

APPLICATION FOR ECOLOGICAL RESERVE

1. Legal description of the area (or general "Metes and bounds" description)
2. Geographical location (relate to nearest settlement, mountain, river, etc.)

Camosun Bog, Crown Land and Dr. Frank Buck Memorial Park (see the attached map)

3. Indicate the biogeoclimatic zone of which the reserve is representative.

CDFb

4. Approximate total acreage.

63 acres

5. Purpose of the reserve.

To conserve a peat bog which developed since glaciation in an area now close to the University of British Columbia and contains, in its different horizons, the whole history of forest which developed in the wetter subzone of the coastal Douglas-fir zone after the retreat of continental glacier (10,000-12,000 years ago)

(a) Primary (state acreage)

A: 48 acres

(b) Others if any (state acreage)

B: 15 acres

(c) Buffer areas (state acreage)

Dr. Frank Buck Memorial Park

6. Attach a map and indicate: (a) the perimeters and acreage of the areas detailed in 5 above, and  
(b) indicate the species and total timber volumes in these areas.

The following conifers are present: Pinus contorta, Tsuga heterophylla, Picea sitchensis, and Thuja plicata; Pseudotsuga menziesii (rare).

Angiospermous trees: Alnus rubra, Populus tremuloides var. vancouveriana, Populus balsamifera ssp. trichocarpa, Prunus emarginata, Acer macrophyllum, Acer circinatum, Rhamnus purshiana.

Signature

*Glenn E. Rouse*  
*Vladimir Krajina Jim Pojar*  
V.J. Krajina, Jim Pojar, Pojar

I.B.P. Surveyor  
G. Rouse, J.B. Foster

SECTION CT: CONSERVATION OF TERRESTRIAL BIOLOGICAL COMMUNITIES

CHECK SHEET (Mark VII) FOR SURVEY OF IBP AREAS\*

To be completed with reference to the GUIDE TO THE CHECK SHEET

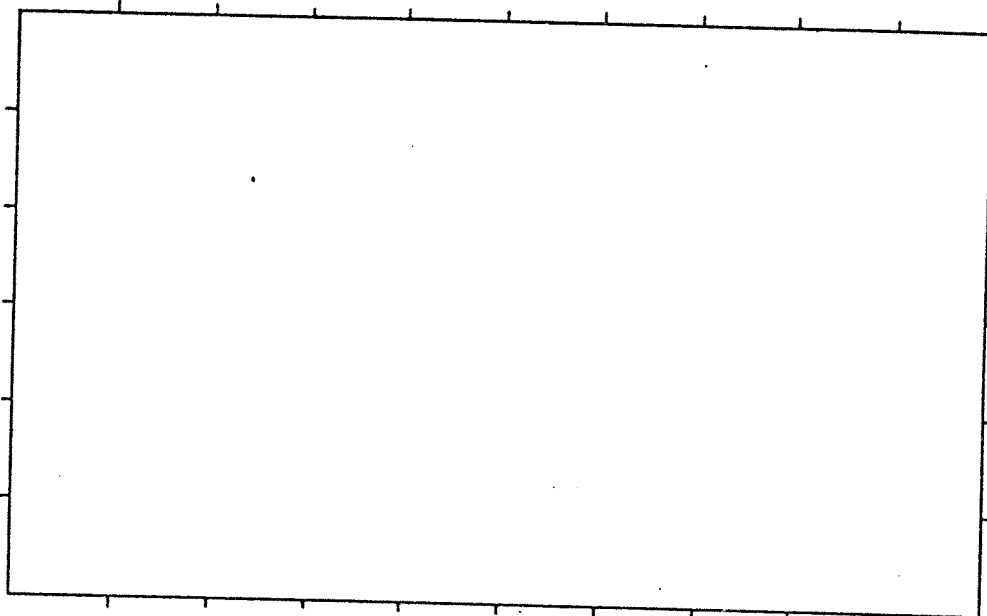
Serial Number

--	--	--	--	--	--	--

For Data Centre Use only

1. 1. Name of surveyor ..V.J. Krajina\* .. Jim Pojar\*\*, G.N. Rouse\*, J.B.Foster\*\*  
 2. Address of surveyor \*Dept. of Botany, U.B.C., Vancouver, B.C., V6T 1W5  
 \*\*Ecological Reserves Unit, Land Management Branch,  
 Department of Environment, Victoria, B.C.  
 V8V 1X5  
 3. Check Sheet completed (a) on site .......... (b) from records ..........  
 4. Date Check Sheet completed May 27, 1976

2. 1. Name of IBP Area Camosun Bog  
 2. Name of IBP Subdivision (or serial letter) CDFb  
 3. Map of IBP Area\* showing boundaries attached? Yes  No .....  
 4. Sketch map of IBP Area\*. Please mark direction of north, the scale and grid numbers where applicable.

