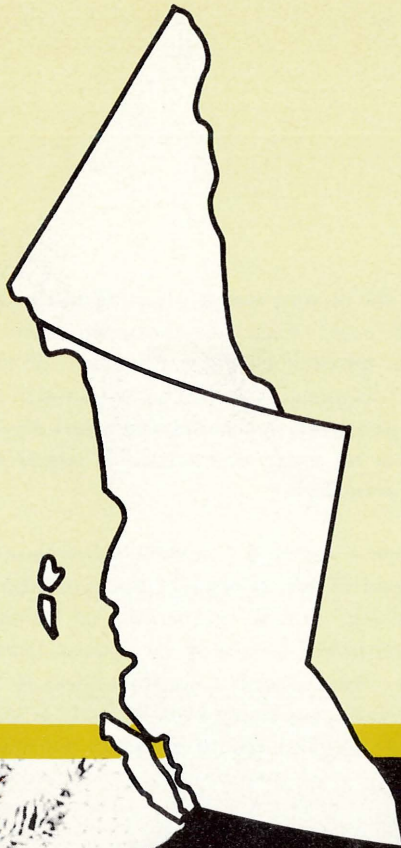


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# 1980 CONE CROP BULLETIN

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 almost 1 million hectares. While natural regeneration is expected to occur on most of the denuded lands, in 1979 the B.C. Ministry of Forests nurseries sowed enough seed to produce about 101 million seedlings. The amount of seed used by the nurseries has steadily increased from 1,106 kg in 1976 to 1,570 kg in 1979 (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 inven-

Table 1. Amount of seed by species used in 1979 sowing and the numbers of usable first year seedlings produced.

Species	Seed Used			
	Kg	% of total	No. of seedlings (000's)	%
Coast Douglas-fir	334.978	20.10	14,724	14.9
Interior Douglas-fir	138.994	8.34	5,235	5.3
Sitka spruce	18.070	1.08	3,144	3.2
Interior spruce	387.987	23.28	48,830	49.3
Western hemlock	51.047	3.06	7,834	7.9
Mountain hemlock	1.980	0.12	281	0.3
Lodgepole pine	84.400	5.06	11,204	11.3
Ponderosa pine	89.754	5.39	665	0.7
Western red cedar	12.295	0.74	3,200	3.2
Yellow cedar	8.927	0.54	333	0.3
Western larch	8.274	0.50	782	0.8
Balsam	433.955	26.04	2,288	2.3
Other Species	0.095	0.01		
Miscellaneous	95.613	5.74		
<b>Totals</b>	<b>1666.369</b>	<b>100.00</b>	<b>99,022</b>	<b>100.0</b>

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

Species	1978		1979	
	%	No. of seedlings	%	No. of seedlings
Interior Spruce	43.3	25,850	50.7	Not Available
Douglas-fir	24.4	14,567	20.9	
Lodgepole pine	16.4	9,791	12.5	
Western hemlock	9.9	5,910	6.8	
Sitka spruce	1.8	1,075	3.8	
All other species	4.2	2,507	5.3	
<b>Total</b>	<b>100.0</b>	<b>59,700</b>	<b>100.0</b>	<b>62,613*</b>

\* A total of 62,612,600 trees were planted. Distribution by species covering 5,921,150 seedlings was not received from the Vancouver Region and 940,300 seedlings from the Interior Regions.

Table 3. British Columbia - 1979 Cone Collections (hectolitres)

Species	Ministry of Forests and industry	Seed dealers	Total
Douglas-fir	560.9	115.80	676.7
Western hemlock	228.3	4.70	223.0
Mountain hemlock	31.1	0.20	31.3
Amabilis fir	1833.6	4.00	1837.5
Alpine fir	22.0	—	22.0
Sitka spruce	904.8	1619.00	2526.8
Interior spruce	10,074.3	5.00	10079.3
Western red cedar	92.2	15.00	107.2
Lodgepole pine	899.0	414.00	1313.0
Ponderosa pine	—	65.00	65.0
White pine	16.2	—	16.2
Whitebark pine	1.0	—	1.0
<b>Totals</b>	<b>14,644.0</b>	<b>2242.30</b>	<b>16,906.0</b>

