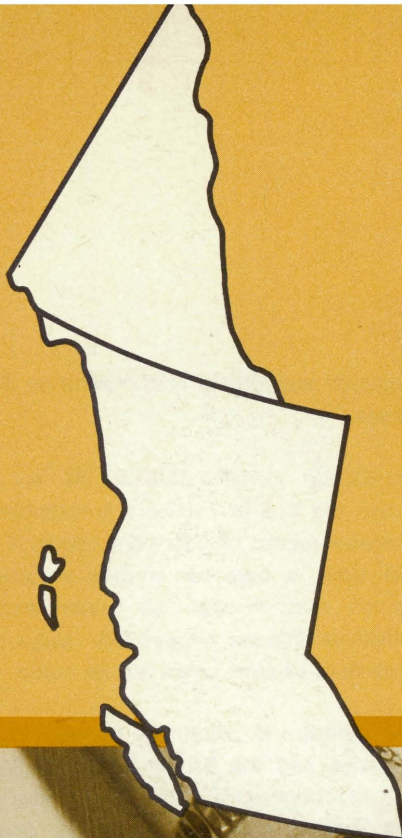


REFERENCE COPY

1981 CONE CROP BULLETIN

BRITISH COLUMBIA / YUKON TERRITORY



INTRODUCTION

In British Columbia, about 110,000 hectares of forest land is clearcut annually. The backlog of land deforested by logging, fire or insects, which has not been satisfactorily restocked, is more than 1 million hectares. While natural regeneration is expected to occur on most of the denuded land, in 1980 the B.C. Ministry of Forests nurseries sowed enough seed to produce about 120 million seedlings. The amount of seed used by the nurseries has steadily increased from 1,106 kg in 1976 to 1,570 in 1979 and 1,859 kg in 1980 (Table 1).

Over 20,000 kg of seed is presently kept in storage at the Koksilah Seed Centre for the provincial reforestation program. This amount represents a potential of more than 2 billion seedlings, sufficient to sustain the present level of planting and seeding for almost 20 years. Each year, however, more seed is needed for growing seedlings. Moreover, direct seeding, which requires about five times as much seed to reforest a given area, may in the near future play a much greater role on areas where natural regeneration is presently prescribed.

Such a costly and steadily growing reforestation program (Table 2) requires the collection (Table 3), processing, storage and sowing of hundreds of seed provenances, separated by species, zones and elevations. There is also a constant need to replace seed that is old and losing viability or is of questionable genetic quality, and to replenish the low inventories of seed for some zones and elevations. As logging at high elevations is rapidly accelerating, so are the seed requirements of high elevation provenances.

As existing seed orchards approach the reproductive stage, a progressively greater proportion of seed will be available from known, high-quality trees. However, at present, only the Douglas-fir orchards are producing improved seed in any quantity (Table 4).

The cone crops of coniferous trees are generally infrequent and often fail because of adverse weather, insects or diseases. When crops do occur, cones must be collected, usually within a 2- to 3-week period of maturity, before they open and disperse their seeds. A successful collection depends on advance planning and organization which, in turn,

requires accurate and timely information on developing cone crops.

The CONE CROP BULLETIN for British Columbia and the Yukon Territory is intended to be a comprehensive record of past cone crops. It should provide, in time, a base for studies of cone crop periodicity so that through an understanding of the reproductive process, reasonably accurate and timely predictions of cone crops will be made.

The bulletin is produced by the Canadian Forestry Service and the British Columbia Ministry of Forests, in cooperation with the Yukon Lands and Forest Service, the forest industry and commercial seed dealers.

Explanation of Cone Crop Ratings

Cone crop ratings are based on visual subjective determination of cone crop abundance. They are usually taken on trees along roadsides or other stand edges. Observations are usually made from the ground, although helicopters are occasionally used. The practice of rating trees with greater exposure to sunlight may tend to overestimate the cone crops.

Crop Rating	Criteria
1 - no crop	No cones on any trees
2 - very light	Few cones on less than 25% of trees
3 - light	Few cones on more than 25% of trees
4 - light	Many cones on less than 25% of trees
5 - medium	Many cones on 25-50% of trees
6 - heavy	Many cones on more than 50% of trees
7 - very heavy	Many cones on almost all trees

Table 1. Use of seed by species in 1980 and numbers of useable first year seedlings produced.

