17	16	14	12	10	9	7	6	5	4	2	1		
49	30	28	25	23	21	19	17	15	13	12	10	9	7	6	5	4	2	1
50	34	31	29	26	24	22	20	18	16	14	13	11	10	8	7	6	5	4
51	38	35	32	30	27	25	23	21	19	17	15	14	12	11	9	8	7	6
52	42	39	36	33	31	28	26	24	22	20	18	16	15	13	12	10	9	8
53	46	42	40	37	34	32	29	27	25	23	21	19	17	16	14	13	11	10
54	50	46	43	40	38	35	32	30	28	26	24	22	20	18	17	15	14	12
55	54	50	47	44	41	39	36	33	31	29	27	25	23	21	19	18	16	15
56	58	54	51	48	45	42	39	37	34	32	30	27	25	24	22	20	19	17
57	62	59	55	52	49	46	43	40	38	35	33	30	28	26	25	23	21	20
58	67	63	59	56	52	49	46	44	41	38	36	34	31	29	27	26	23	22
59	71	67	63	60	56	53	50	47	44	42	39	37	34	32	30	28	26	24
60	76	72	68	64	60	57	54	50	48	45	42	40	37	35	33	31	29	27
61	80	76	72	68	64	61	57	54	51	48	46	43	40	38	36	34	31	30
62	85	81	76	72	68	65	61	58	55	52	49	46	44	41	39	36	34	32
63	90	85	81	77	73	69	65	62	59	55	52	50	47	44	42	39	37	35
64	95	90	85	81	77	73	69	66	62	59	56	53	50	47	45	42	40	38
65		95	90	86	81	77	73	70	66	63	59	56	53	51	48	45	43	41
66			95	90	86	82	77	74	70	66	63	60	57	54	51	49	46	44
67				95	91	86	82	78	74	70	67	64	60	58	54	52	49	47
68					95	91	86	82	78	74	71	67	64	61	58	55	52	50
69						95	91	86	82	78	75	71	68	64	61	58	55	53
70							95	91	87	83	79	75	71	68	65	62	58	56
71								95	91	87	83	79	75	72	68	65	62	59
72									95	91	87	83	79	75	72	69	65	62
73										95	91	87	83	79	76	72	69	66
74											96	91	87	83	80	76	72	69
75												96	91	87	84	80	76	73
76													96	91	88	84	80	77
77														96	92	88	84	80
78															96	92	88	84
79																96	92	88
80																	96	92
81																		96