Yukon Territory - Commercial seed dealers collected 1154.0 hl of lodgepole pine seed and 5.0 hl of alpine fir seed.

tories 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

Table 4. 1979 Douglas-fir Cone Collections from Seed Orchards

Reg. No.	Prov. No.	Species	Owner	HI Collected	Kilograms	Yield/hi (kg/hi)
3830	K14-1	F	BCMF	20.0	3.74	0.187
3825	K14-2	F	BCMF	31.3	5.95	0.190
3826	L14-3	F	BCMF	23.3	3.78	0.162
3822	K14-4	F	BCMF	15.0	3.27	0.218
3837	SO 15	F	BCMF	27.7	10.55	0.378
3842	SO 1	F	BCMF	132.2	54.29	0.408
3831	42-99-79	F	BCFP	6.5	0.24	0.370
3833	16-H1	F	CFP	2.3	0.52	0.228
3827	16-MID	F	CFP	5.2	0.97	0.187
3841	SO 4	F	CROWN Z.	1.0	0.18	0.182
3866	TA-SO 7	F	TAHSIS	4.5	0.24	0.053
3834	TA-SO 8	F	TAHSIS	0.7	0.05	0.067
3820	TA-11	F	TAHSIS	52.98	5.74	0.108
3867	TA-SO 2	F	TAHSIS	7.95	0.71	0.090
3916	TA-SO 18	Ss	TAHSIS	1.2	0.36	0.300
TOTALS:		F	ALL	330.63	90.23	
		Ss	TAHSIS	1.2	0.36	
		ALL		331.83 hl	90.59 kg	

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. 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.

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

The following pages present the 1979 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 limited information available for the Yukon Territory is presented in a single table by species and ecoregions because seed zones have not been delineated. The maps of the Ministry of Forests

regions and zones and the Yukon Territory ecoregions are presented on pages 8 and 9.

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)

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.



Engelmann spruce

## WEST COAST REGION

## Seed Zone 1010

**Western hemlock - medium crop:** Espinosa Inlet, 30 m a.s.l.; Oktwanch River, 260 m; Ewart Lake, 250 m; Twaddle Lake, 650 m. **Western red cedar - medium crop:** Loup Creek, 250 m. **Amabilis fir - medium crop:** TFL 22 CP 33, 100 m; Malksope River, 300 m; Twaddle Lake, 650 m; TFL 20 CP 19, 650 m. **Amabilis fir - heavy crop:** TFL 20 CP 1, 0 - 100 m; Ewart Lake, 250 m; Inner Basin TL 6721, 60 m; Ciriaco Creek, 700 m.

## Seed Zone 1020

**Douglas-fir - medium crop:** TFL 2 Bk 17, 300 m a.s.l.; Woss Camp, 100 m; TFL Bk 17, 520-550 m. **Western hemlock - medium crop:** TFL 2 Br. 256A, 600 - 625 m; TFL 2 Br. 122, 640 - 670 m; Nanaimo Lakes, 760 - 975 m. **Western hemlock - heavy crop:** TFL 2 Bk 17, 520-550 m; TFL 2 - 1291, 825 m. **Western red cedar - medium crop:** TFL 2 Bk 17, 550 - 580 m a.s.l.; **Amabilis fir - medium crop:** TFL 2 Bk 17, 305 - 335 m; TFL 2 Bk 17,