Species	Nursery sowing		Seedlings (000's)
	Kg.	%	
Douglas-fir	682.268	39.2	25,366.4
Sitka spruce	39.020	2.2	4,767.9
Interior spruce	400.445	23.0	62,112.9
Western hemlock	54.785	3.2	7,236.0
Mountain hemlock	3.625	0.2	535.0
Lodgepole pine	91.855	5.3	13,873.7
Ponderosa pine	39.395	2.3	356.0
White pine	1.260	0.1	65.9
White bark pine	2.200	0.1	0.1
Western red cedar	15.157	0.9	2,856.0
Yellow cedar	0.513	negl.	76.0
Western larch	7.690	0.4	608.0
Amabilis fir	308.995	17.8	1,553.4
Grand fir	35.790	2.1	556.8
Alpine fir	14.115	0.8	227.5
Noble fir	16.503	1.0	36.0
Other species	26.503	1.4	—
Total sowing	1739.954	100.0	120,227.6
Direct seeding, research, HQ. use, testing, etc. (All species)	119.788		
Total seed used	1859.742		

Table 2. Outplanting by species in 1978, 1979 and 1980 (in 1000's).
Abstracted from section D of the Planting Report.

Species	1978		1979		1980	
	%	No. of seedlings	%	No. of seedlings	%	No. of seedlings
Interior spruce	43.3	25,850	50.7	31,745	53.3	39,961
Douglas-fir	24.4	14,567	20.9	13,086	19.43	14,565
Lodgepole pine	16.4	9,791	12.5	7,827	15.7	11,771
Western hemlock	9.9	5,910	6.8	4,252	5.0	3,749
Sitka spruce	1.8	1,075	3.8	2,379	1.7	1,275
Red cedar					1.8	1,350
Amabilis fir					.77	577
Grand fir					.50	375
Alpine fir					.08	60
Larches					.70	525
Yellow pine					.35	262
Mountain hemlock					.26	195
Yellow cedar					.14	105
Other species	4.2	2,507	5.3	3,318	.27	202
Total	100.0	59,700	100.0	62,613	100.0	74,972

However, the crowns of these trees are more visible, permitting more accurate rating. It is from these trees that cones are often collected and natural regeneration occurs.

The following pages present the 1980 cone crop ratings for natural stands, divided by tree seed regions and, within region, by species, seed zone and elevation. A verbal summary follows the tabular data for each region. The maps of the Ministry of Forests regions and zones and the Yukon Territory eco-regions are presented on pages 6 and 7.

The tabular data are averages of all rating reports received for the indicated seed zone, species and elevation. The number in brackets appearing above each rating indicates the number of reports on which the average is based.

Cone crop ratings are collected in June and July and are an indication of the relative abundance of cone crops only. An abundant cone crop does not necessarily mean a high seed yield. The quantity and quality of seed in the cones must be determined by sampling cone contents.

Table 3. 1980 cone collections by the Ministry of Forests employees and licencees by species in hectolitres.

Species	Hectolitres of cones collected *														Species total (hl)	% of total	Est. seed recovery (kg)
	Vancouver		Pr. Rupert		Pr. George		Cariboo		Kamloops		Nelson		Agency total				
	F.S.	Lic.	F.S.	Lic.	F.S.	Lic.	F.S.	Lic.	F.S.	Lic.	F.S.	Lic.	F.S.	Lic.			
Alpine fir											7.8		7.8		7.8	0.3	18.174
Amabilis fir	45.8												45.8		45.8	1.8	99.844
Grand fir																	
Douglas-fir	0.1								151.0		569.5	102.0	789.7	102.0	891.7	34.6	755.703
Interior spruce						0.5			44.5		210.1	36.5	255.1	36.5	291.6	11.3	192.535
Black spruce						1.8							1.8		1.8	0.1	0.227
Sitka spruce																	
Lodgepole pine			69.7	429.5	12.5				211.2	340.8	58.0		351.4	770.3	1121.7	43.6	298.746
Yellow pine									11.8				11.8		11.8	0.4	24.426
White pine											11.6	6.0	11.6	6.0	17.6	0.7	5.380
Western hemlock											1.0		1.0		1.0	negl.	1.410
Mountain hemlock																	
Western red cedar											12.9	0.2	12.9	0.2	13.1	0.5	20.538
Yellow cedar			0.5	0.5									0.5	0.5	1.0	negl.	1.600
Western larch											169.3		169.3		169.3	6.6	139.065
Alder			1.8										1.8		1.8	0.1	1.305
Agency total/region	45.9	—	72.0	430.0	14.8	—	—	—	418.5	340.8	1040.2	144.7	1660.5	915.5	2576.0	100.0	1558.953
													(64.4%)	(35.6%)			
Total for region	45.9		502.0		14.8		—		759.3		1184.9						

* Does not include seed orchard collections

In addition registered private collections totalled 27.8 hl grand fir, 118.1 hl Douglas-fir, 11.3 hl interior spruce, 22.0 hl lodgepole pine, 2 hl white pine and 26.4 hl of western larch seed, for a total of 207.6 hl for all species.