Wet-bulb Temperature	Dry-bulb Temperature																	
	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
54	11	10	9	8	7	6	5	4	3	2	2	1						
55	13	12	11	10	9	8	7	6	5	4	3	3	2	1				
56	16	14	13	12	11	10	8	8	6	6	5	4	3	3	2	1	1	0
57	18	17	15	14	13	12	10	9	8	7	6	6	5	4	3	3	2	2
58	20	19	17	16	15	14	12	11	10	9	8	7	6	6	5	4	3	3
59	23	21	20	18	17	16	14	13	12	11	10	9	8	7	6	5	4	4
60	25	24	22	21	19	18	16	15	14	13	12	11	10	9	8	7	6	6
61	28	26	24	23	21	20	18	17	16	15	14	13	12	11	10	9	8	7
62	30	29	27	25	23	22	20	19	18	17	15	15	13	13	11	11	10	9
63	33	31	29	28	26	24	23	21	20	19	17	16	15	14	13	12	11	11
64	35	34	32	30	28	27	25	24	22	21	19	18	17	16	15	14	13	12
65	38	36	34	33	30	29	27	26	24	23	21	20	19	18	16	16	14	14
66	41	39	37	35	33	31	29	28	26	25	23	22	21	20	18	17	16	15
67	44	42	39	38	35	34	32	30	28	27	25	24	23	22	20	19	18	17
68	47	45	42	40	38	36	34	33	31	29	27	26	25	24	22	21	20	19
69	50	48	45	43	41	39	37	35	33	32	30	28	27	26	24	23	21	21
70	53	51	48	46	43	42	39	38	35	34	32	31	29	28	26	25	23	22
71	56	54	51	49	46	44	42	40	38	36	34	33	31	30	28	27	25	24
72	59	57	54	52	49	47	44	43	40	39	36	35	33	32	30	29	27	26
73	62	60	57	55	52	50	47	45	43	41	39	37	35	34	32	31	29	28
74	66	63	60	58	55	53	50	48	45	44	41	40	37	36	34	33	31	30
75	69	67	63	61	58	56	53	51	48	46	44	42	40	38	36	35	33	32
76	73	70	67	64	61	59	56	54	51	49	46	45	42	41	38	37	35	34
77	77	74	70	67	64	62	59	56	54	52	49	47	45	43	41	39	37	36
78	80	77	74	71	67	65	62	59	56	54	52	50	47	46	43	42	39	38
79	84	81	77	74	71	68	65	62	59	57	54	52	50	48	46	44	42	40
80	88	84	81	77	74	71	68	65	62	60	57	55	52	51	48	46	44	43
81	92	88	84	81	77	75	71	68	65	63	60	58	55	53	51	49	46	45
82	96	92	88	85	81	78	75	72	68	66	63	61	58	56	53	51	49	47
83		96	92	88	85	81	78	75	72	69	66	64	61	59	56	54	51	50
84			96	92	88	85	81	78	75	72	69	66	64	61	59	57	54	52
85				96	92	89	85	82	78	75	72	69	66	64	61	59	57	55
86					96	92	89	85	82	79	75	73	69	67	64	62	59	57
87						96	92	89	85	82	79	76	73	70	67	65	62	60
88							96	92	89	85	82	79	76	73	70	68	65	63
89								96	92	89	85	82	79	76	73	71	68	65
90									96	92	89	86	82	79	76	74	71	68
92										96	93	89	86	83	80	77	74	74
94											96	93	89	86	83	80	77	74
96												96	93	89	86	83	80	77
98													96	93	89	86	83	80

**LOW ALTITUDE
RELATIVE HUMIDITY TABLE**
(up to 1500 feet)

Wet-bulb Temperature	Dry-bulb Temperature																								Wet-bulb Temperature											
	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58		59	60	61	62	63	64					
24	4															93	87	81	75	70																49
25	12	6	1													94	88	82	76																	50
26	20	14	9	4												94	88	82																		51
27	29	23	17	12	7	2										94	88																			52
28	37	31	25	19	14	9	5									94																				53
29	46	39	33	27	21	16	11	7	3							94	88	83	77	73																54
30	55	48	41	35	29	23	18	14	9	5	2					94	88	83	78																	55
31	64	56	49	43	37	31	26	21	16	12	8	4	1			94	89	83																		56
32	73	65	58	51	44	38	33	28	23	18	14	10	6	3		94	89																			57
33	82	73	66	59	52	46	40	34	29	24	20	16	12	8	5	2																				58
34	91	82	74	67	60	53	47	41	36	31	26	22	17	14	10	7	4																			59
35		91	83	75	68	61	54	48	43	37	33	28	23	19	15	12	9	6	3																	60
36			91	83	76	68	62	55	49	44	39	34	29	25	21	17	14	10	7	5	2															61
37				91	84	76	69	62	56	51	45	40	35	31	26	22	19	15	12	9	6	4	1													62
38					92	84	77	70	63	57	52	46	41	36	32	28	24	20	17	14	11	8	5	3	1											63
39						92	84	77	70	64	58	53	47	42	37	33	29	25	22	18	15	12	10	7	5	2										
40							92	85	78	71	65	59	54	48	43	39	35	30	27	23	20	17	14	11	9	6	4	2								
41								92	85	78	71	65	60	54	49	44	40	36	32	28	25	21	18	15	13	10	8	6	4	2						
42									92	85	79	72	66	60	55	50	45	41	37	33	29	26	23	20	17	14	12	9	7	5						
43										93	86	79	73	67	61	56	51	46	42	38	34	31	27	24	21	18	16	13	11	9						
44											93	86	79	73	67	62	57	52	47	43	39	35	32	28	25	22	20	17	14	12						
45												93	86	80	74	68	63	58	53	48	44	40	36	33	30	27	24	21	18	16						
46													93	87	80	74	69	63	58	54	49	45	41	38	34	31	28	25	22	20						
47														93	87	81	75	69	64	59	55	50	46	42	39	35	32	29	26	23						
48															93	87	81	75	70	65	60	55	51	47	43	40	36	33	30	27						