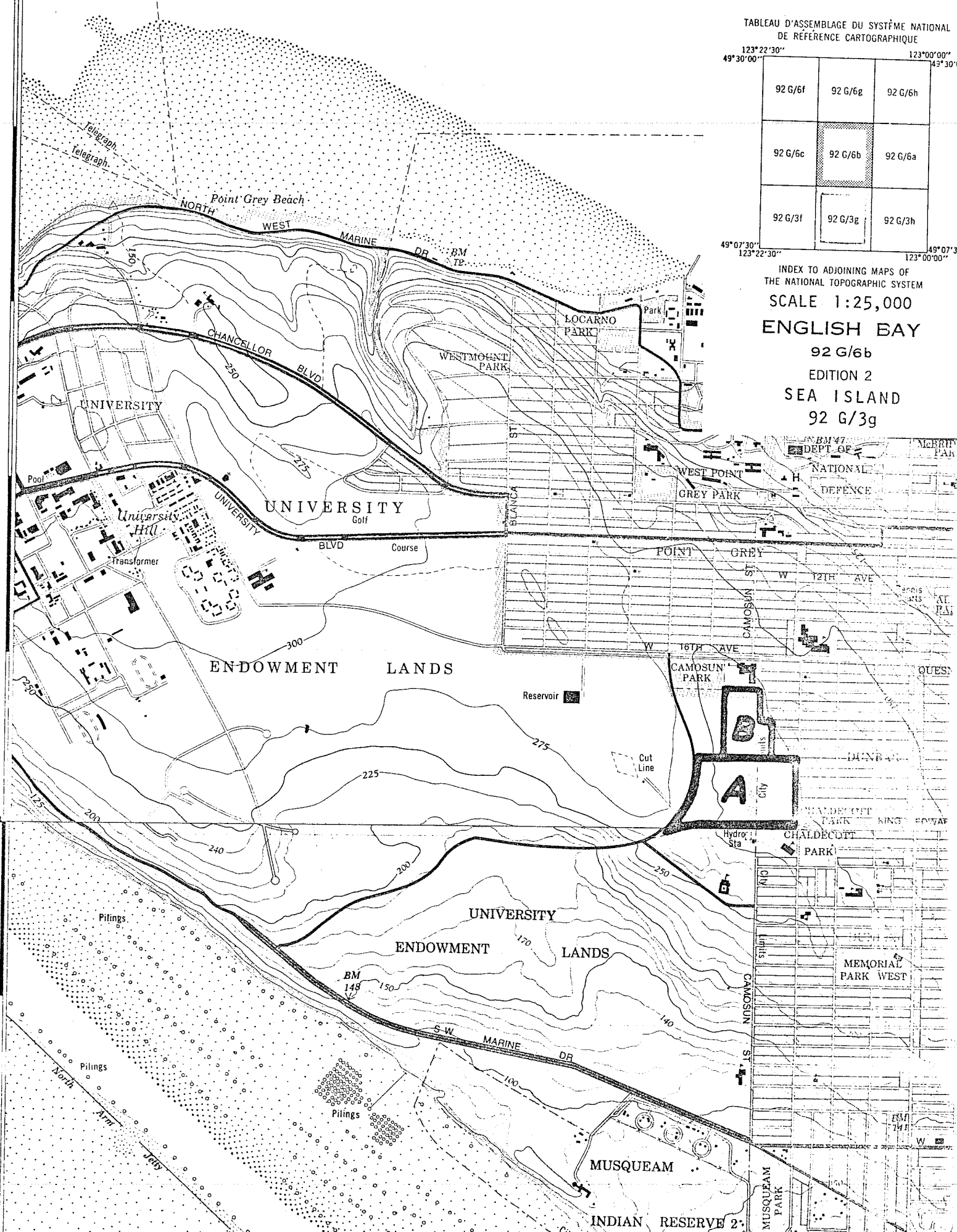


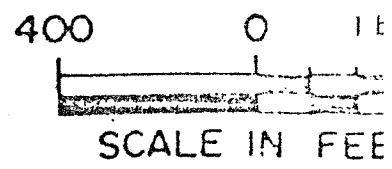
\* For "IBP Area", read IBP Area and/or IBP Subdivision.