Table 3A. Cones collected by commercial dealers 1980

Spp.	From B.C. (hl)	From Yukon (hl)	Total (hl)
Lodgepole pine	1358.1	931.8	2289.9
Douglas-fir	901.5	—	901.5
White spruce	0.7	—	0.7
Black spruce	—	2.2	2.2
Western red cedar	32.7	—	32.7
Western hemlock	20.7	—	20.7
	2313.7	934.0	3247.7

Table 4. 1980 Cone Collections from Seed Orchards

Douglas-fir	
BCMF orchards	66.2 hl
Co-op (Licensee)	26.1 hl
Private orchards	53.1 hl
Total	145.4 hl
Sitka spruce	
Co-op (Licensee)	1.3 hl

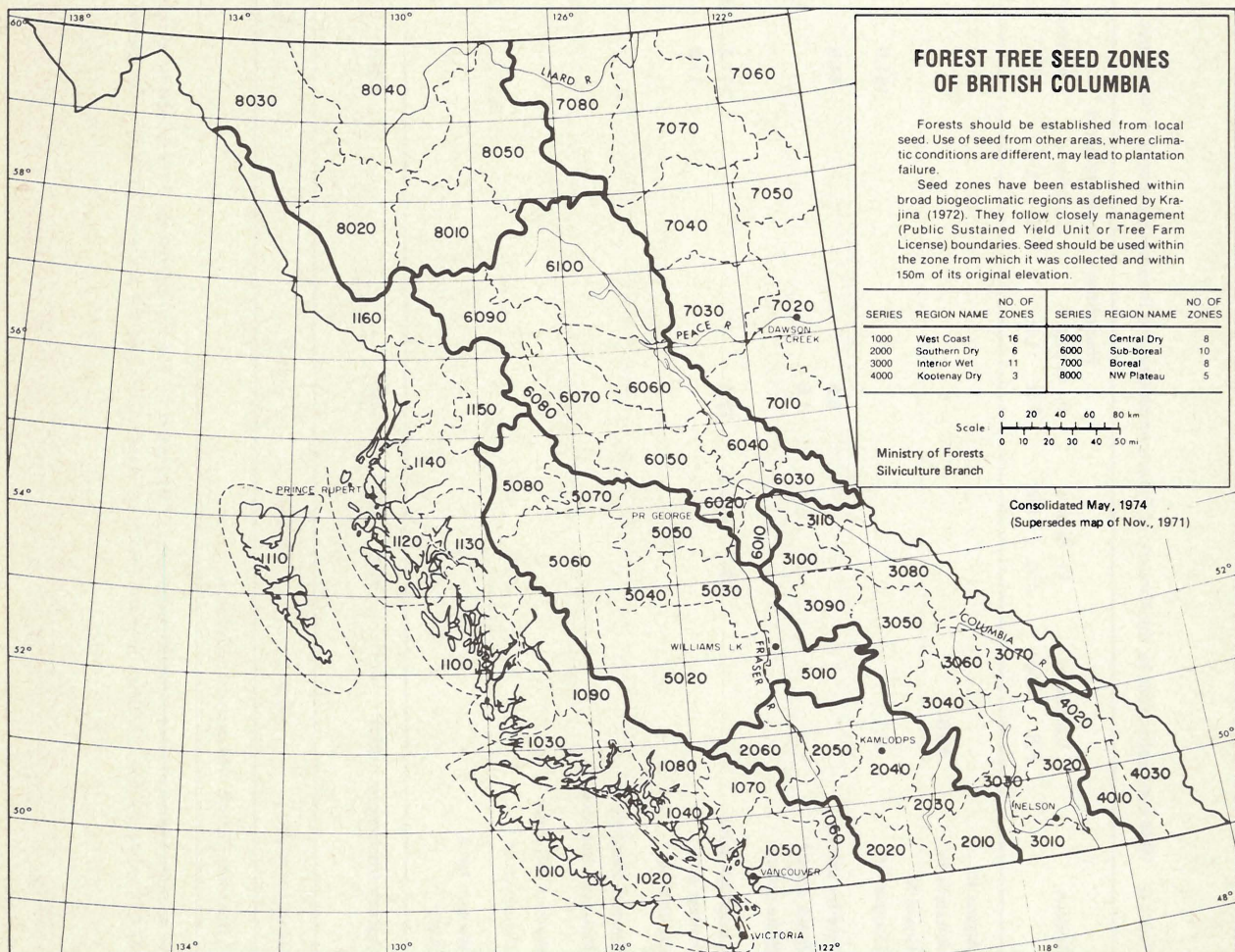
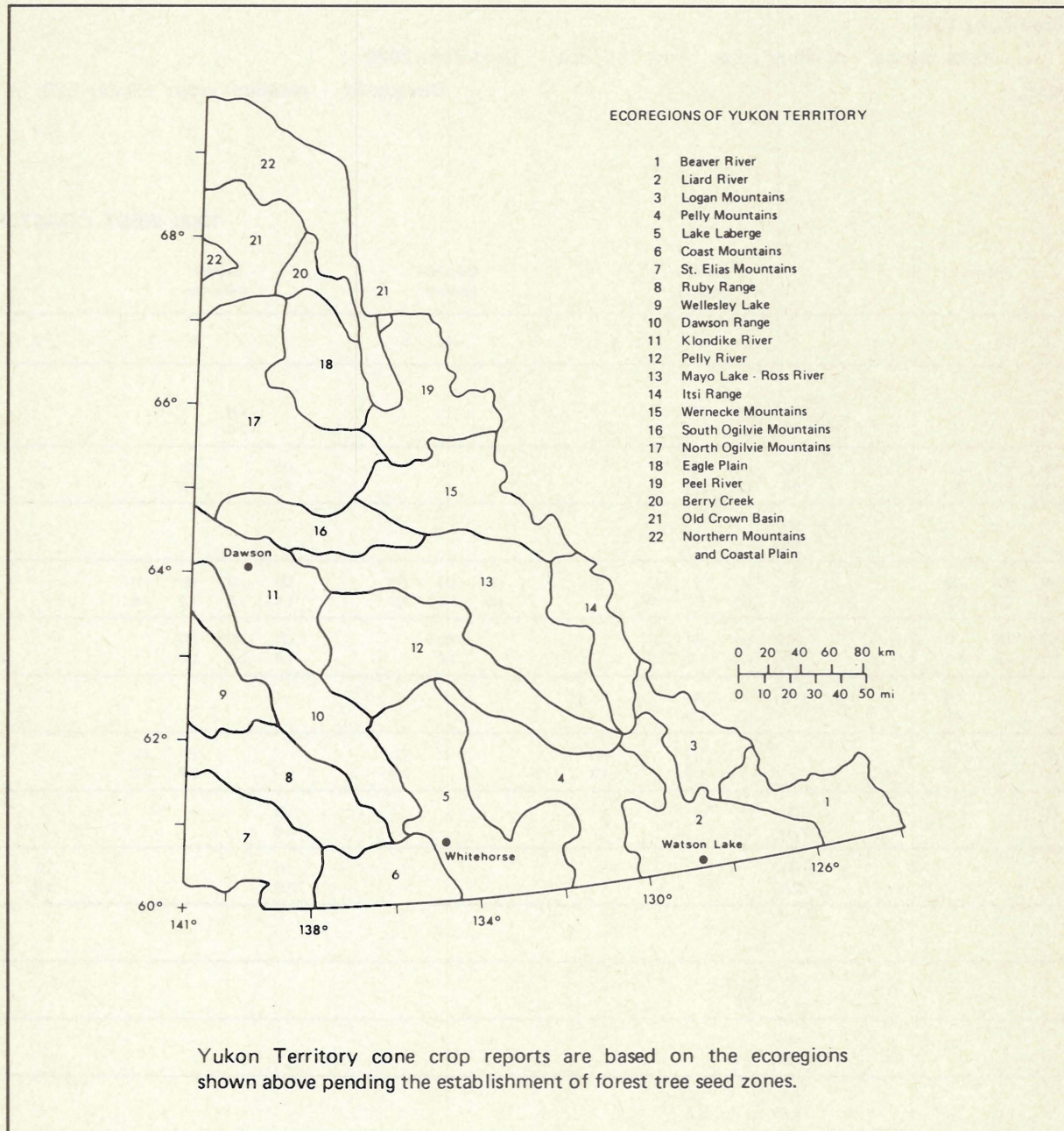


Table 5. Elevation ranges used in cone crop reporting

Code	Elevation Ranges
1	0-300 m (0-985 ft)
2	301-600 m (985-1970 ft)
3	601-900 m (1970-2955 ft)
4	901-1200 m (2955-3940 ft)
5	1201-1500 m (3940-4920 ft)
6	1501-1800 m (4920-5905 ft)
7	above 1800 m (above 5905 ft)



a.s.l.; Hedley, 485 m; Maron Lake, 1300 m; Crescent Lake, 1300 m; Coalmont Road, 1000 m. **Douglas-fir - heavy crop:** Coalmont Road, 790 m.