INSTRUCTIONS FOR USING THE RELATIVE HUMIDITY TABLES

1. Find the dry-bulb temperature in the top line of tables.
2. In the columns headed "Wet-bulb Temperature" find the wet-bulb temperature reading.
3. The figure in line with the wet-bulb reading and in the proper dry-bulb column is the relative humidity.
If the wet-bulb and dry-bulb temperatures are the same the relative humidity is 100 per cent.

Examples

- (i) Dry-bulb 49, wet-bulb 48, humidity is 93 per cent.
- (ii) Dry-bulb 50, wet-bulb 49, humidity is 93 per cent.
- (iii) Dry-bulb 80, wet-bulb 64, humidity is 41 per cent.
- (iv) Dry-bulb 96, wet-bulb 93, humidity is 90 per cent.

Table to be used

LOW ALTITUDE
RELATIVE HUMIDITY TABLE
(up to 1500 feet)

		Dry-bulb Temperature											
		65 66 67	68 69 70	71 72 73	74 75 76	77 78 79	80 81 82						
Wet-bulb Temperature	41												
	42	3 1											
	43	7 5 3											
	44	10 8 6	4 3 1										
	45	13 11 9	8 6 4	3 1									
	46	17 15 13	11 9 7	5 4 2	1								
	47	21 18 16	14 12 10	8 7 5	4 2 1								
	48	25 22 20	17 15 13	11 10 8	7 5 4	2 1							
	49	28 26 23	21 19 17	15 13 11	9 8 6	5 4 2	1						
	50	32 29 27	24 22 20	18 16 14	12 11 9	7 6 5	4 2 1						
	51	36 33 30	28 25 23	21 19 17	15 13 12	10 9 7	6 5 4						
	52	40 37 34	31 29 26	24 22 20	18 16 14	13 11 10	8 7 6						
	53	44 41 38	35 32 30	27 25 23	21 19 17	15 14 12	11 9 8						
	54	48 45 42	39 36 33	31 28 26	24 22 20	18 16 15	13 12 10						
	55	53 49 46	43 40 37	34 32 29	27 25 23	21 19 17	16 14 13						
	56	57 53 50	47 44 40	38 35 33	30 28 26	24 22 20	18 17 15						
	57	62 58 54	51 47 44	41 39 36	34 31 29	27 25 23	21 19 18						
	58	66 62 58	55 51 48	45 42 40	37 34 32	30 28 26	24 22 20						
	59	70 66 62	59 55 52	49 46 43	40 38 35	33 31 29	27 24 23						
	60	75 71 67	63 59 56	53 49 46	44 41 38	36 34 31	29 27 25						
	61	80 76 71	67 64 60	56 53 50	47 44 42	39 37 34	32 30 28						
	62	85 80 76	72 68 64	60 57 54	51 48 45	42 40 37	35 33 31						
	63	90 85 80	76 72 68	64 61 58	54 51 48	46 43 41	38 36 34						
64	95 90 85	81 77 72	69 65 61	58 55 52	49 46 44	41 39 37							
65	95 90	85 81 77	73 69 65	62 59 55	52 50 47	44 42 40							
66	95	90 86 81	77 73 69	66 63 59	56 53 50	47 45 43							
67		95 90 86	82 78 73	70 66 63	60 57 54	51 48 46							
68		95 90	86 82 78	74 70 67	63 60 57	54 51 49							
69			95 90 86 82	78 74 70	67 64 60	57 54 52							
70			95 91 86	82 78 74	71 67 64	61 57 55							
71			95 91	86 82 78	75 71 68	64 61 58							
72				95 91 87 83	79 75 71	68 64 62							
73				95 91 87	83 79 75	72 68 65							
74					96 91	87 83 79	76 72 69						
75						96 91 87 83	79 76 72						
76						96 91 87	83 79 76						
77						96 91	87 83 80						
78							96 91 87 84						
79							96 91 88						
80							96 92						
81							96						