TABLEAU D'ASSEMBLAGE DU SYSTÈME NATIONAL DE REFERENCE CARTOGRAPHIQUE

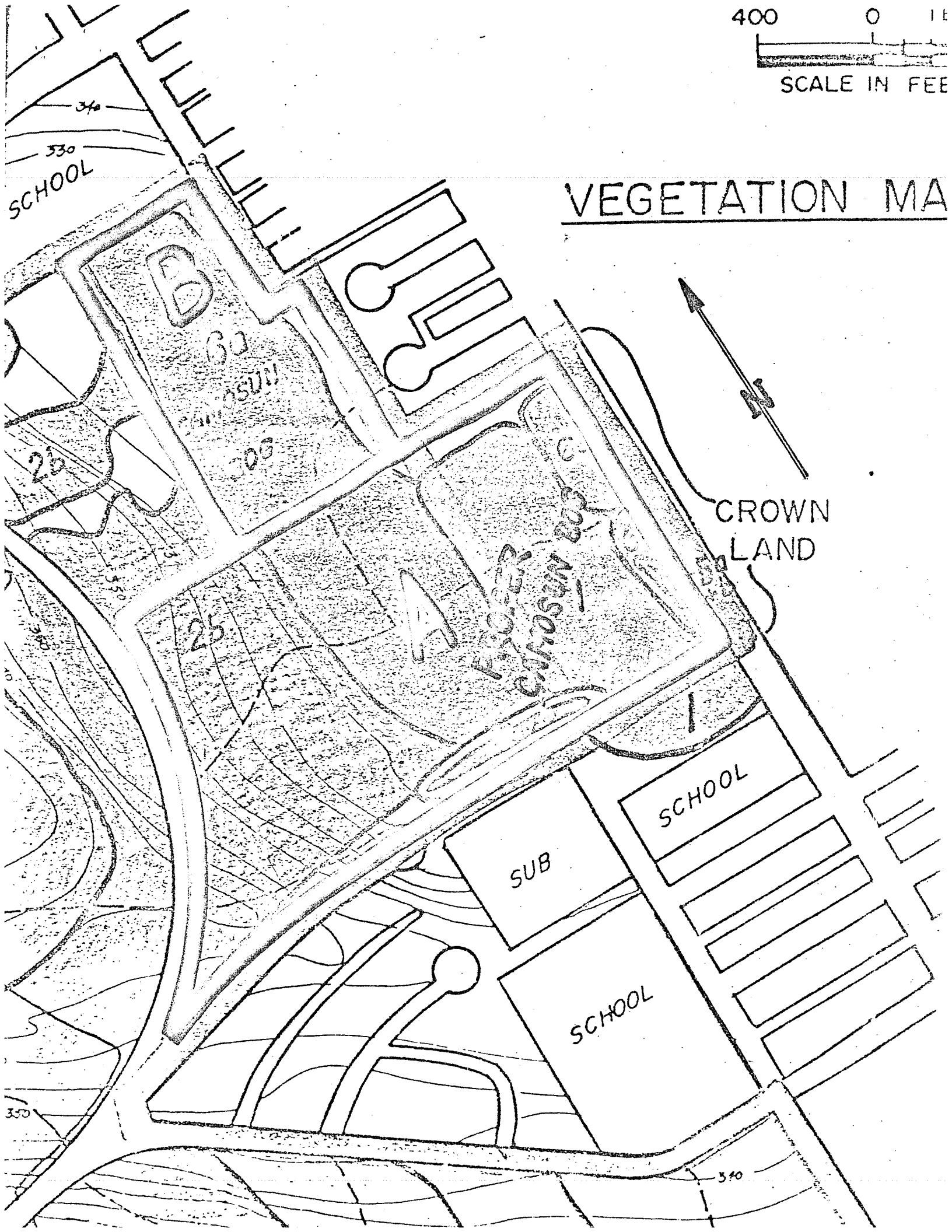
123°22'30"			123°00'00"		
49°30'00"			49°30'00"		
92 G/6f	92 G/6g	92 G/6h	92 G/6c	92 G/6b	92 G/6a
92 G/3f	92 G/3g	92 G/3h			
49°07'30"			49°07'30"		
123°22'30"			123°00'00"		

INDEX TO ADJOINING MAPS OF THE NATIONAL TOPOGRAPHIC SYSTEM  
 SCALE 1:25,000  
**ENGLISH BAY**  
 92 G/6b  
 EDITION 2  
 SEA ISLAND  
 92 G/3g





# VEGETATION MA



3. Location of IBP Area\*

1. Latitude..... 49° 14.97-15.4' N Longitude..... 123° 11.55-12.2' W  
 2. Country ..... Canada  
 State or Province ..... British Columbia County ..... Vancouver  
 (State or Province ..... County .....)