Seed Zone 2030

Douglas-fir - medium crop: Irish Creek, 425 m a.s.l.; Lavington, 600 m; Bolean Lake Road, 670 m; Aberdeen Road, 700 m; Phillpot Road, 840 m; Postill Lake Road, 910 m; Mission Creek, 945 m; 8 Km Aberdeen Road, 1230 m. **Douglas-fir - heavy crop:** Postill Lake Road, 520 m; Brash Creek Road, 520 m; Campbell Mountain, 700 m; McCulloch Road, 700 m; Shuttleworth, 760 m; Carmi Road, 1060 m. **Western larch - heavy crop:** Anarchist Mountain, 1100 m.

Seed Zone 2040

Douglas-fir - medium crop: Duck range, 700 m; Stump Lake, 800 m; Stump Creek, 790 m; Kane Valley, 1100 m; Stuart Lake, 1300 m. **Douglas-fir - heavy crop:** Paul Lake, 1000 m; Watching Creek Road, 1100 m. **Interior spruce - medium crop:** Dunsapie Lake, 1300 m. **Lodgepole pine - medium crop:** Rushton Creek, 1100 m; Tranquille Lake, 1500 m; Bob Creek, 1575 m.

Seed Zone 2050

Douglas-fir - medium crop: Lanes Creek, 1000 m a.s.l.; Murray Creek, 1000 m; Branch 800 Nicoamen. **Interior spruce - medium crop:** Pukaist Creek, 1130 m.

Sitka spruce	Interior spruce				Amabilis fir					Grand fir		Alpine fir		White pine		Lodgepole pine			Ponderosa pine		
	1	1	2	4	5	1	2	3	4	5	1	2	1	5	1	4	1	2	3	2	
(2) 2.0							(1) 2.0														
(1) 3.0							(2) 1.0	(3) 1.3			(7) 2.6				(1) 1.0						
(3) 3.0							(5) 1.0	(3) 1.0	(1) 2.0												
							(2) 1.5	(4) 1.5	(3) 4.3		(1) 2.0								(1) 3.0		
				(1) 1.0			(1) 1.0	(3) 2.3					(1) 1.0		(1) 1.0					(2) 1.0	
(2) 2.5							(2) 1.0	(1) 1.0													
(8) 2.5																					
	(1) 1.0																				
													(1) 2.0								
	(1) 3.0																				
	(1) 2.0	(4) 1.0	(1) 1.0										(1) 3.0				(2) 5.0	(1) 2.0			

2000 SOUTHERN DRY REGION

Elevation code	Douglas-fir						Interior spruce						Western red cedar						Lodgepole pine						Ponderosa pine						Western larch						Alpine fir																																										
	2	3	4	5	6		2	3	4	5	6		2	3	4	5	6		2	3	4	5	6		2	3	4	5	6		2	3	4	5	6		2	3	4	5	6																																						
Seed zone 2010			(1)	(2)			(1)	(1)	(3)		(2)							(1)	(1)	(3)																(1)	(1)					(1)	(1)																																				
			6.0	5.5			6.0	5.0	4.7		6.0																																																																				
Seed zone 2020	(3)	(2)	(5)	(3)			(1)	(1)			(2)							(1)	(1)																																																												
	4.3	4.5	3.8	4.0			2.0	4.0			3.5																																																																				
Seed zone 2030	(5)	(14)	(6)	(1)			(2)	(11)	(2)									(2)	(1)	(2)																(1)	(6)	(1)				(1)	(6)	(1)																																			
	5.0	4.6	3.8	2.0			5.0	2.9	3.0																											3.0	2.7	2.0				3.0	2.7	2.0																																			
Seed zone 2040	(10)	(6)	(5)	(1)			(2)	(1)	(10)	(9)	(2)							(1)	(4)	(5)	(2)															(1)	(4)					(1)	(4)																																				
	3.3	4.5	3.4	1.0			1.0	1.0	1.9	3.0	1.5							3.0	2.8	2.6	4.5															4.0						4.0																																					
Seed zone 2050	(1)	(4)	(4)				(5)	(3)										(1)	(1)																	(1)	(1)					(1)	(1)																																				
	1.0	3.0	2.0				3.4	2.0			3.0							2.0	3.0																																																												
Seed zone 2060	(2)	(1)	(5)	(8)	(1)		(2)	(5)	(3)									(1)	(3)																	(3)	(2)	(1)				(3)	(2)	(1)																																			
	2.0	1.0	2.0	3.0	1.0		1.5	1.8	2.7									5.0	3.3																	4.3	3.5	4.0				4.3	3.5	4.0																																			

Seed Zone 2060

Douglas-fir - medium crop: Marshall Creek, 1220 m; Lake La Mare, 1160 m; Lower Leon Creek, 1230 m. **Lodgepole pine - medium crop:** Kingdom Lakes, 1300 m; Upper Slok Creek, 1600 m; Blow-down Creek, 1280 m. **Yellow pine - medium crop:** Seton Lake, 375 m. **Yellow pine - heavy crop:** Pavillion Road, 700 m. **Alpine fir - medium crop,** Mt. Rohr, 1470 m.