		Dry-bulb Temperature																	
		83 84 85	86 87 88	89 90 91	92 93 94	95 96 97	98 99 100												
Wet-bulb Temperature	54	9 8 7	6 5 4	3 2 1															
	55	11 10 9	8 7 6	5 4 3	2 1 1														
	56	14 12 11	10 9 8	7 6 5	4 3 2	1 1													
	57	16 15 13	12 11 10	9 8 7	6 5 4	3 3 2	1												
	58	19 17 16	14 13 12	11 10 9	8 7 6	5 4 4	3 2 1												
	59	21 20 18	17 15 14	13 12 11	9 8 8	6 6 5	4 4 3												
	60	24 22 20	19 17 16	15 14 12	11 10 9	8 7 7	6 5 4												
	61	26 25 23	21 20 18	17 16 14	13 12 11	10 9 8	7 7 6												
	62	29 27 25	24 22 21	19 18 16	15 14 13	12 11 10	9 8 7												
	63	31 30 28	26 24 23	21 20 18	17 16 15	14 13 12	11 10 9												
	64	34 32 30	29 27 25	23 22 21	19 18 17	16 15 14	13 12 11												
	65	37 35 33	31 29 28	26 24 23	22 20 19	17 17 15	14 13 12												
	66	40 38 36	34 32 30	28 27 25	24 22 21	19 18 17	16 15 14												
	67	43 41 38	37 34 33	31 29 27	26 24 23	21 20 19	18 17 16												
	68	46 44 41	39 37 35	33 32 29	28 26 25	23 22 21	20 18 18												
	69	49 47 44	42 40 38	36 34 32	30 28 27	25 24 23	22 20 19												
	70	52 50 47	45 42 41	38 37 34	33 31 29	28 26 25	24 22 21												
	71	55 53 50	48 45 43	41 39 37	35 33 32	30 29 27	26 24 23												
	72	58 56 53	51 48 46	43 42 39	38 35 34	32 31 29	28 26 25												
	73	62 59 56	54 51 49	46 44 42	40 38 36	34 33 30	30 28 27												
	74	65 63 59	57 54 52	49 47 44	43 40 39	36 35 33	32 30 29												
	75	69 66 63	60 57 55	52 50 47	45 43 41	39 37 35	34 32 31												
	76	72 70 66	63 60 58	55 53 50	48 45 44	41 40 38	36 34 33												
77	76 73 70	67 63 61	58 56 53	51 48 46	44 42 40	39 36 35													
78	80 77 73	70 67 64	61 59 56	54 51 49	46 45 41	41 39 37													
79	84 80 77	74 70 67	64 62 59	57 54 52	49 47 45	43 41 40													
80	88 84 80	77 74 71	67 65 62	59 57 54	52 50 47	46 43 42													
81	92 88 84	81 77 74	71 68 65	62 59 57	54 53 50	48 46 44													
82	96 92 88	85 81 78	74 71 68	65 62 60	57 55 53	51 48 47													
83	96 92	88 85 81	78 75 71	69 65 63	60 58 55	53 51 49													
84		96	92 88 85	81 78 75	72 69 66	56 53 52													
85			96 92 88	85 81 78	75 72 69	66 64 61	59 56 54												
86			96 92	88 85 81	78 75 72	69 67 64	61 59 57												
87				96	92 89 85	82 78 75	72 70 67	64 61 59											
88					96 92 89	85 82 79	75 73 70	67 64 62											
89					96 92	89 85 82	79 76 73	70 67 65											
90						96 92 89 86	82 79 76	73 70 68											
92							96 93	89 86 82	79 76 74										
94								96 93 89	86 83 80										
96								96	93 89 86										
98									96 93										