4. Administration

National 1. Official category ..... Crown Land and U.B.C. Endowment Land  
 2. Address of administration ..... B.C. Department of Environment  
 Land Management Branch  
 Parliament Buildings  
 Victoria, B.C., V8V 1X5

International Class

Included in U.N. List	Rejected from U.N. List	Area with formal conservation status	No formal cons. status
(A)	(B)	(C)	(D) X

5. Characteristics of IBP Area\*

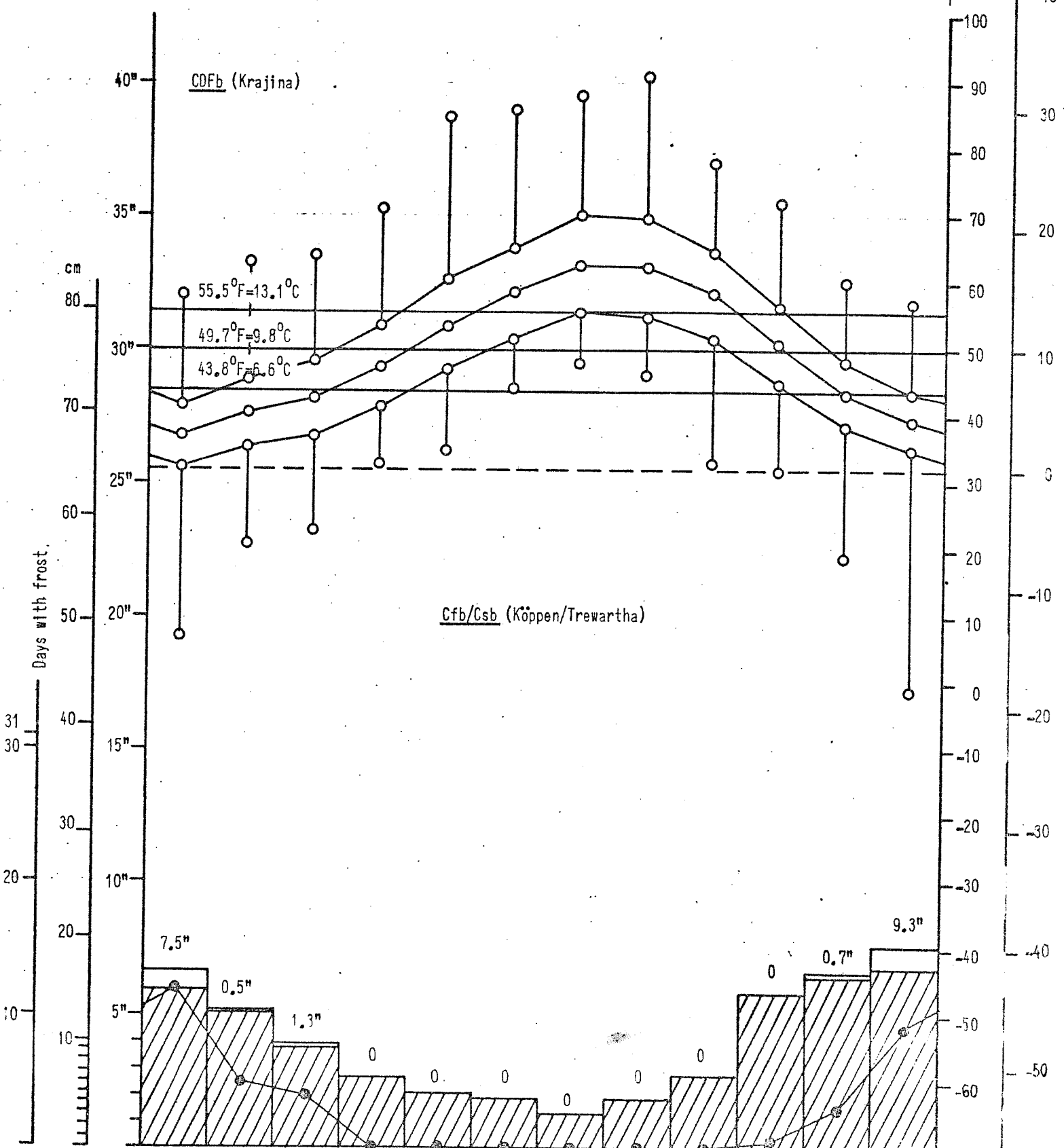
1. Surface area (state units of measurement) ..... 63 acres  
 2. Altitude (state units of measurement) Maximum ..... 85 m (280')  
 Minimum ..... 85 m (280')

6. Climate

Nearest climatological station : Cfb/Csb (after Köppen/Trewartha)  
 1. Name ..... Vancouver, U.B.C.  
 2. Climatological station on IBP Area\*? Yes ..... No ..... X  
 3. If (2) not, distance from edge of IBP Area\* (state units) ..... 2 mi.  
 4. Direction from IBP Area\* ..... West  
 5. Additional data sheet attached? Yes ..... X No .....  
 Vancouver, U.B.C.

Months above 50°F: 6, below 32°F: 0, A.M.T.P. 48.42", A.M.S.F. 19.3", snow % A.M.T.P.: 3.98, days with frost, yearly: 33.