INTERIOR WET REGION

Seed Zone 3010

Douglas-fir - medium crop: Yakh Provincial Park, 800 m. **Interior spruce - heavy crop:** Maryland Creek, 1730 m. **Western red cedar - medium crop:** Boundary Lake, 1200 m; Summit Creek, 1200 m. **White pine - medium crop:** Buckworth Creek, 1200 m.

Seed Zone 3020

Douglas-fir - medium crop: Bird Creek, 1320 m; Rover Creek, 1320 m. **Douglas-fir - heavy crop:** Redfish Creek, 1050 m; Rover Creek, 740 m. **Douglas-fir - very heavy crop:** Griz Creek, 550 m; Johnson Landing, 600 m. **Interior spruce - heavy crop:** Enterprise Creek, 1300 m. **Western larch - heavy crop:** Kaslo River, 800 m. **White pine - medium crop:** Referendum Creek, 1415 m.

Seed Zone 3030

Douglas-fir - heavy crop: Halcyon Hot Springs, 460 m. **Interior spruce - medium crop:** Retallack, 1000 m; Bench Creek, 1370 m. **Interior spruce - heavy crop:** TFL 23, 1070 m. **Alpine fir - medium crop:** Mt. Revelstoke Park, 1450 m. **Western hemlock - heavy crop:** Halcyon Hot Springs, 460 m. **Mountain hemlock - heavy crop:** Mt. Revelstoke Park, 1450 m. **Western red cedar - heavy crop:** Barnes Creek, 1366 m.

Seed Zone 3040

Douglas-fir - medium crop: Cherryville, 550 m; Harris Creek, 915 m. **Douglas-fir - heavy crop:**

3000 INTERIOR WET REGION

Elevation code	Douglas-fir				Interior spruce					Western hemlock			Mountain hemlock	Lodgepole pine					White pine		Western red cedar				Western larch				Alpine fir				
	2	3	4	5	2	3	4	5	6	7	2	3	4	5	2	3	4	5	7	4	5	2	3	4	5	2	3	4	5	3	4	5	
Seed zone																																	
3010	(1)	(1)			(2)								(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
	5.0	4.0			5.0								4.0	5.0	5.0	4.0	5.0	4.0	5.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	
3020	(2)	(3)	(2)	(2)	(1)	(1)	(2)				(1)	(3)	(2)	(1)	(1)	(1)	(1)	(1)	(3)	(1)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
	7.0	4.3	5.0	5.0	2.0	6.0	4.5				3.0	4.7	3.5	3.0	3.0	6.0	3.0	6.0	4.7	3.5	3.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
3030	(1)	(3)	(1)	(1)	(2)	(2)				(2)	(2)	(1)	(3)	(1)	(1)	(1)	(1)	(1)	(3)	(1)	(3)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
	6.0	3.7	3.0	3.0	5.5	4.0				4.5	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	3.7	6.0	3.7	6.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
3040	(5)	(7)	(20)	(3)	(1)	(1)	(5)	(1)	(3)	(4)	(3)	(3)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(4)	(1)	(2)	(4)	(2)	(4)	(1)	(1)	(1)	(1)	(1)	(1)	
	4.4	3.4	3.2	2.3	2.0	1.0	2.4	2.0	1.8	2.3	2.7	3.0	2.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	1.3	2.0	2.0	1.3	2.0	1.8	2.0	1.0	1.0	1.0	1.0	1.0	
3050	(2)	(4)	(2)	(1)	(1)	(1)	(3)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
	6.0	4.2	5.0	5.0	2.0	2.0	2.8	2.0	1.0	5.0	3.0	1.0	5.0	5.0	3.0	1.0	5.0	5.0	3.0	1.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
3090	(10)	(13)			(2)	(6)	(4)				(1)	(3)	(4)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)		
	2.1	2.6			1.0	1.5	2.8				1.0	2.3	4.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
3100	(2)				(3)	(2)																											
	1.5				2.7	2.5																											
3110	(1)				(11)																												
	3.0				1.1																												

Chase Creek, 945 m; Chase Creek Road, 580 m; Harris Creek, 760 m; Spapilem, 900 m; Adams Lake, 1140; Gold Creek, 1100 m. **Interior spruce - medium crop:** Paxton Valley, 830 m.