## WEST COAST REGION

Elevation code	Douglas-fir				Western hemlock				Mountain hemlock			Western red cedar				Yellow cedar			
	1	2	3	4	1	2	3	4	3	4	5	1	2	3	4	3	4	5	
Seed zone																			
1010	(4) 2.3				(9) 3.8	(1) 4.0	(1) 5.0					(7) 3.0	(1) 2.0					(1) 2.0	
1020	(17) 2.8	(3) 3.0	(2) 2.5		(2) 4.0	(2) 5.0	(8) 4.0		(1) 4.0			(1) 3.0	(1) 5.0						
1030						(1) 4.0						(1) 3.0	(1) 5.0						
1040	(16) 2.7	(19) 2.8	(5) 2.0	(1) 3.0	(8) 2.5	(4) 3.5	(10) 2.3	(7) 3.4	(1) 3.0	(6) 3.8	(1) 4.0	(12) 3.2	(9) 3.3	(10) 3.2	(3) 2.3			(1) 1.0	(4) 2.0
1050	(5) 1.4	(2) 1.5	(3) 2.3		(6) 1.3	(8) 2.0	(11) 2.5			(4) 2.3	(3) 2.3	(10) 1.9	(3) 1.0	(1) 5.0					
1060	(6) 2.7	(2) 1.5	(3) 2.0	(1) 1.0		(1) 1.0	(2) 1.0												(1) 1.0
1070	(3) 2.3	(6) 1.8	(7) 2.7	(1) 4.0		(1) 1.0	(7) 2.7	(3) 4.3		(2) 4.0	(1) 5.0		(1) 5.0		(2) 3.5				
1080														(1) 5.0					
1090																			
1100					(1) 3.0							(1) 3.0							
1110																			
1120					(1) 3.0														
1130					(4) 4.5														
1140					(8) 5.3														
1150																			

520 - 550 m; Hill 60, 865 m; TFL 2 Br. 257A, 610 - 640 m; TFL 2 Br. 122, 640 - 670 m; Upper Nitinat River, 900 - 1200 m; Woss Ridge, 850 - 975 m. **Amabilis fir - heavy crop:** TFL 2 Br. 256, 700 - 730 m.

**Seed Zone 1030**

**Western red cedar - medium crop:** TFL 6 Area 41, 300 - 760 m. **Amabilis fir - medium crop:** Malcolm Island, 0 - 25 m; Kains Lake, 320 m; Holberg Inlet, 600 m. **Amabilis fir - heavy crop:** TFL 6 CP 1 823, 0 - 300 m; TFL 6 CP 1 812, 300 - 760 m. **Sitka spruce - medium crop:** TFL 6 CP 1

823, 0 - 300 m. **Sitka spruce - heavy crop:** Keith River, 30 m.

**Seed Zone 1040**

**Douglas-fir - medium crop:** Sechelt Garbage Dump Road, 200 - 270 m; Angus Creek, 270 m; Killam Bay, 350 - 450 m. **Western hemlock - medium crop:** South Narow, 1000 m. **Mountain hemlock - medium crop:** Bretts Inlet, 1100 m; Carlson Lake, 910 - 935 m; Ts A 10196, 940 m. **Western red cedar - medium crop:** Earle Creek, 230 m; McNab Mainline - 210 m; Earle Creek, 420 - 450 m; Drew Creek, 500 - 600 m; Gray Creek, 700 m; South Narrows, 1000 m.

Amabilis fir				Alpine fir				Sitka spruce		Engelmann spruce		White spruce		Lodgepole pine		White pine	Yellow pine	
1	2	3	4	2	3	4	5	1	2	4	5	1	2	1	2	3	2	3
(10) 4.3	(1) 4.0	(3) 5.3																
	(4) 4.0	(4) 5.0	(2) 5.0				(2) 1.0									(1) 2.0		
(2) 5.5	(3) 5.3							(2) 5.5										
	(2) 1.5	(13) 2.0	(4) 2.3				(2) 2.0									(1) 4.0		
		(3) 3.3	(7) 5.2	(1) 1.0	(2) 2.0		(1) 1.0											
			(2) 4.5			(1) 1.0				(4) 5.3				(1) 3.0				
				(1) 1.0	(1) 7.0					(7) 5.3	(2) 6.0			(2) 3.0			(1) 1.0	(1) 1.0
	(1) 6.0							(3) 5.3	(1) 6.0									
(1) 4.0								(2) 6.0	(1) 5.0									
								(3) 5.7										
(1) 4.0								(3) 5.7										
										(1) 5.0				(1) 3.0				
					(1) 4.0							(1) 6.0	(9) 5.2	(1) 5.0	(1) 5.0			



**Western red cedar - heavy crop:** Killam Bay, 200 m.

#### Seed Zone 1050

**Douglas-fir - medium crop:** Post Creek, 610 m.  
**Western hemlock - medium crop:** East Norrish, 900 m; Three Mile Creek, 900 m; Sally Creek, 700 - 800 m.  
**Western hemlock - heavy crop:** Indian River, 650 m.  
**Amabilis fir - medium crop:** East Norrish, 900 m; TL 3070, 1250 m.  
**Amabilis fir - heavy crop:** Crawford Creek, 1100 m; Guyline Road, 1200 m.  
**Amabilis fir - very heavy crop:** Hunter Creek, 1150 - 1250 m.