E.MAX.T.	58	63	64	71	85	86	88	91	78	72	60	57
M.D.MAX.T.	41.5	45.2	48.0	53.6	60.2	65.2	70.0	69.5	64.7	56.3	48.0	43.4
M.D.T.	37.0	40.4	42.6	47.5	53.6	58.5	62.7	62.2	58.1	50.7	43.3	39.4
M.D.MIN.T.	32.5	35.6	37.1	41.4	46.9	51.7	55.4	54.8	51.5	45.0	38.6	35.3
E.MIN.T.	7	21	23	33	35	44	48	46	33	32	19	-1



Days with frost	12	5	4	0	0	0	0	0	0	*	3	9
M.M.T.P.	6.66	5.18	3.99	2.68	2.08	1.89	1.26	1.89	2.65	5.90	6.56	7.68
MONTH	IAN	FFR	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

7. Vegetation and Soil

1

Vegetation

Community Reference Number	Vegetation Code					Plant communities (give usual name using full Latin names of a species where applicable)	Area (state units)
	Primary Structural Group	Class	Group	Formation	Sub-Formation		
1	1	B	1	1	d	Sphagno (recurvi - squarrosi - subnitentis - papilloso - capillacei) - Oxycocco (microcarpi) - Vaccinio (myrtilloides - uliginosi) - Ledo (groenlandici) - Pinetum contortae	
2	1	A	2/1	1/7	-/a	Rhizomnio (perssonii) - Eurhynchio (praelongi) - Maianthemo (dilatati) - Lysichito (americanii) - Alno (rubrae) - Thujetum plicatae	
3	1	A	2	2		Maianthemo (dilatati) - Spiraeo (douglasii) - Malo (fuscae) - Populeto tremuloidis	
4	1	A	1	7	a	Plagiomnio (insignis) - Polysticho (muniti) - Sambuco (pubescentis) - Alno (rubrae) - Pseudotsugo (menziesii) - Thujetum plicatae	
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

Symbol on the map:

1

5

6

2b

The following major ecosystems may be easily recognized in the proposed ecological reserve area:

Symbol on the Map: 1

Lodgepole pine (*Pinus contorta*) - western hemlock (*Tsuga heterophylla*) - labrador tea (*Ledum groenlandicum*) - peat moss (*Sphagnum recurvum*, *S. squarrosum*, *S. subnitens*, *S. papillosum*, *S. capillaceum*) plant association is the major vegetation unit which should be conserved.

Its floristic structure contains very rare species, such as Alaska huckleberry or *Vaccinium alaskaense* (frequent in the wetter subzone of the coastal western hemlock zone or in the subalpine mountain hemlock zone), tall blue bilberry or *Vaccinium ovalifolium* (frequent in the subalpine mountain hemlock zone), Canada blueberry or *Vaccinium myrtilloides* (which is frequent in Canada, but missing in the U.S.A. in the Pacific Northwest), bog bilberry or *Vaccinium uliginosum* (which is occurring rarely and always in peat bogs), and red huckleberry or *Vaccinium parvifolium* (occurring commonly in mor humus especially along the coast).

If we include closely related and here frequent wild cranberry or *Oxycoccus microcarpus*, labrador tea or *Ledum groenlandicum* (very common here), fool's huckleberry or *Menziesia ferruginea* (here very rare but frequent in the subalpine zones), swamp laurel or *Kalmia polifolia* (frequent in bogs), and salal or *Gaultheria shallon* (frequent in the moderate climate along the coast), there are 10 significant representatives of heath family (Ericaceae) occurring here as native plants. This is a very rare case.

However, in this plant association the most significant is the occurrence of cloudberry (baked apple) or *Rubus chamaemorus*, which occurs also in Richmond area and at the Burns Bog in the Delta Municipality. Everywhere this plant is endangered and should be conserved at least in this potential ecological reserve. It is an excellent case of an arctic - subarctic element, remaining here since glaciation. It looks that it is sterile here.

Other plants, occurring in this plant association, are: cascara sagrada (*Rhamnus purshiana*), paper birch (*Betula papyrifera*), bunchberry (*Cornus canadensis*), false lily-of-the-valley (*Maianthemum dilatatum*) and bracken fern (*Pteridium aquilinum*).

The moss layer is characterized by peat mosses (*Sphagnum recurvum*, *S. squarrosum*, *S. subnitens*, *S. papillosum* and *S. capillaceum*; there used to grow also *S. tenellum*, which became extinct). Most of these peat mosses are struggling for their survival, because the area was drained (therefore, the drainage should be stopped immediately). Instead of them either *Stokesiella oregana*, *Dicranum howellii*, *Plagiothecium undulatum* and especially *Pleurozium schreberi* are getting more common. This is why western hemlock starts to grow here better, being associated with western redcedar (*Thuja plicata*). There used to grow some lichens on dead branches of lodgepole pine. These lichens disappeared as a consequence of growing air pollution.