SCALE FOR ESTIMATING WIND VELOCITY

Effects of Wind	Wind Velocity, miles per hour
Smoke rises vertically; no movement of leaves of bushes or trees.	Less than 1
Leaves of trembling aspen in constant motion; small branches of bushes sway; tall grasses and weeds sway and bend with wind; wind vane barely moves.	1 to 3
Tops of pole-size trees in the open sway; wind felt distinctly on face; loose scraps of paper move; wind flutters small flag.	4 to 7
Tops of pole-size trees in the open sway very noticeably; branches of trees in the open toss; tops of trees in dense stands sway; wind extends small flag; a few crested waves form on lakes.	8 to 12
Tops of pole-size trees in open sway violently; whole trees in dense stands sway; dust is raised in road.	13 to 18
Branchlets are broken from trees; inconvenience felt in walking against wind.	19 to 24
Tops and branches are broken from trees; walking against wind is difficult; shingles are blown off buildings.	25 to 38

For best results this Wind Scale should be used at a well-exposed open place near the forest, with suitable trees for observation. Estimates should be made over a period of at least five minutes – the longer the better. If the wind is gusty, estimate the average wind over the whole period.

SAMPLE WEATHER RECORD AND FOREST FIRE DANGER CHART

The examples on the following pages show how weather records are kept and how fire danger charts are prepared.

Weather Record

The weather readings required for the danger index are entered on the lines marked by asterisks. The maximum relative humidity for the previous night is recorded under the "8 a.m. Readings". The relative humidity and wind velocity are recorded in the "Noon Readings" section. Amounts of rain may be recorded in three places on the chart depending on when the rains were measured.

If a hygrograph is not available for measuring night relative humidities, two minimum thermometers may be used as a substitute. One of these must be fitted with a wick and operated as a wet-bulb thermometer while the other serves as the dry-bulb. Both these thermometers should be read at 8 a.m. daily. The maximum relative humidity for the previous night would be that obtained in the tables with the minimum readings from each thermometer. The thermometers must be re-set each day, but not at 8 a.m. when the readings are taken. Set them at noon or in the afternoon.

The relative humidity at noon should be measured with a psychrometer or hygrometer rather than a hygrograph which may not be in accurate adjustment.

Since rainfalls separated by more than five hours are to be measured separately for use in Table 1, it may sometimes be necessary to record two amounts in one box of the Weather Record. Record the times that the rains began and ended in the spaces at the bottom of the Weather Record.

Danger Chart

Rainfall is plotted in the top section of the Danger Chart. A short rain may be shown as an upright line, whereas a long rain is best plotted as a triangle indicating on the 0.00 line the times of beginning and ending of each rain. On occasion these times must be estimated. The actual depth of each rain is clearly written just above the mark or triangle on the graph. The other weather values marked with an asterisk on the weather record are transferred to the Danger Chart and entered in the boxes provided.

The day's Danger Index can then be computed by referring in turn to Tables 1, 2, 3, 4, 5 and 6.

The Hazard Index is obtained by applying the computed Drying Code Number and Drought Index to the required Hazard Table.

In the example on the next page, it is assumed that records are being started at the beginning of the fire season and that three days have passed since the last rain of 0.50 inch or more. Therefore, according to the "General Instructions", it is assumed that for April 16 the Drought Index is 3 and Drying Code Number is 90. The first noon weather observations, made at 12:15 p.m. on Monday, April 17, are entered as shown, and the Danger and Hazard Indexes are computed following the instructions given with the tables.

The same procedure is followed every day except when noon weather readings cannot be taken because of rain. For example, on Friday rain was falling at noon and continued past 2 p.m.; therefore, no weather observations were taken and no index computed. On Saturday, Thursday's Drying Code Number must be used as "Starting Code Number" in Table 1 for the rain ending Friday afternoon.