#### Seed Zone 1060

**Amabilis fir - medium crop:** Spuzzum Creek, 1000 - 1300 m.  
**Engelmann spruce - medium crop:** Manning Park Headquarters, 1250 m;  
**Engelmann spruce - heavy crop:** Maselpalik Creek, 1220 - 1520 m; Manning Park Highways Yard, 1300 m.

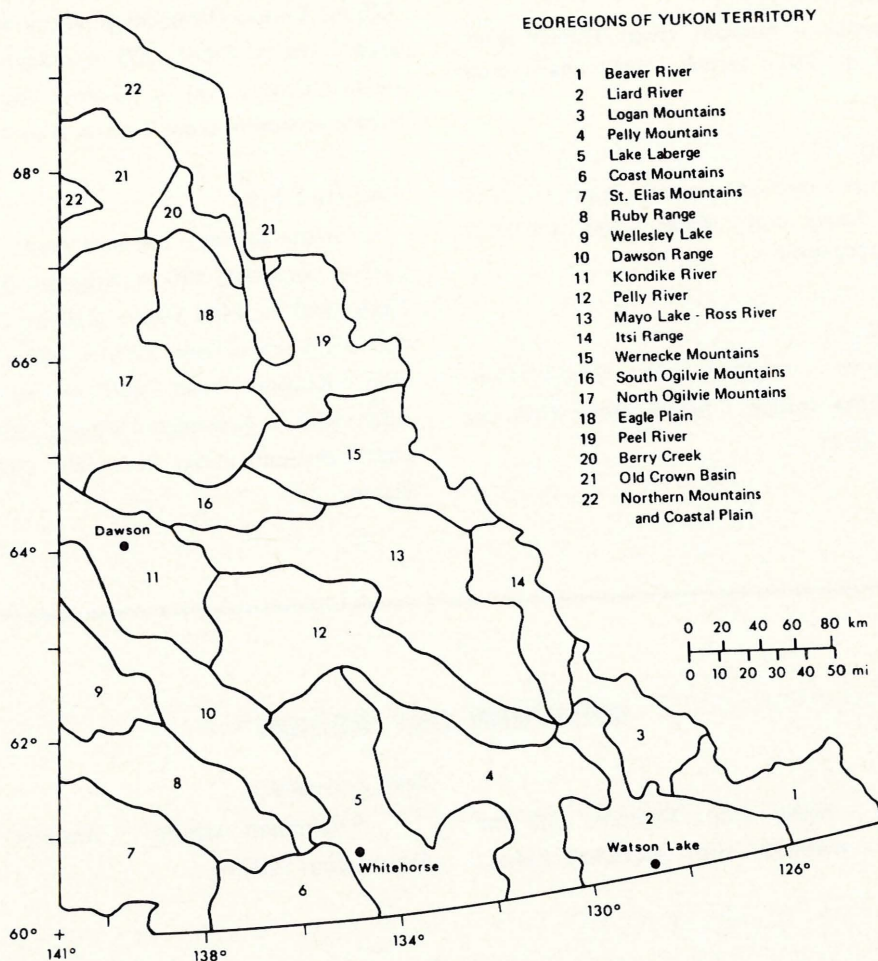
#### Seed Zone 1070

**Douglas-fir - light crop:** Meager Creek, 570 - 730 m.  
**Western hemlock - medium crop:** Chance Creek, 800 - 950 m; Roe Creek, 950 m.  
**Mountain hemlock - medium crop:** Callahan Creek, 1500 m.  
**Western red cedar - medium crop:** Callahan Bridge, 500 m.  
**Alpine fir - very heavy crop:** Lizzie Creek, 1380 m.  
**Engelmann spruce - medium crop:** Owl Creek, 1100 m; Lizzie Creek, 1160 m; Joffre Creek, 1100 - 1250 m.  
**Engelmann spruce - heavy crop:** Cayoosh Creek, 1190 m; Owl Creek, 1100 m; Joffre Creek, 1320 m; Lizzie Creek, 1380 m.