Symbol on the Map: 5

Red alder (*Alnus rubra*) - western redcedar (*Thuja plicata*) - skunk-cabbage (*Lysichitum americanum*) plant association is only in fragmentary development here. However, it is associated with water parsley (*Oenanthe sarmentosa*) and loosestrife (*Lysimachia thyriflora*), which is not very common in British Columbia. Some willows (*Salix scouleriana*, *S. sitchensis* and *S. lasiandra*) are present together with Oregon crab apple (*Malus fusca*).

Symbol on the Map: 6

In a succession, from the skunk-cabbage plant association, another community develops, which is characterized by false lily-of-the-valley (*Maianthemum dilatatum*), hardhack (*Spiraea douglasii*), Oregon crab apple (*Malus fusca*) and especially aspen (*Populus tremuloides* var. *vancouveriana*).

Symbol on the Map: 2b

This plant association is the secondary stage of the sword-fern (*Polystichum munitum*) association, mainly with red alder (*Alnus rubra*), some Douglas-fir (*Pseudotsuga menziesii*), which poorly regenerated here, and with western redcedar (*Thuja plicata*) which is shade tolerant here. Vine maple (*Acer circinatum*) and bigleaf maple (*Acer macrophyllum*) are associated here with some flowering dogwood (*Cornus nuttallii*) and especially red fruited elderberry (*Sambucus pubens*). Thimbleberry (*Rubus parviflorus*), salmonberry (*Rubus spectabilis*) and trailing blackberry (*Rubus ursinus*) are common. The lists of plants in these last three communities, protecting the first one, are incomplete.



7.  
(cont.)

2

Soil

Community Reference Number	Soil type	Other notes
1	A      0	Peat Bog
2	AGC      P <sub>1</sub>	Gleysol with a thick Black Muck
3	AGC      P <sub>1</sub> /P <sub>2</sub>	Gleysol [with Black Muck (below) and Mor humus (above)]
4	ABC/AGC F <sub>5</sub> /P <sub>2</sub>	Gleyed Distric Brunisol
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		



9. Landscape

1. General Landscape (give brief description) flat plateau, slightly depressed

2. Relief Type

	Flat	Undulating (0)-200 m.	Hilly 200-1000 m.	Mountainous > 1000 m.	%
--	------	--------------------------	----------------------	--------------------------	---

Sharply dissected					
Gently dissected	100				100
Incised					
Skeletonised					
%	100				100%

3. Special landscape features (list) cumulose deposits (organic) in a small basin which was a small lake after the retreat of the continental ice

10. Coastline of IBP Area\*      NIL

1. Protected bays and/or inlets      Many       Few       None

2. Substratum. % of coast

Rock	Boulder Beach	Shingle Beach	Sand Beach	Shell Beach	Mud	Coral	Ice
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Physiography. % of coast

Cliffed	Sloping	Flat
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. Special Coastal Features (list) .....

5. Tide. Maximum range (state units of measurement) .....

6. Total length of coastline :

Less than 1 km.       1-10 km.       Above 10 km.

11. Freshwater within IBP Area\*

1.

	Permanent	Intermittent
General		
Standing		
Running		

2. Standing Water

	Permanent	Intermittent	Unproductive	Productive
Swamps	X			
Ponds				
Lakes				

3. Running Water

	Permanent	Intermittent
Springs, cold		
Springs, hot		
Streams		
Rivers		

4. Special freshwater features ..... This area was substantially drained.  
 The drainage should be stopped completely, if the site should  
 recover.

12. Salt and Brackish Water within IBP Area\* NONE

Salt Lakes	<input type="checkbox"/>	Lagoon	<input type="checkbox"/>	.....	<input type="checkbox"/>
Estuaries	<input type="checkbox"/>	Salt pools	<input type="checkbox"/>	.....	<input type="checkbox"/>

13. Adjacent Water Bodies (not within IBP Area\*)

1. Fresh  Lake  River  Stream   
 Fraser River

2. Salt and Brackish

Estuary	Salt lake	Salt pool	Lagoon	Ocean		
				X		

Georgia Strait

14. Outstanding Floral and Faunal Features

1. None .....

2. Fauna

	Species diversity	Abundance of individuals	Superabundance of individuals	Rare species	Threatened/Relict species	Spp. of biogeographical interest	Exceptional Associations	Breeding or Nesting Populations	Migrating Populations	Wintering Populations		
Mammalia		X										
Aves	X											
Reptilia		X										
Amphibia		X										
Pisces												
Insecta		X										

3. Names of main threatened, endemic, relict and rare species

.....

.....

.....

.....

.....

.....

.....

.....

4. Flora

	Species diversity	Abundance of particular species	Rare species	Threatened/relict species	Spp. of biogeographical interest	Exceptional associations	Outstanding specimens													
Angiospermae :																				
trees	X	X																		
shrubs	X	X																		
herbs	X	X																		
grass	X	X																		
Gymnospermae		X																		
Pteridophyta		X																		
Bryophyta		X																		
Lichens and Algae				rare because of the air pollution																

5. Names of main threatened, endemic, relict and rare species

Rubus chamaemorus, Vaccinium alaskaense, V. ovalifolium, V. uliginosum,  
V. myrtilloides, Populus tremuloides var. vancouveriana  
.....  
.....