Seed Zone 3050

Douglas-fir - medium crop: Avola Mountain Road, 1300 m; Raft Mountain Road, 1000 m. **Douglas-fir - heavy crop:** Raft Mountain Road, 700 m; McMurphy Creek, 750 m. **Lodgepole pine - medium crop:** Raft Mountain Road, 1400 m; Clearwater Lake, 600 m; Candle Creek, 1400 m.

Seed Zone 3090

Douglas-fir - medium crop: Niquidet Road, 920 m; Whiffle Lake, 1050 m. **Lodgepole pine - medium crop:** Blackbear, 1450 m; Moffat Lake, 1400 m.

KOOTENAY DRY REGION

Seed Zone 4010

Douglas-fir - medium crop: Twin Lakes, 900 m; Gold Creek, 1200 m; Barkshanty Creek, 1400 m; Moose Lake Road, 1500 m. **Douglas-fir - heavy crop:** Dutch Creek, 850 m; Baker Mountain, 1280 m; Lost

Dog Creek, 1300 m. **Interior spruce - medium crop:** Moyie, 1700 m. **Western larch - medium crop:** Baker Lookout Road, 1400 m.

Seed Zone 4020

Douglas-fir - medium crop: Mt. Swansea L/O Road, 1000 m; Botts Lake, 1066 m. **Douglas-fir - heavy crop:** Horsethief, 950 m. **Interior spruce - medium crop:** Spillimacheen, 1070 m. **Interior spruce - heavy crop:** Bugaboo Creek, 1350 m. **Alpine fir - medium crop:** Bugaboo Lodge, 1350 m. **Lodgepole pine - medium crop:** Beards Creek, 1250 m.

Seed Zone 4030

Douglas-fir - medium crop: Fernie - Radium - Cranbrook Highway Junction, 850 m; Wildhorse River, 900 m; Wildhorse Lake, 1550 m; Baker L/O, 1600 m; Fenwick Creek, Van Creek, 1560 m. **Douglas-fir - heavy crop:** Premier Lake, 900 m; Lakit Mountains, 1650 m. **Interior spruce - medium crop:** Bighorn - Wigwam, 1000 m. McLatchie - Harvey, 2000 m. **Interior spruce - heavy crop:** Koot River, 950 m; Whiteswan, 1200 m; Elkford, 1400 m; East fork white River, 1500. **Western larch - medium crop:** Lower Lussier, 1240 m; Lower Lussier, 1100 m. **Western larch - heavy crop:** Jack Creek, 1180 m; Rock Creek, 1340 m. **Yellow pine - very heavy crop:** Skookumchuck, 850 m.

4000 KOOTENAY DRY REGION

Elevation code	Douglas-fir				Interior spruce				Western larch		Western red cedar	Alpine fir		Yellow pine	Lodgepole pine
	3	4	5	6	4	5	6	7	4	5	6	5	6	3	5
Seed zone															
4010	(2)	(1)	(5)					(1)	(3)	(6)					
	5.5	5.0	5.2					5.0	3.7	3.7					
4020		(9)	(2)	(2)	(6)	(2)	(1)		(1)	(1)		(1)			(1)
		4.4	4.0	3.0	4.2	4.5	4.0		4.0	4.0		5.0			5.0
4030	(4)	(1)	(2)	(5)	(3)	(4)	(1)	(1)	(2)	(4)	(1)		(1)	(1)	
	5.5	5.0	4.5	4.6	5.7	5.0	4.0	5.0	5.5	4.3	7.0		4.0	7.0	

5000 CENTRAL DRY REGION

Elevation code	Douglas-fir			Interior spruce				Lodgepole pine		Alpine fir
	2	3	4	2	3	4	5	3	4	3
Seed zone										
5010		(4) 2.0	(4) 1.0	(2) 1.5	(5) 2.2					
5020	(1) 1.0	(3) 1.0	(1) 1.0							
5030	(3) 1.0	(3) 1.0		(2) 1.5	(3) 1.7					
5040					(2) 1.0					
5050		(1) 1.0	(1) 1.0	(6) 1.0	(9) 1.0	(2) 1.0		(4) 2.0		
5060				(3) 2.0				(3) 4.0		
5070				(4) 1.0						(1) 1.0
5080				(8) 1.1	(2) 1.0					

The reports from Central Dry, Sub Boreal and Boreal Regions indicate that there were no collectable cone crops on any species.