#### Seed Zone 1080

**Western red cedar - medium crop:** Toba River, 800 m.





Yukon Territory cone crop reports are based on the ecoregions shown above pending the establishment of forest tree seed zones.

**Seed Zone 1090**

**Amabilis fir - heavy crop:** Hoosgulch River, 350 m. **Sitka spruce - medium crop:** Kimquist, 0 - 450 m. **Sitka spruce - very heavy crop:** Machmell, 100 m.

**Seed Zone 1100**

**Sitka spruce - medium crop:** Milton River, 50 m & 370 m. **Sitka spruce - very heavy crop:** Kwotna, 10 m.

**Seed Zone 1110**

**Sitka spruce - medium crop:** Sandspit, sea level. **Sitka spruce - heavy crop:** Miller Creek, sea level; Lawnhill Point, sea level.

**Seed Zone 1120**

**Sitka spruce - medium crop:** Scotia River, 0 - 450 m. **Sitka spruce - heavy crop:** Kitkiata, 0 - 15 m; Tyee, 20 m.

**Seed Zone 1130**

**Western hemlock - medium crop:** Onion Lake, 200 m; Little Wedeene River, 250 m.

**Seed Zone 1140**

**Western hemlock - medium crop:** Copper River, 125 m; Exstew River, 30 m. **Western hemlock - heavy crop:** Kiteen River, 200 m; Mayo Creek, 150 m; Leanto Creek, 150 m; Shames River, 80 m. **Sitka spruce - medium crop:** Exstew River, 30 m.

**Seed Zone 1150**

**White spruce - medium crop:** Twenty-six Mile Cassiar Look-out, 380 m; Kisgegas, 370 m; Robinson Lake, 340 m; First Cabin, 310 m; Skunsnat Creek, 460 m; China Creek, 370 m. **White spruce - heavy crop:** Kispiox Road, 300 m; Hazelton-Kitwanga Road, 500 m; Kitwancool Village, 350 m. **Lodgepole pine - medium crop:** Cedarvale, 200 m; Kitwanga, 350 m.

**SOUTHERN DRY REGION****Seed Zone 2010**

**Douglas-fir - heavy crop:** Cascade, 500 m; **Ponderosa pine - medium crop:** Arlington Lakes, 830 m.

**Seed Zone 2040**

**Engelmann spruce - medium crop:** South Squam Bay, 1220 m.

**INTERIOR WET REGION****Seed Zone 3020**

**Interior spruce - medium crop:** Lemon Creek, 800 m. **Interior spruce - very heavy crop:** Cody, 610 m.

**Seed Zone 3030**

**Interior spruce - heavy crop:** Planet Creek, 1300 m. **White pine - medium crop:** Bonanza Creek, 700 m.

**Seed Zone 3040;**

**Douglas-fir - medium crop:** Twelve Mile - Adams, 1370 m; Three Valley, 1220 m. **Interior spruce - medium crop:** CP 505 A 02703, 1000 - 1100 m; Blank Creek, 1250 - 1300 m; Grizzly Swamp Road, 1430 m & 1480 m; Hunters Creek, 1700 m; CP 98 Blk C, 1675 m. **Interior spruce - heavy crop:** Hunters Creek, 1615 m; Dall Creek, 1525 m.

## SOUTHERN DRY REGION

Elevation code	Douglas- fir		Engelmann spruce			Lodgepole pine			Yellow pine			Larch
	2	4	4	5	6	3	4	5	2	3	4	4
Seed zone												
2010	(1) 6.0		(1) 2.0			(2) 3.0			(1) 2.0	(2) 3.5		
2020							(1) 2.0					
2030				(2) 3.0	(2) 3.5							(1) 2.0
2040		(2) 2.0		(1) 4.0	(4) 3.5			(3) 2.0		(2) 2.0	(2) 2.5	(1) 1.0

**Seed Zone 3050**

**Interior spruce - medium crop:** Birk Creek, 1200 m; Haggard Lake, 1128 m; Camp Creek, 1440 m; Foam Creek, 1240 - 1280 m; CP 89 Blk D, 1370 m. **Interior spruce - heavy crop:** Birk Creek, 1200 m; East Barriere River, 1500 m.