15. Exceptional Interest of IBP Area\*

The only peat bog on the University Endowment Lands, containing the  
.....  
history of the forest development since glaciation. Rubus chamaemorus  
.....  
is here almost at its most southern distribution. The other locality,  
.....  
even further to the south, at Richmond bogs is also endangered.  
.....  
.....

16. Significant Human Impact

1. General : None in entire IBP Area\* .....  
 None in part of IBP Area\* .....  
 Impact on entire IBP Area\* ..... X

2. Particular

	Past impact	Present impact	Trend			
			Increasing	Decreasing	No change	No information
Cultivation					X	
Drainage			X			
Other soil disturbance			X			
Grazing					X	
Selective flora disturbance			X			
Logging					X	
Plantation					X	
Hunting					X	
Removal of predators			?			
Pesticides					X	
Introductions — plants			X			
Introductions — animals			?			
Fire	?				?	
Permanent habitation					X	
Recreation and tourism		?				
Research			X			

Drainage should be stopped. water table should be raised to reach the original level.

(Black bears and deer removed by hunting).

(Close to this area).

3. Additional details on each type of impact attached?

Yes ..... No ..... X

17. Conservation Status (required):

	Protection			Utilisation			Conservation Management			Permitted Research		
	none	partial	total	none	controlled	uncontrolled	none	to alter status	to maintain status	experimental	observational	prohibited
Flora			X	X					X		X	
Fauna			X	X					X		X	
Non-living			X	X					X		X	

18. References

- List major biological/geographical references for the IBP Area.  
Sheet attached? Yes ..... No ..... <sup>X</sup>
- List main maps available for the IBP Area.  
List attached? Yes ..... No ..... <sup>X</sup>  
92 G/6b (English Bay) (1:25,000)  
92 G/3g (Sea Island) (1:25,000)
- Aerial photographs for the IBP Area available?  
For whole area ..... <sup>X</sup> For part of area ..... None .....

19. Other Relevant Information

Such habitats are sometimes artificially formed in botanical gardens. The University of British Columbia Botanical Garden will benefit from the existence of this conserved area, that there will be no need of costly artificial creation of a peat bog, because this area, close to the Botanical Garden, will serve abundantly. However, there should be no attempt made to introduce some other bog plants into this area, because they would change the original floristic structure of vegetation. See additional information, p. 12.

Signed *Vladimir Krajina* *Jim Pojar*  
V.J. Krajina, G.E. Rouse, J. Pojar, J.B. Foster  
(Surveyor) *G.E. Rouse*