6000 SUB BOREAL REGION

Elevation code	Douglas-fir	Interior spruce			Lodgepole pine	
	4	3	4	5	3	4
Seed zone						
6010	(1) 1.0		(2) 1.0	(2) 1.0		
6040			(2) 2.5			
6050		(3) 1.0	(6) 1.5			
6060		(2) 2.0	(11) 1.1			
6070			(2) 1.5		(1) 4.0	
6080		(5) 1.2			(1) 4.0	
6100		(2) 1.5	(3) 1.3	(2) 1.5		

7000 BOREAL REGION

Elevation code	Interior spruce		
	3	4	5
Seed zone			
7010	(1) 2.0	(10) 2.5	(1) 2.0
7030	(3) 1.0	(5) 1.2	

Permit and Licence Requirements

In B.C., individuals or agencies harvesting tree cones or seeds on Crown land or on land held under licence or lease from the Crown must have a valid permit issued by the Ministry of Forests. Permits apply to specific areas and may be obtained free of charge from the District headquarters. If cones or seed are to be collected from Crown land which is under lease, permission must also be obtained from the lessee; permission of the landowner is required to collect on private land. To buy, sell or deal in tree cones and seeds, a licence must be obtained from a Ministry of Forests' Regional headquarters. In addition to obtaining the required permit or licence, cone collectors and seed dealers must also comply with the provisions of the *Forest Act*, with particular reference to the *Regulation on the Picking of Tree Cones and Tree Seeds* (B.C. Reg. 197/71); a copy may be found in *Guidelines to Collecting Cones for B.C. Conifers*. The above regulations are presently being revised and some changes can be expected in the near future.

For information on requirements to harvest tree cones in the Yukon Territory, consult: **Superintendent, Yukon Lands and Forest Service, Building 200, Takhini, Whitehorse, Y.T., Y1A 3V1** . . . or one of the Territory's Regional Management offices.

Certification of Tree Seed for Export

Although most forest tree seed is collected for local reforestation, significant and annually increasing amounts are collected by seed dealers for export to foreign countries. This market exists because several countries, especially in western Europe, have found

some western North American tree species better suited for intensive forest management than indigenous species. For example, Sitka spruce has become a valuable species in the United Kingdom, and Scandinavian countries are becoming increasingly interested in lodgepole pine.

To ensure that forest seed moving in international trade is of high quality and true to name (i.e., of the species and origin claimed) member countries of O.E.C.D. (Organization for Economic Cooperation and Development) adopted a certification scheme in 1967. Each participating country provides for the inspection of those cone collection and seed processing operations generating certified seed. The basic category recognized by O.E.C.D. is "source-identified"; requirements are that source of the seed to be registered with, and verified by, a designated certifying agency, and that seeds be collected, processed, stored and shipped according to rules and regulations laid down by O.E.C.D. and the certifying agency. In addition, collections must comply with provincial or territorial regulations pertaining to forest tree seed.

In Canada, the Canadian Forestry Service is responsible for administering the O.E.C.D. scheme. The Pacific Forest Research Centre (PFRC), Victoria, is the certifying agency for export seed collected in British Columbia and the Yukon Territory. Based on field inspections and audits of company records, PFRC issues, upon request, Certificates of Provenance and O.E.C.D. shipping labels for seedlots collected and handled in compliance with the scheme.

Additional information regarding the scheme can be obtained from the **Director, Pacific Forest Research Centre, Canadian Forestry Service, 506 West Burnside Road, Victoria, B.C. V8Z 1M5**.

Acknowledgments

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B.C. Forest Products
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Crown Zellerbach
Eurocan Pulp and Paper

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Rayonier Canada

Tahsis Co.
Weldwood of Canada
Weyerhaeuser Co.

Thanks are extended to the above contributors, and to any other contributors whose names may have been inadvertently omitted.

Cone Collector's Note

Cone collection is now based on the metric system. Bushels are *out* and hectolitres are *in*. The changeover primarily affects calculations and record keeping and has only a minimal effect on equipment and supplies. The old standard 1.5 bushel sacks were replaced by 40 litre size; thus 5 cone sacks contain approximately 2 hectolitres of cones. However, for paying cone pickers, greater precision may be required. If so, wooden boxes of standard size should be used to verify cone volumes. A convenient size box, with *inside* dimensions of 25x25x40 cm, holds 25 litres when filled to the brim.

Another familiar unit on its way out is the acre. Henceforth, we will be reforesting hectares of cutover land rather than acres. Hectares are 2½ times larger than acres; to be more exact, 1 hectare equals 2.47 acres.

How many hectares can be reforested with seedlings produced from a hectolitre of cones? Of course, this varies widely from one species to another, and with seed quality and other factors. But, using averages, we find that a hectolitre of Douglas-fir or interior lodgepole pine cones should produce enough seedlings to reforest about 30-40 hectares. A hectolitre of spruce or hemlock cones goes farther, and can potentially reforest about 90-100 hectares.

Reader's comments should be addressed to . . .

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