**Seed Zone 3060**

**White pine - heavy crop:** Carnes Creek, 650 m.

**Seed Zone 3070**

**Interior spruce - medium crop:** Cosmosky Creek, 1200 m.

**Seed Zone 3090**

**Interior spruce - medium crop:** McKinley Lake, 900 m; Horsefly River, 975 m; South Horsefly River, 1350 m; Rollie Lake, 1400 m; French Snowshoe Creek, 1370 m; Honest John Creek, 1300 m; Keithly Creek, 1350 m; Abbott Creek, 1350 m; Spanish Lake, 1400 - 1525 m; Bill Miner Creek, 1370 m; Tisdall Lake, 1250 & 1430 m.

**Seed Zone 3100**

**Interior spruce - medium crop:** Chipp Creek, 1128 m; Bruce Creek, 975 m; Indian Point Creek, 980 m; Two Sisters, 1040 m; Ketchum Creek, 1070 m; Big Valley Creek, 1160 m; Big Valley 1000 R, 1160 m; 2600 Road, 1000 m; Tisdall Creek, 1360 m. **Interior spruce - heavy crop:** Taspai Creek, 885 m; Stoney Lake, 925 m; Spring Mtn., 1070 m; Chipp Creek, 1050 m.

**Seed Zone 3110**

**Interior spruce - medium crop:** Slim Creek, 854 m; West Everett Road, 1125 - 1190 m; West Hungary Creek, 1160 m.

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**KOOTENAY DRY REGION**

Few informal reports were received and all indicated nil crops for all species.

INTERIOR WET REGION

Elevation code	Douglas-fir			Western hemlock	Interior spruce				Alpine fir		Lodgepole pine		Yellow pine	White pine	Larch	Western red cedar
	3	4	5	4	3	4	5	6	4	5	4	6	2	3	4	4
Seed zone																
3010		(1) 2.0														
3020	(2) 3.5	(2) 2.5			(4) 4.0	(4) 2.5			(1) 2.0				(1) 3.0			
3030						(1) 2.0	(1) 6.0							(1) 5.0		
3040		(5) 2.4	(2) 4.5	(1) 4.0		(4) 4.3	(4) 4.5	(6) 4.8	(1) 2.0			(1) 3.0			(2) 2.0	(2) 2.5
3050	(2) 2.0	(2) 1.5	(1) 3.0	(1) 2.0	(1) 3.0	(3) 5.3	(6) 4.5	(3) 2.7								
3060														(1) 6.0		
3070						(1) 5.0										
3090					(2) 3.5	(9) 2.1	(23) 3.2	(4) 2.8								
3100					(3) 5.0	(26) 4.1	(13) 3.8					(2) 2.0				
3110					(1) 5.0	(8) 3.3	(3) 3.7									

**CENTRAL DRY REGION**

**Seed Zone 5010**

**White spruce - medium crop:** North end Lac la Hache, 1050 m; Divan Creek, 1050 m; Spanish Creek, 1300 m.

**Seed Zone 5020**

**White spruce - medium crop:** Miner Lake, 1100 - 1130 m. **White spruce - heavy crop:** Wilderness Lake, 1270 m.

**Seed Zone 5050**

**Douglas-fir - medium crop:** Binta Road, 800 m; West Lake PSYU, 885 m. **Douglas-fir - heavy crop:** Punchaw, 790 m; West Lake PSYU, 800 m. **White spruce - medium crop:** CP 16 A 01788, 885 m; Baldy Hughes, 825 m; Punchaw Lake, 760 m; Clucultz Lake, 795 m; Punchaw, 790 m; Bobtail Lake, 790 m; Kenny Dam Road, 760 m; Sinkut L/O, 850 m; Sutherland River, 700 m; Bovel Lake, 915 m; Upper

Chilako, 1100 m; Holman Mountain, 1000 m; Borel Lake, 1020 m; Big Bend, 1067 m. **White spruce - heavy crop:** CP 11 A 02442, 700 - 800 m; CP 102 A 01885, 800 m; Binta Road Mile 514, 830 m; Westlake, 700 m; Francois Lake, 760 m; Clucultz Lake, 700 m; Kenny Dam, 760 m; Engen, 730 m; Tory Lake, 760 m; Upper Chilako, 1000 m; Gregg Creek, 1100 m. **White spruce - very heavy crop:** Tamarack Lake, 760 m.