CAMOSUN BOGRATIONALE FOR INCLUSION IN AN ECOLOGICAL RESERVE

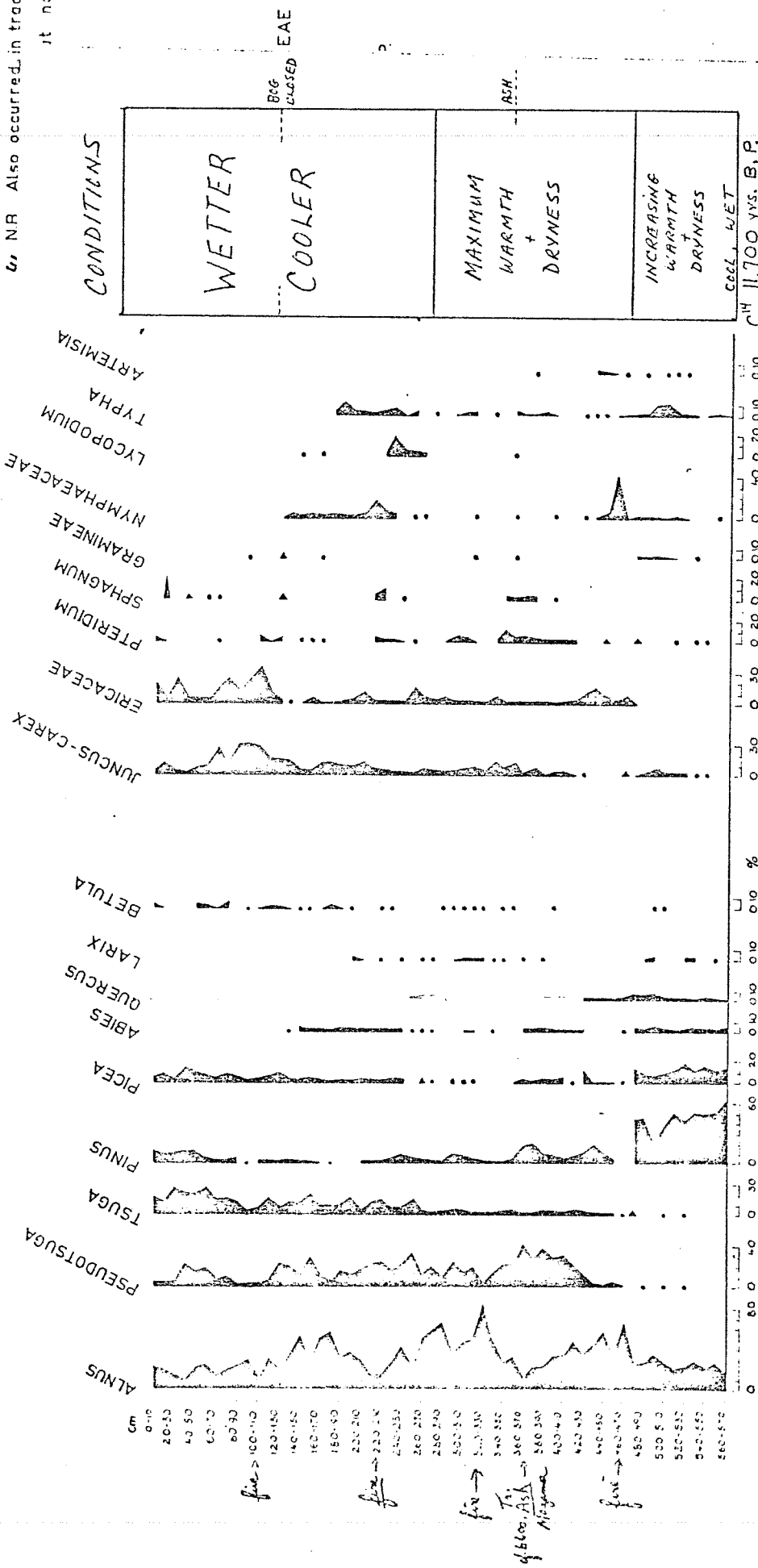
Camosun bog contains most of the vegetational and depositional history of the area, having started as a glacial depression following the melting of the last ice sheet. The basal peat overlies a fine clay at depths of 5½-6m., and has been dated by <sup>14</sup>C at 11,700±180 yrs.B.P. The peat profile shows a succession from a gyttja-sedge complex up to about the 250 cm. level, where it changes into a humic-sphagnum peat that becomes woody in upper layers. The peat types, together with the pollen profiles (see appended pollen chart), indicate a significant amount of open water until about 3000 yrs. B.P., when the area appears to have closed in. Since then, there has been a succession through sedge, heath, and sphagnum stages to the present day heath-sphagnum-pine association. It also shows the main climatic regimes for the postglacial interval in the coastal region.

With this long history, the bog represents the longest and most complete record of bog and surrounding vegetation and ecological succession in the Fraser River lowland. Also, it is the only known example of an open-water depression that closed in during later phases. As such, we consider it extremely valuable to preserve as an area for teaching, research and for demonstration to the public. Through suitable displays, it can also be used to demonstrate the effect of modern developments on vegetation of such a discrete area by altering drainage, landfill dumping, and introduction of weed species. With proximity to large numbers of students in the surrounding schools and at U.B.C., it will thus serve as an ideal area for studying the only example of our vegetational and climatic history in the Greater Vancouver Regional District.

*Glen E. Rose*

CHART I: POLLEN PROFILE OF CAMOSUN PEAT BOG

u, NR Also occurred in traces  
it not



ARBOREAL NON-ARBOREAL

Glen E. Rowe



24 Blackstone Street, Cambridge, Mass. 02139  
 Telephone TRowbridge 6-3691  
 6 April 1967

REPORT OF ANALYTICAL WORK  
RADIOCARBON AGE DETERMINATION

Our Sample No.: GX0904

Your Reference No.: Letter:  
 13 Jan 67

Sample Name: Camosun Peat bog, basal peat.

AGE = 11,780 ±160 C-14 years B.P.

Description: Wet peat.

Location: Camosun Peat bog, W end of 25th Avenue, Vancouver, Canada.

Occurrence: Basal peat, 515-520 cm., overlying fine gray-blue clay.  
 Est. 8000-9000 years old.

Collected: 13 January 1967 by G.E. Rouse.

Submitted by: G.E. Rouse, University of British Columbia, Vancouver,  
 Canada.

Comments: The peat was treated with hot dilute HCl to remove possible  
 carbonates prior to analysis.

Notes: This date is based upon the Libby half life (5570 years) for C<sup>14</sup>.  
 The error stated is ± 1σ as judged by the analytical data  
 alone. Our modern standard is 95% of the activity of N. B. S.  
 Oxalic Acid.

*Glen E. Rouse*