WEATHER RECORD

.....Cayuse, B.C..... Forest Weather Station
 From April 17 to April 23, 1964 Observer John Doe
 (Month & Date) (Month & Date)

Date.....	17 Mon.	18 Tues.	19 Wed.	20 Thurs.	21 Fri.	22 Sat.	23 Sun.
8 A.M. READINGS: Time	0800	0800	0800	0800		0815	0810
* Maximum R.H. Last Night	55	100	93	100		100	64
Maximum Temperature	72	79	80	71		55	59
Minimum Temperature	38	50	55	53		49	48
* Depth of Rain	—	—	—	—		0.12	—
Sky Condition	P. Cloudy	P. Cloudy	Cloudy	Clear		Cloudy	Clear
Visibility Distance	20	20	10	20		12	20
NOON READINGS: Time	1215	1215	1215	1215	1215	1210	1215
* Depth of Rain	—	T	0.06	—		—	—
Hygrometer Dry Bulb	74	78	68	72		57	63
Hygrometer Wet Bulb	54	61	55	67		55	51
* Relative Humidity	26	38	44	78	100	89	44
* Wind Velocity	11	8	3	2		5	14
Wind Direction	SW	W	SE	SE		W	NW
Sky Condition	Clear	P. Cloudy	P. Cloudy	Cloudy		P. Cloudy	P. Cloudy
Visibility Distance	20	12	20	12		7	20
OTHER READINGS: Time					1800		
Maximum Temperature					74		
Minimum Temperature					50		
* Depth of Rain					1.65		
Hygrometer Dry Bulb					53		
Hygrometer Wet Bulb					51		
Relative Humidity					88		
Wind Velocity					4		
Wind Direction					E		
Sky Condition					Cloudy		
Visibility Distance					10		
TIME RAIN BEGAN		1145	0845	1910	—	During night	
TIME RAIN ENDED		1150	0930	—	1725	0715	
REMARKS							

* Required for computing forest fire danger

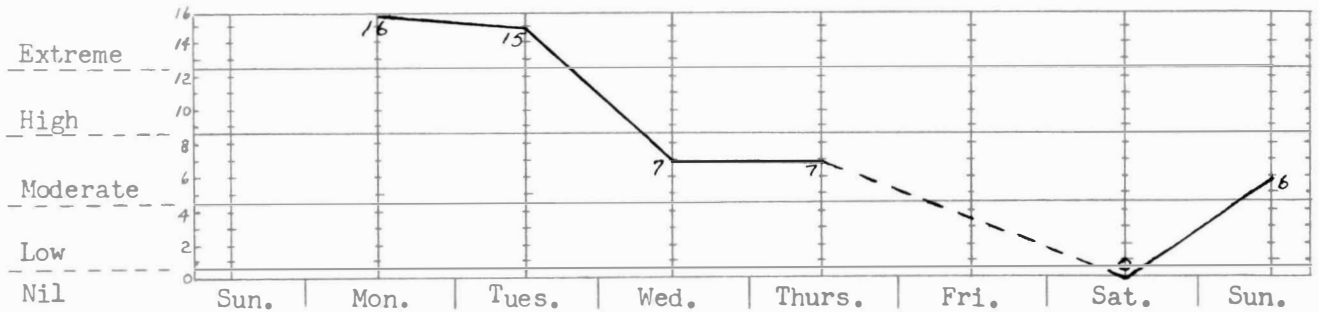
FOREST FIRE DANGER CHART

....Cayuse, B.C.....FOREST WEATHER STATION

From...April...16...to...April...23...1944 Observer...John...Doe.....

Date	16 Sun.	17 Mon.	18 Tues.	19 Wed.	20 Thurs.	21 Fri.	22 Sat.	23 Sun.	
	A.M.P.M.	A.M.P.M.	A.M. P.M.	A.M.P.M.	A.M. P.M.	A.M. P.M.	A.M. P.M.	A.M.P.M.	
Rainfall Inches			1	0.06		1.65	0.12		
Rel. Max. Last Night	-	55	100	93	100	100	100	64	
Hum. % Noon Today	-	26	38	44	78	100	89	44	
Wind Vel. (mph)	-	11	8	3	2	-	5	14	
Rainfall Code No.				65			15 15		
Drying Code No.	90	95	94	84	85	-	10	77	
Drought Index	3	4	5	5	6	-	0	1	
Danger Index	Uncorrected	-	6	6	3	4	-	0	1
	Night Corrected	-	-	6	3	4	-	0	1
	Wind Corrected	-	7	6	2	3	-	0	2

HAZARD INDEX...leafless...Slash.....Type



DANGER INDEX