**Seed Zone 5060**

**White spruce - heavy crop:** Wistaria, 1000 m.

**Seed Zone 5070**

**White spruce - medium crop:** Burns Lake, 760 m; Pinkut Lake, 790 m; Topley, 975 m; Byman Creek, 975 m. **White spruce - heavy crop:** Topley, 975 m.

**CENTRAL DRY REGION**

Elevation code	Douglas-fir		White spruce		
	3	4	3	4	5
Seed zone					
5010				(5) 3.2	(2) 3.5
5020				(1) 5.0	(1) 7.0
5050	(5) 4.8	(1) 3.0	(21) 5.4	(9) 5.2	
5060	(1) 3.0			(1) 6.0	
5070			(2) 5.0	(3) 5.7	
5080			(8) 4.5	(4) 5.3	

**Seed Zone 5080**

**White spruce - medium crop:** Shady Creek, 640 m; Knackholt, 885 m; Chapman Lake, 760 m; Dungate Creek, 800 m; Hudson Bay Mtn., 915 m;

McKendrick Creek, 945 m; Houston, 1030 m; **White spruce - heavy crop:** Granisle, 975 m; Fulton River, 790 m.

**SUB-BOREAL REGION****Seed Zone 6010**

**White spruce - medium crop:** Hixon, 895 m; Jerry Creek, 1000 m; CP 18 A 04920, 1100 m. **White spruce - heavy crop:** Stoner, 640 m; Sand Hill, 1000 m; Jerry Creek, 1000 m; CP 18 500 Road, 1000 m; N. Beaver Lake, 915 m; Allcock Creek, 1125 m. **White spruce - very heavy crop:** Allcock

Creek, 1200 m.

**Seed Zone 6030**

**White spruce - medium crop:** Sande Road, 850 & 950 m; Gleason Road, 825 m; Cargill Road, 825 m.

**SUB-BOREAL REGION**

Elevation code	Douglas-fir		White spruce			Lodgepole pine
	3	4	3	4	5	3
Seed zone						
6010		(2) 3.0	(2) 5.5	(17) 4.8		
6030			(9) 3.9	(1) 5.0		
6040	(1) 5.0		(24) 4.9	(17) 4.5	(1) 5.0	
6050	(1) 5.0		(2) 6.0	(2) 5.5		
6060			(4) 5.3	(15) 5.6		
6070			(6) 4.2	(5) 3.4	(1) 2.0	(1) 2.0
6080			(5) 5.6			
6100			(10) 5.7	(9) 3.9		

**Seed Zone 6040**

**Douglas-fir - medium crop:** Alford Creek, 780 m. **White spruce - medium crop:** 4 Km Hodda Road, 800 m; Dane, 732 m; Alford Creek, 780 m; Red Rocky, 740 m; Caine FDR, 870 m; Carp FDR, 750 m; Salmon FDR, 762 m; Caine FDR 17 Mile, 810 m; Hodda FDR, 780 m; Chuchinka, 850 m; Angusmac Creek, 800 m; Teapot FDR, 900 m; Misinchinka, 760 m; Table FDR, 770 m; CP 110 Bik 8, 1000 m; Hodda FDR, 940 m; Chuchinka - Arctic, 900 m; Missinka, 915 m; Teapot FDR, 915 m; Wicheeda Lake, 1220 m. **White spruce - heavy crop:** Davie Lake, 730 m; Reynolds Creek, 790 m; Bear Lake, 800 m; CP 55 300 Road, 950 m; Teapot FDR, 915 m.

**Seed Zone 6050**

**Douglas-fir - medium crop:** Whitefish, 780 m; **White spruce - medium crop:** Thomas Lake Road, 950 m. **White spruce - heavy crop:** Lynx Creek, 790 m; Whitefish 53 Km, 850 m; Whitefish 23 Km, 915 m.

**Seed Zone 6060**

**White spruce - medium crop:** Nation River, 790 m; Usilika Lake, 885 m; Germansen Lake, 915 m; Blackwater, 975 - 1070 m; Manson, 960 m, 1100 - 1200 m; Strandberg, 945 - 975 m. **White spruce - heavy crop:** Strandberg, 960 m.

**Seed Zone 6070**

**White spruce - medium crop:** Hudson Bay Creek, 1150 m. **White spruce - heavy crop:** Sakemiche Road, 750 m.

**Seed Zone 6080**

**White spruce - medium crop:** Babine River, 700 m; Fort Babine, 730 m. **White spruce - heavy crop:** Topley Landing, 730 m; Granisle, 730 m; Smithers Landing, 730 m.

**Seed Zone 6100**

**White spruce - medium crop:** Mesilinka, 825 - 885 m, 1100 - 1160 m; Chunamon, 1067 m. **White spruce - heavy crop:** Mesilinka, 825 - 885 m; Chunamon, 790, 825 m; Factor, 823 m.

**BOREAL REGION****Seed Zone 7010**

**White spruce - medium crop:** Mile 28, Fellers Hts. Road, 1065 m.

**Seed Zone 7020**

**White spruce - medium crop:** Twenty Miles North Dawson, 738 m.

**Seed Zone 7030**

**White spruce - medium crop:** Aitken Creek, 800 m; Dirty Creek, 900 m; CP 43 Bik 1, 900 m. **White spruce - heavy crop:** Aitken Creek, 800 m; Colt Creek, 1050 m; Lower Alexander Creek,

750 m; Cameron River, 750 m. **White spruce - very heavy crop:** Blueberry River, 800 m.

**Seed Zone 7040**

**White spruce - medium crop:** Mile 232, 300 m; Mile 227, 300 m.

**Seed Zone 7070**

**White spruce - medium crop:** Mile 317 AH, 300 m; Fort Nelson River, 300 m; Prophet River, 400 m; Clark Lake, 450 m. **White spruce - heavy crop:** Tsimeh Lake, 450 m; Muskwa River, 420 m.

## BOREAL REGION

White spruce					
Elevation code	1	2	3	4	5
Seed zone					
7010				(7) 3.1	(2) 3.0
7020				(1) 5.0	
7030			(21) 4.4	(3) 4.3	
7040	(2) 5.0				
7070	(2) 5.0	(6) 4.8			

## YUKON TERRITORY

## Liard River Ecoregion

White spruce - medium crop: Liard River, 685 m; Tom Creek, 600 m; Hyland, 610 m.

## Lake Laberge Ecoregion

White spruce - medium crop: Campbell Highway Km 573, 610 m; Porter Creek, 670 m; Carcross Road, 670 m.

## Ruby Range Ecoregion

White spruce - medium crop: Haines Junction, 590 m. White spruce - heavy crop: Haines Junction, 590 m.

## Wellesley Lake Ecoregion

White spruce - medium crop: Beaver Lake, 610 m.

## Klondike River Ecoregion

White spruce - medium crop: Dawson, 335 m.

## Pelley River Ecoregion

White spruce - medium crop: Klondike Highway Km 478, 640 m; Bullied Sawmill, 700 m; Faro, 670 m.

## YUKON TERRITORY

White spruce		
Elevation code	2	3
Liard River	(1) 4.0	(4) 3.5
Lake Laberge	(1) 5.0	(3) 4.7
Ruby Range	(3) 5.0	
Wellesley Lake		(2) 3.5
Klondike River	(1) 5.0	
Pelley River		(3) 4.7



### 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**.

### 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.

### Acknowledgments

The field cone crop rating reports on which this bulletin is based were submitted by the District personnel of the Ministry of Forests and the Forest Insect and Disease Survey of the Canadian Forestry Service. Reports were also received from areas administered under licence or lease by the following forest companies:

B.C. Forest Products  
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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.

### **1980 Cone Crop Forecast**

No reports were received on cone crop potential for 1980. Canadian Forestry Service assessed the cone crop potential on white spruce in the Prince George Region from the count of reproductive buds. The counts indicated that the crop will be generally very light and in many areas none.

Reader's comments should be addressed to . . .

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